

# Central North Extension – Jellinbah Coal Mine

## Environmental Authority Amendment – Supporting Information

Prepared for:  
**Jellinbah Group Pty Ltd**

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## **LIST OF ABBREVIATIONS**

AARC	AustralAsian Resource Consultants Pty Ltd
AEP	annual exceedance probability
AMD	acid mine drainage
ANC	acid neutralising capacity
CHMP	Cultural Heritage Management Plan
CPP	coal processing plant
DNRM	Department of Natural Resources and Mines
E	Endangered
EA	Environmental Authority
EHP	(Department of) Environment and Heritage Protection
EIS	Environmental Impact Statement
EP	equivalent persons
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	<i>Environmental Protection Regulation 2008</i>
EPP (Air)	<i>Environmental Protection (Air) Policy 2008</i>
EPP (Water)	<i>Environmental Protection (Water) Policy 2009</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmentally Sensitive Area
GHG	greenhouse gas
GQAL	good quality agricultural land
ha	hectare(s)
JV	joint venture
km	kilometre(s)
LC	Least Concern
LP Act	<i>Land Protection (Pest and Stock Route Management) Act 2002</i>
MDL	Mineral Development Licence



ML	Mining Lease
MLA	Mining Lease Application
MSES	Matter of State Environmental Significance
Mt	million tonnes
Mtpa	million tonnes per annum
NAF	non acid forming
NAPP	net acid producing potential
NC Act	<i>Nature Conservation Act 1992</i>
NL	Not Listed
NT	Near Threatened
PAF	potentially acid forming
PAWHC	plant available water holding capacity
PCI	pulverised coal injection
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter of less than 2.5 µm
PM <sub>10</sub>	particulate matter with an aerodynamic diameter of less than 10 µm
RE	regional ecosystem
ROM	run of mine
SCA	Strategic Cropping Area
SMU	soil management unit
SWMP	Site Water Management Plan
TSP	total suspended particulates
V	Vulnerable
VM Act	<i>Vegetation Management Act 1999</i>
WQO	Water Quality Objective
µg	microgram
µm	micrometre





## 1.0 INTRODUCTION

---

AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Jellinbah Group Pty Ltd (Jellinbah Group) to prepare an Environmental Authority (EA) Amendment Application for the proposed Central North Extension (the Project<sup>1</sup>). This report provides the Supporting Information required for submission with the EA Amendment Application.

This Supporting Information document describes the proposed Project, identifies the environmental values of the Project site and potential impacts to these values, and outlines management strategies to mitigate or minimise these impacts.

### 1.1 JELLINBAH COAL MINE

The Jellinbah Coal Mine is located in the Bowen Basin in Central Queensland. The operational area of the existing mine is located approximately 24 kilometres (km) north-north-east of Blackwater and 190 km west of Rockhampton, within the Central Highlands Regional Council area. The Jellinbah Coal Mine encompasses 14 approved Mining Leases (MLs): ML 2418, ML 6992, ML 80140, ML 80184, ML 80068, ML 80129, ML 80018, ML 80053, ML 80108, ML 80165, ML 70445, ML 70448, ML 70449 and ML 70446. Jellinbah Coal Mine is currently authorised by EA EPML00516813, which took effect on 7<sup>th</sup> April 2015.

The Jellinbah Coal Mine is an open-cut coal operation, mining shallow, low stripping ratio coal reserves and producing approximately 4.5 – 5.0 million tonnes per annum (Mtpa) of pulverised coal injection (PCI) and a minor amount of thermal coal, primarily for export. The Project currently encompasses two operating mine areas – Jellinbah Central, operated by Jellinbah Group, and Jellinbah Plains, a contractor-run operation. Ongoing exploration is undertaken to continually assess the coal resource.

Overburden is drilled and blasted to provide access to the high-grade, low-ash, low-sulphur coal resource, which is extracted using conventional open-cut truck and excavator methods. Strip mining is used in areas where coal seam dip is less than 10 degrees (Central) and terrace mining in more steeply dipping areas (Plains). Coal seams are mined separately with partings selectively removed down to 150 millimetres (mm). Vegetation is cleared prior to mining and topsoil is selectively stripped for immediate reuse, or stockpiled for future use in rehabilitation. Overburden is initially used to form bunds, haul roads and hardstands or is transported to an out-of-pit spoil dump located clear of the coal resource. Most overburden is placed in-pit to backfill mined-out areas.

Run of mine (ROM) coal is crushed and screened, followed by washing (if required) at the coal processing plant (CPP) located at Jellinbah Central (ML 80053). Washery rejects produced at the CPP are disposed of with overburden and tailings in the mining voids. Raw and washed coal is transported by truck to the rail loading area east of Blackwater for rail transport to Gladstone.

#### 1.1.1 Approved Activities

The principal activities undertaken at the existing Jellinbah Coal Mine are:

- Mining of a high-grade coal;

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<sup>1</sup> For the purposes of this report, 'the Project' refers specifically to the Central North Extension. The existing mine to which the Project relates will be referred to as the 'Jellinbah Coal Mine'.



- Continuous assessment of the coal resource by exploration;
- Clearing of any remaining vegetation in advance of mining;
- Selective stripping of available topsoil under supervision to be immediately reused or stockpiled for future use in the rehabilitation program;
- Drilling and blasting of overburden to provide access to coal resources;
- Operation of a conventional open-cut truck and excavator mine to maintain production to meet market demands;
- Overburden used to form bunds, haul roads and hardstands or transported to out-of-pit spoil dumps located clear of the coal resource but within the boundary of the MLs or placed in the previous mining strip to backfill mined-out areas;
- Reshaping of spoil dumps, replacement of topsoil and revegetation of the mined out and backfilled area;
- Crushing and screening of ROM coal;
- Coal washing (if required) at the CPP, located on ML 80053;
- Disposal of CPP rejects together with overburden (coarse rejects) and tailings (fine rejects) within existing mining voids;
- Transport of crushed and washed coal by private road to the existing rail loading area for rail transport to Gladstone;
- Operation of water management infrastructure such as regulated dams, sediment ponds, drains and bunds;
- Ongoing staged construction of a levee bank at Jellinbah Plains to protect mining operations from flooding of the Mackenzie River;
- Utilisation of existing infrastructure facilities, including offices, power and water; and
- Continued direct and contract employment of operating workers and support personnel with flow-on employment through the provision of associated goods and services.

## 1.2 PURPOSE OF AMENDMENT

The purpose of the Central North Extension is to extend mining activities at Jellinbah Plains into new resource areas and expand the area available for dumping of spoil. No changes to the currently approved mining methods or production rates are proposed as part of the Project. Figure 1 indicates the proposed Project area in relation to the Jellinbah Coal Mine.

This EA Amendment Application pertains to the application for new MLs made by Jellinbah Group for the Central North Extension.



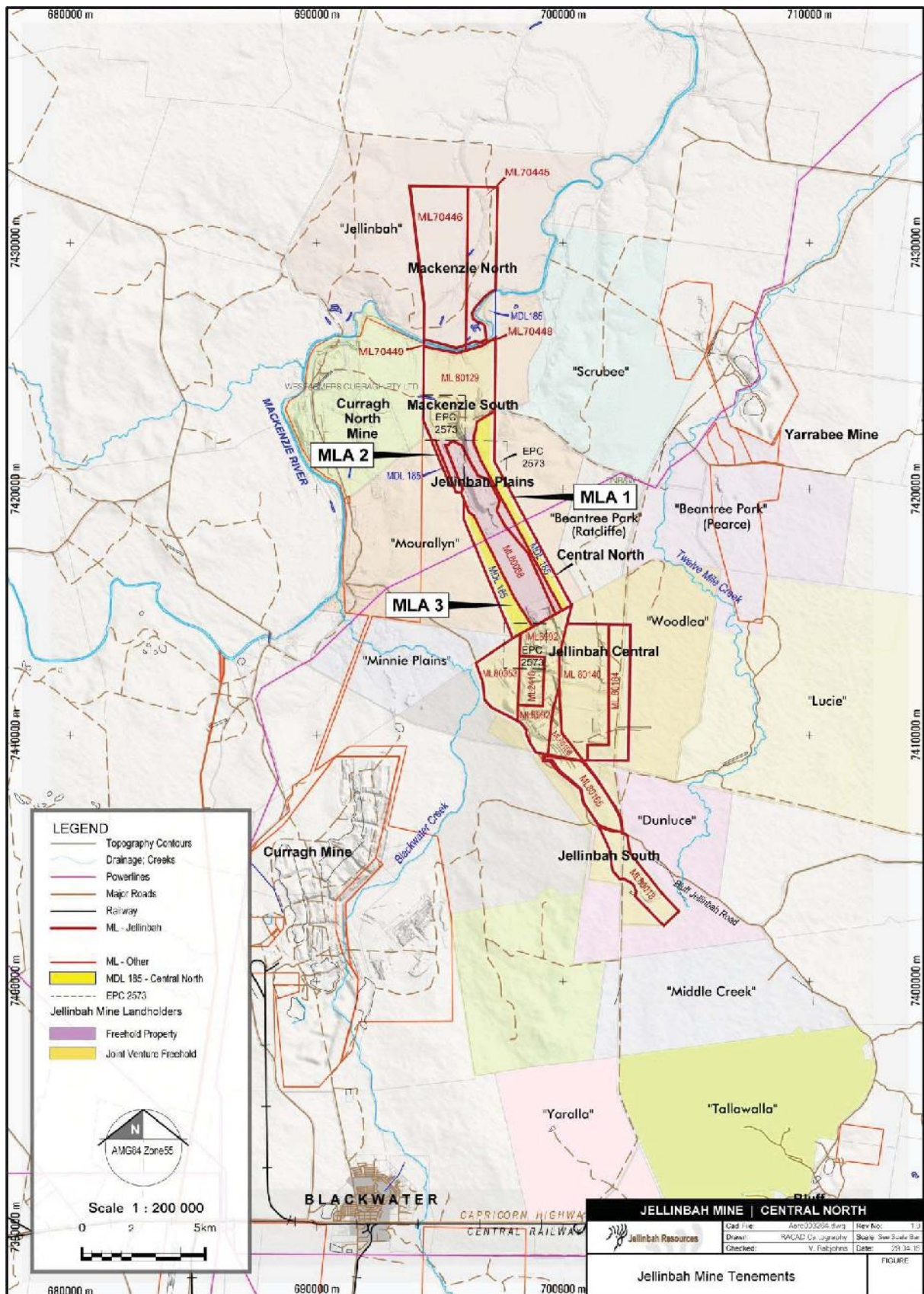


Figure 1 Central North Extension and the Jellinbah Coal Mine



## 1.3 STATE APPROVAL PROCESS

A pre-lodgement meeting was held with the Department of Environment and Heritage Protection (EHP) on 11<sup>th</sup> December 2014. Advice from EHP during the meeting indicated that the application would likely form a major amendment, with no EIS required.

During this meeting, it was agreed that an ecology survey of the proposed new ML areas would be required to properly assess the nature conservation values applicable to the EA Amendment Application.

For other environmental values, it was agreed that existing environmental studies combined with long-term site experience and comprehensive site management plans would likely be sufficient to assess and protect environmental values applicable to the Central North Extension.

### 1.3.1 Assessment Level Decision

It is anticipated that the Project will constitute a major amendment due to the addition of new resource tenures. The Project does not trigger the requirement for an Environmental Impact Statement (EIS) under the *Environmental Protection Act 1994* (EP Act) for the following reasons:

- No increase to currently approved production rates is proposed;
- No Category A Environmentally Sensitive Areas (ESAs) are present and limited impacts to Category B ESAs will occur; and
- No substantial changes to mining operations and/or the use of novel techniques are proposed.

In accordance with the requirements of the EP Act, the assessment process for a major amendment will include public notification of the application. This will occur simultaneously with the public notice for the resource tenure application. EHP will consider all properly made submissions in the decision stage.

## 1.4 REQUIREMENTS OF SUPPORTING INFORMATION DOCUMENT

In accordance with section 226 of the EP Act, this Supporting Information document includes the components described in Table 1.

**Table 1 EP Act Requirements for Supporting Information**

Component	Relevant Section(s)
Description of the Project.	Section 2.0
Description of the land that will be affected by the Project.	Section 2.1, 2.3, 2.4 Section 4.5
Description of any development permits in effect under the <i>Sustainable Planning Act 2009</i> for the carrying out of the relevant activity for the authority.	No development permits under the <i>Sustainable Planning Act 2009</i> are in effect for the Project.
Details of any changes to conditions identified in the authority as a standard condition.	No changes to standard conditions are proposed.
Assessment of the likely impact of the Project on	Section 4.0



Component	Relevant Section(s)
environmental values, including: <ul style="list-style-type: none"> <li>• Description of environmental values likely to be affected;</li> <li>• Details of any emissions or releases likely to be generated;</li> <li>• Description of the risk and likely magnitude of impacts on the environmental values;</li> <li>• Details of the management practices proposed to be implemented to prevent or minimise adverse impacts; and</li> <li>• Details of how the land the subject of the application will be rehabilitated after each relevant activity ceases.</li> </ul>	Section 3.0
Description of the proposed measures for minimising and managing wastes.	Section 5.0
Details of any relevant management plans.	Section 6.0



## 2.0 CENTRAL NORTH EXTENSION

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### 2.1 PROJECT LOCATION

The Jellinbah Coal Mine and proposed Central North Extension are located in the Bowen Basin in central Queensland. The operational area of the current mine is located approximately 24 km north-north-east of Blackwater and 190 km west of Rockhampton, within the Central Highlands Regional Council area. The mine incorporates two operating mine areas – Jellinbah Central, operated by Jellinbah Group, and Jellinbah Plains, a contractor-run operation.

The proposed Central North Extension area is located south of the Mackenzie River and adjacent to Jellinbah Plains within MDL 185. Figure 2 shows the regional location of the Project area and the Jellinbah Coal Mine.

### 2.2 PROJECT PROPONENT

The principal applicant for the Central North Extension is Jellinbah Group, acting on behalf of the Jellinbah East Joint Venture (JV), an unincorporated Australian JV. The beneficial owners of the JV are listed in Table 2. Jellinbah Group is the principal holder of all MLs and the EA associated with the Jellinbah Coal Mine.

**Table 2 Jellinbah East Joint Venture Participants**

Participant	ACN	Percent Share (%)
Jellinbah Group Pty Ltd	010 754 793	29.92
Marubeni Coal Pty Ltd	009 932 236	15.00
Sojitz Coal Resources Pty Ltd	063 050 680	15.00
Tremell Pty Ltd	010 949 774	40.08

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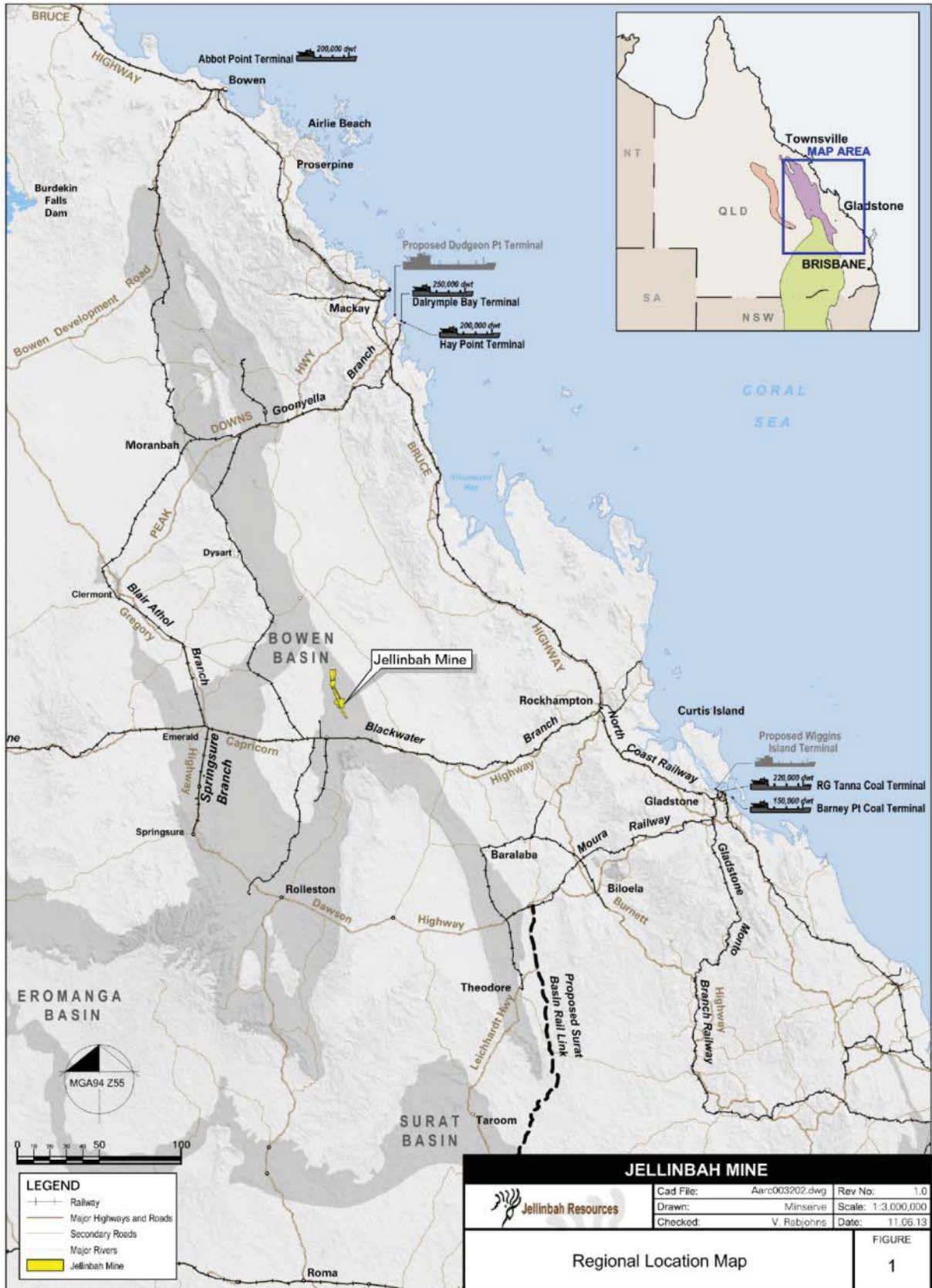


Figure 2 Regional Location of the Project and Jellinbah Coal Mine



## 2.3 MINING TENEMENTS

The Project intends to occupy three separate areas, requiring three Mining Lease Applications (MLAs), as shown in Figure 1. These areas are currently encompassed by MDL 185. Table 3 provides details of the proposed MLAs associated with the Central North Extension.

**Table 3 Central North Extension Tenements**

Tenement	Name	Holder	Status	Area (ha)
MLA 1	East	Jellinbah Group Pty Ltd	Application	445.7
MLA 2	North West	Jellinbah Group Pty Ltd	Application	25.8
MLA 3	South West	Jellinbah Group Pty Ltd	Application	333.5
<b>Total</b>				<b>805</b>

## 2.4 UNDERLYING AND ADJACENT TENURE

### 2.4.1 Resource Tenements

Existing resource tenements underlying MDL 185 and the proposed MLAs include Exploration Permits (Petroleum) (EPPs) and Exploration Permits (Coal) (EPCs). Details are provided in Table 4 and the locations of these tenements in relation to the Project are shown in Figure 3 and Figure 4.

**Table 4 Underlying Resource Tenements**

Tenure	Holder	Status	Lodge Date	Expiry Date
EPP 806	OME Resources Australia Pty Ltd	Granted	03/03/2003	30/04/2019
EPP 1025	Bow CSG Pty Ltd	Granted	04/08/2008	28/02/2021
EPC 2573	Jellinbah Group Pty Ltd	Granted	30/05/2011	03/03/2020
EPC 912	Bullock Creek Coal Pty Ltd	Granted	15/10/2004	28/03/2020





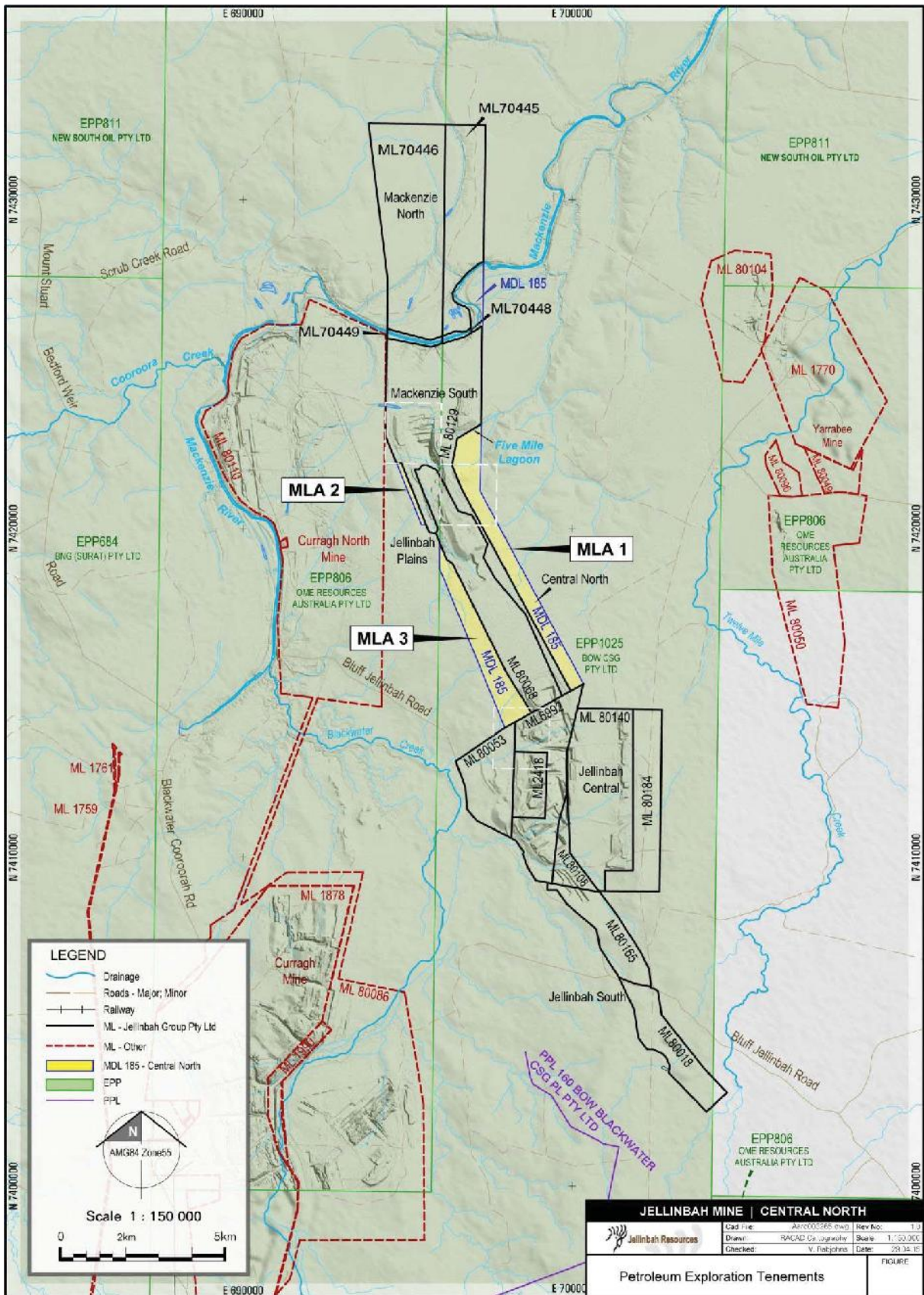


Figure 3 Underlying Resource Tenements – EPP





## 2.4.2 Real Property Descriptions and Sensitive Receivers

Properties underlying the Project site are detailed in Table 5 and shown in Figure 5. Table 6 provides details of the sensitive receivers located in the vicinity. Figure 6 shows the location of sensitive receivers in relation to the Project area.

**Table 5 Properties Underlying the Central North Extension Area**

Real Property Description	Tenure	Land Holder
6 LR94	Freehold	Peter John Dunne
100 SP230773	Freehold	Jellinbah East JV
14 RP885348	Freehold	Jellinbah East JV
2 SP213140	Freehold	Peter John Dunne
3 SP213140	Freehold	Jellinbah East JV

**Table 6 Sensitive Receivers**

Name	Real Property Description	Tenure	Easting	Northing	Receiver Type
Jellinbah 2	2TT422	Lands Lease	697166	7439113	Homestead
Jellinbah 1	3TT422	Lands Lease	688601	7429573	Homestead
Tarcoola	14LE801034	Freehold	704744	7434774	Homestead
Scrubee	1SP161090	Freehold	701320	7428091	Homestead
Mourallyn	6 LR94	Freehold	699755	7421158	Homestead
Barnett	3 TT286	Freehold	686668	7422143	Homestead
Bedford	7SP159655	Freehold	686967	7414631	Infrastructure
Woodlea *	14 RP885348	Freehold	703455	7410174	Homestead
	100 SP230773	Freehold			
Lucie	65 SP160573	Freehold	706284	7408548	Homestead
	66 SP160573	Freehold			
New Caledonia	10 SP224570	Freehold	696812	7407446	Homestead
Dunluce	13RP861407	Freehold	704915	7404307	Homestead
Top End	11SP147347	Freehold	699218	7398802	Homestead

Note: Coordinates are in MGA GDA 94, Zone 55. \* Jellinbah East JV is the landholder.



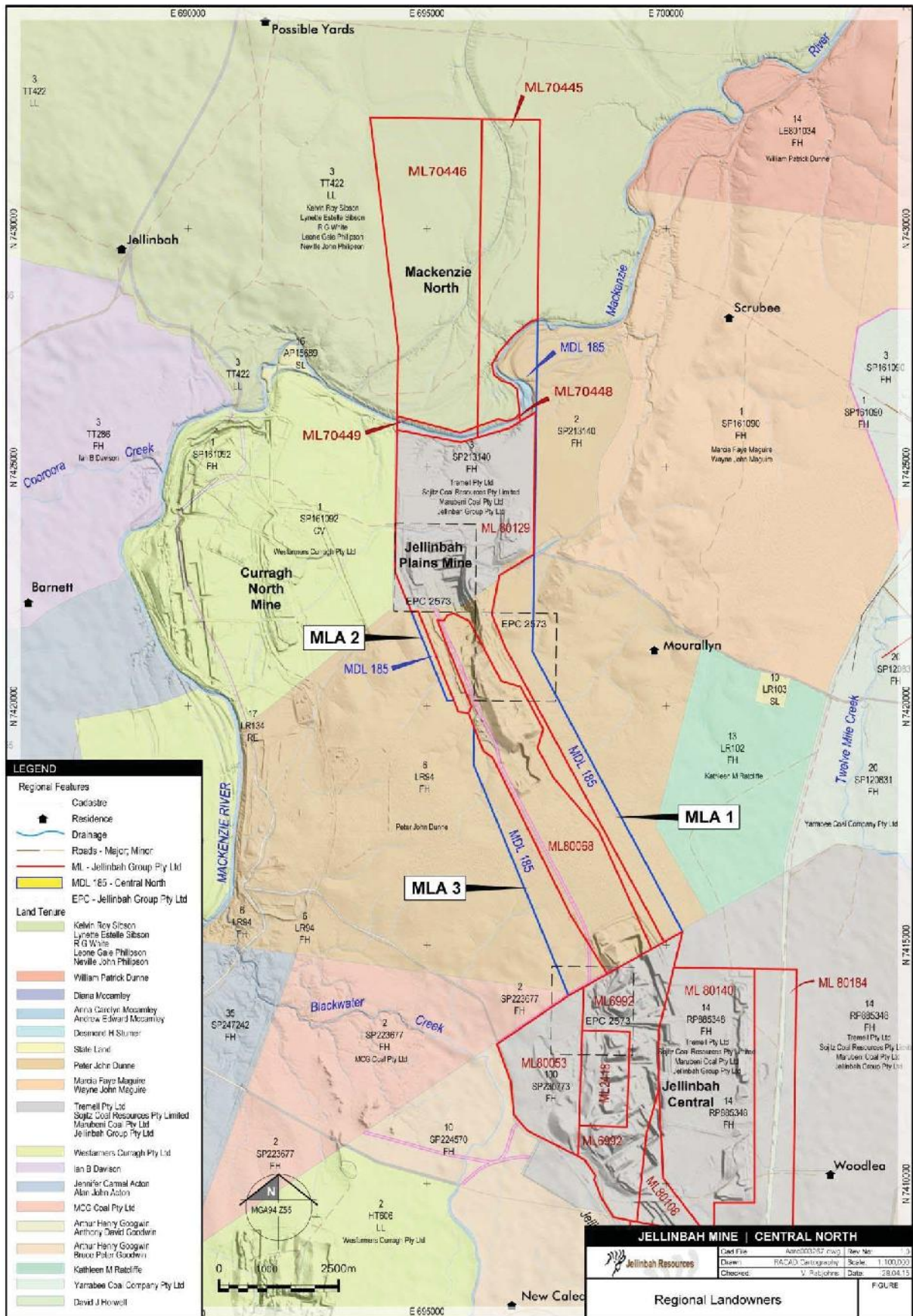


Figure 5 Land Tenure associated with the Project



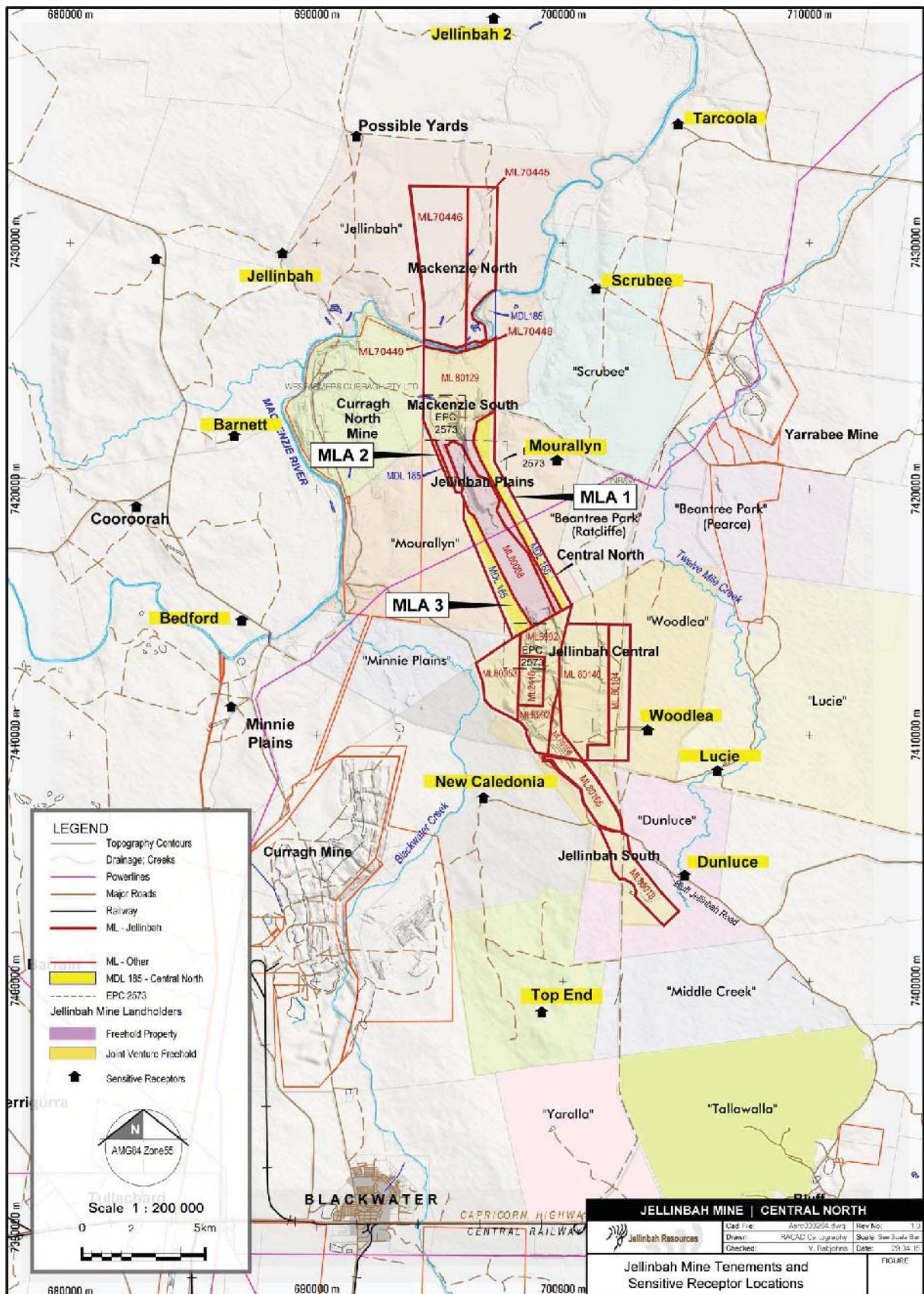


Figure 6 Sensitive Receivers associated with the Project



## 2.5 COAL RESOURCE

Economically viable coal resources have been identified in a long narrow section to the east of ML 80068, proposed as MLA 1 for the Project. Within MLA 1, coal seams occur in both the Rangal Coal Measures and Burngrove Formation. However, not all coal seams have reasonable prospects for economic extraction and not all are classified as coal resources. Measured, indicated and inferred coal resources, in accordance with the Joint Ore Reserve Committee's *Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves*, associated with the Central North Extension are detailed in Table 7.

**Table 7 MLA 1 in situ Tonnes and Indicative Quality: Estimated (March 2015)**

Resource Class	Seam	In situ Tonnes (1,000,000 t)	Ash (% adb)	TS (% adb)	Average Thickness (m)	In situ RD (t / m <sup>3</sup> )
Measured	PLXU	0	0	0	0	0
	PLXL	0	0	0	0	0
	<b>Total</b>	<b>0</b>	-	-	-	-
Indicated	PLXU	15.03	12.5	0.50	3.27	1.41
	PLXL	16.83	10.5	0.60	3.72	1.39
	<b>Total</b>	<b>31.86</b>	-	-	-	-
Inferred	PLXU	6.60	12.5	0.50	3.98	1.41
	PLXL	7.00	9.4	0.50	4.31	1.38
	<b>Total</b>	<b>13.60</b>	-	-	-	-
<b>TOTAL</b>	-	<b>45.46</b>	<b>11.3</b>	<b>0.54</b>	-	-

Source: Jellinbah Group 2015.

## 2.6 PROPOSED ACTIVITIES

The Central North Extension consists of two primary components:

1. The mining of coal at MLA 1, east of ML 80068, which has an estimated resource of 45.5 million tonnes (Mt) of PCI and minor amounts of thermal coal within the Rangal Coal Measures; and
2. The placement of overburden and topsoil in areas west of ML 80068.

Coal mining will only be conducted in MLA 1. The production life for the Central North Extension is anticipated to be greater than 20 years based on current economic assessment of the resource. Development of the Project will involve construction and operation of the following major elements:

- Open-cut mining excavations;
- Access / haul roads;
- Sediment dams for water management;
- Water management drains; and



- Topsoil stockpiling and spoil dumping.

### **2.6.1 Mining and Processing**

The Project intends to extract approximately 17 Mt of *in situ* coal located at a depth shallower than 150 m below the surface. The depth of coal to mine will be determined on an economic basis prior to the commencement of mining in this area. The Central North Extension is anticipated to augment the current production of the Jellinbah Coal Mine by an average of 1.0 Mtpa ROM coal in future years, thereby extending the mine's overall production life. No increase in mining or production rates is proposed for the Jellinbah Coal Mine, as a result of the Central North Extension.

The Project will involve open-cut mining using truck and excavator methods. Topsoil stripped prior to mining will be stockpiled for later use in rehabilitation. Overburden will be relocated from above the coal seams to in-pit dumps and out-of-pit spoil dumps located on site.

Coal mined from the Project will continue to be transported in trucks for processing using existing Jellinbah Coal Mine infrastructure. Product coal will be transported by rail to Gladstone Port along Aurizon's Blackwater rail line where it will be exported through the RG Tanna Coal Export Terminal.

Overburden placement on MLA 3 is scheduled to commence within the next two years. Coal mining in ML 80068 is not anticipated to commence until 2023, based on current the mine plans. Mining will progress down-dip into the proposed new mining areas in MLA 1 approximately five years thereafter.

### **2.6.2 Land Clearing**

Vegetation and topsoil are selectively stripped from the mine footprint areas for immediate reuse or stockpiled for subsequent rehabilitation prior to the development of open-cut pits, spoil dumps, haul roads or infrastructure. Scraper contractors are used for topsoil movement and general maintenance work.

Large vegetation is pushed first and windrowed alongside the area where topsoil will be stockpiled. Smaller vegetation and grasses are removed with the topsoil and stockpiled. Where necessary, stockpiles will be ripped and seeded to encourage water infiltration and prevent erosion. Topsoil is respread on surfaces to be rehabilitated as soon as possible to benefit from the viability of the topsoil seed bank.

A Topsoil Management Plan is currently in place for the existing mine and will be amended to incorporate the proposed Central North Extension prior to the commencement of activities in this area. Suitable topsoil is identified and recovered ahead of disturbance and is either directly used on existing disturbed areas to be rehabilitated, or stored in a way that preserves its quality to maximise its use in rehabilitation. The Topsoil Management Plan contains recommendations for topsoil stripping and storage.

### **2.6.3 Site Water Management**

The site water management system has been designed to adequately provide for the collection and controlled discharge of water from disturbed areas. This ensures that the quality and quantity of water entering the environment is maintained at acceptable levels.

A Site Water Management Plan (SWMP) has been developed for the Jellinbah Coal Mine and details control strategies for water quality and quantity, including the following:



- Isolate sub-catchments contributing to 'clean' and 'mine affected' runoff;
- Divert 'clean' runoff into the natural streams beside the MLs and MLAs by the use of bunds so that water does not enter the mine pits or infrastructure area;
- Direct all mine drainage leaving MLs and MLAs to freshwater storage dams for stock and wildlife, as well as back-up for use on the mine; and
- Design the system with maximum flexibility for ongoing staged development of the Jellinbah Coal Mine.

Sediment control is initially achieved by the use of sediment ponds, and subsequently by vegetation growth. A proportion of rainfall runoff from disturbed areas, related to the erodibility of the catchment and the ability of suspended solids to settle, is initially intercepted and directed to an appropriately-sized sediment dam. Use or transfer of the collected waste waters for a beneficial purpose within a reasonable time period will reinstate the required storage volume in preparation for the next storm event.

Water from the operational pits and sediment ponds will be reused within the mine, supplemented by a pipeline from the Bedford Weir, if required. This water is used primarily for dust suppression and vehicle washing. Water for the CPP is supplied from the tailings dam and a water storage located adjacent to the CPP.

All administration and office facilities are demountable units with waste water disposal using conventional in-ground systems.

### 2.6.3.1 Design Criteria

The design of Jellinbah Coal Mine's SWMP is based on the following criteria:

- A detention of 24 hours of runoff resulting from a 1 in 5 year storm for sediment dams and a 1 in 10 year storm for detention dams and the retention of all water pumped from the pit. During a storm greater than 1 in 10 years, the volume and turbidity of flow in Blackwater Creek and the Mackenzie River will be such that any contribution from the mine will be negligible;
- Structures such as channels, embankments and spillways with low risk of environmental harm in the case of failure, have been designed based on a 1 in 10 year storm event;
- Detention dams have been designed for a 1 in 10 year critical duration storm, with allowance for siltation;
- Main channels employed in the drainage channels are designed to be grass lined and maintain runoff flow velocities for a 1 in 10 year storm at <2.0 m/s as an absolute maximum and <1.5 m/s as a desirable maximum;
- Flood control levees at Jellinbah Plains and Mackenzie North are designed to prevent inundation of the pit and major disruptions to operations during a 1 in 1000 year design storm event; and
- No runoff from un-rehabilitated areas will pass off site without being routed through a detention dam.





Storage volumes are based on critical storm events or wet season rainfall as appropriate, while short-duration events control the dimensions of diversion drains and spillway structures. Duration of critical events is the time of concentration in the relevant sub-catchment.

The size of the settlement pond required for the mine affected runoff was determined from the maximum volume of runoff generated within a 24 hour period during the design storm. This volume will be equal to the volume of storage required to provide a detention time of 24 hours.

The probability of the design storm occurring when the storages are full from recent rain is high, considering monthly rainfall records, monthly evaporation and estimated monthly usage of water dust control. It is therefore important to ensure uniform flow through the basin by correct geometry and low inflow and outflow velocities, to avoid mixing of incoming mine affected water with outgoing clean water.

The dimensions of the incoming drains and outlets to the settlement ponds are based on the Q20 flow. While a Q20 flood will pass safely through the structures without overtopping, the detention time and effectiveness of sedimentation will be reduced for a storm greater than Q5.

### **2.6.3.2 Water Management Infrastructure**

The locations of the major settlement ponds at Jellinbah Coal Mine were selected to minimise conflict with future mining and to maximise the period for which they would service the mining operation. It is not anticipated that any further ponds will be necessary within the existing mining operation, although the occasional removal of sediment may be required to maintain the storage capacity. Pond depths will be checked during the dry winter months and cleaned out if necessary.

It is intended that water in the pits will be pumped out into drains, which will convey water to one of the holding ponds. No intermediate storages are necessary. This will be a minor drain as pumping rates of  $<0.1 \text{ m}^3/\text{s}$  are expected.

Additional water management infrastructure proposed as part of the Central North Extension includes several sediment dams and diversion drains to control surface water flow. Figure 7 illustrates additional water management infrastructure and drainage control on the Project site. The SWMP will be updated reflect these changes prior to commencement of the Project.

### **Freshwater Dams**

Freshwater dams are used for water supply and are designed to intercept mine site water, including discharge from the sediment dams. There are no discharge restrictions on water from these dams as they are designed to store only runoff from undisturbed catchments and acceptable runoff from sediment dams. These dams are permanent features of the property and will remain at mine closure.

### **Sediment Control Dams**

Sediment control dams act as sumps for sediment-laden runoff from the various disturbed catchments on the MLs, including spoil dumps. They are also used as water supply for watering of haul roads. The dams will be cleaned as required to maintain trap efficiency. These dams are to be a permanent feature of the property and will remain after completion of mining.

An additional nine sediment dams are proposed to be constructed on MLA 1 and MLA 3.



## **Voids**

Water accumulating in voids varies in quality (i.e. direct precipitation and runoff containing sediment). Where possible, surface water runoff is diverted from the voids using designed diversion banks during mine operations. Water in the pit is pumped to highwall ponds or the tailings dam and used as a source of water for haul road watering or CPP makeup water. Experience to date and geological drilling in the mining area indicates that groundwater inflow will not present a problem.

## **Diversion Banks**

All diversion banks on the site have been installed for catchment segregation purposes and have been designed to accommodate a 1 in 10 year, 24 hour rainfall event. Associated waterways have been designed such that the maximum flow velocity is <2.0 m/s.

## **Plains Levee**

A levee has been developed (staged construction) on the south side of the Mackenzie River to protect mining operations at Jellinbah Plains from inundation when the Mackenzie River is in flood. The levee has been designed to withstand a 1 in 1000 Annual Exceedance Probability (AEP) flood event in the Mackenzie River, consistent with the design of the proposed Mackenzie North levee and the upstream Curragh North levee.

No additional levees will be required for the Central North Extension.



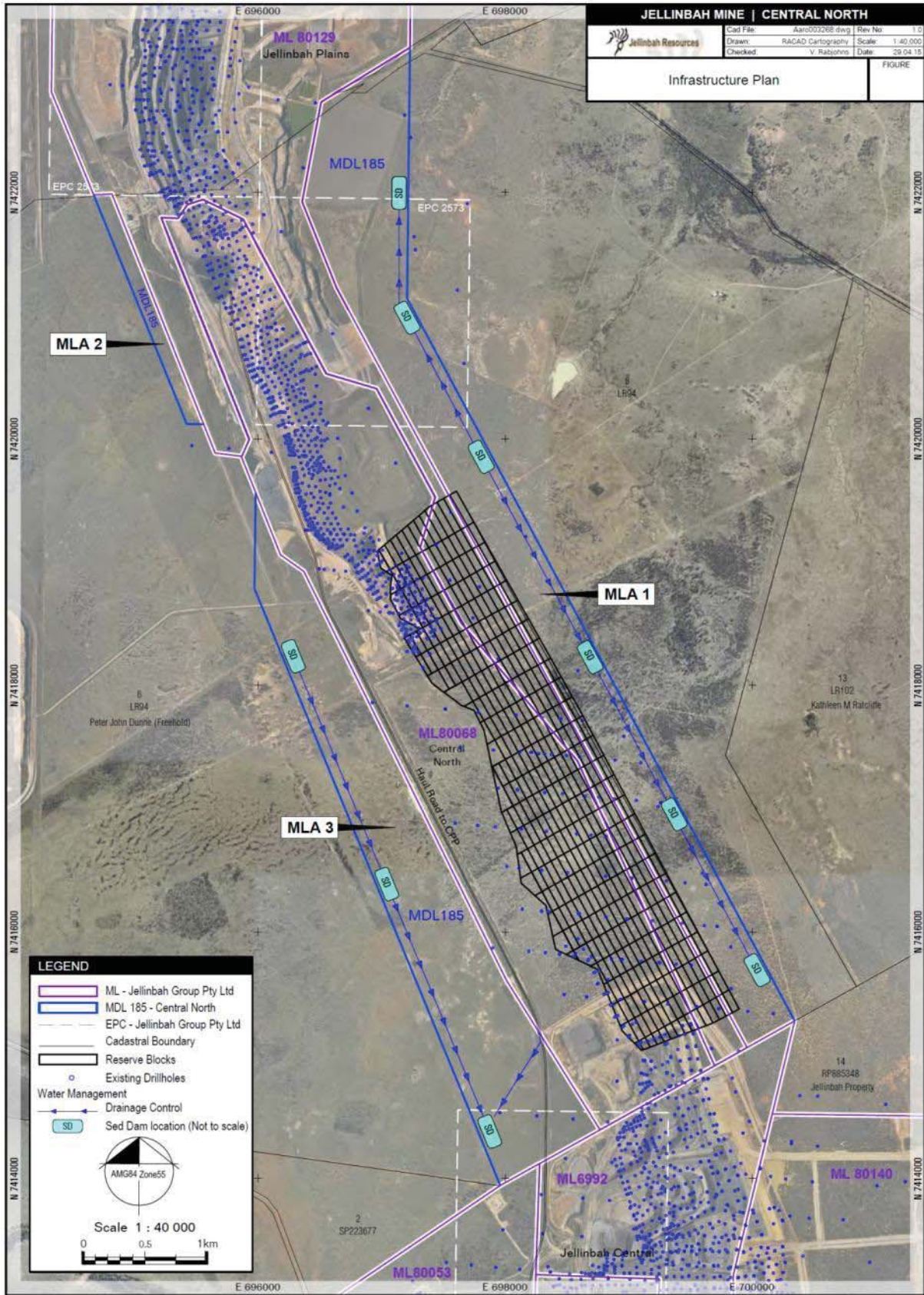


Figure 7 Water Management at the Central North Extension



## 2.6.4 Waste Management

The major waste streams produced by Jellinbah Coal Mine include domestic waste, sewage sludge, scrap steel, tyres, vehicle batteries, waste oil / solvents and oil and fuel drums. Treatment of each of these major waste streams is detailed in the Waste Management Plan. No changes to waste management practices are proposed by this Project.

Waste management includes the following:

- Domestic wastes (typically generated in the workshop and administration areas) are collected in the rubbish bins provided across the site and are regularly collected and disposed of by burial in the spoil.
- Sewage is managed by an onsite septic system operated by Jellinbah Group. As required, sewage sludge is collected and removed from the Project site for safe disposal by a licensed contractor. The sewage sludge is then disposed within a waste disposal facility licensed to accept regulated waste.
- Scrap steel is segregated into designated bins from where a licensed contractor collects the waste for recycling as required.
- Used fuel and oil drums are collected and stored in the vicinity of the workshop area. These items are also removed from site by a licensed waste management contractor as required.
- Disposal of tyres at the Jellinbah Coal Mine follows the principles outlined in the EHP (2012) *Operational Policy: Disposal and storage of scrap tyres at mine sites*. Waste tyres are segregated and stockpiled in an area adjacent to the workshop facility. Prior to the waste tyre stockpile reaching the maximum size recommended by the guideline, the tyres are transported to a mined-out area of the pit and buried.
- Vehicle batteries are segregated and stockpiled for collection by a licensed regulated waste transporter and recycled at a licensed facility.
- Waste oil is collected in purpose-built tanks and treated onsite at a waste oil treatment plant. Treated waste oil is mixed with diesel and reused in blasting activities. All remaining waste oil (from the treatment process and blasting activities) is collected and removed from the site by a licensed waste contractor for transport to a licensed recycling facility.

The septic system at the existing Jellinbah Coal Mine includes the following sewage collection and primary holding facilities (Table 8).

Jellinbah Group does not operate a camp, accommodation or kitchen facilities on site. Sewage is collected and directed to septic tanks. There are no sewage treatment works with a capacity greater than 21 Equivalent Persons (EP). The liquid overflow from the septic systems is discharged to the ground via soaking trenches and one small spray irrigation system.

**Table 8 Details of Existing Septic Tanks Associated with the Jellinbah Coal Mine**

Location of Septic Tanks	Approximate Size (L)	EP*	Actual EP
Office / Training Area	2,000	10	4.0
Central Workshop	1,000	5	2.0



Location of Septic Tanks	Approximate Size (L)	EP*	Actual EP
Central Muster Facility / Crib Hut	600	3	1.0
Electric Workshop	100	0.5	0.1
CPP	1,000	5	1.4
Plains Mining Area	2 x 2,000	20	8.0
Total	8,700	43.3	16.5

Note: \* EP (Equivalent Persons) in relation to sewage treatment, has the meaning given by Schedule 2, s.63 of the *Environmental Protection Regulation 2008*.

## 2.6.5 Infrastructure

### 2.6.5.1 Existing Infrastructure

Infrastructure currently existing or approved for construction at the Jellinbah Coal Mine includes:

- CPP;
- Private haul road for delivery of coal to the Boonal rail loader, which is located 10 km west of Bluff and 8 km east of Blackwater;
- Workshop, change rooms, store, first aid station and offices;
- Haul road and stockpile hardstands;
- Raw water storage;
- Water treatment and reticulation;
- Septic tanks;
- Mine affected water and settlement ponds;
- Tailings disposal facilities;
- Fuel storage;
- Water management infrastructure (levee); and
- Power reticulation / substation and switchyard.

### Power Supply

Power supply for the Jellinbah Coal Mine is sourced from a 22 kilovolt network supplied by Ergon Energy. Onsite generator sets will be used to supply the small amount of electricity where reticulation from the grid is not viable.

### 2.6.5.2 Project Infrastructure

The Central North Extension will require only minimal additional support infrastructure. Infrastructure requirements include haul roads, sediment dams, and diversion drains. Haul roads will be used to transport ROM coal to ROM stockpiles and overburden to spoil dumps. Sediment dams and diversion



drains, as discussed in Section 2.6.3.2, will direct the flow of water on the Project site to minimise the risk of environmental harm to the receiving environment. No regulated dams are proposed as part of this EA Amendment Application.

## 2.6.6 Workforce

Mining operations at the Project will not result in any material change to the workforce currently employed for existing Jellinbah Coal Mine operations. No changes to production or mining rates are proposed.

## 2.7 NOTIFIABLE AND ENVIRONMENTALLY RELEVANT ACTIVITIES

No additional notifiable activities will be conducted on the Project site as a result of the Central North Extension. Currently approved notifiable activities for the Jellinbah Coal Mine are detailed below:

- 1. Abrasive Blasting – Carrying out abrasive blast cleaning (other than cleaning carried out in fully enclosed booths) or disposing of abrasive blasting material.
- 6. Chemical manufacture or formulation – Manufacturing, blending, mixing or formulating chemicals if –
  - (a) the chemicals are designated dangerous goods under the dangerous goods code; and
  - (b) the facility used to manufacture, blend, mix or formulate the chemicals has a design production capacity of more than 1 t per week.
- 7. Chemical storage (other than petroleum products or oil) – Storing more than 10 t of chemicals (other than compressed or liquefied gases) that are dangerous goods under the dangerous goods code.
- 20. Landfill – Disposing of waste (excluding inert construction and demolition waste)
- 23. Metal treatment or coating – Treating or coating metal, including, for example, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and spray painting using more than 5 L of paint per week (other than spray painting within a fully enclosed booth).
- 24. Mine wastes –
  - (a) storing hazardous mine or exploration wastes, including, for example, tailings dams, overburden or waste rock dumps containing hazardous contaminants; or
  - (b) exploring for, or mining or processing, minerals in a way that exposes faces, or releases groundwater, containing hazardous contaminants.
- 29. Petroleum product or oil storage –
  - (a) operating a petrol depot, terminal or refinery; or
  - (b) operating a facility for the recovery, reprocessing or recycling of petroleum-based materials.



Similarly, there will be no changes to the currently approved environmentally relevant activities for Jellinbah Coal Mine, as described in Table 9.

**Table 9 Environmentally Relevant Activities**

ERA No.	Description	AES	Licence Fee
<b>Schedule 2 – Prescribed ERAs and aggregate environmental scores</b>			
ERA 8 – Chemical storage	Storing more than 500 m <sup>3</sup> of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c).	85	\$20,102.50
ERA 15 – Fuel burning	Using fuel burning equipment that is capable of burning at least 500 kg of fuel in an hour.	35	\$8,277.50
ERA 16 – Extractive and screening industries	Extracting, other than by dredging, in a year, the following quantity of material— more than 1,000,000 t.	57	\$13,480.50
	Screening, in a year, the following quantity of material— more than 1,000,000 t.	47	\$11,115.50
ERA 31 – Mineral processing	Processing, in a year, the following quantities of mineral products, other than coke—more than 100,000 t.	280	\$99,316
ERA 33 – Crushing, milling, grinding or screening	Crushing, grinding, milling or screening more than 5000 t of material in a year.	n/a	n/a
ERA 38 – Surface coating	Anodising, electroplating, enamelling or galvanising using, in a year, the following quantity of surface coating materials—1 t to 100 t.	10	\$2,365
ERA 60 – Waste disposal	Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a)—less than 50,000 t.	50	\$11,825
<b>Schedule 2A – Aggregate environmental scores for particular resource activities</b>			
ERA 13 – Mining black coal	Mining black coal.	128	\$45,401.60



## 3.0 REHABILITATION

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Significant negotiation with the underlying tenure holders has occurred throughout the life of the Jellinbah Coal Mine. Underlying tenure holders have requested that disturbed areas be rehabilitated such that the land supports the pre-mining land use of low-intensity grazing. This request has culminated in the development of a compensation agreement between the owners of the Jellinbah Coal Mine and the underlying landholders for specific MLs within the mine area.

EHP has approved the post-mining land use of the existing Project as predominately low-intensity cattle grazing. An identical post-mining land use is proposed for the Project area. Suitable decommissioning and rehabilitation strategies, outlined in Section 3.2, will be employed to achieve the post-mining land use objectives.

A Final Landform and Rehabilitation Management Plan has been developed and implemented for the Jellinbah Coal Mine, which will be updated to reflect the addition of the Central North Extension. Rehabilitation strategies and methods were developed in accordance with *Guideline: Rehabilitation requirements for mining resource activities (EM1122)* (EHP 2014) and *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995).

No change to the rehabilitation objectives or strategy is proposed by this EA Amendment Application.

### 3.1 REHABILITATION GOALS

Rehabilitation goals for the Jellinbah Coal Mine and Central North Extension are to create an environment that is:

- Safe to humans and wildlife;
- Non-polluting;
- Stable landform; and
- Sustains the agreed post mining land use.

A Final Landform and Rehabilitation Management Plan has been prepared for the existing mining operation to provide a clear strategy for the achievement of conditions set out in the EA. The scope of the plan is to provide:

- Specific rehabilitation objectives;
- Identification of the indicators that will be measured to establish when rehabilitation is complete, by reference to specific completion criteria. Indicators may be different for different parts of the land that have different types of disturbance;
- A description of the final landform design and rehabilitation methods for each disturbance type listed in the EA;
- Revegetation completion criteria for each disturbance type; and
- A rehabilitation monitoring program.





The Final Landform and Rehabilitation Management Plan will be updated to incorporate the Central North Extension prior to the commencement of activities in this area.

### 3.2 REHABILITATION OBJECTIVES

In order to achieve the described rehabilitation goals for the site, specific rehabilitation objectives have been developed for each disturbance type. The final landform objectives for each disturbance type on the Jellinbah Coal Mine and Central North Extension are described in Table 10.

**Table 10 Final Land Use and Rehabilitation Approval Schedule**

Disturbance Type	Projective Surface Area (ha)	Post Mining Land Description	Post Mining Land Use	Post Mining Land Suitability Classification
Infrastructure	424	Endemic pasture species	Low intensity cattle grazing	5
Levee Bank	86			5
Haul Roads	218			4
Topsoil stripped	300			3
Spoil areas (<10% slope)	2266.3			4
Spoil areas (>10% slope)	2313.3	Endemic pasture species	Endemic vegetation community	5
Dams	50	Water containment	Water containment	5
	55	Pasture species	Low intensity cattle grazing	
Final Voids	681	Water containment	Water containment	5
Anabranh Diversion	140	Endemic pasture species with a native species over-storey	Corridor conservation	5
Three to Five Mile Lagoon drainage line	n/a			

### 3.3 REHABILITATION STRATEGY

Rehabilitation strategies for domains relevant to the proposed Project have been outlined below. The strategies are unchanged from existing approved rehabilitation strategies for the Jellinbah Coal Mine.

#### 3.3.1 Residual Voids

Final voids will remain as valuable landforms for water storage, wildlife habitat and possible recreation. The use of the final void as a sediment dam provides a mechanism for reducing any impacts of mining on the river system. Runoff from the Project site can be channelled into the final void, allowing sediment loads to accumulate in the void rather than entering the river system. Where the final void is



located away from a creek, its use as an active water storage structure is limited. However, if the final void can be located where surface flow can be directed into the void, its use as a water storage structure is possible and will be investigated.

Final voids will be left in a safe condition by constructing a safety bund wall around each void from competent rock and/or fencing, depending on the terrain, to limit human and livestock / animal access. The safety bund wall will be constructed as described in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995). This guideline states that the bund wall should be a minimum height of 2 m, with a minimum base width of 4 m and be located at least 10 m beyond the area potentially affected by any instability of the pit edge.

Prior to relinquishment, a report will be prepared and will include the following:

- The intended final land use for final voids (including those containing tailings);
- Void water quality consistent with the post-mining land use;
- Geotechnical and hydrological landform stability;
- Self-sustaining vegetation cover attributes; and
- Objective measures to determine when outcomes are achieved.

### **3.3.2 Spoil Dumps**

The outer batters of the spoil dumps will be re-profiled to a maximum slope of 17%. The upper surface of these out-of-pit spoil landforms will be internally draining at an overall slope of less than 5%. A system of ponds will be constructed across the upper surface of the spoil dumps to capture rainfall runoff from a nominal 10-year design AEP storm with six hours duration.

Topsoil will then be spread over the re-profiled landform and the area deep ripped using the rear tines of a bulldozer. Improved pasture will then be planted into this freshly ripped landform. Once established, the area will then be available for low-intensity cattle grazing. This rehabilitation technique has been successfully employed at the mine site for several years.

Some spoil dumps are also required to contain spoil which will not be contained by the in-pit dumping. The locations of these spoil dumps have been determined to mitigate potential environmental impacts. Spoil dumps will be re-profiled to safe and stable final landforms as part of ongoing rehabilitation activities.

The locations of the spoil dumps are also based on their proximity to the pit. This reduces haulage costs, thereby maximising the economic resource, greenhouse gas emissions from haul trucks transporting the spoil to the spoil dump, dust emissions from transport and water consumption required for dust suppression over these shorter haulage distances.

### **3.3.3 Access Roads**

Access roads required for landholder access, grazing or other land use activities will not be rehabilitated. This will be confirmed by written agreement with the landholder. Roads that can be rehabilitated will be deep-ripped and, if necessary, seeded with a mix of pasture grass and tree species.



### 3.3.4 Dams

Dams will be left for the use of the landowners following relinquishment of the lease or, where this is not appropriate, decommissioned and rehabilitated. If water quality does not meet appropriate standards for the post-mining land use, the dams or ponds will be decommissioned. Planned rehabilitation activities include progressive revegetation of embankments and provision of permanent access for wildlife and stock. Existing site dams are already extensively used by stock and wildlife.

## 3.4 REHABILITATION MONITORING

The following procedure for monitoring rehabilitation success has been adopted at the existing Project. The method is as outlined in *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995). This procedure has been used at Jellinbah Coal Mine and other sites for a number of years.

The step transect method is employed to estimate cover at systematic points along a transect. This involves walking along a fixed path and noting the cover category at the point at the tip of the boot. The cover category is assessed at every step (data point) along the transect. Cover is classified according to the following categories:

- Bare Soil – any area that does not contain vegetation (except roads). This includes any soil that is eroded. Rocks are also classified as bare soil;
- Grass (Basal and Aerial Vegetation) – These two categories are defined by the appearance of the grass at the tip of the boot. Where the vegetative cover at the point is the base of the plant, it is classified as basal vegetation. Where the ground at that point is under the canopy of the vegetation, it is classified as aerial vegetation. Dead grass is classified as litter. Where grass growth is too dense to see the top of the boot, the point is classified as basal grass;
- Shrub – small non-grass plants. The most common species are *Enchylaena tomentosa*, *Atriplex muelleri* and *Salsola kali*. As the grass cover increases these plants diminish and with the thickening of the grass it is difficult to discern these plants; and
- Litter – Dead grass or other non-living plant matter.

The Rehabilitation Monitoring Program will be amended to include the Central North Extension area prior to the commencement of operations in this area.

## 3.5 REHABILITATION ACCEPTANCE CRITERIA

Monitoring of rehabilitated areas will include areas undergoing rehabilitation, areas already rehabilitated and topsoil inventories. Revegetated areas will be monitored annually until the rehabilitation acceptance criteria have been met for three consecutive years.

Rehabilitation acceptance criteria have been determined with regard to the results of rehabilitation monitoring throughout the life of the mine, as well as relevant standards and guidelines. Rehabilitation acceptance criteria for the existing Jellinbah Coal Mine have been prepared and submitted to EHP.

Land within the boundaries of the MLs not required for mining activities will remain undisturbed and will retain the original land use after mining. Disturbance areas at the existing mine are deemed to be successfully rehabilitated when:



- Slopes of each land suitability type achieve the outcomes defined in Table 11;
- Maximum slope length for slope angles meets the criteria in Table 12;
- Basal vegetation cover of pasture grass species achieve 30% for Classes 4 and 5 and 50% for Class 3, as defined by the heel-toe method;
- Declared plants (noxious weeds) are managed in accordance with the requirements of the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act);
- Density of declared plants (noxious weeds) is no greater than the density of adjacent areas used for grazing;
- Rehabilitated areas are not subject to excessive erosion including colonisation of rills and gullies;
- All spoil placements are contained within the MLs;
- The mass stability of the rehabilitated landform, monitored using successive aerial photography, indicates that overall landform subsidence and movement is negligible;
- Runoff water quality is <1,000 µs/cm and pH is in the range 6.5 – 9.0;
- Disturbed areas are rehabilitated with pasture grass species suitable for grazing;
- Self-sustaining vegetation cover can be maintained;
- There is evidence of seeding and recruitment;
- The species established are suitable for light grazing;
- Stocking rates will be maintained at no greater than 2 head/ha;
- The high and low wall of final voids will be protected by an earthen diversion bund with a 1 in 100 year design capacity to prevent uncontrolled water ingress;
- Final void slopes at the low wall will be revegetated with pasture grass species; and
- Maintenance requirements are consistent with the proposed post-mining land use of grazing.

**Table 11 Slope Acceptance Criteria**

<b>Disturbance Type</b>	<b>Slope Range (% or °)</b>	<b>Projective Surface Area (ha)</b>
Infrastructure	<10%	422
Haul roads	<5%	218
Topsoil stripped	<10%	300
Slopes of final void in competent rock	<70°	649
Spoil areas	<17%	4033



**Table 12 Landform Design Acceptance Criteria**

<b>Slope Angle (%)</b>	<b>Vertical Height (m)</b>	<b>Maximum Slope Length (m)</b>
20	10	50
15	20	133
10	22	220
5	26	520
3	28	900



## 4.0 ENVIRONMENTAL VALUES, IMPACTS AND MANAGEMENT STRATEGIES

### 4.1 AIR

A desktop assessment was conducted to estimate the likely risk and magnitude of air quality impacts to sensitive receivers. The following reports were reviewed:

- *Air Quality Assessment of the Mackenzie North Project* (Katestone Environmental 2013); and
- *Mackenzie South Project: Air Quality Impact Assessment* (Pacific Air & Environment 2006).

The likelihood of increased impacts on sensitive receivers was assessed using existing understanding of air quality emissions and long-term operating experience at the Jellinbah Coal Mine.

#### 4.1.1 Description of Environmental Values

Air quality in the vicinity of the Project is typical of a rural environment with a prominent resource industry. Existing sources of emissions affecting the quality of the air environment include:

- Pastoral and agricultural activities;
- Resource development, particularly the Jellinbah Coal Mine, Curragh Mine and Yarrabee Mine; and
- Vehicle use on sealed and unsealed roads and highways in the vicinity of the Project.

These activities result in the emission of dust and particulate matter, as well as releasing hydrocarbons to the atmosphere. Ambient air quality, as described by Katestone (2013) is provided in Table 13.

**Table 13 Ambient Air Quality**

Indicator	Background Concentration	Averaging Period
Dust deposition	43 mg/m <sup>2</sup> /day	One year
PM <sub>2.5</sub>	2.3 µg/m <sup>3</sup>	24 hours
	2 µg/m <sup>3</sup>	One year
PM <sub>10</sub>	20 µg/m <sup>3</sup>	24 hours
Total suspended particulates (TSP)	57.2 µg/m <sup>3</sup>	One year

Source: Katestone (2013)

#### 4.1.2 Potential Impacts, Emissions or Releases

The potential air quality impacts from the activities at the existing Jellinbah Coal Mine may include:

- Air emissions from diesel generators;
- Air emissions from company vehicles and heavy equipment;
- Dust from vehicle movements on unsealed roads;



- Dust from clearing activities;
- Dust generated from disturbed areas on the MLs, such as spoil dumps;
- Dust from blasting and mining of open cut pits; and
- Dust from materials handling and crushing on the MLs.

#### 4.1.2.1 Risk and Magnitude of Impacts to Environmental Values

##### Particulate Matter Emissions and Dust Deposition

Total dust generation at the Jellinbah Coal Mine is not expected to increase as a result of the Central North Extension, as no changes to mining or production rates are proposed. The Project proposes to extend mining and dumping activities into new areas directly adjacent to the approved MLs. This impact assessment therefore focuses on the change to emission source locations relative to the nearest sensitive receivers.

Dust particulates are the principal contributor to air quality impacts resulting from mining activities. Emissions of dust and particulate matter will arise from drilling, blasting and excavation activities in the pit, wind erosion of disturbed land and spoil dumps, transport of spoil, and vehicles travelling on unsealed roads (Pacific Air & Environment 2006).

##### *Jellinbah Coal Mine Particulate Matter Emissions and Dust Deposition*

Modelling conducted for the Mackenzie South air quality assessment determined that the greatest impacts would occur to the west of the site due to prevailing easterly/south-easterly winds (Pacific Air & Environment 2006). The assessment found that the Mackenzie South development resulted in negligible additional levels of TSP, PM<sub>10</sub> and dust deposition at sensitive receivers (Pacific Air & Environment 2006). Similarly, the air quality assessment of the Mackenzie North Project (Katestone 2013) found that all predicted concentrations were well below air quality objectives specified in the EA and the *Environmental Protection (Air) Policy 2008*.

##### *Assessment of Emission Source Locations Relative to Sensitive Receivers*

There are 12 sensitive receivers in the vicinity of the Central North Extension and Jellinbah Coal Mine. Table 14 provides an assessment of the likelihood and magnitude of air quality impacts at sensitive receivers, based on the distance and direction to the nearest pits and spoil dumps at the Central North Extension and Jellinbah Coal Mine.

Only one sensitive receiver (Mourallyn) will be closer to mining activities (pit excavations and spoil dumping) due to development of the Central North Extension. All other receivers will remain the same distance from current mining activities at the Jellinbah Coal Mine. For residences other than Mourallyn, it is reasonable to conclude that there will be no additional air quality impacts as a result of the Project.

The proposed Central North Extension mining operations are located approximately 470 m closer to Mourallyn than currently approved mining operations at Jellinbah Coal Mine. Based on existing mine operating experience, Jellinbah Group believes that air quality emissions can be managed to achieve compliance with the existing EA limits at this residence. Considering the Mourallyn homestead is located upwind of the predominant wind direction, the risk of significant dust increase as a result of the Central North Extension is low and manageable.



Further to this, a Compensation Agreement is in place between the owner of the Mourallyn property (Mr Peter Dunne) and Jellinbah Group, in which Mr Dunne has provided consent to Jellinbah Coal Mine's MLs. Due to the existing MLs located on the Mourallyn property, Jellinbah Group and Mr Dunne have worked closely over a long period of time, resulting in both parties having a high level of understanding of the impacts of each other's businesses.

Jellinbah Group maintains a Complaints Register for recording complaints pertaining to dust and particulate emissions at nearby residences. Where investigative monitoring finds that dust and particulate matter exceed the prescribed objectives, Jellinbah Group must address the complaint and immediately implement abatement measures.

Vehicular emissions throughout construction, operation and decommissioning will emit oxides of carbon, nitrogen and sulphur; however, these emissions are anticipated to be minor.

#### *Odour*

Mining activities on the Project site will not produce any significant odour. The only activities associated with the Jellinbah Coal Mine that have the potential to cause odour are the disposal of putrescible wastes and operation of septic treatment facilities. These activities are already conducted at the existing Jellinbah Coal Mine and the development and operation of the Central North Extension will not result in any material change to odour production. Given the slight increase in proximity of the nearest sensitive receiver to these existing activities, it is unlikely that additional odour nuisance will occur. There have been no complaints about odour nuisance from operations to date.

#### **Greenhouse Gas Emissions**

Sources of greenhouse gas (GHG) emissions associated with the Central North Extension are:

- Fuel consumption;
- Electricity consumption;
- Blasting;
- Fugitive methane emissions; and
- Land clearing.

Modelling for the Mackenzie North Project found that diesel combustion and fugitive methane emissions were the greatest contributors to Scope 1 and 2 emissions. As the Project will not result in an overall increase in mining or production rate of the existing mine, it is reasonable to conclude that no increase in GHG emissions will result from the Project.





Table 14 Air Quality Impacts at Sensitive Receivers

Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Air Quality Impacts
	Existing	Central North			
Jellinbah 2	15.01	16.53	NE	Existing	Proposed operations will be 1.5 km further away from Jellinbah 2 than current mining operations. Due to the current proximity of the receiver to the existing operations, and the distance to the proposed Central North operations, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.
Jellinbah 1	8.64	10.50	NW	Existing	Proposed operations will be more than 1 km further away from Jellinbah 1 than current operations. Due to the current proximity of the receiver to the existing operations, and the distance to the proposed Central North operations, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.
Tarcoola	13.35	14.67	NE	Existing	Proposed spoil dumps will be greater than 1 km further away from Tarcoola than current mining operations. The proposed operations are slightly further from Tarcoola than existing mining operations. Additional air quality impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.
Scrubee	6.08	7.24	NE	Existing	Proposed spoil dumps will be more than 1 km further away from Scrubee than current mining operations. The proposed operations are slightly further from Scrubee than existing mining operations. Additional air quality impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.
Mourallyn	3.01	2.54	E	Central North Extension	Mourallyn will be slightly closer to proposed Central North operations. Although the proposed pit and spoil dumps are slightly closer to Mourallyn (by approximately 467 m) than the existing pit and dumps, the difference is considered to be negligible, particularly for the spoil dump. Air quality management and mitigation strategies will be implemented to reduce



Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Air Quality Impacts
	Existing	Central North			
Barnett	<b>8.05</b>	9.67	W	Existing	<p>potential impacts at this receiver. Jellinbah Group has entered into a Compensation Agreement with the landowner of the Mourallyn property.</p> <p>The proposed Central North operations will be greater than 1.5 km further away from Barnett than existing mining operations. Additional air quality impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.</p> <p>The existing mining operations are slightly closer to the receiver by just under 1 km. Additional air quality impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.</p>
Bedford	<b>10.40</b>	11.35	W	Existing	<p>Proposed mining operations will be more than 4 km further away from Woodlea than current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.</p> <p>As the Woodlea property is owned and operated by the Jellinbah East JV, impacts at this receiver are not considered to cause nuisance.</p>
Woodlea *	<b>1.65</b>	6.23	SE	Existing	<p>Proposed mining operations will be greater than 4 km further away from Lucie than current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.</p>
Lucie	<b>4.67</b>	9.26	SE	Existing	<p>Proposed mining operations will be greater than 4 km further away from Lucie than current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.</p>



Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Air Quality Impacts
	Existing	Central North			
New Caledonia	<b>3.10</b>	6.92	SW	Existing	Proposed operations will be greater than 3 km further away from New Caledonia than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional air quality impacts at this receiver.
Dunluce	<b>1.71</b>	11.84	SSW	Existing	Proposed Central North operations will be more than 10 km further away from Dunluce than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the significant distance to the proposed Central North pits and dumps, no additional air quality impacts are anticipated to occur as a result of the Project.
Top End	<b>6.41</b>	15.44	S	Existing	Proposed Central North operations will be greater than 9 km further away from Top End than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the significant distance to the proposed Central North pits and dumps, no additional air quality impacts are anticipated to occur as a result of the Project.

Note: \* owned by the Jellinbah East JV.



### 4.1.3 Air Quality Management Strategies

Air quality management strategies currently employed at Jellinbah Coal Mine and relevant to the operation of the Central North Extension include the following:

- Haul roads are watered by water trucks whenever mining or haulage operations generating dust are undertaken;
- Land clearing operations are scheduled so as to avoid topsoil stripping when winds are blowing towards sensitive locations and wind speeds are >5 m/s;
- Land clearance is kept to an operational minimum (i.e. to what is required for safe and efficient operations);
- Burning cleared vegetation is avoided. If it is necessary, burning is avoided when wind direction is towards sensitive receptors;
- Any heating or spontaneous combustion is to be extinguished as quickly as feasible;
- Roads at the mine are constructed and maintained in a manner that promotes surface cohesion and strength;
- Rehabilitation is conducted as soon as operationally possible on disturbed areas to allow establishment of a protective vegetative cover;
- Dust control measures are employed on all drill rigs used for exploration and to prepare blast holes;
- Where operationally possible, blasting operations are not conducted when winds are blowing towards sensitive locations;
- Onsite vehicular speeds are limited;
- External haul roads have a bitumen surface and replace gravel rural roads; and
- All complaints about Jellinbah Coal Mine operations are handled in a prompt manner using the complaints handling procedure. As required, monitoring is conducted to investigate legitimate concerns.

Consistent with common industry practice, haul roads, ramps, tracks and industrial areas where there is likely to be a dust source will be routinely watered. Recycled water is sprayed onto dry areas from large tankers. If required, control strategies will be implemented to promptly address any legitimate complaints and to ensure compliance with the EA. All statutory requirements will continue to be addressed.

#### 4.1.3.1 Dust Emission Mitigation Measures

The following dust management strategies are currently in place at the existing Jellinbah Coal Mine and will be implemented at the Central North Extension:

- Water and grade haul roads to suppress dust;



- Water stockpile pads and prepared ground;
- Install water sprays at both ends of crushers;
- For transport of product coal by road train, profile coal and apply citrus-based dust suppressant; and
- Progressively rehabilitate disturbed areas as they become available to minimise area conducive to dust emissions.

#### 4.1.3.2 Greenhouse Gas Emission Mitigation Measures

Where practicable, the following strategies will be implemented to reduce GHG emissions associated with the Central North extension:

- Equipment purchase and energy efficiency:
  - Use variable speed pumps and high-efficiency motors; and
  - Install light-sensitive switches and energy-efficient lighting.
- Mine planning:
  - Design pit and dump haul roads and ramps to limit the travel time and duty cycle for waste and coal trucks, particularly when carrying a full load.
- New technology initiatives:
  - Implementation of an autonomous system for hauling. This will result in a significant reduction in empty truck weight and minimise fuel burn; and
  - Use of clean energy sources, such as solar energy. Solar panels have been installed at existing workshops and diesel lighting plants.
- Management:
  - The Mine Energy Management System currently in place for the Jellinbah Coal Mine will be amended to include Central North operations.

## 4.2 NOISE AND VIBRATION

A desktop assessment was conducted to estimate the likely risk and magnitude of noise impacts to sensitive receivers. The following reports were reviewed:

- *Jellinbah Mine – Mackenzie North Mining Lease Area: Noise and Vibration Assessment* (ASK Consulting Engineers 2013); and
- *Mackenzie South Project: Ground Vibration, Airblast Overpressure and Noise from Plant* (Noise Measurement Services 2006).

The likelihood of increased impacts on sensitive receivers was assessed based on existing understanding of noise emissions and long term operating experience at the Jellinbah Coal Mine.



## 4.2.1 Description of Environmental Values

Regional background noise levels are generally low and typical of a rural setting with intermittent increases due to rustling of leaves and noises from birds, insects, cattle, vehicles and agricultural equipment. The Mackenzie North Noise and Vibration Assessment (ASK 2013) noted that noise from a number of surrounding mines including Yarrabee Mine, Curragh Mine and Curragh North Mine also contributed to background noise levels in the area.

Background noise logging and attended measurements conducted for the Mackenzie North Noise and Vibration Assessment (ASK 2013) revealed that the existing Yarrabee and Curragh North Mines contribute substantially to noise levels at sensitive receivers. The following noise impacts were identified at sensitive receivers:

- At Jellinbah 1, noise impacts of the Curragh North Mine were measured to be 21 – 25 dBA;
- At Jellinbah 2, an unknown mine source, possibly Curragh North, Jellinbah Plains or Yarrabee Mine, contributed to noise, measured to be 25 – 28 dBA;
- At Scrubee, the Yarrabee Mine contributed to noise impacts, measured to be 33 – 36 dBA (light easterly breeze blowing); and
- At Mourallyn, noise impacts of the Yarrabee Mine were measured to be 27 – 32 dBA (light easterly breeze blowing).

An assessment of measured noise levels at the noise monitoring locations described above, outlined in the Mackenzie North Noise and Vibration Assessment (ASK 2013), found that the ambient background noise levels (based on the lowest 10<sup>th</sup> percentile of noise levels) in the area ranged from 27 to 30 dBA during the daytime, 25 to 26 dBA in the evening, and 20 to 25 dBA at night (ASK 2013). These ambient noise levels represent periods when mining noise is low or insignificant and the natural noises are the most prevalent (ASK 2013).

## 4.2.2 Potential Impacts, Emissions or Releases

Potential noise and vibration sources resulting from activities at the Jellinbah Coal Mine are largely associated with the operation of machinery and equipment, including:

- Mining equipment for overburden transport;
- Haul road vehicles;
- Loading equipment; and
- Light vehicles accessing the site.

### 4.2.2.1 Risk and Magnitude of Impacts to Environmental Values

Total noise generation at the Jellinbah Coal Mine is not expected to increase as a result of the Central North Extension. While the Project will extend mining and dumping into new areas directly adjacent to the Jellinbah Coal Mine, no changes to mining or production rates are proposed. This impact assessment therefore focuses on the change to emission source locations relative to the nearest sensitive receivers.



## Noise Emissions

### *Assessment of Emission Source Locations Relative to Sensitive Receivers*

There are 12 sensitive receivers in the vicinity of the Central North Extension and Jellinbah Coal Mine. Table 15 provides an assessment of the likelihood and magnitude of noise impacts at the 12 sensitive receivers in the vicinity of the Central North Extension and Jellinbah Coal Mine. This assessment is based on receivers' location (distance and direction) relative to the nearest pits and dumps at the Central North Extension and Jellinbah Coal Mine.

Only one sensitive receiver (Mourallyn) will be closer to mining activities (pit excavations and spoil dumping) due to development of the Central North Extension. All other receivers will remain the same distance from current mining activities at the Jellinbah Coal Mine. For residences other than Mourallyn, it is reasonable to conclude that there will be no additional noise impacts as a result of the Project.

The proposed Central North Extension mining operations are located approximately 470 m closer to Mourallyn than currently approved mining operations at Jellinbah Coal Mine. Based on existing mine operating experience, Jellinbah Group believes that noise emissions can be managed to achieve compliance with the existing EA limits at this residence. Considering the Mourallyn homestead is located upwind of the predominant wind direction, the risk of significant noise increase as a result of the Central North Extension is low and manageable.

Further to this, a Compensation Agreement is in place between the owner of the Mourallyn property (Mr Peter Dunne) and Jellinbah Group, in which Mr Dunne has provided consent to Jellinbah Coal Mine's MLs. Due to the existing MLs located on the Mourallyn property, Jellinbah Group and Mr Dunne have worked closely over a long period of time, resulting in both parties having a high level of understanding of the impacts of each other's businesses.

Jellinbah Group maintains a Complaints Register for recording complaints pertaining to noise impacts at nearby residences. Where investigative monitoring finds that noise emissions exceed the prescribed objectives, Jellinbah Group must address the complaint and immediately implement abatement measures. To date, no noise-related complaints have been received.



**Table 15 Noise and Vibration Impacts at Sensitive Receivers**

Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Noise Impacts
	Existing	Central North			
Jellinbah 2	<b>15.01</b>	16.53	NE	Existing	Proposed operations will be 1.5 km further away from Jellinbah 2 than current mining operations. Due to the current proximity of the receiver to the existing operations, and the distance to the proposed Central North operations, the Project is considered unlikely to contribute to additional noise impacts at this receiver.
Jellinbah 1	<b>8.64</b>	10.50	NW	Existing	Proposed operations will be more than 1 km further away from Jellinbah 1 than current operations. Due to the current proximity of the receiver to the existing operations, and the distance to the proposed Central North operations, the Project is considered unlikely to contribute to additional noise impacts at this receiver.
Tarcoola	<b>13.35</b>	14.67	NE	Existing	Proposed spoil dumps will be greater than 1 km further away from Tarcoola than current mining operations. The proposed operations are slightly further from Tarcoola than existing mining operations. Additional noise impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.
Scrubee	<b>6.08</b>	7.24	NE	Existing	Proposed spoil dumps will be more than 1 km further away from Scrubee than current mining operations. The proposed operations are slightly further from Scrubee than existing mining operations. Additional noise impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.
Mourallyn	3.01	<b>2.54</b>	E	Central North Extension	Mourallyn will be slightly closer to proposed Central North operations. Although the proposed pit and spoil dumps are slightly closer to Mourallyn (by approximately 467 m) than the existing pit and dumps, the difference is considered to be negligible, particularly for the spoil dump. Noise management and mitigation strategies will be implemented to reduce





Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Noise Impacts
	Existing	Central North			
Barnett	<b>8.05</b>	9.67	W	Existing	<p>potential impacts at this receiver. Jellinbah Group has entered into a Compensation Agreement with the landowner of the Mourallyn property.</p> <p>The proposed Central North operations will be greater than 1.5 km further away from Barnett than existing mining operations. Additional noise impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.</p>
Bedford	<b>10.40</b>	11.35	W	Existing	<p>The existing mining operations are slightly closer to the receiver by just under 1 km. Additional noise impacts are considered to be negligible, particularly given the size of the Central North Extension in comparison to the existing mine.</p>
Woodlea *	<b>1.65</b>	6.23	SE	Existing	<p>Proposed mining operations will be more than 4 km further away from Woodlea than current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional noise impacts at this receiver.</p> <p>As the Woodlea property is owned and operated by the Jellinbah East JV, impacts at this receiver are not considered to cause nuisance.</p>
Lucie	<b>4.67</b>	9.26	SE	Existing	<p>Proposed mining operations will be greater than 4 km further away from Lucie than current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional noise impacts at this receiver.</p>



Name	Distance to Mining Operations (km)		Direction from Project	Closest Operation	Magnitude and Likelihood of Noise Impacts
	Existing	Central North			
New Caledonia	<b>3.10</b>	6.92	SW	Existing	Proposed operations will be greater than 3 km further away from New Caledonia than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the distance to the proposed Central North pits and dumps, the Project is considered unlikely to contribute to additional noise impacts at this receiver.
Dunluce	<b>1.71</b>	11.84	SSW	Existing	Proposed Central North operations will be more than 10 km further away from Dunluce than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the significant distance to the proposed Central North pits and dumps, no additional noise impacts are anticipated to occur as a result of the Project.
Top End	<b>6.41</b>	15.44	S	Existing	Proposed Central North operations will be greater than 9 km further away from Top End than the current operations. Due to the current proximity of the receiver to the existing pits and spoil dumps, and the significant distance to the proposed Central North pits and dumps, no additional noise impacts are anticipated to occur as a result of the Project.

Note: \* owned by the Jellinbah East JV.



### 4.2.3 Noise Management Strategies

At Jellinbah Coal Mine, one or more of the following control options are currently implemented to reduce noise and vibration impacts from mining operations to below nuisance levels. These strategies will also be implemented at the Central North Extension:

- Equipment will be operated in the correct manner and will receive appropriate maintenance to reduce operational sound power levels;
- Blasting parameters including size and timing will be controlled to ensure compliance;
- Conducting blasting activities only during daylight hours;
- When purchasing new mining equipment, Jellinbah Group will consider the sound power outputs of the machinery;
- Maintaining any diesel generators in proper working order to prevent unnecessary noise being emitted;
- Ensuring that vehicle mufflers are fitted to all heavy and light vehicles;
- Maintaining the process and crushing plants in proper working order to prevent unnecessary noise being emitted; and
- Maintaining a complaints register and responding to bona fide noise complaints.

Jellinbah Group has established a consultation strategy with nearby residents to ensure response to perceived problems. Monitoring will be undertaken as required and in response to complaints to establish whether compliance with acceptable noise levels is being achieved. If a complaint is received, Jellinbah Group will thoroughly investigate the complaint, establish the legitimacy of the complaint and undertake remedial action as necessary. All statutory requirements will continue to be addressed.

## 4.3 WATER

The following documents were reviewed to identify environmental values and potential impacts, emissions or releases:

- *Environmental Protection (Water) Policy 2009 Mackenzie River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Mackenzie River Sub-basin* (EHP 2011);
- *Jellinbah Mine Site: Site Water Management Plan* (UDP 2014); and
- *Mackenzie South Project: Groundwater Impact Assessment* (Australasian Groundwater and Environmental (AGE) 2006).



## 4.3.1 Description of Environmental Values

### 4.3.1.1 Surface Water

Surface waters in the region are of environmental value to the surrounding grazing industry, existing mining operations, the local community and native flora and fauna. The Project is located within the catchment of Blackwater Creek and the Mackenzie River. Blackwater Creek runs parallel to the western boundaries of the existing Jellinbah Central area. The Mackenzie River traverses the Jellinbah Coal Mine between the future Mackenzie North area and the existing mining operations at Jellinbah Plains and Jellinbah Central.

The Mackenzie River is a major tributary of the Fitzroy River which flows to the Coral Sea at Rockhampton. The total catchment area of Mackenzie River to the Bingegang Weir (35 km downstream of the Jellinbah Coal Mine) is approximately 50,960 km<sup>2</sup> and incorporates the Comet and Nogoia River sub-catchments. Beyond the towns of Clermont, Emerald, Springsure and Blackwater, the catchment is sparsely populated. Land use is typically rural with substantial areas cleared for grazing.

Watercourses within the region are ephemeral, with the exception of the Mackenzie River which carries controlled releases from Fairbairn Dam, along the Nogoia River, upstream of Jellinbah Coal Mine. Releases are made from the dam to deliver supplies to downstream riparian water users and to maintain supplies from Bedford and Bingegang Weirs to various towns, mines and irrigators. Water captured in Bingegang Weir, downstream of the mine, is used to supply the towns of Middlemount and Dysart. Semi-permanent pools exist in Blackwater Creek and the Mackenzie River, as well as Three and Five Mile Lagoons located adjacent to the Jellinbah Plains operation.

Within the Project site, there are a number of minor ephemeral streams, best described as drainage features (stream order 1 or 2) identified on the Vegetation Management Watercourse Map (version 1.3). These streams have already been disturbed by existing mining pits. One stream order 3 stream traverses the northern area of MLA 1. Streams occurring with the Central North Extension area are shown in Figure 8. Within the Project area, these upper catchment drainage features generally do not contain riparian vegetation and have poorly defined banks. Catchments to the drainage features are limited to the immediate surrounding landscape.

Runoff from the majority of the Project area flows northeast towards the Mackenzie River. Two small drainage features in the southwest corner of the Central North Extension area (MLA 3) flow west towards Blackwater Creek, which in turn flows into the Mackenzie River to the north.

### Environmental Values

Under the *Environmental Protection (Water) Policy 2009* (EPP (Water)) of the EP Act, environmental values and water quality objectives are described for the Mackenzie River Sub-basin area in the *Mackenzie River Sub-basin Environmental Values and Water Quality Objectives* document (EHP 2011). Environmental values ascribed to developed areas of the southern tributaries of the Mackenzie River Sub-basin are:

- Protection of aquatic ecosystems;
- Suitability for farm supply and use;
- Suitability for stock water;



- Suitability for human consumption of aquatic foods;
- Suitability for primary contact recreation;
- Suitability for secondary contact recreation;
- Suitability for visual recreation
- Suitability for drinking water supply;
- Suitability for industrial use; and
- Protection of cultural and/or spiritual values.

The EPP (Water) provides Water Quality Objectives (WQOs) to support and protect the various environmental values identified for waters within the Mackenzie River catchments. WQOs are provided in two main parts a) for the purposes of protecting the aquatic ecosystem environmental value; and 2) for environmental values other than aquatic ecosystems. Within the vicinity of the Jellinbah Coal Mine and the Project site, water resources are primarily used for stock watering purposes. The primary environmental values associated with the Project site are aquatic ecosystems suitability and stock watering suitability.



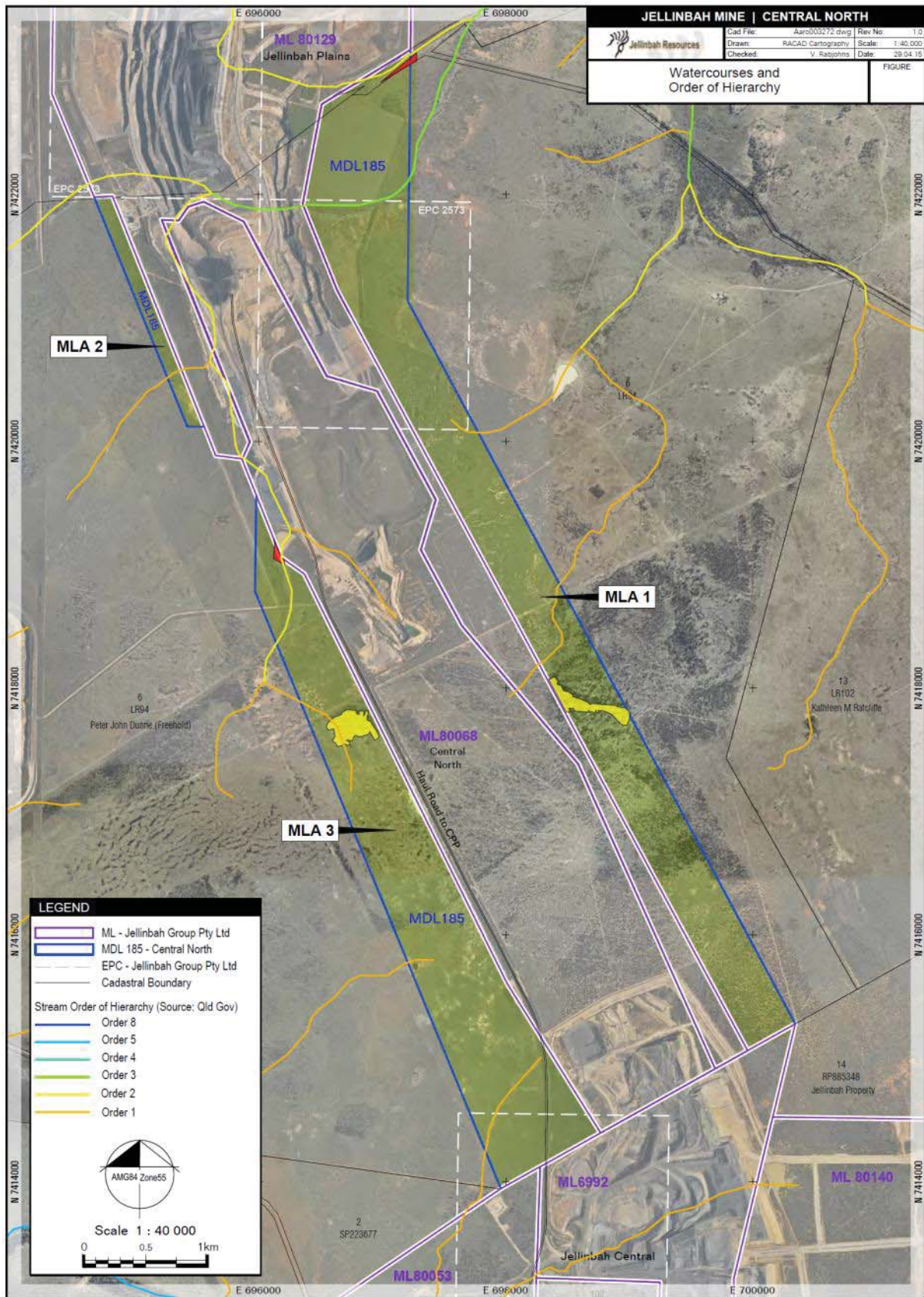


Figure 8 Streams within the Proposed Project MLs



#### 4.3.1.2 Groundwater

A groundwater census has previously been completed for the existing Jellinbah Coal Mine. Groundwater yield from exploration holes and active mining pits has typically been very low and no significant groundwater has been encountered during the course of mining at the Jellinbah Central operation.

Exploration has occurred over much of the Jellinbah Coal Mine area. The only aquifers intersected are coal seams that carry small amounts of saline water. Pit developments associated with the existing Jellinbah Coal Mine have encountered negligible groundwater resources and a limited monitoring program has been undertaken in accordance with the SWMP.

#### Environmental Values

The *Mackenzie River Sub-basin Environmental Values and Water Quality Objectives* document (EHP 2011) also identifies environmental values for groundwater associated with the Mackenzie River sub-catchment. These environmental values are:

- Protection of aquatic ecosystems;
- Suitability for irrigation;
- Suitability for farm supply and use;
- Suitability for stock water;
- Suitability for drinking water supply;
- Suitability for industrial use; and
- Protection of cultural and/or spiritual values.

Groundwater in the region is not used by local industries or the community. The alluvium in the region of the Project is considered to be a poor aquifer with a low long-term yield, precluding its value as a viable long-term water supply (AGE 2006). The environmental value of groundwater applicable to the Project is limited to the protection of aquatic ecosystems associated with alluvial aquifers associated with the Mackenzie River or other watercourses.

#### 4.3.2 Potential Impacts, Emissions or Releases

##### Surface Water

The potential surface water quality impacts from activities associated with the Project include:

- Surface water runoff containing elevated levels of sediment or contaminants from cleared areas, spoil dumps and stockpiles;
- Overflow of the contaminated water management system due to extreme rainfall events; and
- Spills of contaminants potentially resulting in contamination of surface water.



## Groundwater

Potential groundwater quality impacts from the Project activities could include infiltration of process water, mine water or leachate to the groundwater from areas such as:

- Voids containing pit water or tailings;
- Spoil dumps and stockpiles; and
- Dams and ponds.

In addition, groundwater aquifers associated with the Project have the potential to interact with the Mackenzie River.

### 4.3.2.1 Risk and Magnitude of Impacts to Environmental Values

#### Surface Water

Development of the Central North Extension is not anticipated to pose any further risks to the downstream surface water environment beyond those already managed at the Jellinbah Coal Mine. The Project is a relatively small extension of the Jellinbah Coal Mine and will not necessitate any substantial changes to current surface water management practices.

Overflows from the contaminated and clean water management systems are considered unlikely to occur as a result of the Project. Contaminated water storages have sufficient capacity to accommodate annual rainfall and continual monitoring of water levels and storage capacities throughout the year is undertaken to ensure adequate storage for the wet season and onsite water use.

The addition of the Central North Extension will not result in any substantial change to water quality or water management. No additional regulated structures, contaminated water storages or release points are proposed. Any water released to the receiving environment will be via currently authorised release points at Jellinbah Coal Mine and in accordance with current EA conditions.

Site experience indicates that the current SWMP is operating in accordance with its design intent with minimal risk of contaminated water release. Existing controls to manage sediment runoff are successfully achieving minimal impact on the receiving environment. The SWMP will be updated to include the proposed Project, prior to the commencement of any activities in this area. Given the success of the current SWMP in managing site water runoff and releases, it is considered likely that the addition of the Central North Extension area, managed in accordance with an updated SWMP, will not result in any additional impacts to downstream waterways.

## Groundwater

Typically, during the operation of an open-cut mine, groundwater inflows exceed any outflow, meaning that the pit acts as a sump requiring dewatering. As such, contamination of the groundwater system with mine affected water is not expected (AARC 2013a). In addition, any cone of depression created around the pit is unlikely to affect groundwater users due to the lack of registered bores in the region (AGE 2006).

A previous groundwater study for the Mackenzie South development indicated that there is limited hydraulic connectivity between the Mackenzie River and the alluvium (AGE 2006). Dewatering of the pit on the Project site is therefore unlikely to affect the Mackenzie River.





Proposed mining at Central North Extension is within a similar geological setting and similar dewatering rates are anticipated. Proposed mining areas are located further south of the Mackenzie River and no impact is expected.

### 4.3.3 Water Management Strategies

#### 4.3.3.1 Surface Water

Jellinbah Group will ensure that water quality, water access, and the physical, chemical and biological characteristics of the adjacent streams are not degraded by operations at the Project. The key mechanism utilised in order to achieve this is the SWMP (UDP 2014).

The SWMP (UDP 2014) has proven successful in managing water at Jellinbah Coal Mine and mitigating risks to surface water quality. The SWMP will be updated to include the new infrastructure associated with the Central North Extension. The following mitigation strategies relevant to the proposed Project will be implemented in accordance with the SWMP:

- Contaminated and uncontaminated sources of runoff are separated as much as possible;
- Clean water drainage is handled by designed dams and drains, prior to removal offsite to the natural waterways;
- Drainage systems are in place around the Jellinbah Coal Mine, allowing for natural flows to be diverted around the pit and any areas that may contaminate water and directed to catchment dams to collect sediment and minimise flows offsite;
- Contaminated water is managed by a selection of dams, pumps and pipelines, and consumed on site by recycling and evaporation;
- Drainage from rehabilitation areas and non-contaminating spoil dumps is dealt with separately from pit water or contaminated water; and
- A system of dams allows sediment to settle out of the water.

In addition, the Jellinbah Coal Mine operates in accordance with a number of management plans which assist in preventing environmental harm. These management plans include:

- A Chemical and Fuel Management Plan, which documents the procedures for preventing and cleaning up spills of contaminants. Control strategies assisting in the protection of downstream environmental values include:
  - Bunding of chemical and fuel storage areas in accordance with Australian Standard *AS 1940 – Storage and Handling of Flammable and Combustible Liquids*; and
  - Implementation of spill containment and notification procedures;
- An Erosion and Sediment Control Plan, which provides for the prevention and control of potential erosion at Jellinbah Coal Mine, preventing sedimentation of surface water. Control strategies and structures in place which assist in the protection of downstream environmental values include:



- Diversion drains and banks to divert clean runoff into sediment detention basins before release to natural streams in receiving environment;
- Sediment fences to slow the flow of water and catch sediments in erosion susceptible locations; and
- Sediment control dams to intercept runoff and allow sediments in runoff to settle out before release to the receiving environment or recycling.

These management plans will be updated to reflect the addition of the Central North Extension prior to development in this area.

#### **4.3.3.2 Groundwater**

Groundwater monitoring is currently undertaken at the Jellinbah Coal Mine in accordance with the EA. Additional groundwater monitoring bores will be established at the Project site to monitor groundwater quality, groundwater levels and drawdown fluctuations. Ongoing monitoring will also ensure there remains no connectivity between mining operations and the Mackenzie River.

## **4.4 SPOIL AND TAILINGS**

A desktop assessment utilising existing information was undertaken to assess and interpret the likely physical and chemical characteristics of spoil at the Central North Extension. An assessment of the risks and likely magnitude of potential impacts to environmental values resulting from spoil was also conducted. The following sources were assessed:

- *Mackenzie South: Assessment of Overburden for Salinity, Sodidity and Acid Drainage* (Ison Environmental Planners 2005);
- *Jellinbah Central East: Assessment of Overburden for Salinity, Sodidity and Acid Drainage* (Ison Environmental Planners 2007); and
- *Geochemical Assessment of the Mackenzie North Coal Project* (Environmental Geochemistry International 2013).

Interpretation and extrapolation of existing data is considered to be sufficient to meet the information requirements of the supporting information document, as the Central North Extension will target the same seams as the existing Jellinbah Coal Mine.

### **4.4.1 Description of Environmental Values**

Spoil will be produced through the mining excavation process during the operational stage of the Project. Spoil will be placed both in pit and in out of pit spoil dumps within the proposed Project boundary.

No change to the existing tailings disposal strategy is proposed by the Central North Extension.

### **4.4.2 Potential Impacts, Emissions or Releases**

Potential impacts associated with the production and storage / disposal of spoil and tailings material include:

- Acid mine drainage;



- Contamination of runoff draining into the receiving environment;
- Reduced plant growth;
- Erosion; and
- Reduced land suitability.

#### 4.4.2.1 Risk and Magnitude of Impacts to Environmental Values

##### Spoil Characterisation

Spoil is typically characterised using the acid-base accounting method, which calculates the net acid producing potential (NAPP) by balancing the total acid forming potential (based on the measured sulphide sulphur content) and the acid neutralising capacity (ANC) (measured directly) (Ison 2005). A sample with a NAPP value of  $>0$  is classed as potentially acid forming (PAF), while sample with a NAPP value of  $\leq 0$  is classed as non acid forming (NAF) or potentially acid consuming (Ison 2005).

A review of the aforementioned waste characterisation reports for the Jellinbah Coal Mine has revealed the following key conclusions:

- Testing conducted for three previous waste characterisation assessments have indicated that overburden at Jellinbah Coal Mine is either NAF or potentially acid consuming. No specific management strategies are required for acid mine drainage at the Jellinbah Mine (EGI 2013, Ison 2005, Ison 2007).
- Spoil at the Jellinbah Coal Mine is non-saline. Sampling conducted by EGI (2013) for the Mackenzie North project indicated that it was unlikely for overburden / interburden to release significant salinity or metals / metalloids. This has been supported by existing mine operational experience.
- Some fresh spoil at the Jellinbah Coal Mine is likely to be partly sodic but not highly dispersive (EGI 2013). However, this fresh material has potential to become dispersive under certain weathering conditions. Existing management experience at the Jellinbah Mine suggests that dispersive spoil can be adequately managed through the management of surface runoff.

Results from existing areas of Jellinbah Coal Mine are considered to reflect the likely spoil characteristics of the Central North Extension, which proposes to target the same coal seams as those currently mined at Jellinbah Coal Mine (i.e. Rangal Coal Measures, specifically the Pollux Upper and Pollux Lower seams). Spoil produced at the Central North Extension is unlikely to pose any risk to the environment.

##### Tailings Material

Operation of the CPP process results in the generation of coarse and fine rejects. Coarse rejects are dumped into current work areas and fine rejects are pumped as slurry into the Max Pit tailings dam, a disused mine void.

The development of the Project will replace coal mining from other existing operating areas on the Jellinbah Coal Mine. The rate of tailings production is therefore not expected to change and there is no risk insufficient tailings storage.



No additional risk to environmental values is anticipated as a result of the Central North Extension, as the same coal seams are proposed to be mined. No change to tailings properties is anticipated and current management strategies have proven successful.

### **4.4.3 Waste Management Strategies**

#### **4.4.3.1 Spoil Management Strategies**

No specific management strategies associated with AMD are proposed due to the low risk of the Project.

Existing management strategies at the Jellinbah Coal Mine for management of potentially sodic or dispersive spoil include:

- Diversion drains and banks – designed to divert clean runoff into sediment detention basins before release to natural watercourses in receiving environment;
- Catch drains – designed to capture mine affected water which is then conveyed to settlement detention ponds for recycling;
- Rock line drains – installed on rehabilitated landforms to manage runoff and prevent sediment loss particularly on spoil dumps above the natural ground surface;
- Final landform design – spoil areas above the natural ground surface will be design to < 17% slope with batters. Levee banks will be designed to < 33% slope.
- Sediment control dams – designed to intercept runoff and allow sediments in runoff to settle out before release to the receiving environment or recycling;
- Progressive rehabilitation of disturbed lands such that a stable, vegetated landform is achieved, minimising the area of exposed surface to erosion;
- Regular inspections of sediment control structures and monitoring of locations known to be at risk of erosion, particularly during the wet season and following rainfall events.

#### **4.4.3.2 Tailings Management**

Tailings material at Jellinbah Coal Mine is disposed of in the Max Pit tailings dam. No changes to current tailings management practices are proposed. Current strategies will be continued for the remainder of the mine life, including the Central North Extension. Current strategies include:

- Max Pit tailings dam is operated as a Regulated Structure and as such is managed to achieve a minimum Design Storage Allowance annually by 1 November;
- If extreme weather conditions result in particularly high water levels in Max Pit, water can be pumped to the South Pit via a dedicated rising main. This allows water levels in Max Pit to be lowered at rates quicker than under normal operating conditions;
- A valved pipe connection exists to manage water inputs to the Max Pit tailings dam; and



- Bathymetric and field surveys of the Max Pit Tailings Dam are regularly conducted to define the level of stored tailings in the dam and the shape of deposited tailings below the water's surface.

## 4.5 LAND

A desktop assessment utilising existing information was undertaken to develop an understanding of the values of the soil and land environment of the Project site, as well as assess the risk and likely magnitude of potential impacts to these values. The following sources of information were assessed:

- *Mackenzie South: Soil and Land Suitability Survey* (AARC 2006);
- *Jellinbah Central East: Soil and Land Capability Assessment* (Ison 2007);
- *Mackenzie North: Soil and Land Suitability Assessment* (AARC 2013b);
- *Atlas of Australian Soils* (Australian Soil Resource Information System n.d.);
- *Land Systems – Lands of the Isaac-Comet Area – Central Queensland (ZDK3)* (CSIRO 1967); and
- *Jellinbah Coal Mine Topsoil Management Plan* (AARC 2014).

### 4.5.1 Description of Environmental Values

Predominant land uses in the region include grazing and cropping, with mining and exploration common in some areas. The existing land use surrounding the target area is low intensity cattle grazing.

#### 4.5.1.1 Areas of Regional Interest

The *Regional Planning Interests Act 2014* provides for the identification and protection of Areas of Regional Interest, which include:

- Priority Agricultural Areas;
- Priority Living Areas;
- Strategic Environmental Areas; and
- Strategic Cropping Areas.

No Priority Agricultural Areas, Priority Living Areas or Strategic Environmental Areas occur in the vicinity of the Project area. Two small Strategic Cropping Areas (SCAs) occur in the northern-most portion of the eastern ML amounting to approximately 14.61 ha (Figure 9), as identified on the Strategic Cropping Land Trigger Map (v3.1). No impact to SCAs is proposed by the Central North Extension.



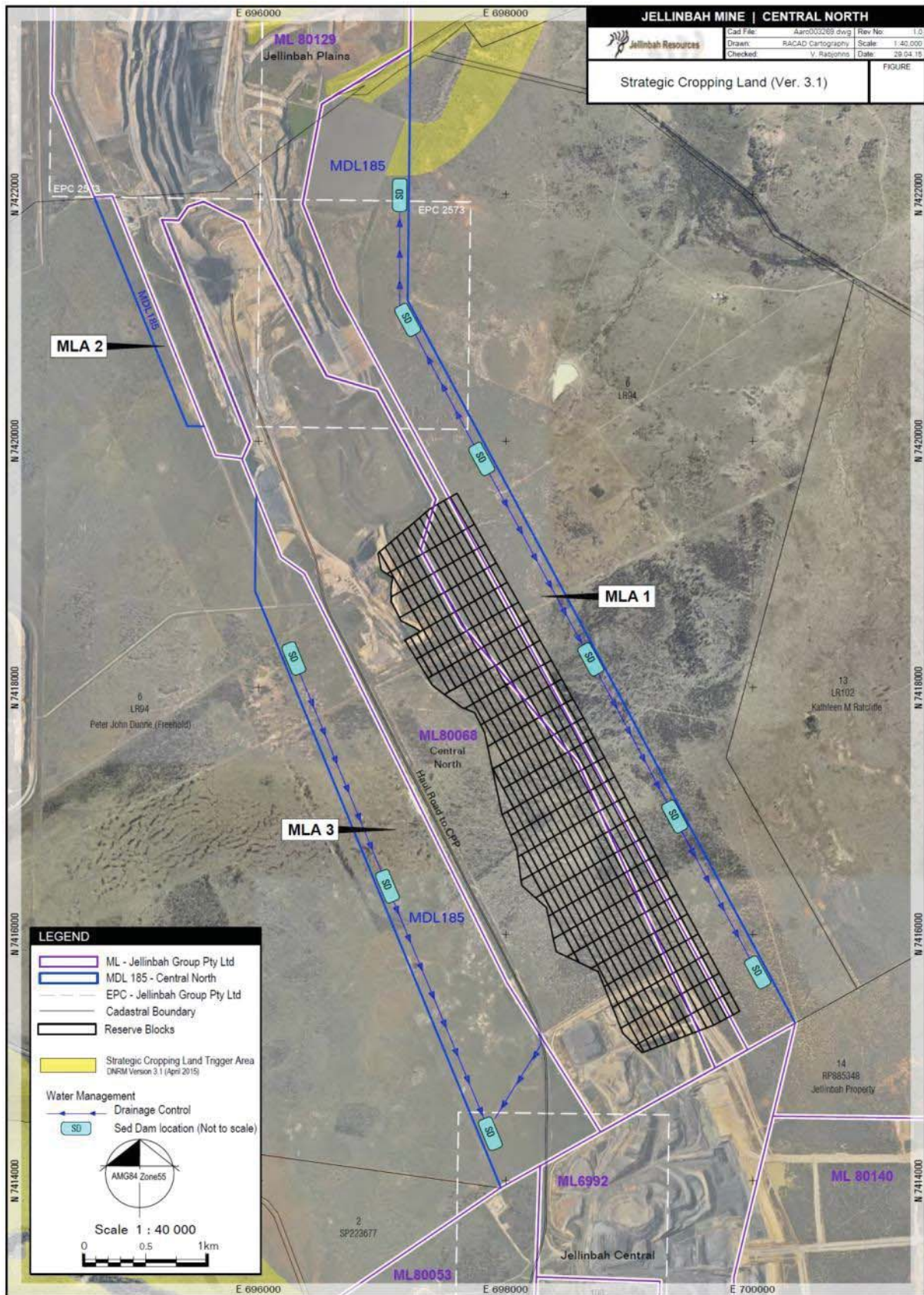


Figure 9 Strategic Cropping Areas and Project Infrastructure



#### 4.5.1.2 Soil and Land Suitability

Existing broad-scale land and soil surveys were utilised to assess the potential soil and land systems present within the Project area. Most soils have low to moderate nutrient content and plant available water holding capacity (PAWHC) (the weighted average of the A and B horizons) of 28 – 210 mm.

The majority of the Project area is encompassed by Soil Map Unit Va31, shown on the Atlas of Australian Soils (Australian Soil Resource Information System n.d.) and Land System Map Unit HU (ZDK3 484), shown on the Lands of the Isaac-Comet Area Map (CSIRO 1967). The most common soil profiles within the Central North MLAs are dark, loamy, duplex soils (*Dd1.33* and *Dd1.13*) and cracking clays (*Ug5.15* and *Ug5.16*) (Australian Soil Resource Information System n.d). Land within the Project area is predominantly classed as C1 or C1/A GQAL (refer to Table 18 for classification descriptions).

Descriptions of the Soil Map Units and Land System Map Units identified on the Project site are presented in Table 16 and Table 17.

**Table 16 Soil Map Units within the Project Area – Atlas of Australian Soils**

Soil Map Unit	Land Description	Soils	Nutrient Status	PAWHC (mm)	Location
HG6	Alluvial plains fringing major streams; the area is inundated only by very high floods	Dominant: Dd1.33 – Dark loamy duplex soil occurring on flat low terraces.	Low	65	MLA 1
		Subdominant: Dd1.43 – Dark loamy duplex soil occurring on flat low terraces.	Low	52	
		Subdominant: Dd1.13 – Dark loamy duplex soil occurring on flat low terraces.	Moderate	60	
		Subdominant: Ug5.15 – Cracking clay in slightly lower areas.	Moderate	210	
		Subdominant: Ug5.16 – Cracking clay in slightly lower areas.	Moderate	188	
Va31	Gentle / moderately undulating lands with some more strongly dissected marginal slopes	Dominant: Dy3.43 – Loamy-surfaced (6-8 in.)	Low	58	MLA 1, MLA 2, MLA 3
		Subdominant: Dy3.33 – Loamy-surfaced (6-8 in.)	Low	28	
		Subdominant: Dy3.42 – Also occurring, more particularly on the marginal slopes, are duplex soils with deeper sandy A horizons (1-20 in.) which are often gravelly. Common forms include Dy3 .42.	Low	74	
		Subdominant: Db1.13 – Other duplex soils also occur, particularly along drainage lines. These are chiefly Db1.13, Dy2.43, Dy2.33, Dd1.13, Dd1.33, and	Low	67	



Soil Map Unit	Land Description	Soils	Nutrient Status	PAWHC (mm)	Location
		Dy4.32.			
		Subdominant: Dy2.43 – Other duplex soils also occur, particularly along drainage lines. These are chiefly Db1.13, Dy2.43, Dy2.33, Dd1.13, Dd1.33, and Dy4.32.	Low	33	
Kd13	Level flood-plains adjacent to major streams; small low levee terraces may occur locally and most areas are subject to inundation in high floods; braided distributary channels frequently occur	Dominant: Ug5.1 – See below.	Moderate	175	MLA 2
		Subdominant: Ug5.15 – Deep dark clays.	Moderate	210	
		Subdominant: Ug5.16 – Deep dark clays.	Moderate	188	
		Subdominant: Ug5.24 – Grey clays (Ug5.24 and Ug5.25).	Moderate	167	
		Subdominant: Dd1.33 – Commonly associated on slightly higher sites are loamy duplex soils such as Dd1.33.	Low	65	

Source: Australian Soil Resource Information System (n.d.)

**Table 17 Land Systems within the Project area – Land System Series (Isaac-Comet Area)**

Land System Map Unit	Land Description	Agricultural Land Class	Location
FU (ZDK3 485)	Flood-plains with Coolibah along major streams and in basalt areas; cracking clay soils.	C1/A – Pasture Land – sown pastures, and native pasture on high fertility soils / Limited Crop Land	MLA 1: Smaller portion in north MLA 2: Small portion – northernmost area of MLA 2
HU (ZDK3 484)	Blackbutt and Brigalow on weathered clay plains occurring in most parts of the area; texture-contrast and cracking clay soils.	C1 – Pasture Land – Sown pastures, and native pasture on high fertility soils	MLA 1: Majority MLA 2: Majority MLA 3: Majority
BI (ZDK3 494)	Brigalow plains and cracking clay soils on weathered Tertiary clay and older rocks along the central axis of the area	C1 – Pasture Land – Sown pastures, and native pasture on high fertility soils	MLA 1: Second most dominant on MLA 1 MLA 3: Very small portion in SE corner of MLA 3

Source: CSIRO (1967)





**Table 18 Good Quality Agricultural Land Classifications**

<b>Class</b>	<b>Description</b>
<b>Class A</b>	<b>Crop Land</b> – Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.
<b>Class B</b>	<b>Limited Crop Land</b> – Land that is marginal for current and potential crops due to severe limitations and suitable for pastures. Engineering and / or agronomic improvements may be required before the land is considered suitable for cropping.
<b>Class C</b>	<b>Pasture Land</b> – Land that is suitable only for improved (Class C1) or native pastures (Class C2) due to limitations which preclude continuous cultivation for crop production, although some areas may tolerate a short period of ground disturbance for pasture establishment. This also includes land suitable for light grazing of native pastures in inaccessible areas (Class C3).
<b>Class D</b>	<b>Non-Agricultural Land</b> – Land not suitable for agricultural uses due to extreme limitations. This land may be undisturbed land with significant habitat, conservation and / or catchment values or land may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Sources: AARC 2006; Ison 2007; AARC 2013b

#### **4.5.2 Potential Impacts, Emissions or Releases**

The development of the proposed Project may result in the following impacts to soil quality and land suitability:

- Change in suitability classification of the land;
- Destabilisation of soils and increased risk of erosion;
- Impacts to the chemical and physical properties of soil due to stripping, stockpiling and handling of topsoil. This may impede a soil's ability to support vegetation;
- Contamination of surface and subsoil due to spills or seepage;
- Sedimentation of receiving waterways; and
- Loss of topsoil and beneficial plant nutrients.

##### **4.5.2.1 Risk and Magnitude of Impacts to Environmental Values**

###### **Areas of Regional Interest**

Project infrastructure has been located to ensure no impact to potential SCAs. Figure 9 (Section 4.5.1.1) illustrates the location of sediment dams, mining excavations, and spoil dumps on the Project site in relation to SCAs indicated on the Strategic Cropping Land Trigger Map. No impact to these SCAs is expected to occur.

###### **Soil and Land Suitability**

The Central North Extension proposes additional disturbance areas as the Jellinbah Coal Mine extends into new ML areas. The suitability of this land for agricultural activities will be affected by Project operations, both during the life of the Project and following decommissioning and rehabilitation.



Rehabilitation will aim to restore the land to its pre-mining land use of low-intensity cattle grazing, minimising impacts on soil and land suitability values.

Potential impacts of the Project are likely to be consistent with existing impacts experienced at the Jellinbah Coal Mine. The Topsoil Management Plan and Sediment and Erosion Control Plan have proven successful in managing these impacts. Therefore the risks to the environmental values of soil and land associated with the development and operation of the Central North Extension are likely to be minimal.

Given the small scale of the proposed Project and previous rehabilitation success at the Jellinbah Coal Mine, the risks to soil and land suitability are considered to be minor. With the implementation of appropriate management practices during the rehabilitation process, it is not foreseeable that the Central North Extension will pose significant additional risks to these environmental values.

### **4.5.3 Land Management Strategies**

#### **Areas of Regional Interest**

The proposed Project is not anticipated to impact on SCAs indicated on the Strategic Cropping Land Trigger Map. All infrastructure is located outside of these SCAs.

#### **Soil and Land Suitability**

##### *Topsoil Management*

Jellinbah Coal Mine's Topsoil Management Plan will be updated to incorporate the Central North Extension prior to development in this area. The Topsoil Management Plan provides management strategies for the stripping and stockpiling of topsoil on areas to be affected by the proposed Project. The current Topsoil Management Plan will be updated to incorporate the Project area. Prior to this, sampling will be carried out over the Project area to identify and characterise soils.

Topsoil management strategies to be implemented at the Project site will include the following:

- Prior to the development of any new open cut pit, spoil dump or infrastructure, vegetation and topsoil will be removed from the footprint area and stockpiled;
- Large vegetation will be pushed first and windrowed alongside the area where topsoil will be stockpiled; and
- Where necessary, topsoil stockpiles will be ripped and seeded to encourage water infiltration and prevent erosion. Topsoil will be respread on surfaces to be rehabilitated as soon as possible to benefit from the viability of the topsoil seed bank.

##### *Erosion*

Erosion management strategies to be implemented at the Project area include:

- Only the minimum area of land required for the safe operation of mining activities at the Central North Extension will be cleared at any one time;



- Runoff will be directed around all topsoil stockpiles and disturbed areas. However, where runoff from disturbed areas does occur, runoff will be directed to settling ponds or sediment dams to remove suspended sediments prior to release to the receiving environment;
- Progressive rehabilitation will be undertaken to minimise the total area of disturbed land on the site at any point in time and reduce the liability of rehabilitation at the end of mine stage;
- Landform slopes will be contoured to minimise slope lengths and the velocity of runoff, thereby minimising the risk of erosion; and
- Rock armouring of drains to reduce scouring will be considered, if required.

#### *Soil Contamination*

To prevent contamination of soils at the Project, the following management strategies will be implemented:

- Water management at the Central North Extension will be integrated into the existing site water management strategy for the Jellinbah Coal Mine. Water management will facilitate the capture of potentially contaminated water, including runoff from industrial and stockpile areas, in order to prevent release to the receiving environment;
- Effluent will be treated to a quality appropriate for use as irrigation or release to evaporation trenches, in order to prevent contamination to land; and
- In accordance with the Chemical and Fuel Management Plan, spills of fuel, oil or other chemicals will be cleaned up immediately and contaminated soil will be treated regularly. Spill kits will be provided at workshops and refuelling areas.

## **4.6 NATURE CONSERVATION**

### **4.6.1 Description of Environmental Values**

The Project is located within the Brigalow Belt Bioregion, a region covering more than 36,400,000 ha of land between Townsville and northern New South Wales. The vegetation of the region is largely fragmented due to clearing for agricultural and pastoral activities. Remaining vegetation is dominated by Brigalow (*Acacia harpophylla*) and Eucalypt communities (Threatened Species Network 2008).

A field survey was undertaken by qualified ecologists in order to describe environmental values of the Project site, assess likely impacts and identify suitable mitigation measures.

#### **4.6.1.1 Survey Methodology**

The flora and fauna assessment, consisting of desktop evaluation and field assessment, was conducted to investigate the environmental values of the Project area. The field survey component was conducted from 16<sup>th</sup> – 20<sup>th</sup> February 2015.



## Survey Methods and Locations

Flora and fauna survey locations are shown in Figure 10.

### *Flora*

The flora survey for the Project was conducted in accordance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al. 2012). Standard floristic survey methods were used to identify and map vegetation communities. Two vegetation survey techniques (Secondary and Quaternary plots) were utilised during the field survey. Secondary sites consisted of a 20 metre (m) x 50 m transect, along which a complete floral assemblage was recorded. Quaternary survey sites consisted of a single observation plot at which important features were noted, such as dominant species in the characteristic layers and vegetation structure. Quaternary sites were used to ground-truth desktop assessment results and existing vegetation mapping. These sites focused on ground-truthing the relatively small and isolated patches of remnant vegetation that exist on the Project site. The condition and quality of vegetation at each survey site was also assessed. Weed presence, including presence of noxious species, was recorded.

A vegetation map of the Project area was produced following the field survey to a scale of 1:40,000. The map was developed based upon survey results, satellite images, aerial photographs, and geological maps of the Project area.

All plants encountered during the survey were identified by experienced and qualified ecologists. All REs were described and classified according to EHP's Regional Ecosystem Descriptions Database (EHP 2014). For any plant species that could not be identified in the field, a specimen was collected and sent to the Queensland Herbarium for identification.

Several flora species of conservation significance were highlighted in the desktop searches undertaken prior to the field survey. Targeted searches for species of conservation significance were conducted upon the identification of suitable habitat in the field. The targeted survey technique utilised in this study was the 'Random Meander' method. This technique involves traversing areas of suitable habitat along a meandering route whilst searching for the plant species of interest. If there was any uncertainty in identification of a species, a specimen was collected for identification by the Queensland Herbarium.

### *Fauna*

Survey methodology was developed in accordance with the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (DSITIA 2014). Fauna detection methods included the following:

- Elliot trapping;
- Pitfall trapping;
- Funnel trapping;
- Motion detector camera trapping;
- Micro-bat surveys;
- Bird surveys;



- Habitat searching;
- Scat and track searches; and
- Incidental recordings.



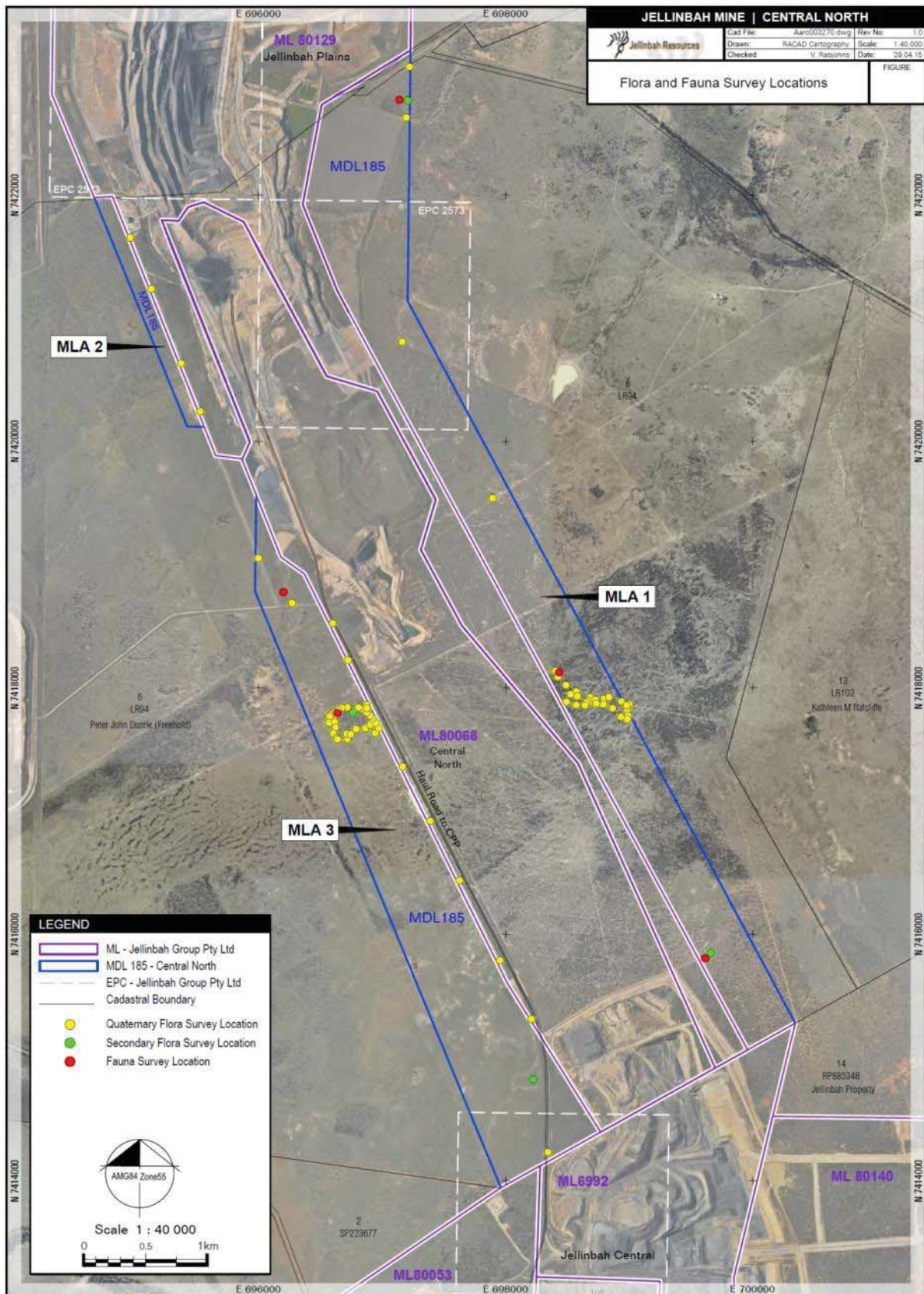


Figure 10 Flora and Fauna Survey Locations



#### 4.6.1.2 Survey Results

##### Flora Results

A total of 142 flora species were recorded during the site survey. No species of conservation significance were recorded. Two vegetation communities were identified in the Project area:

- Community 1 – Dawson Gum (*Eucalyptus cambageana*) woodland to open forest with Brigalow (*Acacia harpophylla*) on Cainozoic clay plains (RE 11.4.8/11.4.8a); and
- Community 2 – Non-remnant grassland.

Vegetation communities are indicated in Figure 11 and described below in further detail.

##### *Vegetation Communities*

###### Community 1 – Brigalow and Dawson Gum Open Forest to Woodland

Community 1 occurs in two small patches in the central portion of the Project area. The community is characterised by Dawson Gum and Brigalow woodland and includes small areas of palustrine wetlands associated with gilgai (melonhole mounds).

Community 1 is considered to be consistent with RE 11.4.8/11.4.8a and covers an area of approximately 13.75 ha on the Project site. RE 11.4.8 is classed as Endangered under the *Vegetation Management Act 1999* (VM Act) and the Queensland Biodiversity Status. As a Brigalow co-dominant community, Community 1 is also listed as a Threatened Ecological Community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). RE 11.4.8 has been extensively cleared for pasture (EHP 2014b).

This community is subject to weed invasion and low to moderate intensity cattle grazing. Buffel Grass (*Cenchrus ciliaris*) and Sabi Grass (*Urochloa mosambicensis*) invasion has modified the ground layer, and exotic cacti are scattered throughout the ground and shrub layers. The community exhibits a variety of habitat features, including exfoliating bark, logs, fallen branches and leaf litter, suitable for supporting populations of common small reptiles. Scattered gilgai provide temporary water sources for fauna and habitat for a range of amphibians. Emergent Dawson Gum and stags provide a small amount of habitat for arboreal mammals (such as the Brushtail Possum, *Trichosurus vulpecula*) and nocturnal birds (such as the Tawny Frogmouth, *Podargus strigoides*). Swamp Wallabies (*Wallabia bicolor*) were observed in this vegetation community.

###### Community 2 – Non-remnant Pasture

Community 2 occurs throughout the Project area and is characterised by non-remnant grassland interspersed with Brigalow-dominant regrowth and dams / wetlands. Community 2 covers an area of approximately 791.3 ha.

The conservation value of this community is minimal due to its non-remnant status and it is not listed under State or Commonwealth legislation. Vegetation in Community 2 has been subject to substantial clearing for cattle grazing and regrowth is typically low and sparse. The ground is heavily disturbed and dominated by exotic pasture grasses. There are few habitat features in this community.

Cattle dams provide habitat for aquatic birds and amphibians. The dense ground layer provides potential habitat for small mammals. A range of small granivorous and insectivorous bird species



inhabit the shrubs and grasses of this community, providing food for raptors such as the Nankeen Kestrel (*Falco cenchroides*), which was observed in high numbers during the survey.





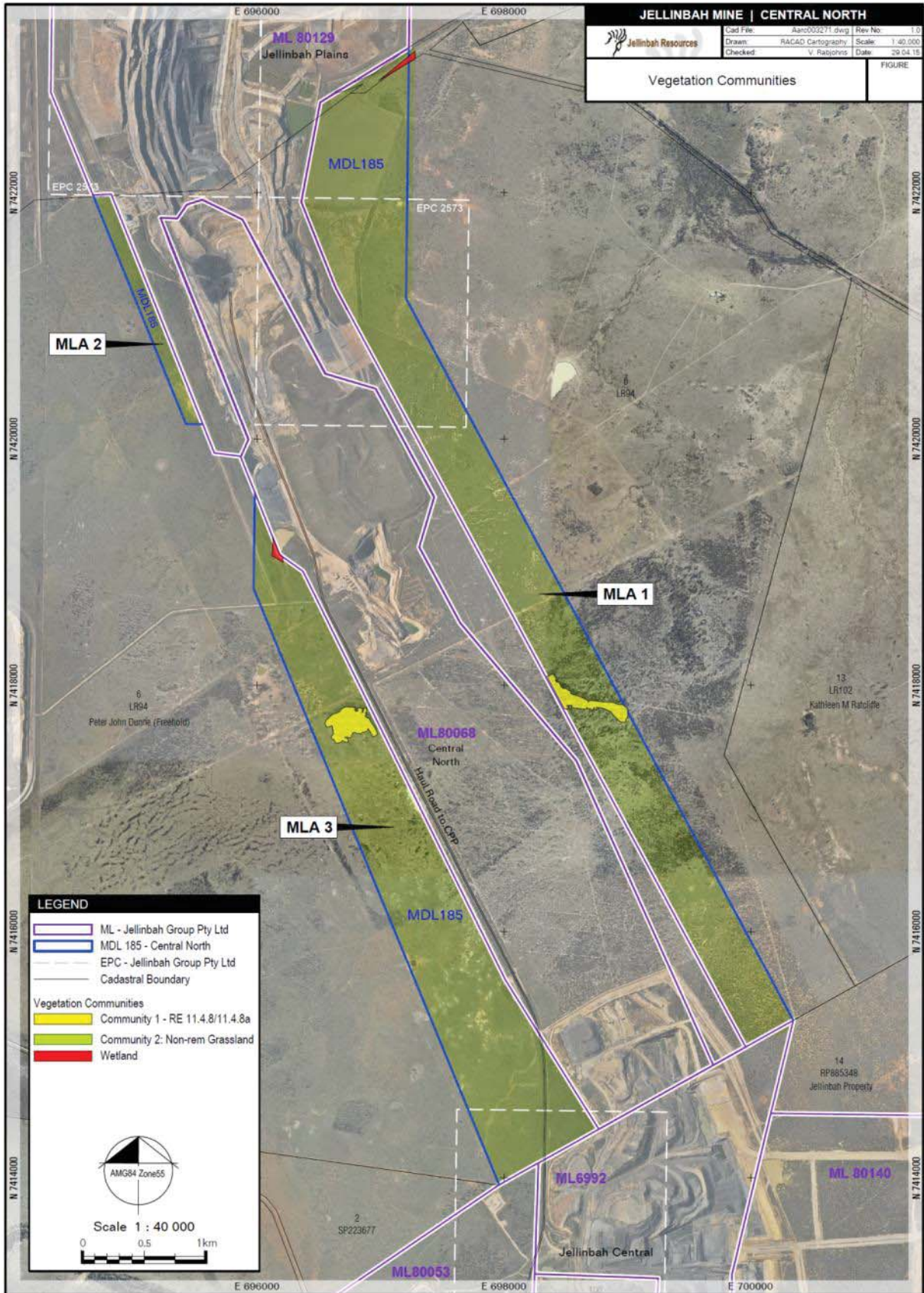


Figure 11 Vegetation Communities on the Project Site



### *Threatened Species and Communities*

Community 1 is listed as a Threatened Ecological Community under the EPBC Act and an Endangered RE under the VM Act and Biodiversity Status. The extent of this Brigalow community in the Project area is relatively small (1.7% of the total area). Weed invasion has altered the structure and composition of this community observed during the survey.

No threatened flora species were observed during the survey period. Although potentially suitable habitat exists on the site for a small number of threatened flora species, surveys were unable to locate these species indicating they are unlikely to be present.

### *Weed Species*

A total of 22 introduced plant species were observed in the Project area. The ground layer throughout the Project area was found to be dominated by introduced pasture grasses, predominantly Sabi Grass (*Urochloa mosambicensis*) and Buffel Grass (*Cenchrus ciliaris*). The exotic legumes Shrubby Stylo (*Stylosanthes scabra*), Siratro (*Macroptilium atropurpureum*) and Phasey Bean (*Macroptilium lathyroides*) are also present in the Project area.

Four declared weed species were noted in the Project area. Harrisia Cactus (*Harrisia martinii*) and Velvety Tree Pear (*Opuntia tomentosa*) were observed in low densities throughout the entire Project area. Small localised infestations of Parkinsonia (*Parkinsonia aculeata*) and Mother of Millions (*Bryophyllum delagoense*) were also noted. Under Queensland legislation, Harrisia Cactus, Velvety Tree Pear, Parkinsonia and Mother of Millions are Class 2 declared pest plants. Landholders are responsible for the management of declared pests on their land. Parkinsonia and Velvety Tree Pear are also recognised as Weeds of National Significance.

### **Fauna Results**

A total of 76 fauna species were recorded in the Project area, including 11 mammals, 49 birds, 10 reptiles and six amphibians. An additional two bat species may also have been present, but their identification could not be confirmed from the available data.

### *Mammals*

The dense grassy understorey of the Project area provides forage for large macropods and shelter for small mammals. The Swamp Wallaby (*Wallabia bicolor*) and Eastern Grey Kangaroo (*Macropus giganteus*) were observed in several portions of the Project area. Evidence of the Brush-tailed Possum (*Trichosurus vulpecula*) was also recorded in areas of remnant vegetation.

Four bat species were positively identified in the Project area:

- Little Pied Bat (*Chalinolobus picatus*);
- Gould's Wattled Bat (*Chalinolobus gouldii*);
- Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*); and
- Inland Forest Bat (*Vespadelus baverstocki*).

A fifth species was also detected, but could not be positively identified to species level. Two additional bat species (*Scotorepens balstoni* and *Chaerephon jobensis*) may also have been present in the



Project area, but their identification could not be confirmed from the call data collected. Strong winds experienced during the survey affected the quality of the bat call recordings, making species identification difficult.

Three introduced species of mammal were detected during the survey: European Cattle (*Bos taurus*) domestic Horses (*Equus caballus*) and Wild Dogs (*Canis familiaris*).

No mammalian species of conservation significance were recorded during the survey.

### *Reptiles*

Ten reptile species were observed on the Project site over the survey period. High numbers of Rainbow Skinks (*Carlia* spp.) were observed throughout the Project area. Striped Snake-eyed Skinks (*Cryptoblepharus virgatus*) were also commonly encountered. Common Dwarf Skinks (*Menetia greyii*) were commonly captured in pitfall traps. Several Bynoe's Geckoes (*Heteronotia bynoei*) were captured in funnel traps. A Blind Snake (*Ramphotyphlops affinis*) was captured in a pitfall trap at FA2. A single Mulga Snake (*Pseudechis australis*) was recorded on motion detector camera at FA1.

The Project area provides a variety of suitable habitat for reptile species; areas of Brigalow vegetation contain numerous logs, dead trees, woody debris, exfoliating bark and leaf litter.

### *Amphibians*

Six species of amphibians were recorded during the survey. An Eastern Snapping Frog (*Cyclorana novaehollandiae*) was captured in a pitfall trap at FA2. An Eastern Sedgefrog (*Litoria fallax*) was captured in a funnel trap at FA3. Cane Toads (*Rhinella marina*), a Green Tree Frog (*Litoria caerulea*) and a single Green-stripe Frog (*Cyclorana alboguttata*) were recorded on motion detector camera. The Laughing Tree Frog (*Litoria rothii*) was heard calling at a cattle dam in the southern portion of the Project area.

No amphibians of conservation significance or suitable habitat for threatened amphibians were found in the Project area.

### *Birds*

Forty-nine bird species were observed feeding and moving through the Project area. The large pastures of the area provide habitat for a range of insectivorous birds, such as the Golden-headed Cisticola (*Cisticola exilis*), Rufous Songlark (*Cincloramphus mathewsi*), Black-faced Woodswallow (*Artamus cinereus*), and Australasian Pipit (*Anthus novaeseelandiae*). Seeding pasture grasses provide food for a range of granivorous birds, including the Zebra Finch (*Taeniopygia guttata*), Budgerigar (*Melopsittacus undulatus*), Galah (*Eolophus roseicapillus*) and Sulphur-crested Cockatoo (*Cacatua galerita*). Pasture areas provide a source of prey for the Nankeen Kestrel (*Falco cenchroides*), which was recorded in high densities. Other raptors observed in the Project area were the Wedge-tailed Eagle (*Aquila audax*), Whistling Kite (*Haliastur sphenurus*) and Black Kite (*Milvus migrans*). Australian Bustards (*Ardeotis australis*) were also observed in the pastures of the Project area.

The two woodlands on the Project area provide nesting habitat for two kookaburra species, and also support populations of Apostlebirds (*Struthidea cinerea*), Black-faced Cuckoo-shrikes (*Coracina novaehollandiae*), Pied Butcherbirds (*Cracticus nigrogularis*) and Noisy Friarbirds (*Philemon corniculatus*).



Corvids such as the Torresian Crow (*Corvus orru*) and Australian Magpie (*Cracticus tibicen*) were also recorded throughout the Project area.

Two wetland habitats were observed in the Project area, providing habitat for a range of aquatic and wetland species, such as the Australian Pelican (*Pelecanus conspicillatus*), Wandering Whistling Duck (*Dendrocygna arcuata*), Royal Spoonbill (*Platalea regia*) and several species of heron and cormorant. Pairs of Brolgas (*Grus rubicunda*) were also observed.

No bird species of conservation significance were detected during the survey. Two species listed as Migratory and Marine under the EPBC Act were recorded: the Rainbow Bee-eater (*Merops ornatus*) and the Eastern Great Egret (*Ardea modesta*). An additional 10 species of listed Marine birds were observed during the survey:

- Magpie-lark (*Grallina cyanoleuca*)
- Black-faced Cuckoo-shrike;
- Australasian Pipit;
- Wandering Whistling Duck;
- Australian Pelican;
- Dollarbird (*Eurystomus orientalis*);
- Straw-necked Ibis (*Threskiornis spinicollis*);
- Nankeen Kestrel;
- Whistling Kite; and
- Black-winged Stilt (*Himantopus himantopus*).

#### *Pest Species*

Pest species known to occur within the Project area are the Dingo and the Cane Toad. European Rabbits (*Oryctolagus cuniculus*) were sighted in close proximity to the Project area, and are considered likely to occur on site. The Dingo and European Rabbit are Class 2 declared pests under the LP Act. Land owners and managers are responsible for the control of declared pests on their land.

#### **4.6.2 Potential Impacts, Emissions or Releases**

The survey identified two vegetation communities in the Project. One of these communities (RE 11.4.8) is listed as Endangered under the VM Act, EHP Biodiversity Status, and EPBC Act. The Project area supports populations of common mammal, bird, amphibian and reptile species. Fauna habitat features of the Project area include logs, dead trees, exfoliating bark, leaf litter, woody debris, dense groundcover, gilgai and two small wetlands. However, the environmental values of the Project site are compromised by weed and pest invasion, edge effects, fragmentation and habitat connectivity.

Vegetation clearing and mining of the Project area has the potential to cause habitat loss, erosion, sedimentation, noise, dust and contaminated surface water runoff. Project works should be



undertaken in accordance with Jellinbah Group's existing environmental management practices and procedures, in order to minimise these potential impacts.

#### **4.6.2.1 Risk and Magnitude of Impacts to Environmental Values**

##### **Potential Impacts to Flora and Vegetation Communities**

The majority of the Project site is non-remnant pasture grass used for cattle grazing (refer to Figure 11) with little variation in vegetation characteristics, reducing the likelihood that significant flora species may be present.

Development of the Project will disturb approximately 181.1 ha of land, including clearing of approximately 4.31 ha of remnant vegetation, based on preliminary Project designs. Project development will result in the loss of part of one small, isolated area of vegetation and fauna habitat, with associated potential for fauna mortality. As the survey was unable to identify any flora species of conservation significance and only a small area of remnant vegetation is proposed to be cleared, it is considered highly unlikely that the Project will impact threatened flora species.

##### **Potential Impacts to Fauna Species of Conservation Significance**

No fauna species of conservation significance were identified on the Project site during the survey. A number of species of conservation significance were identified during preliminary desktop studies and database searches, but were not identified during the field survey. An assessment of the likelihood of occurrence within the Project area and potential impacts was conducted for these species and is provided in Appendix A. The majority of the Project site is non-remnant pasture grass with little variation in vegetation characteristics, reducing the likelihood that significant fauna species may be present. The most suitable habitat for fauna species of conservation significance occurs in the relatively small and isolated patches of remnant vegetation, on which the survey was focused.

In addition, potentially suitable habitat exists on the Project site for a number of Migratory and/or Marine species not observed during the survey period. These species are considered unlikely to be impacted by Project development due to their highly mobile nature (including some species which are strictly aerial), and the presence of suitable habitat within the region.

#### **4.6.3 Nature Conservation Management Strategies**

Development and operation of the Central North Extension will be undertaken in accordance with the existing environmental management and mitigation strategies currently implemented at Jellinbah Coal Mine Site. These strategies may include:

- Areas to be disturbed must be clearly delineated and clearing restricted to the disturbance footprint;
- Sediment and erosion controls will be implemented throughout both construction and operation, as per the Erosion and Sediment Control Plan;
- Topsoil stripped during mining activities will be stockpiled for use in rehabilitation, in accordance with the Topsoil Management Plan;
- The current SWMP will be updated to include appropriate management of water and runoff at the Central North Extension area. Clean water will be diverted around the mining area into



natural streams. Dirty runoff water will be diverted to detention areas for settlement of particulates;

- Dust emissions will be controlled through the use of water trucks;
- The Weed and Pest Management Plan will also apply to the proposed works, minimising impacts to the flora and fauna of the Project area; and
- An Environmental Offset Strategy has been prepared for the Project (refer to Appendix B). The Strategy identifies offset commitments and potential offset supply within the Brigalow Belt Bioregion, in accordance with the *Queensland Environmental Offsets Policy 2014 (v1.1)* (EHP 2014).

## **4.7 COMMUNITY**

### **4.7.1 Description of Environmental Values**

The social conditions in the region surrounding the Project are of environmental value. This includes the amenity and liveability, harmony and wellbeing, sense of community, access to recreation, and access to social and community services and infrastructure in the region surrounding the mine, including economic conditions and benefits within the affected community.

Stakeholders and other groups or individuals with an interest in Jellinbah Coal Mine include surrounding neighbours, Central Highlands Regional Council and State government departments, employees of the existing Jellinbah Coal Mine, and the residents of Queensland who all enjoy the economic benefits of the mine.

### **4.7.2 Potential Impacts, Emissions or Releases**

Potential impacts of the proposed Project on the community are limited to direct impacts on surrounding landholders such as:

- Release of sediments or contaminants to waterways;
- Aiding the spread of weeds or pests;
- Noise emissions; and
- Dust emissions.

No changes to the magnitude of these existing impacts are anticipated as a result of the Project.

#### **4.7.2.1 Risk and Magnitude of Impacts to Environmental Values**

Most sensitive receivers will remain closer to existing mining operations and infrastructure than the proposed Central North Extension. The only exception is Mourallyn, which will be slightly closer to proposed Project mining activities. However, as described in Section 4.1.2.1, Jellinbah Group has entered into a Compensation Agreement with the landowner of the Mourallyn property, in which the owner has provided consent to Jellinbah Coal Mine's MLs.

There are few facilities in the area. The nearest shops, hotel and service station are at Bluff, approximately 31 km by road.



With the implementation of the management strategies proposed above, as well as the existing site management plans (refer to Section 5.0), little or no impact on the amenity and liveability of the area, access to services, health and wellbeing of the community is anticipated as a result of the Project.

### **4.7.3 Community Management Strategies**

Control strategies adopted to minimise direct impact on landholders are discussed throughout this document. Additional measures currently employed by the Jellinbah Coal Mine to address social related issues include:

- Restrictions on public access to Jellinbah Coal Mine site (including using suitable signage and fencing where necessary);
- Regular consultation with neighbours to provide information and address any concerns raised;
- Preferential use of suitable qualified local personnel for employment or work contracts;
- Maintenance of good relations with nearby neighbours; and
- Consultation with relevant government departments.

## **4.8 CULTURAL HERITAGE**

### **4.8.1 Description of Environmental Values**

Areas of Indigenous cultural heritage on the Jellinbah Coal Mine site may be of significance to local Indigenous people and Native Title claimants.

Jellinbah Group has conducted extensive consultation with the registered Native Title groups and will continue to do so as part of a proactive community consultation program and ongoing development of Cultural Heritage Management Plans (CHMPs) for the existing Jellinbah Coal Mine. Consultation has been planned between the registered Native Title groups and Jellinbah Group for the purpose of developing a CHMP for the proposed Central North MLs.

### **4.8.2 Potential Impacts, Emissions or Releases**

Risks associated with the Central North Extension include the disturbance, damage and/or the destruction of Aboriginal Cultural Heritage.

#### **4.8.2.1 Risk and Magnitude of Impacts to Environmental Values**

Jellinbah Group has conducted extensive consultation with the registered Native Title groups. Aboriginal cultural heritage surveys were conducted over the area prior to exploration drilling. Further surveys will be conducted prior to development of the Project.

### **4.8.3 Cultural Heritage Management Strategies**

Jellinbah Group intends to develop a CHMP encompassing the Central North Extension area and will continue to implement the CHMPs that have been developed for the mine to ensure compliance with the duty of care under the *Aboriginal Cultural Heritage Act 2003*.



## 5.0 WASTE MANAGEMENT

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A Waste Management Plan has been prepared for the existing Jellinbah Coal Mine and will be amended to incorporate the Central North Extension. The Waste Management Plan is based on the waste hierarchy, as follows:

- Waste minimisation;
- Waste reuse / recycling;
- Waste treatment; and
- Waste disposal.

Waste will be produced during all stages of the Project, including construction, operation and decommissioning. General and regulated wastes produced through the operation of support infrastructure, such as administration buildings. Current waste streams produced at Jellinbah Coal Mine include domestic waste, sewage sludge, scrap steel, tyres, vehicle batteries, waste oil / solvents and oil and fuel drums. Treatment of each of these major waste streams is detailed in the Waste Management Plan.

No changes to the current strategies for managing general and regulated wastes are proposed for the Central North Extension. No significant changes to the quantities of general or regulated wastes are anticipated as a result of the Project.

Waste management at Jellinbah Coal Mine aims to minimise direct and indirect impacts to land, surface waters or groundwater, with particular focus on contamination prevention, maximum recovery of wastes, and clean-up of spills or contamination.





## 6.0 SITE MANAGEMENT PLANS

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The following management plans and monitoring programs are currently in place at Jellinbah Coal Mine and will be amended to incorporate the Central North Extension prior to the commencement of activities in this area:

- Site Water Management Plan;
- Waste Management Plan;
- Erosion and Sediment Control Plan;
- Receiving Environment Monitoring Program;
- Topsoil Management Plan;
- Final Landform and Rehabilitation Management Plan;
- Contaminated Land Management Plan; and
- Chemical and Fuel Management Plan.



## 7.0 PROPOSED AMENDMENTS TO ENVIRONMENTAL AUTHORITY CONDITIONS

Proposed amendments relate to Schedule G: Land, specifically disturbance areas and final landforms (Table G2 and Table G5) and environmental offsets (conditions G14 and G15). In addition, a couple of administrative amendments are proposed to Table G4 and condition G9.

### 7.1 SCHEDULE G: LAND

**Table G2: Final Land Use and Rehabilitation Approval Schedule**

Tenure Identification	Disturbance Type	Projective Surface Area (ha)	Post Mining Land Description	Post Mining Land Use	Post Mining Land Suitability Classification
ML2418 ML6992 ML80018 ML80053 ML80068	Infrastructure	424	Endemic pasture species	Low intensity cattle grazing	5
	Levee Bank	86			5
	Haul roads	218			4
	Topsoil stripped	300			3
	Spoil areas (<10% slope)	2266.3			4
ML80108 ML80129 ML80140	Spoil areas (>10% slope)	2313.3	Endemic pasture species	Endemic vegetation community	5
ML80165 ML80184	Dams	50	Water containment	Water containment	5
ML70445 ML70446		55	Pasture species	Low intensity cattle grazing	
ML70448 ML70449	Final voids	681	Water containment	Water containment	5
MLA1 MLA2 MLA3	Anabranh Diversion	140	Endemic pasture species with a native species overstorey	Corridor conservation	5
	Three to Five Mile Lagoon drainage line	NA			

**Table G4: Rehabilitated Slope Design**

Slope Angle (%) (°)	Vertical Height (m)	Maximum Slope Length (m)
20	10	50
15	20	133
10	22	220
5	26	520
3	28	900



**Table G5: Residual Void Design**

Void Identification	Void Wall – Competent Rock Max. Slope (°)	Void Wall – Incompetent Rock Max. Slope (°)	Void Maximum Surface Area (ha)
Plains North	70°	45°	52
Plains South	70°	45°	65
Central North	70°	45°	140
Central	70°	45°	45
Central South	70°	45°	70
Max Void	70°	45°	18
South Void	70°	45°	30
Mackenzie South	70°	45°	30
Central East	70°	45°	50
Mackenzie North	70°	45°	149
Central North Extension	70°	45°	32

### Environmental Offset

(G14) The holder of this EA must provide an offset for impacts on applicable **prescribed environmental matters**, in accordance with **Queensland Environmental Offsets Policy and Environmental Offsets Act 2014**, or alternate superseding QLD Government environmental offset policy, available at the time of offset provision. The offset must be consistent with the requirements for an offset as identified in the Offset Strategy (as per condition **G15**) and must be provided:

- a) prior to impacting on **prescribed environmental matters**; or
- b) within **12 months** of the relevant stage identified in the **Environmental** Offset Strategy submitted under condition **G15**.

(G15) An **Environmental** Offset Strategy must be developed and submitted to the administering authority within either **30 days**, or a less period agreed to by the administering authority, prior to impacting on the applicable **prescribed environmental matters**.



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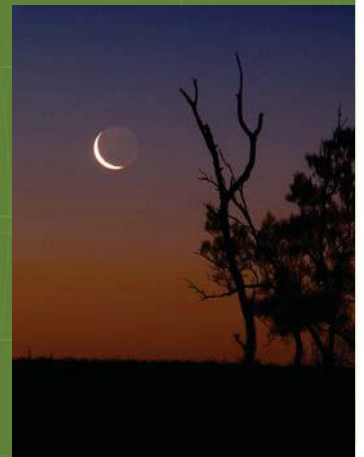
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Appendix A Terrestrial Flora and Fauna Assessment





# Jellinbah Coal Mine – Central Northern Extension

## Terrestrial Flora and Fauna Assessment

Prepared for:  
**Jellinbah Group Pty Ltd**

May 2015



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## **LIST OF ABBREVIATIONS**

%	Percent
°C	degrees Celsius
AARC	AustralAsian Resource Consultants
BPA	Biodiversity Planning Assessment
DSITIA	Department of Science, Information Technology, Innovation and the Arts
DOE	Department of the Environment



EHP	(Department of) Environment and Heritage Protection
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmentally Sensitive Area
GIS	Geographic Information Systems
GPS	Global Positioning System
ha	hectare(s)
Jellinbah	Jellinbah Resources
km	kilometre(s)
LP Act	<i>Land Protection (Pest and Stock Route Management) Act 2002</i>
MDL	Mineral Development Licence
m	metre
mm	millimetres
MNES	Matter(s) of National Environmental Significance
MSES	Matter(s) of State Environmental Significance
N/A	Not applicable
NC Act	<i>Nature Conservation Act 1992</i>
Project	Northern extension of the Jellinbah Central Coal Mine
RE	Regional Ecosystem
VM Act	<i>Vegetation Management Act 1999</i>
WoNS	Weeds of National Significance

## EXECUTIVE SUMMARY

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AustralAsian Resource Consultants Pty Ltd was commissioned by Jellinbah Group to conduct a flora and fauna assessment for a proposed extension to the existing Jellinbah Coal Mine. This assessment forms a supporting document to an Environmental Authority Amendment Application for the proposed extension. The proposed extension area is referred to as the Central Northern Extension within this report.

The Jellinbah Coal Mine is located in Central Queensland, approximately 30 kilometres north-east of Blackwater and 180 kilometres west of Rockhampton. The Central Northern Extension area (Mineral Development Licence 185) is required to be used for new mining areas and dumping of spoil. Current land uses adjacent to the mine site include cattle grazing and other open-cut coal mining activities.

The Survey Area encompasses land within Mineral Development Licence 185. The purpose of this assessment is to identify the environmental values of the Survey Area, assessed through a combination of desktop and field-based investigations. Assessment of environmental impacts and recommended mitigation measures has also been undertaken.

Desktop investigations identified a number of communities and species of conservation significance known from the region in which the Survey Area is located. Small parts of the Survey Area are currently mapped as Category B Environmentally Sensitive Areas, due to the presence of Endangered Regional Ecosystems. A small area of essential habitat for the vulnerable southern Squatter Pigeon (*Geophaps scripta scripta*) is mapped in the north-eastern corner of the Survey Area. Portions of one palustrine wetland, one lacustrine wetland, and several first order watercourses are also mapped within the Survey Area.

A field survey was undertaken from the 16<sup>th</sup> to the 20<sup>th</sup> of February 2015. Six Secondary flora transects and 72 Quaternary sites were completed to characterise and map the vegetation communities of the Survey Area. Fauna diversity was assessed through trapping, scat and track searches, habitat searches and incidental species sightings across five fauna sites.

Two vegetation communities were identified in the Survey Area, one of which is listed as Endangered under the *Vegetation Management Act 1999* and listed as a Threatened Ecological Community under the *Environment Protection and Biodiversity Conservation Act 1999*. A total of 142 flora species were recorded in the Survey Area. No flora species of conservation significance were detected. Four species of declared weeds under the *Land Protection (Pest and Stock Route Management) Act 2002*, two of which are also Weeds of National Significance, were recorded in the Survey Area.

A total of 76 fauna species were recorded in the Survey Area, including 11 mammals, 49 birds, 10 reptiles and six amphibians. No threatened species were recorded in the Survey Area. Three pest species were recorded on or adjacent to the Survey Area, two of which are declared pests under the *Land Protection (Pest and Stock Route Management) Act 2002*.

Development will require disturbance of approximately 181 hectares of land within the Survey Area, including 4.31 hectares of an Endangered Regional Ecosystem. This will result in the loss of a portion of one small, isolated area of remnant vegetation. This impact is classified as a Significant Residual Impact on a Prescribed Matter under the *Significant Residual Impact Guideline* (Department of Environment and Heritage Protection, 2014). Significant Residual Impacts trigger the requirement for environmental offsetting under the *Queensland Environmental Offsets Policy 2014* (Department of Environment and Heritage Protection, 2014).



The Project has the potential to generate erosion, sedimentation, noise, dust and contaminated water. Management of proposed activities should be undertaken in accordance with Jellinbah Group's existing environmental management practices and procedures, in order to minimise these environmental impacts. The following mitigation measures are recommended to manage the potential environmental impacts of the Project:

- Clear delineation of disturbance areas;
- Restriction of clearing to within the disturbance footprint;
- Implementation of erosion and sediment controls;
- Stockpiling of stripped topsoil for use in site rehabilitation;
- Diversion and treatment of dirty surface water runoff; and
- Implementation of dust controls.



## 1.0 INTRODUCTION

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AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Jellinbah Resources (Jellinbah) to conduct a flora and fauna assessment for the proposed Central Northern Extension of the Jellinbah Coal Mine.

### 1.1 SCOPE OF STUDY

To assess the environmental values of flora and fauna communities in the Survey Area, AARC ecologists undertook the following scope of works:

- Literature and database review in order to identify environmental values associated with the Survey Area;
- Field surveys employing standard methodologies to develop an inventory of terrestrial flora and fauna species inhabiting the Survey Area;
- Ground truthing of regulated vegetation maps to produce fine scale vegetation mapping and determine the accuracy of current regulated vegetation mapping;
- Assessing the potential impacts of the Project on the environment in the Survey Area and formulating mitigation measures to minimise identified impacts;
- The preparation of a report to Jellinbah Group describing the ecological values of the Survey Area.

The Survey Area is defined as the area within Mineral Development Licence (MDL) 185 south of the Mackenzie River.





## 2.0 PROJECT DESCRIPTION

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### 2.1 GEOGRAPHIC LOCATION AND BIOREGIONAL LOCATION

The Jellinbah Coal Mine is located in Central Queensland, approximately 30 kilometres (km) north-east of Blackwater and 180 km west of Rockhampton. The Survey Area is located north of the existing Jellinbah Central mining area, within MDL 185 (refer to Figure 1). The Survey Area covers approximately 805 hectares (ha). The Survey Area is shown in Figure 2.

The Survey Area is located in the Brigalow Belt Bioregion. The Brigalow Belt bioregion covers over 36,400,000 ha of land between Townsville and northern New South Wales. Much of this area has been cleared for agricultural and pastoral land. The remaining vegetation is dominated by the tree species Brigalow (*Acacia harpophylla*), as well as Eucalypt communities. Human activities have fragmented the vegetation in the bioregion and introduced a range of weed and pest species (Threatened Species Network, 2008).



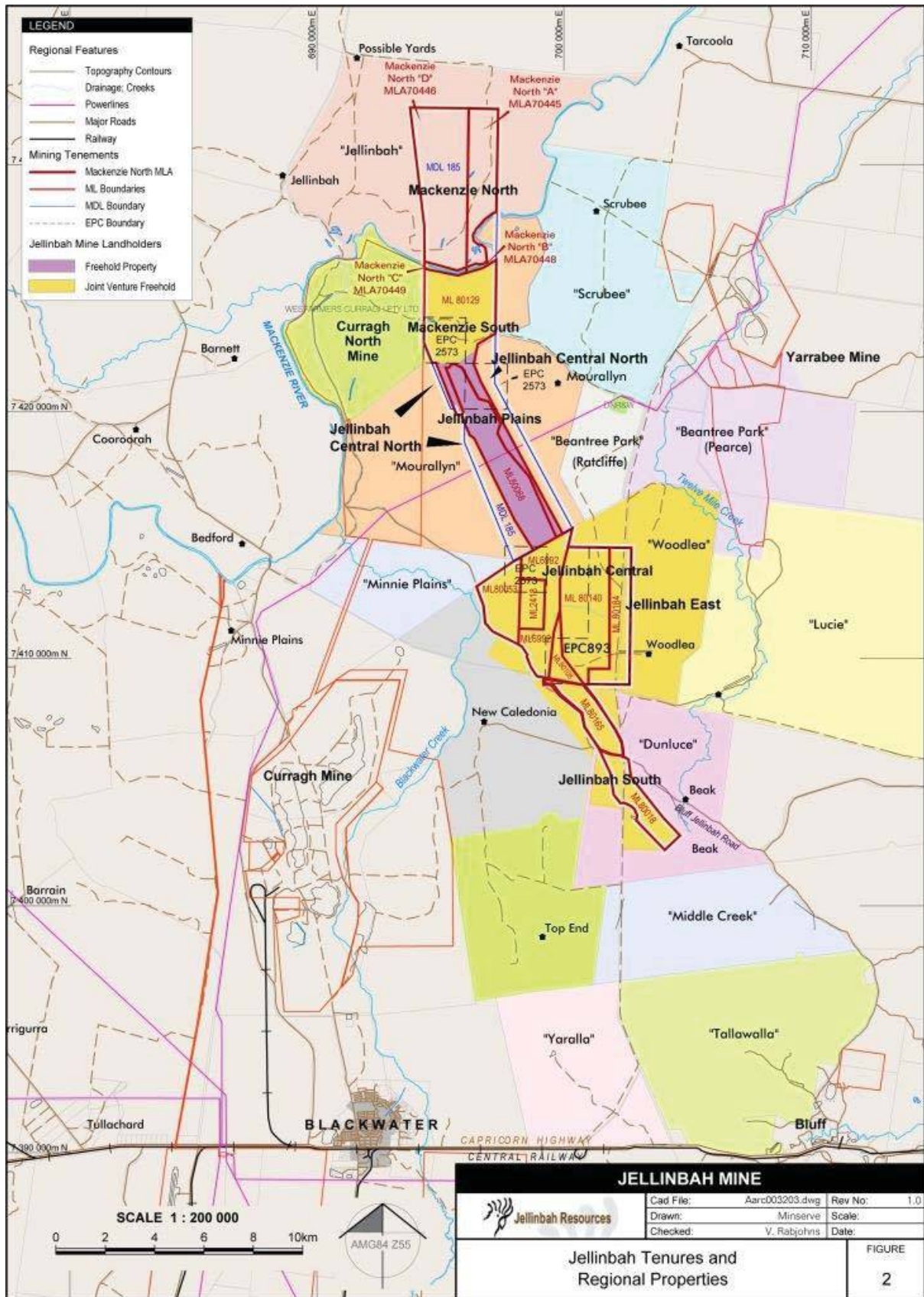
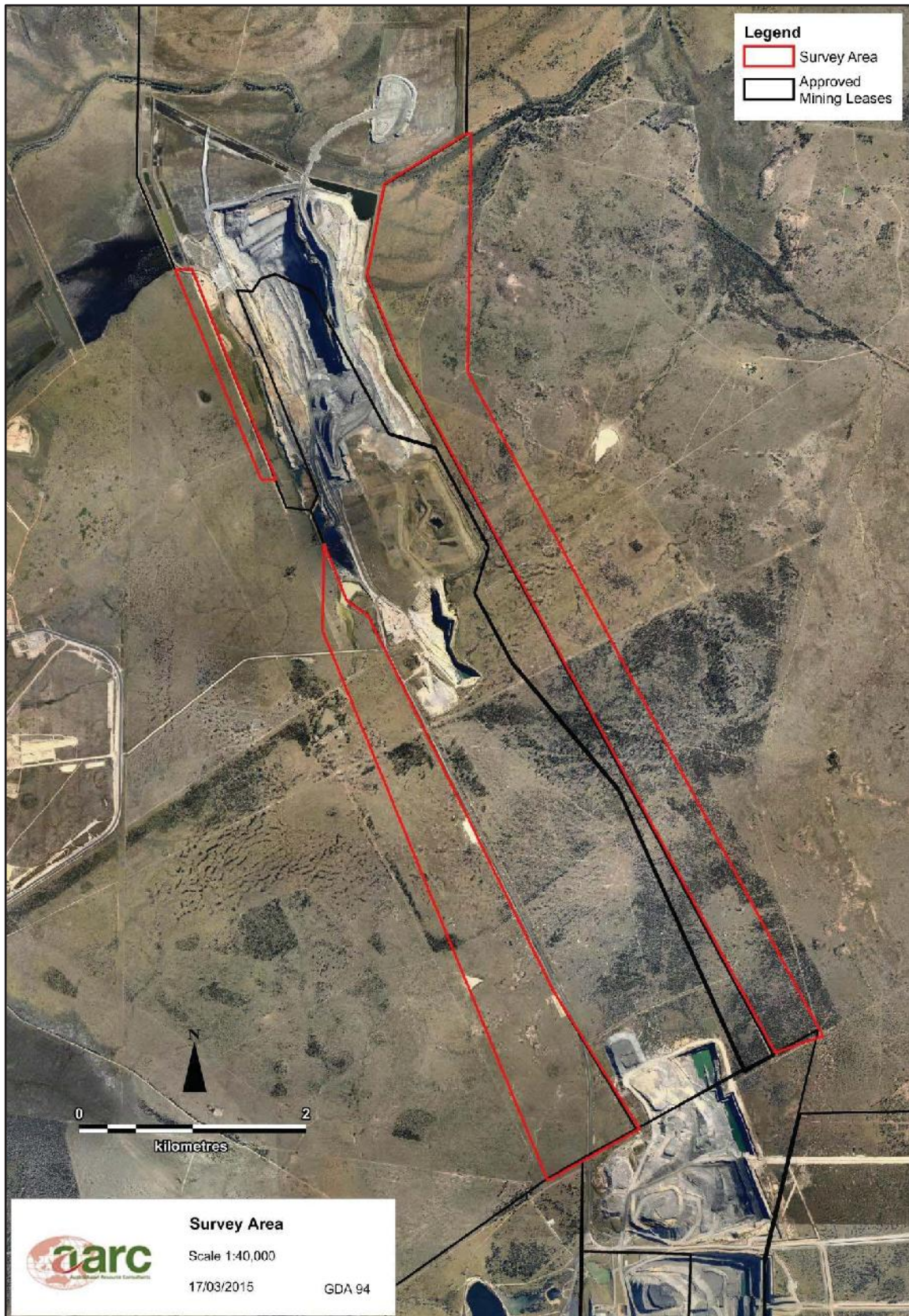


Figure 1 Location of the Jellinbah Coal Mine





**Figure 2 Location of the Survey Area**



## **2.1 PROJECT DESCRIPTION**

The Project entails a small extension of the existing approved mining and dumping areas of Jellinbah Central into proposed new adjacent mining lease areas. Project activities will entail an extension of existing open-cut mining areas, as well as spoil placement in both in-pit and out-of-pit dumps.

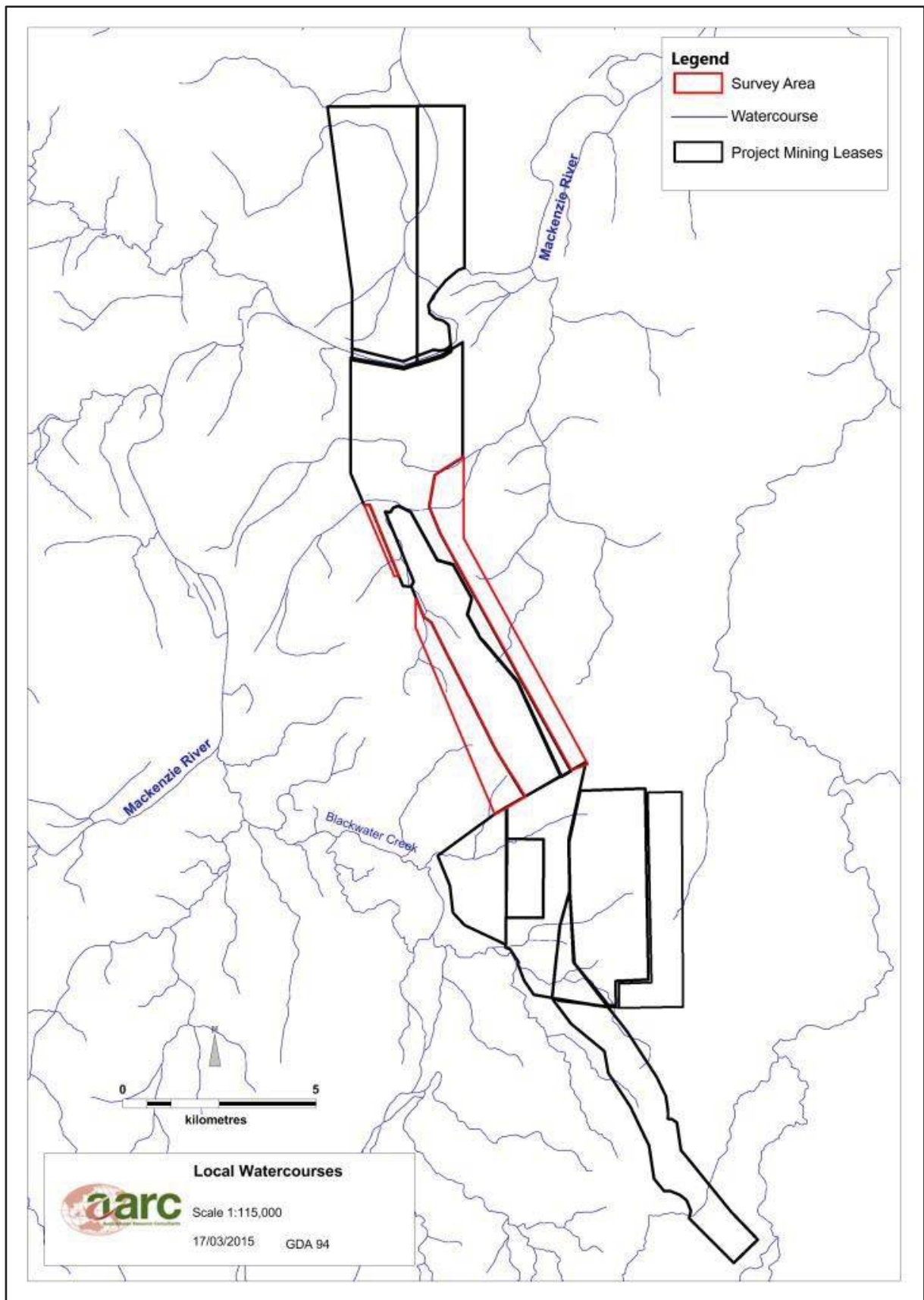
Topsoil stripped prior to mining will be stockpiled for later use in rehabilitation. Haul roads and water management infrastructure (sediment dams, drains, raw water storage and pipelines) will be constructed to facilitate mining activities.

## **2.2 LOCAL WATERWAYS AND TOPOGRAPHY**

Jellinbah Mine is located in the Mackenzie River Sub-basin of the Fitzroy Drainage Basin. Several small ephemeral watercourses flow through the Survey Area (refer to Figure 3). Five Mile Lagoon is located in the north-east of the Survey Area. These watercourses drain into the Mackenzie River, which is located several kilometres north of MDL 185. The Mackenzie River flows into the Fitzroy River, which flows east into the Coral Sea south-east of Rockhampton.

Topography of the Survey Area consists of flat to gently undulating plains.





**Figure 3** Local waterways surrounding the Jellinbah Coal Mine and Survey Area



## 2.3 GEOLOGY AND SOILS

The Survey Area falls within the central part of the Bowen Basin, which contains Permian aged coal reserves. The Jellinbah Mine deposit lies in an area bounded by the Jellinbah Fault to the west and the Yarrabee Fault to the east. Strata to the west of the Jellinbah Fault are mildly deformed and strata to the east of the Yarrabee fault are intensely folded and faulted.

Underlying geology of the Survey Area is predominantly Tertiary aged mudstone, sandstone, conglomerate, siltstone, oil shale, lignite and basalt. Areas of Tertiary to Quaternary aged sand, silt, clay, gravel and alluvial deposits are found to the north of the Survey Area.

The soils of the Survey Area are typically red brown clay, loams or a similar variant. Melon holes are common in areas.

## 2.4 REGIONAL CLIMATE

Regional climate data has been sourced from the Australian Bureau of Meteorology. Rainfall data was sourced from the New Caledonia weather station (035132), which has been recording rainfall data since 1968. Average annual rainfall for the region is 568.9 millimetres (mm). Average monthly rainfall for the region is shown in Figure 4. Long-term temperature data was sourced from the Emerald Airport station (035264), which has been recording temperature data since 1992. Average monthly temperatures recorded for the region are shown in Figure 4. The lowest minimum temperature averages 8.9 degrees Celsius (°C) during the month of July. The highest maximum temperatures typically occur in January where the average maximum temperature reaches 34.4°C.

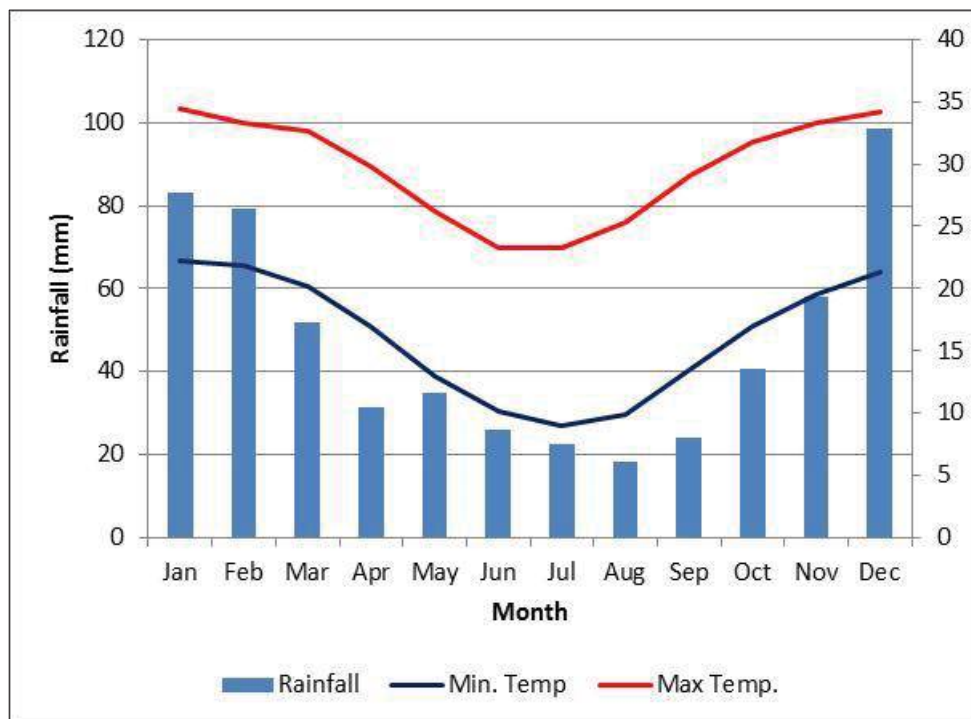


Figure 4 Regional Rainfall and Temperature Data

Temperature data recorded during the survey period was obtained from the Blackwater Airport station (035134). Rainfall data was obtained from the Mackenzie River Gauging Station at Jellinbah Coal Mine. 5.5 mm of rain fell during the last two days of the survey period. Minimum daily temperatures

recorded throughout the survey period ranged from 18.9 to 23.0°C. Maximum daily temperatures were recorded in the range of 29.0 to 33.3°C. Strong winds were present throughout the survey period, associated with tropical cyclone activity on the central Queensland coast. Conditions prior to the survey were wet, with 127.5 mm of rainfall recorded in January and 25 mm of rainfall recorded in February prior to the survey.

## **2.5 CURRENT LAND AND WATER USE**

The Survey Area is currently used for cattle grazing. Adjacent land is used for cattle grazing and open-cut coal mining activities. Five stock watering dams, several exploration tracks and drill pads, and a powerline easement are located within the Survey Area. Surface water in the Survey Area is currently used for livestock watering.



## 3.0 RELEVANT STATE LEGISLATION

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Legislation relevant to the assessment of flora, fauna and biodiversity in the Survey Area is discussed below.

### 3.1 QUEENSLAND ENVIRONMENTAL OFFSETS FRAMEWORK

The Queensland environmental offsets framework consists of the *Environmental Offsets Act 2014*, the *Environmental Offsets Regulation 2014* and the *Queensland Environmental Offsets Policy 2014* (EHP, 2014). The offsets framework requires environmental offsets to be delivered where an activity is likely to result in a significant residual impact on a prescribed environmental matter. The *Significant Residual Impact Guideline* (EHP, 2014a) is used to determine whether the residual impacts are considered to be significant.

Prescribed Environmental Matters include:

- Matters of National Environmental Significance;
- Matters of State Environmental Significance (MSES) (outlined below); and
- Matters of Local Environmental Significance.

MSES are defined in Schedule 2 of the *Environmental Offsets Regulation 2014*, and comprise:

- Endangered and Of Concern Regional Ecosystems (REs);
- REs that intersect wetlands shown on the vegetation management wetlands map;
- REs that are located within a defined distance from the defining banks of a relevant watercourse;
- REs mapped as essential habitat for endangered and vulnerable flora and fauna;
- REs that form connectivity areas that maintain ecosystem functioning;
- Wetlands in wetland protection areas;
- Wetlands of high ecological significance;
- Wetlands and watercourses in high ecological value waters;
- Designated precincts in a strategic environmental areas under the *Regional Planning Interests Regulation 2014*;
- Protected wildlife habitat; which includes:
  - High risk areas on the flora survey trigger map;
  - Areas that contain endangered or vulnerable plants;
  - Non-juvenile koala habitat trees in certain areas of south-east Queensland;





- Habitat for endangered, vulnerable and special least concern animals;
- Protected areas and highly protected zones of State marine parks;
- Fish habitat areas under the *Fisheries Act 1994*;
- Waterways providing for fish passage (if waterway barrier works will limit fish passage);
- Marine plants; and
- Legally secured offset areas.

Matters of Local Environmental Significance are set out in local planning instruments.

Offsets may be delivered as a financial settlement, a land-based offset, delivery of actions contained in the government's Direct Benefit Management Plans, or a combination of these approaches.

### **3.2 NATURE CONSERVATION ACT 1992**

The *Nature Conservation Act 1992* (NC Act) applies to protected wildlife. Protected wildlife is categorised as:

- Extinct in the wild;
- Endangered;
- Vulnerable;
- Near Threatened; or
- Least Concern (including Special Least Concern).

The associated *Nature Conservation (Wildlife) Regulation 2006* lists the species that fall into each of these categories.

The NC Act is relevant to the Project if any impacts on protected flora and/or fauna species are predicted as a result of the Project.

### **3.3 VEGETATION MANAGEMENT ACT 1999**

The *Vegetation Management Act 1999* (VM Act) is the key component for regulation of Queensland's native vegetation management system. The associated *Vegetation Management Regulation 2000* prescribes the status of REs in Queensland. REs are classified as Endangered, Of Concern or Least Concern, based on the remaining extent of the RE.

The RE mapping and classifications provided by the VM Act and associated regulation are of relevance to the Project, as they provide useful information on the vegetation in the Survey Area, including its conservation significance.

Each RE has two conservation statuses assigned to it: a VM Act status and a Department of Environment and Heritage Protection (EHP) Biodiversity Status. The VM Act status is the basis for determining MSES when assessing vegetation offset requirements. Biodiversity Status is discussed in more detail in the following section.



An integral component of vegetation categorisation is determining whether vegetation is classed as Remnant or Regrowth. The VM Act defines Remnant vegetation as vegetation:

- Covering more than 50% of the undisturbed predominant canopy;
- Averaging more than 70% of the vegetation's undisturbed height; and
- Composed of species characteristic of the vegetation's undisturbed predominant canopy.

The VM Act defines Regrowth vegetation as vegetation that is not Remnant vegetation.

### **3.4 QUEENSLAND DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION BIODIVERSITY STATUS**

The EHP Biodiversity Status is a classification assigned to REs in order to assist with biodiversity planning in Queensland. The Biodiversity Status is assigned based upon an assessment of the condition of the vegetation, in addition to the pre-clearing and current extent of an RE. It takes into account other threatening processes in addition to land clearing, such as:

- Reduction in biodiversity;
- Weed invasion;
- Grazing pressures;
- Inappropriate fire management;
- Fragmentation; and
- Infrastructure development.

The Biodiversity Status is not a legislated tool, however, it provides useful desktop information relevant to condition and impact assessment.

### **3.5 BIODIVERSITY PLANNING ASSESSMENT**

Biodiversity Planning Assessments (BPA) were developed by the Queensland government to assess and protect biodiversity values in bioregions exposed to intensive planning and development. Panels of experts were established to assess three categories of biodiversity values in each bioregion: Landscape, Flora and Fauna. Within each category, species, habitats and significant landscape features were identified and ranked in order of concern/conservation significance (Low, Medium, High, Critical; Regional and State).

Geographical Information System (GIS) data output displays spatial information on the significant features identified during the BPAs.

The Brigalow Belt BPA and GIS data were reviewed to determine if there are any significant ecological values in the Survey Area.



### **3.6 LAND PROTECTION (PEST AND STOCK ROUTE MANAGEMENT) ACT 2002**

The objectives of the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act) are to manage and control pest and weed species declared under the Act and to protect and manage Queensland's stock route network.

The classes of pest set out in the LP Act are:

- Class 1 – pests that are not commonly present in Queensland, and if introduced would cause an adverse economic, environmental or social impact;
- Class 2 – pests that are established in Queensland and have, or could have, a substantial adverse economic, environmental or social impact; and
- Class 3 – pests that are widespread in Queensland and have, or could have, an adverse economic, environmental or social impact.

The LP Act requires that land managers prevent the spread of declared pests on their land and manage declared pests effectively.

## 4.0 DATABASE SEARCH AND LITERATURE REVIEW

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### 4.1 LITERATURE REVIEW

A review of environmental literature available for the local area identified the following relevant documents:

- *Mackenzie South Flora and Fauna Assessment* (AARC, 2006).
- *Mackenzie North Project Terrestrial Flora and Fauna Report* (AARC, 2013).
- *Curragh North Project Flora and Fauna Survey* (AARC, 2003).

Each of these documents was briefly reviewed to obtain background ecological information.

### 4.2 DATABASE SEARCHES

Database searches gather information on flora and fauna species identified from previous ecological surveys, museum and observational records. A review of database records facilitates the formulation of field survey techniques to target significant flora and fauna species known from the region.

The following database searches were undertaken using a 100 km buffer around a central coordinate:

- Protected Matters Search, administered by the DOE. This search was used to ascertain if any MNES are likely to occur in the Survey Area; and
- EHP's Wildlife Online database. This search provides a list of all flora and fauna species recorded in the search area, including any threatened species.

The government's regulated vegetation mapping was reviewed to determine which remnant vegetation communities are mapped in the Survey Area. The mapping also shows any known Essential Habitat for threatened species.

A Protected Plants Flora Survey Trigger Map was generated for the Survey Area to determine if any threatened flora species have been recorded within the Survey Area. The Protected Plants Flora Survey Trigger Map shows high risk areas for protected plants and is used to help determine flora survey and clearing permit requirements for a particular location (EHP, 2015).

EHP's Environmentally Sensitive Area (ESA) mapping was consulted to identify any ESAs in the Survey Area. ESAs include Endangered REs, National Parks, State Forests, Ramsar wetlands and other protected areas.

The Brigalow Belt BPA GIS dataset was viewed to identify Regional and/or State significant biodiversity values for the Survey Area.

The Queensland Wetland Mapping Database was searched to determine if there are any wetlands mapped in the Survey Area. A map of Referable Wetlands under the *Environmental Protection Act 1994* was also generated.

The database searches and literature review revealed that a number of flora and fauna species of conservation significance are known from the region surrounding the Survey Area. Database search results are included in Appendix A and summarised below.



## **4.3 FLORA**

### **4.3.1 Threatened Ecological Communities**

The Protected Matters Search tool identified six Threatened Ecological Communities under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that could potentially occur in the Survey Area. These communities are known from the broader region and are listed in Table 1.

**Table 1 Threatened Ecological Communities within the Region**

Community Name	EPBC Act Status
Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant)	Endangered
Broad Leaf Tea-tree ( <i>Melaleuca viridiflora</i> ) woodlands in high rainfall coastal north Queensland	Endangered
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered
Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin	Endangered
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered
Weeping Myall Woodlands	Endangered

#### 4.3.2 Regional Ecosystems

The Survey Area is mapped predominantly as non-remnant vegetation. Three small areas mapped as remnant vegetation containing endangered REs occur within the Survey Area. These areas contain four mapped REs, which are presented in Table 2 below. Three of the mapped REs are listed as Endangered under the VM Act classification and Biodiversity Status. The RE mapping for the Survey Area is shown in Figure 5.

**Table 2 Regional Ecosystems Mapped in the Survey Area**

Regional Ecosystem	Description	VM Act Status	EHP Biodiversity Status
11.4.8	<i>Eucalyptus cambageana</i> woodland to open forest with <i>Acacia harpophylla</i> or <i>A. argyrodendron</i> on Cainozoic clay plains	Endangered	Endangered
11.4.9	<i>Acacia harpophylla</i> shrubby open forest to woodland with <i>Terminalia oblongata</i> on Cainozoic clay plains	Endangered	Endangered
11.3.1	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains	Endangered	Endangered
11.3.3	<i>Eucalyptus coolabah</i> woodland on alluvial plains	Of Concern	Of Concern



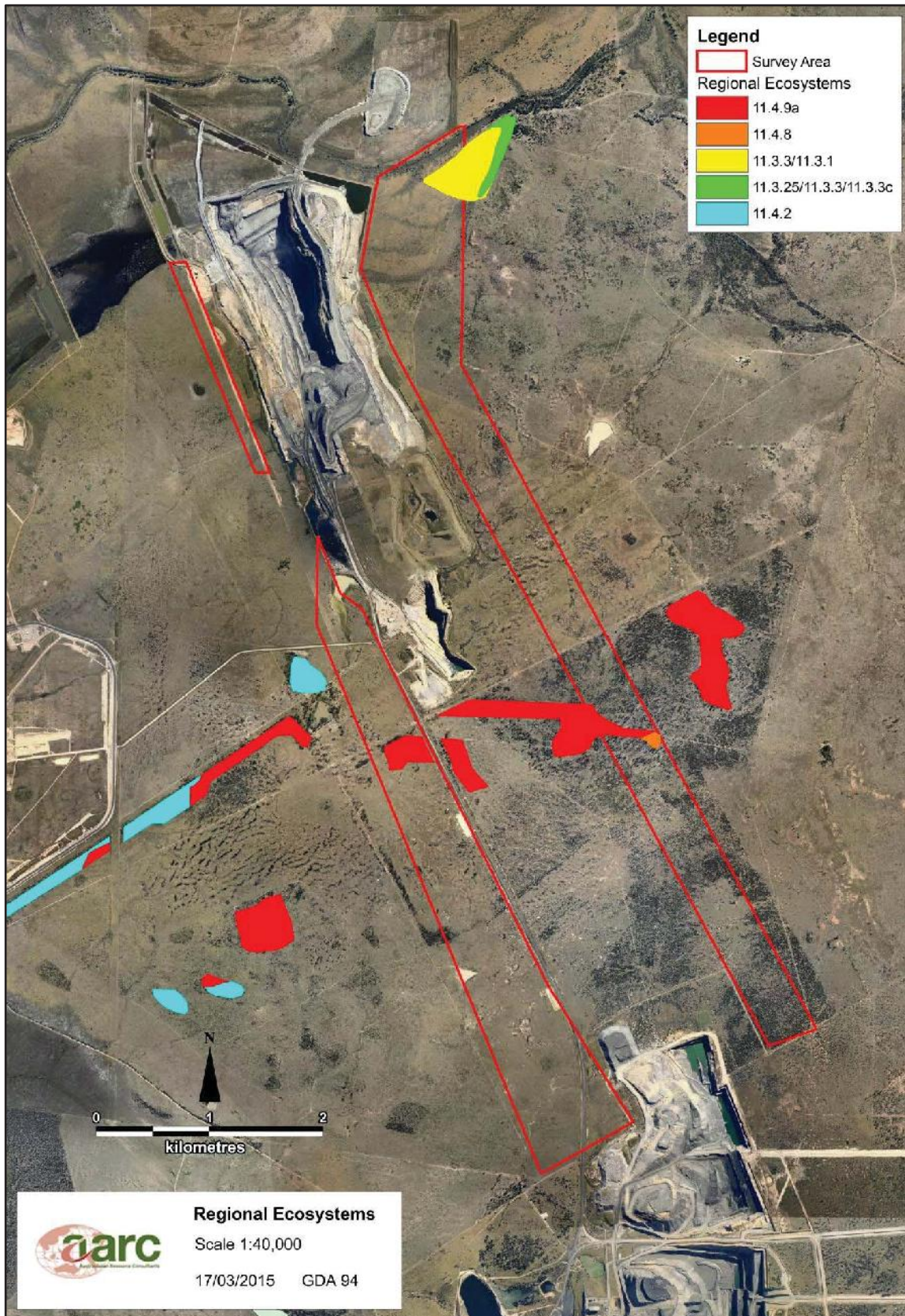


Figure 5 Regional Ecosystem Map for the Survey Area

### 4.3.3 Threatened Flora Species

Database searches identified 61 species of threatened flora that have been recorded within the region in which the Survey Area is located. These species are listed in Table 3. The search results include a large number of rainforest and montane species due to the proximity of the site to the Blackdown Tableland. There is no suitable habitat for such species in the Survey Area. The Protected Plants Survey Trigger Mapping showed that there are no high risk areas for protected plants within the Survey Area.

**Table 3 Flora Species of Conservation Significance that are Known to Occur in the Local Region**

Species Name	Common Name	EPBC Act Status	NC Act Status
<i>Acacia arbiana</i>	-	-	Near Threatened
<i>Acacia grandifolia</i>	-	Vulnerable	-
<i>Acacia spania</i>	-	-	Near Threatened
<i>Acacia storyi</i>	-	-	Near Threatened
<i>Aristida annua</i>	-	Vulnerable	Vulnerable
<i>Baeckea trapeza</i>	-	-	Vulnerable
<i>Bertya opposens</i>	-	Vulnerable	-
<i>Bertya pedicellata</i>	-	-	Near Threatened
<i>Bursaria reevesii</i>	-	-	Vulnerable
<i>Cadellia pentastylis</i>	Ooline	Vulnerable	Vulnerable
<i>Capparis thozetiana</i>	-	Vulnerable	Vulnerable
<i>Cerbera dumicola</i>	-	-	Near Threatened
<i>Commersonia pearnii</i>	-	-	Endangered
<i>Corchorus thozetii</i>	-	-	Extinct in the Wild
<i>Corymbia xanthope</i>	Glen Geddes Bloodwood	Vulnerable	Vulnerable
<i>Cycas megacarpa</i>	-	Endangered	Endangered
<i>Cycas ophiolitica</i>	Marlborough Blue	Endangered	Endangered





Species Name	Common Name	EPBC Act Status	NC Act Status
<i>Cymbonotus maidenii</i>	-	-	Endangered
<i>Cyperus clarus</i>	-	-	Vulnerable
<i>Daviesia discolor</i>	-	Vulnerable	Vulnerable
<i>Daviesia quoquoversus</i>	-	-	Vulnerable
<i>Dichanthium queenslandicum</i>	King Blue-grass	Endangered	Vulnerable
<i>Dichanthium setosum</i>	Bluegrass	Vulnerable	-
<i>Digitaria porrecta</i>	Finger Panic Grass	-	Near Threatened
<i>Eucalyptus raveretiana</i>	Black Ironbox	Vulnerable	-
<i>Eucalyptus sicilifolia</i>	-	-	Vulnerable
<i>Gastrodia crebriflora</i>	-	-	Vulnerable
<i>Genoplesium pedersonii</i>	-	-	Vulnerable
<i>Genoplesium validum</i>	-	-	Vulnerable
<i>Hakea trineura</i>	-	Vulnerable	Vulnerable
<i>Homoranthus decumbens</i>	-	Endangered	Vulnerable
<i>Logania diffusa</i>	-	Vulnerable	Vulnerable
<i>Lissanthe brevistyla</i>	-	-	Vulnerable
<i>Livistona fulva</i>	Blackdown Fan Palm	-	Near Threatened
<i>Macropteranthes leiocaulis</i>	Smooth-barked Bonewood	-	Near Threatened
<i>Macrozamia platyrhachis</i>	Cycad	Endangered	Endangered
<i>Macrozamia serpentina</i>	-	-	Endangered
<i>Marsdenia brevifolia</i>	-	Vulnerable	Vulnerable
<i>Melaleuca pearsonii</i>	-	-	Near Threatened

Species Name	Common Name	EPBC Act Status	NC Act Status
<i>Melaleuca groveana</i>	-	-	Near Threatened
<i>Myrsine serpenticola</i>	-	-	Endangered
<i>Neoroepera buxifolia</i>	-	Vulnerable	Vulnerable
<i>Ochrosperma obovatum</i>	-	-	Vulnerable
<i>Omphalea celata</i>	-	Vulnerable	Vulnerable
<i>Olearia macdonnellensis</i>	-	-	Endangered
<i>Pimelea leptospermoides</i>	-	Vulnerable	Near Threatened
<i>Phaius australis</i>	Lesser Swamp-orchid	Endangered	Endangered
<i>Plectranthus blakei</i>	-	-	Near Threatened
<i>Polianthion minutiflorum</i>	-	Vulnerable	Vulnerable
<i>Pseudanthus pauciflorus</i> subsp. <i>arenicola</i>	-	-	Near Threatened
<i>Pultenaea setulosa</i>	-	Vulnerable	Vulnerable
<i>Rutidosis glandulosa</i>	-	-	Near Threatened
<i>Sannantha brachypoda</i>	-	-	Near Threatened
<i>Samadera bidwillii</i>	Quassia	Vulnerable	Vulnerable
<i>Solanum adenophorum</i>	-	-	Endangered
<i>Solanum dissectum</i>	-	-	Endangered
<i>Solanum elachophyllum</i>	-	-	Endangered
<i>Stackhousia tryonii</i>	-	-	Near Threatened
<i>Streblus pendulinus</i>	Siah's Backbone	Endangered	-
<i>Trioncinia patens</i>	Peak Downs Daisy	-	Endangered
<i>Trioncinia retroflexa</i>	Belyando Cobblers Peg	-	Endangered

## 4.4 FAUNA

### 4.4.1 Threatened Fauna Species

A review of the database searches revealed 34 threatened fauna species potentially occur in the broader region surrounding the Survey Area. These species are listed in Table 4.

A small area of essential habitat for the Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) is mapped in the north-east of the Survey Area (refer to the Regulated Vegetation Management Map in Appendix A). The Squatter Pigeon has previously been recorded in the vicinity of the Survey Area.

**Table 4 Fauna Species of Conservation Significance that are Known to Occur in the Local Region**

Scientific Name	Common Name	EPBC Act Status	NC Act Status
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	Least Concern
<i>Neochmia ruficauda ruficauda</i>	Star Finch (eastern)	Endangered	Endangered
<i>Onychogalea fraenata</i>	Bridled Nail-tail Wallaby	Endangered	Endangered
<i>Lasiorhinus krefftii</i>	Northern Hairy-nosed Wombat	Endangered	Endangered
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable	Endangered
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Vulnerable
<i>Denisonia maculata</i>	Ornamental Snake	Vulnerable	Vulnerable
<i>Egernia rugosa</i>	Yakka Skink	Vulnerable	Vulnerable
<i>Furina dunmalli</i>	Dunmall's Snake	Vulnerable	Vulnerable
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable	Vulnerable
<i>Nyctophilus corbeni</i>	South-eastern Long-eared Bat	Vulnerable	Vulnerable
<i>Delma torquata</i>	Collared Delma	Vulnerable	Vulnerable
<i>Lerista allanae</i>	Allan's Lerista	Endangered	Endangered
<i>Phascolarctos cinereus</i>	Koala	Vulnerable	Least Concern
<i>Eelseya albagula</i>	Southern Snapping Turtle	Critically Endangered	-
<i>Rheodytes leukops</i>	Fitzroy River Turtle	Vulnerable	Vulnerable
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Vulnerable

Scientific Name	Common Name	EPBC Act Status	NC Act Status
<i>Ancanthophis antarcticus</i>	Common Death Adder	-	Near Threatened
<i>Ninox strenua</i>	Powerful Owl	-	Vulnerable
<i>Psephotus pulcherrimus</i>	Paradise Parrot	Extinct	Extinct in the Wild
<i>Lathamus discolor</i>	Swift Parrot	Endangered	Endangered
<i>Adelotus brevis</i>	Tusked Frog	-	Vulnerable
<i>Calyptorhynchus lathami</i>	Glossy Black Cockatoo	-	Vulnerable
<i>Falco hypoleucos</i>	Grey Falcon	-	Near Threatened
<i>Grantiella picta</i>	Painted Honeyeater	-	Vulnerable
<i>Pedionomus torquatus</i>	Plains Wanderer	Vulnerable	Vulnerable
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	-	Vulnerable
<i>Hemiaspis damelii</i>	Grey Snake	-	Endangered
<i>Crocodylus porosus</i>	Salt-water Crocodile	-	Vulnerable
<i>Poephila cincta cincta</i>	Black-throated Finch (southern)	Endangered	Endangered
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable	Vulnerable
<i>Bidyanus bidyanus</i>	Silver Perch	Critically Endangered	-
<i>Jalmenus eubulus</i>	Pale Imperial Hairstreak	-	Vulnerable
<i>Strophurus taenicauda</i>	Golden-tailed Gecko	-	Near Threatened

#### 4.4.2 Migratory Fauna Species

The Protected Matters Search identified a total of 16 listed migratory and/or marine species under the EPBC Act that may inhabit the region. A full list of these species is presented in Table 5.



**Table 5 Migratory and Marine Overfly Species within the Region**

Scientific Name	Common Name	EPBC Act Listing
<i>Anseranas semipalmata</i>	Magpie Goose	Marine Overfly
<i>Ardea alba</i>	Great Egret	Migratory, Marine Overfly
<i>Ardea ibis</i>	Cattle Egret	Migratory, Marine Overfly
<i>Apus pacificus</i>	Fork Tailed Swift	Migratory, Marine Overfly
<i>Gallinago hardwickii</i>	Latham's Snipe	Migratory, Marine Overfly
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle	Migratory, Marine Overfly
<i>Hirundapus caudacutus</i>	White Throated Needle-tail	Migratory, Marine Overfly
<i>Hirundo rustica</i>	Barn Swallow	Migratory, Marine Overfly
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory, Marine Overfly
<i>Monarcha melanopsis</i>	Black Faced Monarch	Migratory, Marine Overfly
<i>Monarcha trivirgatus</i>	Spectacled Monarch	Migratory, Marine Overfly
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory, Marine Overfly
<i>Pandion haliaetus</i>	Osprey	Marine Overfly
<i>Rhipidura rufifrons</i>	Rufous Fantail	Migratory, Marine Overfly
<i>Crocodylus porosus</i>	Salt-water Crocodile	Migratory, Marine
<i>Rostratula benghalensis s. lat.</i>	Painted Snipe	Migratory, Marine Overfly

#### 4.5 ENVIRONMENTALLY SENSITIVE AREAS

EHP's ESA mapping (see Figure 6) shows that three small portions of the Survey Area are mapped as Category B ESAs, due to the presence of REs with a Biodiversity Status of Endangered. These Endangered REs are RE 11.4.8, 11.4.9, and 11.3.1 – *Acacia harpophylla* woodland to open forest on plains. No Category A or C ESAs are mapped on or in the vicinity of the Survey Area. No National Parks, State Forests, reserves, World Heritage Areas, heritage sites, Ramsar wetlands, marine parks or fish habitat areas are located within the Survey Area.

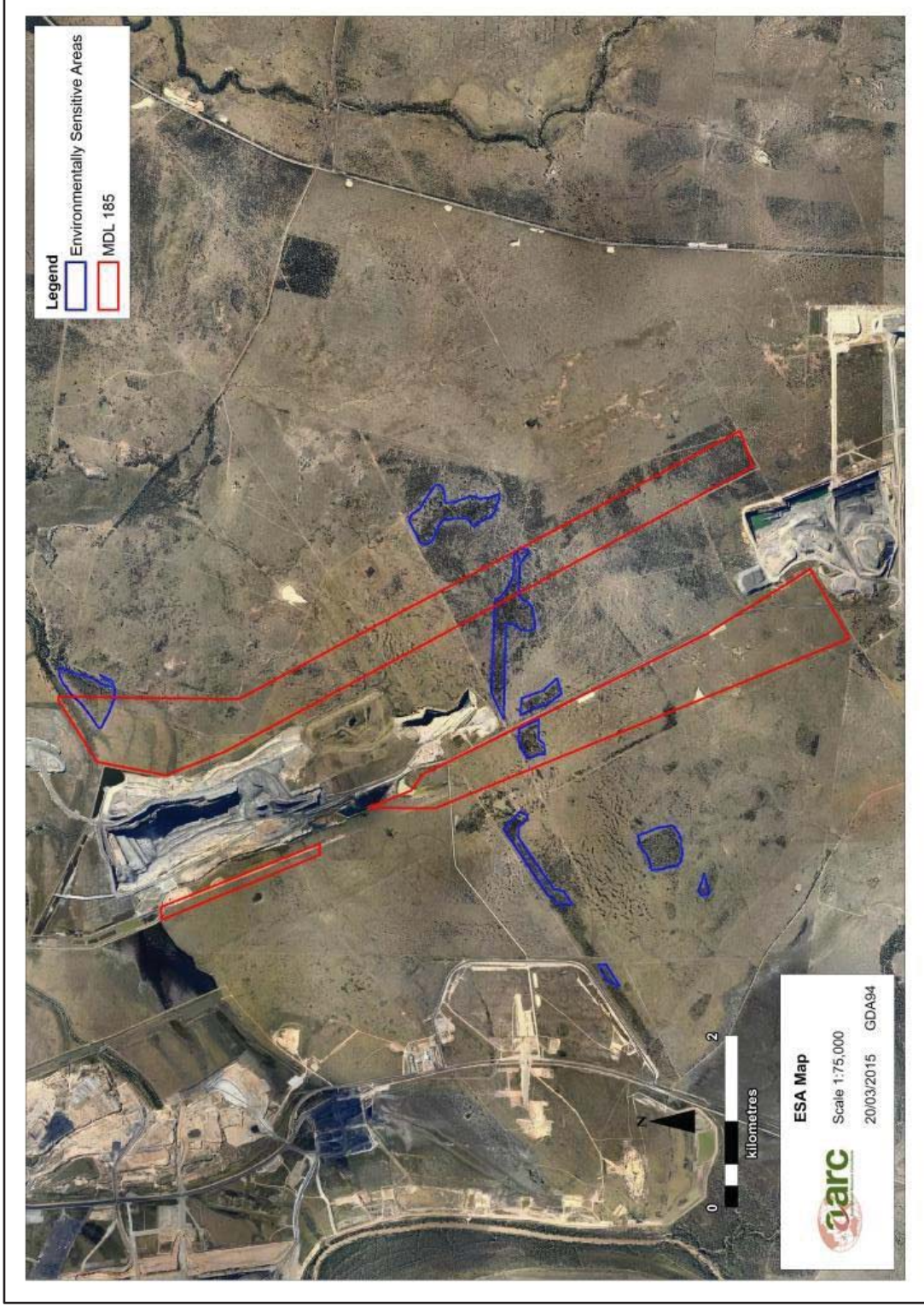


Figure 6 ESA Map for the Survey Area



## 4.6 WETLANDS

The results of the database searches (Appendix A) showed that there are several riverine systems mapped within the Survey Area. Portions of one palustrine wetland (Five Mile Lagoon) and one lacustrine wetland (a large cattle dam) fall within the Survey Area. Palustrine wetlands are also located immediately downstream of the Survey Area. The Map of Referrable Wetlands shows that Five Mile Lagoon is a wetland of General Ecological Significance. No Ramsar wetlands or wetlands listed on the Directory of Important Wetlands are located within the Survey Area.

Wetlands and watercourses within the Survey Area are presented in Figure 7.



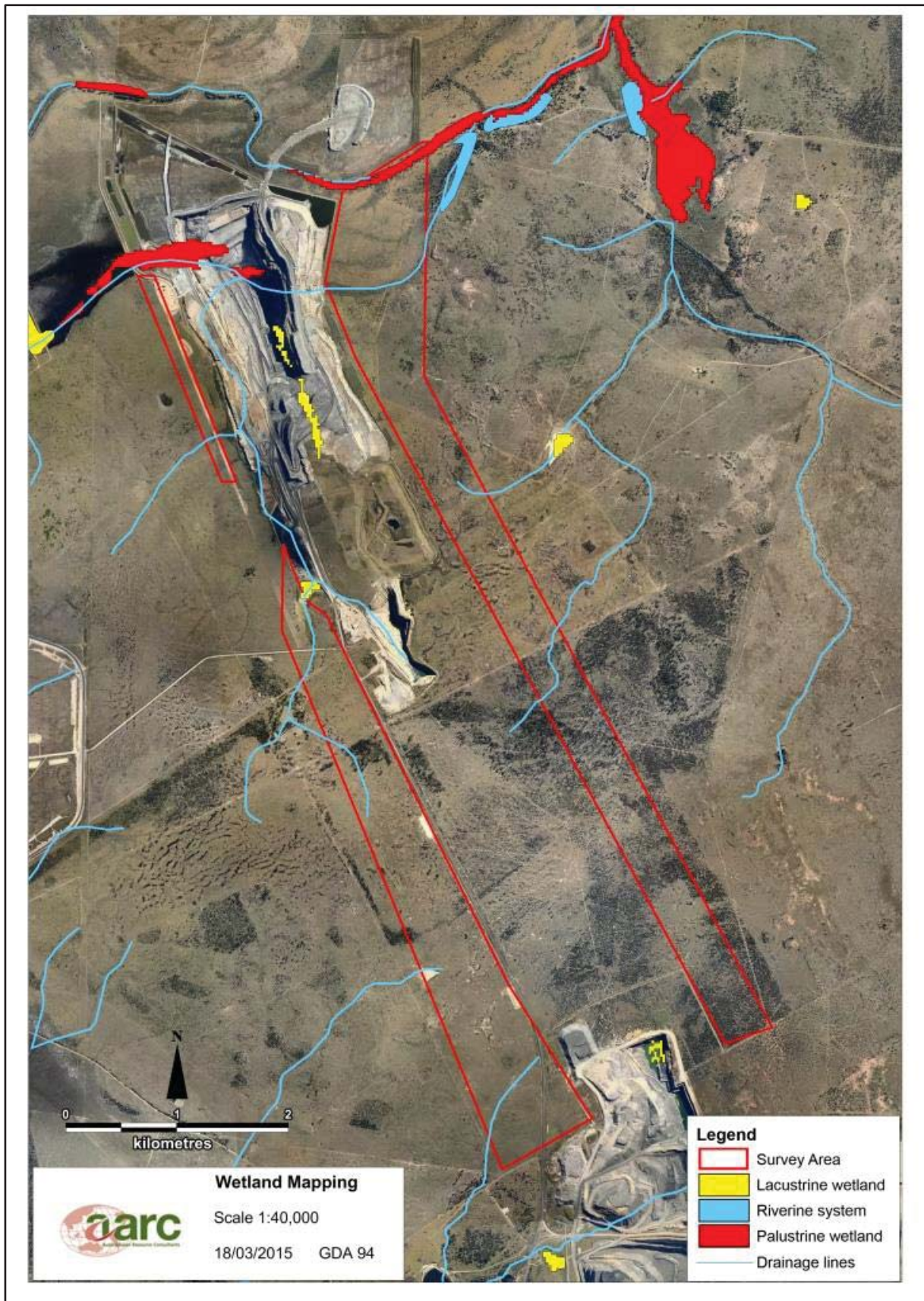


Figure 7 Mapped Wetlands and Watercourses of the Survey Area

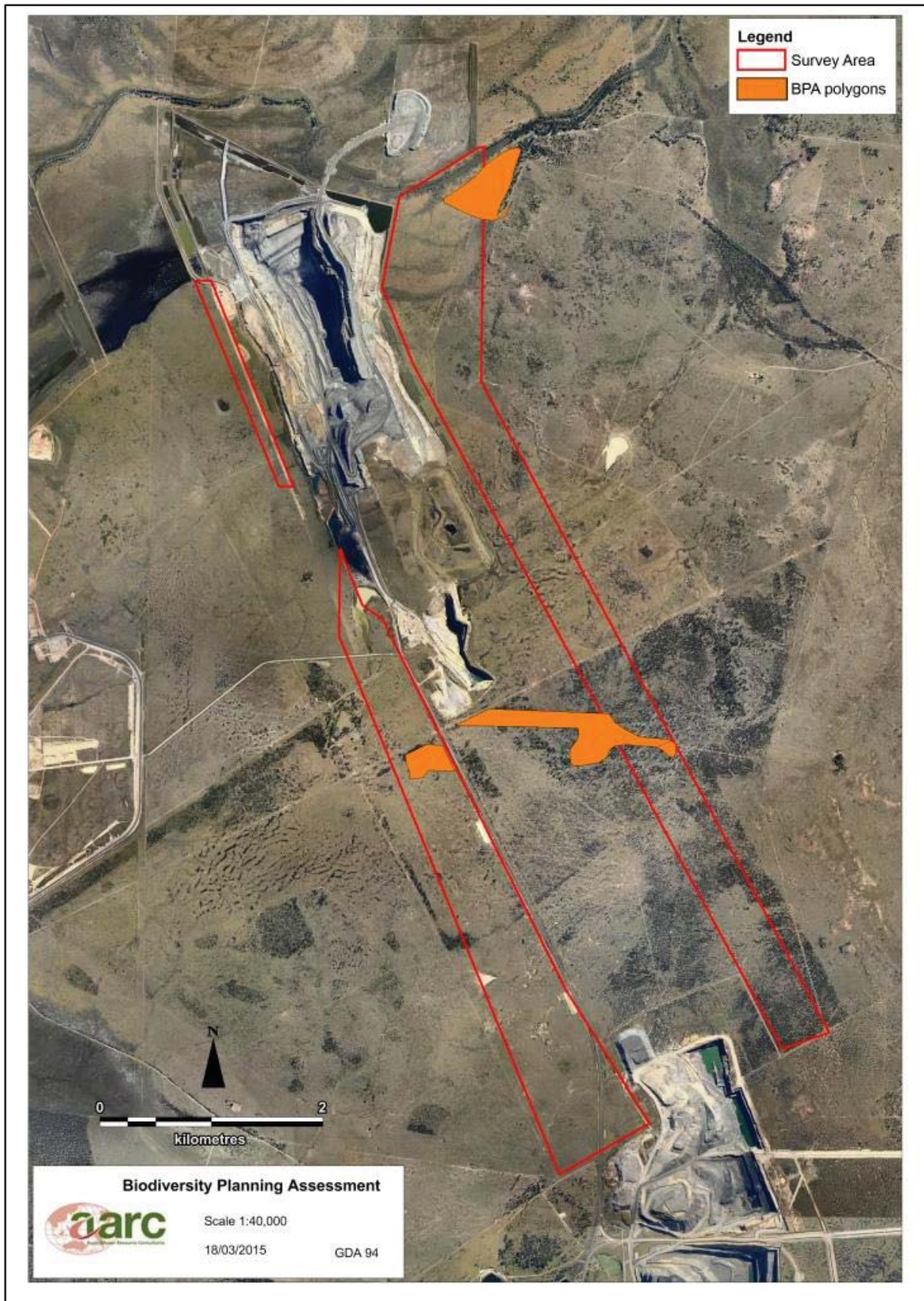


## 4.7 BIODIVERSITY PLANNING ASSESSMENT

The four polygons of remnant vegetation mapped in the Survey Area are recognised under the BPA. Three of the polygons are classified under the BPA as areas of State and Regional biodiversity significance. The northernmost polygon is classified as an area of Regional biodiversity significance. Three of the polygons are mapped as containing Endangered REs, while the northernmost polygon is currently mapped as containing an Of Concern RE and potentially containing an Endangered RE. The mapped REs are poorly conserved (<10% reserved in the region and subregion) and classified as high to very high conservation value REs, as less than 30% of the pre-clearing extent remains in the subregion. The Ecosystem Value of the mapped REs at the bioregional and sub-regional levels is classified from High to Very High. The condition of the vegetation is rated as Very High. The BPA also identifies the vegetation of the Survey Area as a high value wildlife refuge area. The tract size and threatened species habitat classification of the remnant polygons are rated as low.

The areas to which the BPA applies are shown in Figure 8.





**Figure 8 Biodiversity Planning Assessment Map**



## 5.0 METHODOLOGY

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A combination of desktop studies and a field survey were used to investigate the environmental values of the Survey Area. The field survey was conducted from 16<sup>th</sup> – 20<sup>th</sup> February 2015. Survey methodologies are described in detail below.

### 5.1 FLORA

The flora survey for the Project was conducted in accordance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al., 2012).

#### 5.1.1 Vegetation Classification and Regional Ecosystem Mapping

The field survey used standard floristic survey methods (Neldner et al., 2012) to identify and map vegetation communities. Two vegetation survey techniques (Secondary and Quaternary plots) were utilised during the field survey.

Secondary sites consist of a 20 metre (m) x 50 m transect, marked using a Global Positioning System (GPS) and measured with a marking tape. Data recorded at each Secondary site includes a complete floral assemblage (all species observed from each vegetation layer). Species that fall outside the plot but are deemed typical of the community are also listed. Where a plant could not be positively identified to species level, a voucher specimen was collected for identification by the Queensland Herbarium. Relative abundance for individual woody species in each stratum, stem density, foliage projection cover and height of the tree and shrub layers was recorded. Percentage composition of each ground cover species was recorded in five 1 m x 1 m quadrats located at 10 m intervals along the transect line. Three representative Secondary plots were positioned in each of the vegetation communities in the Survey Area. A total of six Secondary flora sites were assessed. Site locations are shown in Figure 9.

Quaternary survey sites consist of a single observation plot, marked on a GPS. At each plot, important features relevant to vegetation community mapping are noted, such as dominant species in the characteristic layers, vegetation structure, soil/landform and an intuitive classification of the vegetation (i.e. RE). These plots are commonly used to ground truth desktop assessment and/or mapping previously completed for the local area. Quaternary assessments were conducted at a higher intensity within the mapped vegetation polygons to enable fine scale mapping of remnant vegetation. A total of 72 Quaternary assessments were conducted. Quaternary site locations are shown in Figure 9.

The condition and quality of vegetation at each survey site was also assessed. Weed presence, including presence of noxious species, was noted.

A vegetation map of the Survey Area was produced following the field survey to a scale of 1:40,000. The map was developed based upon survey results, satellite images, aerial photographs, and geological maps of the Survey Area.



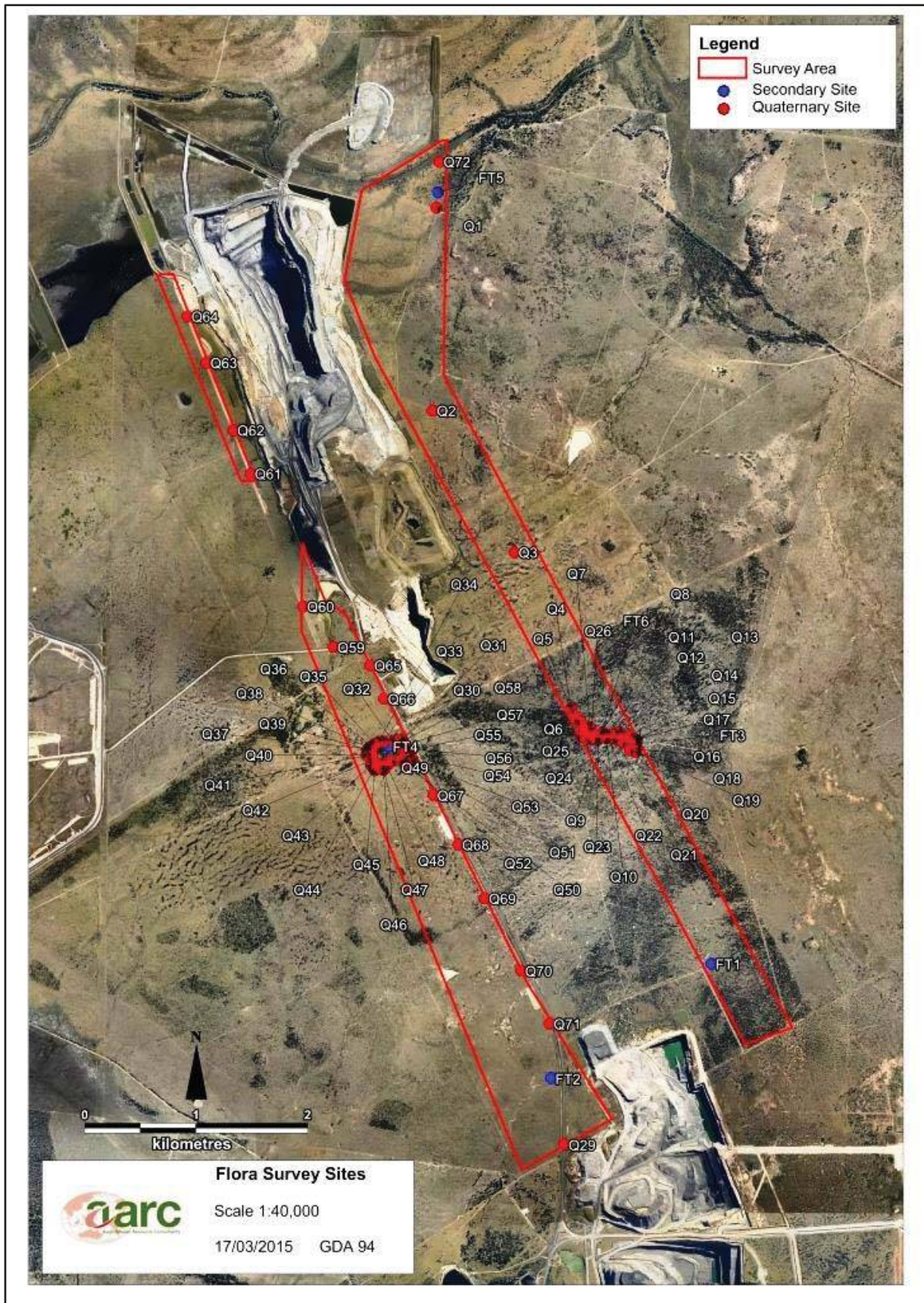


Figure 9 Location of Vegetation Survey Sites



## 5.1.2 Flora and Regional Ecosystem Identification

All plants encountered during the survey were identified by experienced and qualified ecologists using a number of field guides and other reference material where necessary. All REs were described and classified according to EHP's Regional Ecosystem Descriptions Database (EHP, 2014). For any plant species that could not be identified in the field, a specimen was collected and sent to the Queensland Herbarium for identification.

## 5.1.3 Surveys for Species of Conservation Significance

Several flora species of conservation significance were highlighted in the desktop searches undertaken prior to the field survey. Targeted searches for species of conservation significance were undertaken upon the identification of suitable habitat in the field. Such searches involved the use of methods discussed in Neldner et al. (2012).

The targeted survey technique utilised in this study was the 'Random Meander' survey. This technique involves traversing areas of suitable habitat along a meandering route whilst searching for the plant species of interest. If there was any uncertainty in identification of a species, a specimen was collected for identification by the Queensland Herbarium.

## 5.2 FAUNA

Survey methodology was developed in accordance with the *Terrestrial Vertebrate Fauna Survey Guidelines for Queensland* (DSITIA, 2014).

### 5.2.1 Detection Methods

A description of the techniques employed to survey the fauna occurring in the Survey Area is provided below.

#### 5.2.1.1 Elliot Trapping

Type 'A' Elliott traps (aluminium boxes with doors triggered by a floor treadle) were used to target small ground-dwelling mammals inhabiting the Survey Area during the field survey period. Traps were baited with a mixture of oats, honey, peanut butter, sesame oil and vanilla essence. At each site, 20 Elliott traps were deployed at strategically positioned locations. Traps were deployed in two lines, with each trap approximately 10 m from the next.

#### 5.2.1.2 Pitfall Trapping

A pitfall trap line was established at one of the survey sites to target small ground-dwelling fauna (reptiles, mammals and amphibians). The line consisted of a 20 centimetre tall drift fence running along the ground and crossing the middle of 20 litre buckets buried flush with the soil surface. The bottom edge of the drift fence was buried to guide target animals towards the buckets. A small amount of soil, vegetation litter, a damp sponge and a small plastic pipe were placed in the bottom of each bucket to provide shelter and moisture for captured wildlife. Pitfall traps could not be established at every site due to the extremely hard nature of the ground in the Survey Area.

#### 5.2.1.3 Funnel Trapping

Funnel traps are elongated box-shaped traps made of wire and fine mesh. They have two funnel shaped entrances which allow fauna to enter with ease but make exiting difficult. Funnel traps are used to catch medium and large-sized terrestrial reptiles, snakes and some species of medium-sized



skinks, dragons and geckos, which are able to climb out of pitfall traps. Pairs of funnel traps were placed at the end of the pitfall drift fence. At fauna sites where a pitfall trap could not be dug, six funnel traps were randomly placed in suitable habitat (such as areas of woody debris and clumps of low vegetation). Funnel traps were placed in shady areas and covered with hessian to prevent overheating of captured fauna.

#### 5.2.1.4 Motion Detector Camera Trapping

Camera trapping was utilised as a non-invasive and highly valuable fauna survey technique. A camera trap consists of a digital camera with a passive motion sensor pointed at a bait station. When movement is detected, the camera takes one or a series of photographs, depending on the settings used. This enables sites to be surveyed continuously throughout both day and night. Motion detector cameras were deployed at four sites.

Each camera trap consisted of a Scoutguard brand motion sensing digital camera attached to a tree trunk approximately 1 m above ground level and angled downward toward a bait station (located approximately 2.5 m from the base of the tree). A typical camera trapping setup is shown in Figure 10. Bait stations consisted of a small, perforated plastic tube containing marsupial bait (a mixture of peanut butter, oats, honey and vanilla essence) and surrounded with sesame oil or anchovies.

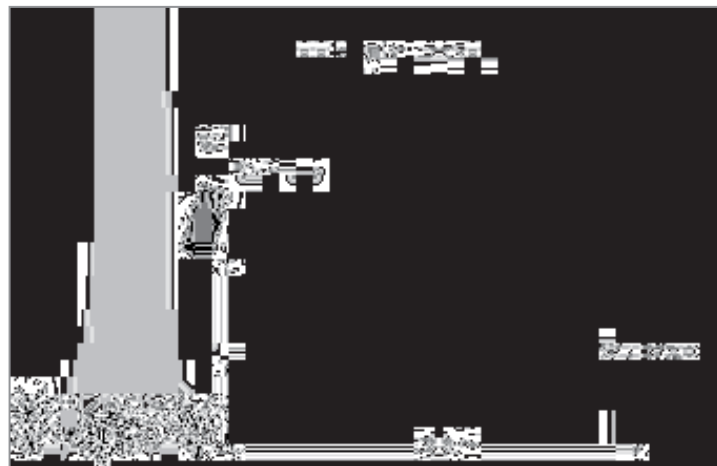


Figure 10 Generic Camera Trap Setup (taken from DSITIA, 2014)

#### 5.2.1.5 Micro-bat Surveys

Micro-bats (Microchiropterans) form an extremely diverse group of wildlife and the identification of individual species requires the use of specialised survey methods due to the superficial similarity of many species, their small size, and largely inaudible calls.

In order to navigate and hunt at night micro-bats use high frequency echolocation calls, most of which are above the frequency range audible to humans (i.e. ultrasound). These echolocation calls provide an opportunity to unobtrusively survey and identify micro-bats through the use of a specialised ultrasonic recorder such as a Songmeter or Anabat. Such recorders were positioned to detect micro-bat calls at two of the fauna sites. Sound recordings were sent to an experienced bat-call analyst (Greg Ford of Balance! Environmental, Toowoomba, Queensland) for analysis.

#### **5.2.1.6 Bird Surveys**

Bird species were surveyed on each morning of the survey and opportunistically throughout the survey period. Birds were identified through the use of binoculars and through call identification. A targeted bird site was established at a wetland in the north-west of the Project site. Opportunistic diurnal searches were conducted at all dams encountered during the survey, as these areas are likely to support high bird diversity.

#### **5.2.1.7 Habitat Searching**

To further enhance the likelihood of detecting small cryptic species, opportunistic diurnal searches of likely micro-habitats were conducted at fauna sites and opportunistically while moving through the Survey Area. Searching techniques involved the examination and rolling of logs, rustling through leaf litter, and peeling back of exfoliating bark from standing trees. Targeted habitat searches for the Ornamental Snake (*Denisonia maculata*) were undertaken in gilgai areas. Observed animals were caught where possible to aid positive species identification.

#### **5.2.1.8 Scat and Track Searches**

During the course of the survey opportunistic searches for scats and tracks were conducted at fauna and flora sites. Scats were collected and sent to an experienced scat analyst (Barbara Triggs of Dead Finish, Genoa, Victoria) for confirmation of species identification.

#### **5.2.1.9 Incidental Recordings**

Throughout the survey period, numerous wildlife species were observed or heard in the Survey Area during the course of routine activities (i.e. traversing the site, checking traps, conducting vegetation surveys, etc.). Where required, a closer inspection of detected wildlife was carried out to ensure positive species identification. All incidental observations were recorded and appropriate notes were made on the surrounding habitat.

### **5.2.2 Fauna Survey Sites**

Fauna surveys were carried out within each of the vegetation communities in the Survey Area. Fauna trapping was conducted at four survey sites. Bird surveys were conducted at an additional targeted survey site. A map of the location of each fauna survey site is presented in Figure 11. Detailed descriptions of the survey sites are provided below.





Figure 11 Fauna Survey Sites





### 5.2.2.1 FA1

FA1 was located along the edges of a small dry creek in a dense patch of Dawson Gum (*Eucalyptus cambageana*) and Brigalow (*Acacia harpophylla*) woodland in the central-eastern part of the Survey Area. FA1 is shown in Photo Plate 1. Two lines of Elliot traps, six funnel traps, an automatic camera and an Anabat were positioned at this site.



**Photo Plate 1      Site FA1**

### 5.2.2.2 FA2

FA2 was established on the edge of a small remnant patch of Dawson Gum and Brigalow woodland in the central-western part of the Survey Area. FA2 is shown in Photo Plate 2. Two lines of Elliot traps, six funnel traps, a pitfall line, an automatic camera and a Songmeter were positioned at this site.



**Photo Plate 2      Site FA2**

### **5.2.2.3      FA3**

FA3 was located in an extensively disturbed patch of vegetation in the north of the Survey Area. The majority of trees at this site were deceased, with occasional surviving Red-flowered Bauhinia (*Bauhinia carronii*) and a very dense ground layer of Buffel Grass (*Cenchrus ciliaris*). Photo Plate 3 shows site FA3. Survey effort at FA3 consisted of two lines of Elliot traps, six funnel traps and an automatic camera. The Anabat was not deployed at this site due to forecast rainfall over the planned deployment period.



**Photo Plate 3      Site FA3**

#### **5.2.2.4      FA4**

Site FA4 was established in an area of sparse Brigalow regrowth in the south of the Survey Area. FA4 is shown in Photo Plate 4. Two lines of Elliot traps, six funnel traps and an automatic camera were positioned at this site. The Songmeter was not deployed at this site due to forecast rainfall over the planned deployment period.



**Photo Plate 4      Site FA4**

### 5.2.2.5 FA5

Site FA5 was a targeted bird survey site. This site was located at a dam in the north-west of the Survey Area. Vegetation at this site is non-remnant and dominated by exotic pasture grasses and various aquatic species. FA5 is shown in Photo Plate 5.



**Photo Plate 5 Site FA5**

### 5.2.3 Survey Effort

The type of trapping and trapping effort for each survey site is outlined in Table 6. Microbat detection equipment was not deployed at two of the survey sites due to forecast rainfall over the scheduled deployment period. Spotlighting activities were scheduled for the later part of the survey period, and were also disrupted by the forecast weather conditions.

**Table 6 Survey Effort**

Site	Pitfall Traps	Funnel Traps	Elliot Traps	Camera Traps	Microbat Detection	Bird Surveys
FA1	-	3 nights	3 nights	3 nights	3 nights	X
FA2	2 nights	2 nights	2 nights	2 nights	3 nights	X
FA3	-	2 nights	2 nights	2 nights	-	X
FA4	-	2 nights	2 nights	2 nights	-	X
FA5	-	-	-	-	-	X



## 6.0 RESULTS

### 6.1 FLORA RESULTS

A total of 142 flora species were recorded during the site survey. A full species list is provided in Appendix B.

Two vegetation communities were identified in the Survey Area:

- Community 1 – Dawson Gum (*Eucalyptus cambageana*) woodland to open forest with Brigalow (*Acacia harpophylla*) on Cainozoic clay plains (RE 11.4.8/11.4.8a); and
- Community 2 – Non-remnant grassland.

These communities are summarised in Table 7 below and described in detail in the following sections. The location and extent of the vegetation communities is presented in Figure 12.

Comparison of Figure 12 with Figure 5 shows that the current regulated vegetation mapping of the area is not consistent with the REs and RE polygon boundaries determined from the field survey. Areas mapped as RE 11.4.9a are in fact consistent with RE 11.4.8. The area mapped as RE 11.3.3/11.3.1 was found to be non-remnant, as were small areas at the edges of the other two remnant polygons. A Property Map of Assessable Vegetation request has been lodged with the Department of Natural Resources and Mines to amend the regulated vegetation map for the Survey Area.

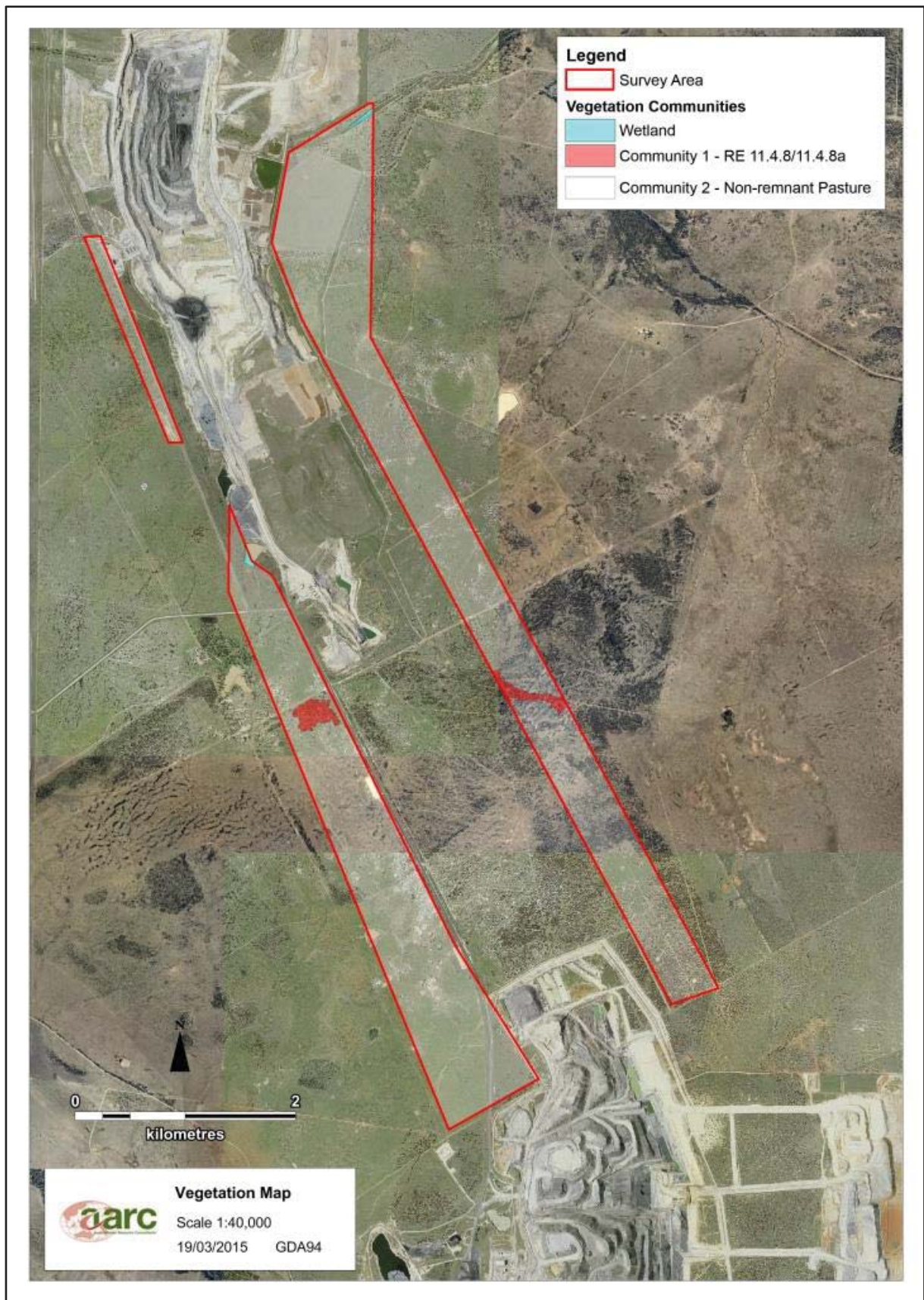
**Table 7 Description of Project Vegetation Communities**

Community	RE Number	RE Description	VM Act Status	EPBC Act Status	Area (ha)
Community 1	11.4.8/11.4.8a	<p><i>Eucalyptus cambageana</i> woodland to open forest with <i>Acacia harpophylla</i> or <i>A. argyrodendron</i> on Cainozoic clay plains.</p> <p>Vegetation communities in this regional ecosystem include:            11.4.8a: Palustrine wetland (e.g. vegetated swamp). Gilgai and small depressions on clay plains usually associated with <i>Acacia harpophylla</i> ecosystems. Generally support a range of sedges, grasses and, when wet, aquatic species.</p>	Endangered	Endangered	13.75



Community	RE Number	RE Description	VM Act Status	EPBC Act Status	Area (ha)
Community 2	N/A	Non-remnant pasture with scattered shrubs and trees.	Not listed	Not listed	791.3





**Figure 12**      **Vegetation Communities of the Survey Area**



## 6.1.1 Community 1 – Brigalow and Dawson Gum Open Forest to Woodland

### 6.1.1.1 Community Description

Community 1 occurs as two small patches in the central portion of the Survey Area. This vegetation community consists of Dawson Gum and Brigalow woodland and includes small areas of palustrine wetlands associated with gilgais (melon-hole mounds). Detailed information on this community is provided in Table 8.

**Table 8 Community 1 Description**

<b>Regional Ecosystem</b>	11.4.8/11.4.8a
<b>Extent on Project site</b>	13.75 ha
<b>EPBC Status</b>	Endangered
<b>VM Act Status</b>	Endangered
<b>Biodiversity Status</b>	Endangered
<b>Tree Layer</b>	<i>Acacia harpophylla</i> (CD), <i>Eucalyptus cambageana</i> (CD), <i>Ventilago viminalis</i> (A)
<b>Shrub Layer</b>	<i>Terminalia oblongata</i> (D), <i>Ehretia membranifolia</i> (A), <i>Ventilago viminalis</i> (A), <i>Geijera parviflora</i> (A)
<b>Low Shrub Layer</b>	<i>Carissa ovata</i> (D), <i>Alectryon diversifolius</i> (A), <i>Capparis lasanthiana</i> (A)
<b>Ground Layer</b>	<i>Cenchrus ciliaris</i> (D), <i>Urochloa mosambicensis</i> (A), <i>Paspalidium caespitosum</i> (A), <i>Cullen tenax</i> (A), <i>Enteropogon ramosus</i> (A)
<b>Weed Species</b>	<i>Harrisia martinii</i>
<b>Canopy Height</b>	20 m
<b>Crown Cover</b>	24%
<b>Stem Density</b>	3015/ha

D = Dominant, A = Associated, CD = Co-dominant





**Photo Plate 6      Community 1**



**Photo Plate 7      Gilgai within Community 1**

#### **6.1.1.2      Conservation Value**

This community is classified as an Endangered RE under the VM Act and a Threatened Ecological Community under the EPBC Act. In September 2011, <10% of the pre-clearing area remained. The extent of this community in reserves is classed as low. RE 11.4.8 has been extensively cleared for pasture (EHP, 2014b).



### 6.1.1.3 Vegetation Condition and Habitat

This community is subject to weed invasion and low to moderate intensity cattle grazing. Buffel Grass (*Cenchrus ciliaris*) and Sabi Grass (*Urochloa mosambicensis*) invasion has modified the ground layer, and exotic cacti are scattered throughout the ground and shrub layers.

Habitat features such as exfoliating bark, logs, fallen branches and leaf litter are present throughout this community. These features support populations of common small reptiles. Scattered gilgais provide temporary water sources for fauna and habitat for a range of amphibians. Emergent Dawson Gum and stags provide a small amount of habitat for arboreal mammals (such as the Brushtail Possum, *Trichosurus vulpecula*) and nocturnal birds (such as the Tawny Frogmouth, *Podargus strigoides*). Swamp Wallabies (*Wallabia bicolor*) were observed in this vegetation community.

## 6.1.2 Community 2 – Non-remnant Pasture

### 6.1.2.1 Community Description

Community 2 occurs throughout the Survey Area. This community includes interspersed non-remnant grassland areas, areas of Brigalow dominant regrowth and dams/wetlands with non-remnant vegetation. A detailed description of this community is provided in Table 9 below.

**Table 9 Community 2 Description**

<b>Regional Ecosystem</b>	N/A
<b>Extent on Project site</b>	791.3 ha
<b>EPBC Status</b>	Not listed
<b>VM Act Status</b>	Not listed
<b>Biodiversity Status</b>	Not listed
<b>Tree Layer</b>	Absent
<b>Shrub Layer</b>	<i>Citrus glauca</i> (CD), <i>Acacia harpophylla</i> (CD), <i>Cassia brewsteri</i> (A), <i>Enchylaena tomentosa</i> (A), <i>Alectryon diversifolius</i> (A), <i>Ehretia membranifolia</i> (A), <i>Terminalia oblongata</i> (A), <i>Bauhinia carronii</i> (A)
<b>Ground Layer</b>	<i>Cenchrus ciliaris</i> (D), <i>Sporobolus caroli</i> (A), <i>Portulaca oleracea</i> (A), <i>Enteropogon acicularis</i> (A), <i>Bothriochloa ewartiana</i> (A), <i>Sesbania cannabina</i> (A), <i>Cullen tenax</i> (A), <i>Panicum larcomianum</i> (A), <i>Dactyloctenium radulans</i> (A), <i>Trianthema portulacastrum</i> (A)
<b>Weed Species</b>	<i>Harrisia martinii</i>
<b>Canopy Height</b>	4.5 m
<b>Crown Cover</b>	0%
<b>Stem Density</b>	1350/ha

D = Dominant, CD = Co-dominant, A = Associated





**Photo Plate 8      Community 2**

#### **6.1.2.2      Conservation Value**

This community is not listed under the VM Act or the EPBC Act. The conservation value of this community is negligible due to its non-remnant status.

#### **6.1.2.3      Vegetation Condition and Habitat**

Vegetation in this community has been cleared to facilitate cattle grazing. Vegetation regrowth is generally low and sparse. The ground is heavily disturbed and dominated by exotic pasture grasses. There are few habitat features in this community. Cattle dams and lagoons provide habitat for aquatic birds and amphibians. The dense ground layer provides potential habitat for small mammals. A range of small granivorous and insectivorous bird species inhabit the shrubs and grasses of this community, providing food for raptors such as the Nankeen Kestrel (*Falco cenchroides*), which was observed in high numbers during the survey.

### **6.1.3      Flora Species and Vegetation Communities of Conservation Significance**

#### **6.1.3.1      Threatened Communities**

Community 1 is listed as a Threatened Ecological Community under the EPBC Act and an Endangered RE under the VM Act and Biodiversity Status. The extent of this Brigalow community in the Survey Area is relatively small (1.7% of the Survey Area). Weed invasion has altered the structure and composition of this community in the Survey Area.

#### **6.1.3.2      Threatened Species**

No threatened flora species were observed in the Survey Area during the survey period. Although potentially suitable habitat exists on the site for a small number of threatened flora species, surveys were unable to locate these species. As a result, the proposed amendment is highly unlikely to impact



on any flora species of conservation significance. The likelihood of occurrence and potential impact significance for the threatened flora species identified in the database searches are outlined in Table 10.



**Table 10 Likelihood of Occurrence and Impact Assessment of Regional Threatened Flora Species**

Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Acacia arbiana</i>	NL	NT	Confined to the summits of peaks of the Peak Range, east of Clermont, Queensland. Recorded from trachyte outcrops in heath-like vegetation.	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Acacia grandifolia</i>	V	LC	Grows in hilly terrain on hillslopes of varying aspects and slope. The species also occurs on hillcrests, gullies and plains. Soil is usually shallow and well drained, and is described as sandy loam to clay loam in texture derived from sandstones and acidic volcanics (Queensland Herbarium, 2011).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Acacia spania</i>	NL	NT	Grows in stands in the shrub layer of open <i>Eucalyptus</i> woodlands on shallow red soils (World Wide Wattle, 2009).	Unlikely to occur in the Survey Area due to lack of suitable soil type.
<i>Acacia stonyi</i>	NL	NT	The species grows on sandstone plateaux, on sandy and shallow skeletal soils over sandstone. Vegetation includes open forests or tall open forest (Pedley, 1987; Queensland Herbarium, 2011).	Unlikely to occur in the Survey Area due to lack of suitable soil type.
<i>Aristida annua</i>	V	V	This species is restricted to Eucalypt woodland on black clay and basalt soils (DOE, 2015).	Potentially suitable habitat for this species exists in the Survey Area. Targeted searches were unable to identify this species in the Survey Area.
<i>Baeckea trapeza</i>	NL	V	Grows at altitudes around 700 - 800 m. It grows on sandy soil in open Eucalypt forest (Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area due to the low elevation of the site.



Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Bertya opposens</i>	V	LC	In Queensland it is widely distributed within an area bounded by Emerald in the north and Charleville in the west, with an outlier near Charters Towers (DOE, 2015). Has been recorded growing in a variety of community types including mixed shrubland, lancewood woodland, mallee woodland, Eucalypt/Acacia open forest with shrubby understorey, Eucalypt/ <i>Callitris</i> open woodland and semi-evergreen vine-thicket. The soils are recorded as generally shallow sandy loams or red earths associated mostly with sandstone, but also with rhyolite, shale and metasediments (Halford and Henderson, 2002; Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area as the geology is not suitable for this species.
<i>Bertya pedicellata</i>	NL	NT	Restricted to central Queensland on iron stone jump-ups and associated with communities dominated by <i>Corymbia trachyphloia</i> , <i>Acacia catenulata</i> , <i>A. curvivenia</i> and/or <i>A. shirleyi</i> .	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Bursaria reevesii</i>	NL	V	Grows along drainage lines and creek beds in silty loams derived from ultramafic (serpentine) rocks (Cayzer, 1999).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Ooline <i>Cadellia pentastylis</i>	V	V	Occurs in a range of vegetation types including semi-evergreen vine thicket, Brigalow-Belah, Poplar Box and Bendee communities (DOE, 2015). Ooline often occurs on the edges of sandstone and basalt escarpments, 200 to 500 m above sea level. Ooline grows on the moderately fertile soils preferred for agriculture and pasture development (DOE, 2015).	A small amount of potential habitat for this species exists in Community 1. Targeted searches were unable to identify this species in the Survey Area.
<i>Capparis thozetiana</i>	V	V	Grows in Eucalypt woodland with a shrubby understorey, on stony hard ridges and serpentine soil. It also occurs on the margins of Brigalow forest on sandy soil.	A small amount of potential habitat for this species exists on the margins of Community 1. Targeted searches were unable to identify this species in the Survey Area.
<i>Cerbera dumicola</i>	NL	NT	Primarily found in Lancewood communities and semi-evergreen vine thickets in coastal and sub-coastal Central Queensland (SGAP, 2007).	Unlikely to occur in the Survey Area due to lack of suitable habitat.



Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Commersonia pearonii</i>	NL	E	Inhabits open forest and woodland, with a range of canopy species. It grows on sandstone escarpments and tablelands with shallow, medium to coarse-grained soils (Guymier, 2005).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Corchorus thozetii</i>	NL	EX	No information available.	Highly unlikely to occur in the Survey Area as this species is extinct in Queensland.
<i>Corymbia xanthope</i>	V	V	Occurs in woodlands with <i>Eucalyptus fibrosa</i> on ridges or hill slopes on serpentinite geology with sandy soils (Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Cycas megacarpa</i>	E	E	Grows in a wide range of woodland communities in south-east Queensland, as far north as Bouldercombe. Often grows on undulating to hilly terrain at an altitude of 40 – 680 m. The soil is typically a well-draining rocky or shallow clay, clay/loam (DOE, 2015).	Unlikely to occur in the Survey Area as the site terrain and soils are not very suitable for this species.
<i>Cycas ophiolitica</i>	E	E	Grows on hills and slopes in open grassy forests on red clay soils and shallow, stony, infertile soils on sandstone and serpentinite (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Darling Daisy <i>Cymbonotus maidenii</i>	NL	E	Grows in open grassland on black, brown and grey heavy clays. It is most commonly found along roadsides and watercourses. Last recorded from Central Highlands in 1961, possibly extinct from the area (EHP, 2012).	Unlikely to occur in the Survey Area, due to the lack of recent records in the area.
<i>Cyperus clarus</i>	NL	V	Grassland or open woodland, on heavy soils derived from basalt. Found in northern New South Wales and Queensland (Wilson, 1993).	Unlikely to occur in the Survey Area, due to the absence of basalt derived soils.
<i>Daviesia discolor</i>	V	V	Known from the Blackdown Tableland, Mount Walsh and Carnarvon National Park in Queensland. Occurs on sandy soils in a variety of woodlands, in conjunction with species such as <i>Eucalyptus sphaerocarpa</i> , <i>E. nigra</i> , <i>E. acmenoides</i> , <i>Corymbia trachyphloia</i> and <i>Angophora</i> sp.	Unlikely to occur in the Survey Area as it is not known from the local area and little suitable habitat is available on site.



Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Daviesia quoquoversus</i>	NL	V	Occurs in open forest on sandy soil derived from sandstone. It has been recorded with <i>Corymbia peltata</i> , <i>C. polycarpa</i> , <i>Eucalyptus baileyana</i> and sclerophyllous shrubs and grasses (Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
King Blue-grass <i>Dichanthium queenslandicum</i>	E	V	This species occurs on black cracking clay in tussock grasslands mainly in association with other species of Bluegrasses. It is mostly confined to the natural Bluegrass grasslands of central and southern Queensland (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Bluegrass <i>Dichanthium setosum</i>	V	LC	Occurs in grassy woodland and open forests in inland Australia. Associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoil and is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture (DOE, 2015).	Potentially suitable habitat for this species exists in the Survey Area. Targeted searches were unable to identify this species in the Survey Area.
Finger Panic Grass <i>Digitaria porrecta</i>	NL	NT	Grows on dark, fine-textured soils in grasslands, undulating woodlands and open forests including <i>Eucalyptus tereticornis</i> and <i>E. populnea</i> drainage lines. It may also occur in disturbed habitats (DOE, 2015).	Potentially suitable habitat for this species exists in the Survey Area. Targeted searches were unable to identify this species in the Survey Area.
<i>Eucalyptus raveretiana</i>	V	LC	Occurs on alluvial soils, loams, light clays or cracking clays in open forests and woodlands along watercourses and occasionally on river flats (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of watercourse habitat.
<i>Eucalyptus sicilifolia</i>	NL	V	Restricted to low woodland on the rocky top of trachytic volcanic plugs and the tops of surrounding scree slopes (Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Gastrodia crebriflora</i>	NL	V	Grows in loose colonies on protected slopes in tall open forest, often close to fallen trees. Soils are sands derived from decomposed sandstone (Jones, 1991).	Unlikely to occur in the Survey Area due to lack of suitable habitat.





Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Genoplesium pedersonii</i>	NL	V	Little information is available on this species. <i>Genoplesium</i> plants survive extremes of heat and dryness. Moss beds and accumulations of shallow soil over rock plates and rock sheets, particularly sandstone, are favoured habitats in Australia. (Pridgeon et al. 2001).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Genoplesium validum</i>	NL	V	Little information is available on this species. <i>Genoplesium</i> plants survive extremes of heat and dryness. Moss beds and accumulations of shallow soil over rock plates and rock sheets, particularly sandstone, are favoured habitats in Australia. (Pridgeon et al. 2001).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Hakea trineura</i>	V	V	Occurs on serpentinite-derived soil, often in broad-leaved ironbark ( <i>Eucalyptus fibrosa</i> ) and <i>Corymbia xanthope</i> woodland over hummock grassland on hills (Barker et al., 1999).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Homoranthus decumbens</i>	E	V	This species is known from the Barakula Forestry area near Chinchilla and the Blackdown Tableland National Park in Queensland (Craven and Jones, 1991). This species grows in shrubland on shallow sandy soils containing lateritic pebbles and on sandstone cliff edges.	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Logania diffusa</i>	V	V	Occurs in heathland and Eucalypt open forest. It grows in sandy or sandy clay soil with sandstone outcropping and loose surface stones on escarpments, at elevations of 600 – 780 m above sea level (Wang, 1995).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Lissanthe brevistyla</i>	NL	V	Confined to steep hillsides in Eucalypt woodlands, on red gravelly soil or on loose stony slopes (Bean, 2001; Crayn et al. 2003).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Livistona fulva</i>	NL	NT	Occurs mainly along sandstone cliff-lines, on rocky foot-slopes below cliffs, in shallow rocky gullies of the Blackdown Tableland, and in deep sandstone gorges below major waterfalls around the edge of the plateau (Queensland Herbarium, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.

Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
Smooth-barked Bonewood <i>Macropteranthus leiocaulis</i>	NL	NT	Occurs in deciduous vine thickets, semi-evergreen vine thickets and araucarian microphyll vine forests on red ferrosols or sandstone talus.	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Macrozamia platyrhachis</i>	E	E	Restricted to the Blackdown Tableland/Planet Downs area of the Dawson Range in central Queensland, in Eucalypt woodland or open forest on sandy soil (Forster and Holland, 2006).	Unlikely to occur in the Survey Area as the site is located outside the small area this species is restricted to.
<i>Macrozamia serpentina</i>	NL	E	Occurs in low Eucalypt woodland with a mixed grassy understorey at altitudes between 80 – 160 m above sea level. It grows on steep rocky slopes on red clay loams and serpentinite soils (Jones, 2001).	Unlikely to occur in the Survey Area due to lack of suitable topography.
<i>Marsdenia brevifolia</i>	V	V	Occurs in north and central Queensland from near Townsville, Springsure and Rockhampton. Grows on serpentine rock outcrops or crumbly black soils derived from serpentine in Eucalypt woodland, often with <i>Eucalyptus fibrosa</i> and <i>Corymbia xanthope</i> (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Pearson's Bottlebrush <i>Melaleuca pearsonii</i>	NL	NT	Rocky habitat in the Blackdown Tableland.	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
Grove's Paperbark <i>Melaleuca groveana</i>	NL	NT	Grows in heath, often in exposed sites, restricted to higher areas (NSW Environment and Heritage, 2014).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
<i>Myrsine serpenticola</i>	NL	E	No information available. <i>Myrsine</i> is a genus of rainforest species. The name suggests that this species is restricted to serpentinite soils.	Unlikely to occur in the Survey Area, due to lack of suitable rainforest habitat.
<i>Neoroepera buxifolia</i>	V	V	Known from two small areas between Marlborough and Yaamba, and between Rockhampton and Yeppoon, in Queensland. This species occurs along creek banks or in creek beds on serpentine soils in riparian vine thicket, vine forest, Melaleuca or Eucalypt woodland or open forest with rainforest species in the understorey (DOE, 2015).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
<i>Ochrosperma obovatum</i>	NL	V	Known from only two populations in Queensland. Occurs in heathland or Eucalypt woodland on relictual Tertiary surfaces, heavily lateritised, or on sandstone pavement (EHP, 2014c).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.



Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Omphalea celata</i>	V	V	Known from only three sites in central-east Queensland – near Eungella, Bowen and Nebo. Grows in vine thickets in gorges and gullies (DOE, 2015).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
<i>Olearia macdonnellensis</i>	V	E	Occurs in Eucalypt open forest in the Marlborough region of central Queensland, all records are from rocky serpentinite hills and ridges (EHP, 2014d).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
<i>Pimelea leptospermoides</i>	V	NT	Occurs from near Marlborough to Rockhampton in Queensland. This species grows on stony hillsides and sandy clay in <i>Eucalyptus fibrosa</i> and <i>Corymbia xanthope</i> open woodland (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Lesser Swamp-orchid <i>Phaius australis</i>	E	E	Occurs in southern Queensland and northern New South Wales. Commonly associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest. Associated with rainforest elements (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Plectranthus blakei</i>	NL	NT	<i>Plectranthus</i> is a genus of herbs and shrubs found in warm climates. Australian species of <i>Plectranthus</i> are associated with rocky areas, ridges and cliffs (NSW Flora Online, undated).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Polianthion minutiflorum</i>	V	V	Known from five areas in east Queensland, from Redcliffe Vale, about 110 km west of Mackay, south to Kingaroy. It grows in forest and woodland on sandstone slopes and gullies with skeletal soil, or deeper soils adjacent to deeply weathered laterite (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Pseudanthus pauciflorus</i> subsp. <i>arenicola</i>	NL	NT	Found in shallow soil on rocky sites, including mountain tops and cliff faces (Wilson, 2009).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Pultenaea setulosa</i>	V	V	Known from Broad Sound to the Marlborough area in Queensland. Grows on serpentinite substrates in <i>Eucalyptus fibrosa</i> and/or <i>Corymbia xanthope</i> woodlands or open forests (DOE, 2015).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
<i>Rutidosis glandulosa</i>	NL	NT	Grows in sandy and gravelly soils.	Unlikely to occur in the Survey Area due to lack of suitable habitat.



Species	EPBC Act Status	NC Act Status	Habitat	Impact Assessment
<i>Quassia Samadera bidwillii</i>	V	V	Known from coastal and near coastal areas in central Queensland. Commonly found in rainforest, but can also occur in open forest and woodland (DOE, 2015).	Unlikely to occur in the Survey Area as there is little suitable habitat available and the site is located far west of its known distribution.
<i>Sannantha brachypoda</i>	NL	NT	The near threatened <i>Sannantha brachypoda</i> is a flowering shrub from the Myrtaceae family and is endemic to Queensland. There is little information available on this species (NPRSR, 2013).	Limited information available on habitat type for this species, however no examples were detected during site surveys.
<i>Solanum adenophorum</i>	NL	E	Occurs mostly in undulating Brigalow woodlands (EHP, 2013).	A small amount of potential habitat for this species exists in Community 1. Targeted searches were unable to identify this species in the Survey Area.
<i>Solanum dissectum</i>	NL	E	Occurs in open forest and woodland of Brigalow ( <i>Acacia harpophylla</i> ) or <i>Eucalyptus thozetiana</i> on solodic clay soils (Queensland Herbarium, 2012).	A small amount of potential habitat for this species exists in Community 1. Targeted searches were unable to identify this species in the Survey Area.
<i>Solanum elachophyllum</i>	NL	E	Occurs in cracking clay soils associated with Brigalow and semi-evergreen vine thicket (Bean, 2012).	A small amount of potential habitat for this species exists in Community 1. Targeted searches were unable to identify this species in the Survey Area.
<i>Stackhousia tryonii</i>	NL	NT	Found only on serpentine soils in the Livingstone shire of Queensland.	Unlikely to occur in the Survey Area due to lack of suitable soil type.
Siah's Backbone <i>Streblus pendulinus</i>	E	LC	Found in warmer rainforests, chiefly along watercourses (DOE, 2015).	Highly unlikely to occur in the Survey Area due to lack of suitable habitat.
Peak Downs Daisy <i>Trioncinia patens</i>	NL	E	Occurs in grasslands on basalt downs and also on dark brown or black cracking clay soils in the Peak Range area.	Unlikely to occur in the Survey Area as it is restricted to the Peak Range.
Belyando Cobblers Peg <i>Trioncinia retroflexa</i>	NL	E	Restricted to Bluegrass grasslands on basalt soils in central Queensland.	Unlikely to occur in the Survey Area due to lack of suitable habitat.

E - Endangered EX - Extinct LC - Least Concern NL - Not Listed  
NT - Near Threatened V - Vulnerable



#### 6.1.4 Weed Species

A total of 22 introduced plant species were observed in the Survey Area. The ground layer of the Survey Area is dominated by introduced pasture grasses, predominantly Sabi Grass (*Urochloa mosambicensis*) and Buffel Grass (*Cenchrus ciliaris*). The exotic legumes Shrubby Stylo (*Stylosanthes scabra*), Siratro (*Macroptilium atropurpureum*) and Phasey Bean (*Macroptilium lathyroides*) are also present in the Survey Area.

Four declared weed species were noted in the Survey Area. Harrisia Cactus (*Harrisia martinii*) and Velvety Tree Pear (*Opuntia tomentosa*) were observed in low densities throughout the entire Survey Area. Small localised infestations of Parkinsonia (*Parkinsonia aculeata*) and Mother of Millions (*Bryophyllum delagoense*) were also noted. Under Queensland legislation, Harrisia Cactus, Velvety Tree Pear, Parkinsonia and Mother of Millions are Class 2 declared pest plants. Landholders are responsible for the management of declared pests on their land. Parkinsonia and Velvety Tree Pear are also recognised as Weeds of National Significance (WoNS).

### 6.2 FAUNA

A total of 76 fauna species were recorded in the Survey Area, including 11 mammals, 49 birds, 10 reptiles and six amphibians. An additional two bat species may also have been present, but their presence could not be confirmed from the available data. A full list of the fauna species observed is presented in 0.

#### 6.2.1 Mammals

The dense grassy understorey of the Survey Area provides forage for large macropods and shelter for smaller mammalian species. The Swamp Wallaby (*Wallabia bicolor*) (refer to Photo Plate 9) and Eastern Grey Kangaroo (*Macropus giganteus*) were noted in several parts of the Survey Area. The Brush-tailed Possum (*Trichosurus vulpecula*) was recorded in areas of remnant vegetation.

Four bat species were positively identified in the Survey Area:

- Little Pied Bat (*Chalinolobus picatus*);
- Gould's Wattled Bat (*Chalinolobus gouldii*);
- Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*); and
- Inland Forest Bat (*Vespadelus baverstocki*).

A fifth species was also detected, but could not be positively identified to species level. Two additional bat species (*Scotorepens balstoni* and *Chaerephon jobensis*) may also have been present in the Survey Area, but their presence could not be confirmed from the call data collected. Strong winds experienced during the survey affected the quality of the bat call recordings, making species identification difficult. The bat call analysis report is provided in Appendix D.

Three introduced species of mammal were detected during the survey. European Cattle (*Bos taurus*) are present throughout the Survey Area. Domestic Horses (*Equus caballus*) were observed in small numbers. The tracks of Wild Dogs (*Canis familiaris*) were observed in close proximity to FA2.

No mammalian species of conservation significance were recorded during the survey.





**Photo Plate 9** Swamp Wallaby (*Wallabia bicolor*) observed during the survey

## 6.2.2 Birds

Forty-nine bird species were observed feeding and moving through the Survey Area. The large pastures of the Survey Area provide habitat for a range of insectivorous birds, such as the Golden-headed Cisticola (*Cisticola exilis*), Rufous Songlark (*Cincloramphus mathewsi*), Black-faced Woodswallow (*Artamus cinereus*), and Australasian Pipit (*Anthus novaeseelandiae*). Seeding pasture grasses provide food for a range of granivorous birds, including the Zebra Finch (*Taeniopygia guttata*), Budgerigar (*Melopsittacus undulatus*), Galah (*Eolophus roseicapillus*) and Sulphur-crested Cockatoo (*Cacatua galerita*). Pasture areas provide a source of prey for the Nankeen Kestrel (*Falco cenchroides*), which was recorded in high densities. Other raptors observed in the Survey Area were the Wedge-tailed Eagle (*Aquila audax*), Whistling Kite (*Haliastur sphenurus*) and Black Kite (*Milvus migrans*). Australian Bustards (*Ardeotis australis*) were also observed in the pastures of the Survey Area.

Corvids such as the Torresian Crow (*Corvus orru*) and Australian Magpie (*Cracticus tibicen*) were recorded throughout the Survey Area.

The two woodlands of the Survey Area provide nesting habitat for two kookaburra species, and also support populations of Apostlebirds (*Struthidea cinerea*), Black-faced Cuckoo-shrikes (*Coracina novaehollandiae*), Pied Butcherbirds (*Cracticus nigrogularis*) and Noisy Friarbirds (*Philemon corniculatus*).

Two wetlands were observed in the Survey Area. These wetlands provide habitat for a range of aquatic and wetland species, such as the Australian Pelican (*Pelecanus conspicillatus*), Wandering Whistling Duck (*Dendrocygna arcuata*), Royal Spoonbill (*Platalea regia*) and several species of heron and cormorant (refer to Photo Plate 10). Pairs of Brolgas (*Grus rubicunda*) were also noted in the Survey Area.

Very few frugivorous and nectarivorous bird species were observed during the survey. This is reflective of a lack of fruiting and flowering plants in the Survey Area. The only nocturnal species recorded was the Tawny Frogmouth (*Podargus strigoides*), which was captured on motion detector camera at FA1.

No bird species of conservation significance were detected in the Survey Area. Two species listed as Migratory and Marine under the EPBC Act were recorded in the Survey Area: the Rainbow Bee-eater (*Merops ornatus*) and the Eastern Great Egret (*Ardea modesta*). An additional 10 species of listed Marine birds were observed during the survey:

- Magpie-lark (*Grallina cyanoleuca*)
- Black-faced Cuckoo-shrike;
- Australasian Pipit;
- Wandering Whistling Duck;
- Australian Pelican;
- Dollarbird (*Eurystomus orientalis*);
- Straw-necked Ibis (*Threskiornis spinicollis*);
- Nankeen Kestrel;
- Whistling Kite; and
- Black-winged Stilt (*Himantopus himantopus*).

These species are highly mobile, widespread and common, and therefore unlikely to be impacted by the proposed development.

A full list of the bird species recorded in the Survey Area is presented in Appendix C.



**Photo Plate 10**      **Waterbirds feeding at the FA5 wetland**

### **6.2.3**      **Reptiles**

The Survey Area provides a variety of habitat features for reptile species. Areas of Brigalow vegetation contain numerous logs, dead trees, woody debris, exfoliating bark and leaf litter. Ten reptile species were observed over the course of the survey. High numbers of Rainbow Skinks (*Carlia* spp.) were observed throughout the Survey Area. Striped Snake-eyed Skinks (*Cryptoblepharus virgatus*) were also commonly encountered. Common Dwarf Skinks (*Menetia greyii*) were commonly captured in pitfall traps. Several Bynoe's Geckoes (*Heteronotia bynoei*) were captured in funnel traps. A Blind Snake (*Ramphotyphlops affinis*) was captured in a pitfall trap at FA2. A single Mulga Snake (*Pseudechis australis*) was recorded on motion detector camera at FA1 (shown in Photo Plate 11). A full list of the reptile species recorded in the Survey Area is presented in Appendix C.

A small amount of potential habitat for threatened Brigalow reptiles occurs in the Survey Area in Community 1. The habitat in these areas was considered to be particularly suitable for the Ornamental Snake. The Ornamental Snake has previously been recorded at the neighbouring Curragh Coal Mine. Targeted diurnal searches for the Ornamental Snake in gilgai habitat failed to locate the species.





**Photo Plate 11**      **A Mulga Snake (*Pseudechis australis*) recorded on motion detector camera**

#### **6.2.4**      **Amphibians**

Suitable amphibian habitat exists in the gilgais and cattle dams present throughout the Survey Area. Six species of amphibians were recorded during the survey. An Eastern Snapping Frog (*Cyclorana novaehollandiae*), shown in Photo Plate 12, was captured in a pitfall trap at FA2. An Eastern Sedgefrog (*Litoria fallax*) was captured in a funnel trap at FA3. Cane Toads (*Rhinella marina*), a Green Tree Frog (*Litoria caerulea*) and a single Green-stripe Frog (*Cyclorana alboguttata*) were recorded on motion detector camera. The Laughing Tree Frog (*Litoria rothii*) was heard calling at a cattle dam in the southern portion of the Survey Area.

No amphibians of conservation significance or suitable habitat for threatened amphibians was found in the Survey Area.



**Photo Plate 12** Eastern Snapping Frog (*Cyclorana novaehollandiae*) captured at FA2

### 6.2.5 Pest Species

Pest species known to occur within the Survey Area are the Dingo and the Cane Toad. European Rabbits (*Oryctolagus cuniculus*) were sighted in close proximity to the Survey Area, and are considered likely to occur on site. The Dingo and European Rabbit are Class 2 declared pests under the LP Act. Land owners and managers are responsible for the control of declared pests on their land.



**Photo Plate 13** Tracks of a Wild Dog (*Canis familiaris*) observed near FA2

## 6.2.6 Regional Fauna Species of Conservation Significance

Table 11 discusses species of conservation significance that are known from the broad region and have been identified from desktop searches, but were not observed in the Survey Area during the survey.

The assessment of potential for presence and impact on each species is based on the knowledge of AARC ecologists, information obtained from field surveys in the Survey Area, previous surveys conducted near the Survey Area and scientific literature.



Table 11 Likelihood of Occurrence and Impact Assessment of Regional Threatened Fauna Species

Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
<b>Threatened Species</b>				
Northern Hairy-nosed Wombat <i>Lasiorchinus krefftii</i>	E	E	Forage in open Eucalypt woodlands with open areas of native grass. Excavate burrows on deep, sandy soils often along dry creek beds (Menkhorst and Knight, 2011).	Highly unlikely to occur in the Survey Area as this species is only found in two areas, which are located distant from the Survey Area.
Black-throated Finch <i>Poephila cincta cincta</i>	E	E	Inhabits open woodland, scrubby plains and Pandanus flats with deep cover of grasses. Its habitat is never far from water. It is known to occur south of Townsville, particularly around Townsville and Charters Towers (DOE, 2015).	A small amount of potentially suitable habitat for this species exists around the wetlands of the Survey Area. It was not detected during the survey. No significant impacts are expected on populations of this species as minimal habitat is expected to be disturbed and suitable habitat remains immediately off-site outside the main disturbance area.
Ornamental Snake <i>Denisonia maculata</i>	V	V	Known only from the Brigalow Belt biogeographical region, chiefly from the Fitzroy and Dawson River catchments. Prefers woodlands and open forests associated with moist areas, particularly gilgai (melon-hole) mounds and depressions. Also occurs on lake margins and wetlands.	Likely to occur in the Survey Area. Records of this species exist at the adjacent Curragh Mine. Suitable gilgai habitat is found throughout vegetation Community 1. Approximately 4.31 ha of potential habitat for this species will be removed. Suitable habitat will remain outside the disturbance areas. Habitat searches failed to locate the species.
Red Goshawk <i>Erythrotriorchis radiatus</i>	V	E	This species prefers forest and woodland with a mosaic of vegetation types, large prey populations (birds) and permanent water. The vegetation types include Eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest, and rainforest margins. The Red Goshawk nests in large trees, within 1 km of permanent water.	Unlikely to occur in the Survey Area due to lack of suitable habitat.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Star Finch <i>Neochmia ruficauda ruficauda</i>	E	E	Inhabits tall grass and reed beds associated with swamps and watercourses in central Queensland. It may also be found in grassy woodlands, open forests, mangroves, urban and cleared areas.	Highly unlikely to occur on site as expert opinion suggests this taxon is extinct in the wild (Garnett, Szabo and Dutton, 2010).
Northern Quoll <i>Dasyurus hallucatus</i>	E	LC	The Northern Quoll is most abundant in rocky Eucalypt woodland. It occurs in a range of vegetation types, mostly within 200 km of the coast (Menkhorst and Knight, 2011).	Unlikely to occur in the Survey Area due to the absence of rocky habitat and the inland location of the site.
South-eastern Long-eared Bat <i>Nyctophilus corbeni/timoriensis</i>	V	V	Found across semi-arid southern Australia to southern Queensland. Inhabits a range of dry woodland and shrubland communities in arid and semi-arid regions. Roosts mostly in tree hollows (Menkhorst and Knight, 2011).	A small amount of potentially suitable habitat exists in Community 1 in the Survey Area. Suitable habitat will remain in woodland outside the disturbance footprint and adjacent to the Survey Area. Given the mobility of this species, no significant impact is expected as a result of Project development.
Bridled Nail-tail Wallaby <i>Onychogalea fraenata</i>	E	E	This species is restricted to a small number of national parks and reserves in central Queensland. Inhabits Acacia shrubland and grassy woodland in semi-arid areas, Brigalow woodland and alluvial flats (Curtis and Dennis, 2012).	Highly unlikely to occur in the Survey Area as the site is outside its current distribution.
Yakka Skink <i>Egernia rugosa</i>	V	V	Inhabits dry open forests, woodlands and rocky areas in the Brigalow Belt, where it occurs in fallen timber, wood piles, uprooted trees, deep rock crevices, deeply eroded gullies or disused rabbit warrens (DOE, 2015).	Potentially suitable habitat exists in Community 1. It was not observed during the survey. No significant impacts are expected on populations of this species as minimal habitat is expected to be disturbed and suitable habitat remains on and immediately off-site outside the main disturbance area.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Dunmall's Snake <i>Furina dunmalli</i>	V	V	Inhabits forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow ( <i>Acacia harpophylla</i> ). Preferred microhabitat includes fallen timber and leaf litter and possibly cracks in clay soils (DOE, 2015).	Potentially suitable habitat exists in Community 1. It was not observed during the survey. No significant impacts are expected on populations of this species as minimal habitat is expected to be disturbed and suitable habitat remains on and immediately off-site outside the main disturbance area.
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>	NL	V	Found from the Queensland central coast to eastern Victoria. In Queensland most individuals are found east of the Great Dividing Range. It inhabits woodland, open woodland, coastal lowlands, offshore islands and residential areas where She-oaks are present. Feeds almost exclusively on She-oak seeds, particularly <i>Allocasuarina littoralis</i> and <i>A. torulosa</i> (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area due to the absence of suitable feed trees.
Golden-tailed Gecko <i>Strophurus taenicauda</i>	NL	NT	Occurs from the Darling Downs to the coastal regions of central and south-eastern Queensland. Occurs in dry sclerophyll forests and Eucalypt and Cypress woodlands (Cogger, 2000).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Powerful Owl <i>Ninox strenua</i>	NL	V	Occurs in coastal central Queensland and south-east Queensland in wet and dry sclerophyll forest and dry woodland. In inland areas it occurs along riverine woodland. It roosts and nests in gullies (Curtis and Dennis, 2012).	Highly unlikely to occur in the Survey Area due to the absence of suitable habitat and the inland location of the Survey Area.

Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Koala <i>Phascolarctos cinereus</i>	V	SLC	Inhabits Eucalypt forests and woodlands on the east coast of Australia (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area due to the isolated nature of the vegetation and the absence of primary feed trees.
Allan's Lerista <i>Lerista allanae</i>	E	E	Found around Clermont in central Queensland. Occurs in open grasslands on plains with rich-brown surface soils, leaf litter and scattered trees (Curtis and Dennis, 2012).	Potentially suitable habitat for this species occurs in Community 2. It was not observed during the survey. No significant impacts are expected on populations of this species as suitable habitat remains on and immediately off-site outside main disturbance areas.
Grey Snake <i>Hemiaspis damelii</i>	NL	E	Prefers cracking flood-prone soils in the Brigalow Belt. Inhabits clay floodplains with grassland and open woodlands of Brigalow, Belah and Poplar Box, usually near water bodies (Curtis and Dennis, 2012).	Potentially suitable habitat for this species exists in the woodlands and around the wetlands of the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species as minimal habitat will be disturbed and suitable habitat remains on and immediately off-site outside main disturbance areas.
Pale Imperial Hairstreak <i>Jalmenus eubulus</i>	NL	V	Inhabits central Queensland from Eungella to the Darling Downs. Occurs in mature Brigalow stands (Curtis and Dennis, 2012).	Potentially suitable habitat exists in Community 1. It was not observed during the survey. No significant impacts are expected on populations of this species as minimal habitat is expected to be disturbed and suitable habitat remains on and immediately off-site outside main disturbance areas.
Death Adder <i>Acanthophis antarcticus</i>	NL	NT	Found throughout Queensland in a variety of habitats (Wilson, 2005). Preferred microhabitat includes fallen timber and leaf litter and grass tussocks.	Suitable habitat for this species occurs in the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species as suitable habitat remains immediately outside the disturbance areas.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Collared Delma <i>Delma torquata</i>	V	V	Known mainly from south-east Queensland, with recent records from the Blackdown Tablelands and Roma. Mainly inhabits ridgelines vegetated with dry open woodland, also <i>Eucalyptus tereticornis</i> and Brigalow woodlands. Shelters under loose rocks (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area, as the site is located outside its current distribution and there is no ridgeline or rocky habitat present.
Southern Snapping Turtle <i>Eiseya albagula</i>	CE	NL	Found in the Fitzroy, Mary and Burnett Rivers and associated drainages in Queensland. Prefers clear, flowing, well-oxygenated waters (DOE, 2015).	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
Fitzroy River Turtle <i>Rheodytes leukops</i>	V	V	Found in flowing streams and permanent waterbodies in the Fitzroy, Connors, Dawson, Isaac and Mackenzie Rivers. In the dry season it may be found in large slow-flowing pools and non-flowing permanent water holes.	Unlikely to occur in the Survey Area, due to lack of suitable habitat.
Saltwater Crocodile <i>Crocodylus porosus</i>	Ma, Mi	V	Reefs, coastal and inland waterways in central and northern Queensland (Curtis and Dennis, 2012).	Highly unlikely to occur in the Survey Area, due to lack of suitable habitat.
Painted Snipe <i>Rostratula australis</i>	E, Ma, Mi	V	Found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled, throughout many parts of Australia (DOE, 2015).	Potentially suitable habitat for this species exists in the wetland areas of the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species as wetland habitat will be retained on site.
Red-tailed Tropicbird <i>Phaethon rubricauda</i>	NL	V	Restricted to marine environments. Breeds on offshore islands (Pizzey and Knight, 2007).	Highly unlikely to occur in the Survey Area due to lack of suitable marine habitat.





Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Large-eared Pied Bat <i>Chalinolobus dwyeri</i>	V	V	Known from the sandstone escarpments in the Carnarvon and Expedition Ranges and Blackdown Tablelands (EHP, 2011). Additional records exist in the Scenic Rim. The populations in this area appear to be reliant on cavernous rock habitat for roosting. They are known to roost in abandoned mine shafts and disused Fairy Martin nests, but are not known to use tree hollows (EHP, 2011).	Unlikely to occur in the Survey Area due to a lack of suitable rocky habitat.
Squatter Pigeon (southern) <i>Geophaps scripta scripta</i>	V	V	Prefers grassed woodlands, foothills, watercourses, riverflats, grassy plains and is never far from a fresh water source (Pizzey and Knight, 2007).	Previously recorded in the local area and essential habitat mapped in the Survey Area. Suitable habitat occurs within the Survey Area, particularly around wetland areas. No significant impacts are expected on populations of this species due to its mobility and the existence of suitable habitat immediately outside the disturbance area. The mapped essential habitat will not be disturbed by the Project.
Paradise Parrot <i>Psephotus pulcherrimus</i>	EX	EX	Formerly found in central and southern Queensland, in river valleys lightly timbered with Eucalypt woodlands and open forests (DOE, 2015).	Highly unlikely to occur in the Survey Area, as this species is extinct, and no suitable habitat is present.
Swift Parrot <i>Lathamus discolor</i>	E	E	In Queensland, found in the south-east. Feeds and roosts in Eucalypt woodlands in mainland Australia, and breeds only in Tasmania (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area, as the Swift Parrot no longer occurs in central Queensland (Curtis and Dennis, 2012).

Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Tusked Frog <i>Adelotus brevis</i>	NL	V	Coastal lowlands and foothills of south-east Queensland, Carnarvon Gorge and Blackdown Tablelands. Inhabits rainforest, wet sclerophyll forest and (rarely) dry open forest, also dams and ponds in urban areas (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Grey Falcon <i>Falco hypoleucos</i>	NL	NT	Found in inland Australia, especially the Simpson Desert. Inhabits inland plains, gibber deserts, pastoral lands and timbered watercourses (Pizzey and Knight, 2007).	Potentially suitable habitat for this species exists in Community 2. It was not observed during the survey. No significant impacts are expected on populations of this species due to its mobility and the existence of suitable habitat immediately outside the disturbance areas.
Painted Honeyeater <i>Grantiella picta</i>	NL	V	Mistletoes in Eucalypt forests and woodlands, Black Box on watercourses, trees on farmland and gardens (Pizzey and Knight, 2007).	Potentially suitable habitat for this species exists on the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species as minimal habitat is expected to be disturbed and suitable habitat exists immediately outside the disturbance areas.
Plains Wanderer <i>Pedionomus torquatus</i>	V	V	In Queensland, the Plains-Wanderer is found in the Channel County and central-western Queensland. It inhabits low native grasslands (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Black-breasted Button-quail <i>Turnix melanogaster</i>	V	V	Found in eastern Queensland, south of Byfield. It inhabits vine thickets, rainforests, low thickets or woodlands with dense understories, and coastal scrubs, thickets and shrublands (Curtis and Dennis, 2012).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Silver Perch <i>Bidyanus bidyanus</i>	CE	NL	Endemic to the Murray-Darling system. Occurs in fast-flowing, open sections of rivers (DOE, 2015).	Highly unlikely to occur in the Survey Area due to lack of riverine habitat.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
<b>Migratory and Marine Species</b>				
White-throated Needletail <i>Hirundapus caudacutus</i>	Mi, Ma	SLC	Widespread in eastern and south-eastern Australia. Occurs over most types of habitat, most often above wooded areas, including open forest and rainforest, but they are less commonly recorded flying above woodland (DOE, 2015). Known to appear and forage for aerial insects over any habitat.	May potentially occur over the Survey Area but none were observed during the survey period. Development on site is unlikely to affect this species as it is strictly aerial, remaining high above ground.
Great Egret <i>Ardea alba</i>	Mi, Ma	SLC	Common throughout Australia except in the most arid areas. Known to prefer shallow water, particularly when flowing, but may be seen in any wetland area, including inundated grasslands.	One individual was observed in wetland habitat in the Survey Area. No significant impact on this species is predicted, due to its low usage of the site, high mobility and continued availability of suitable wetland habitat in the Survey Area.
Cattle Egret <i>Ardea ibis</i>	Mi, Ma	SLC	Occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. They have sometimes been observed in swamps with tall emergent vegetation.	Potentially suitable habitat for this species occurs throughout the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species due to its mobility and the existence of suitable habitat immediately outside the disturbance area.

Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
White-bellied Sea Eagle <i>Haliaeetus leucogaster</i>	Mi, Ma	SLC	Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions. The habitats occupied by the Sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats (Marchant and Higgins, 1993).	Unlikely to occur in the Survey Area due to lack of suitable habitat.
Rainbow Bee-eater <i>Merops ornatus</i>	Mi, Ma	SLC	Occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It usually occurs in open, cleared or lightly-timbered areas that are often, but not always, located in close proximity to permanent water.	Known to occur within the Survey Area. Due to the high mobility and abundance of this species, and the availability of suitable habitat outside the disturbance areas, no significant impact is expected.
Barn Swallow <i>Hirundo rustica</i>	Mi, Ma	SLC	Widespread in the northern hemisphere and winters in the southern hemisphere. It inhabits open country, agricultural land and urban areas (Pizzey and Knight, 2007).	May potentially occur over the Survey Area but none were observed during the survey period. Development on site is unlikely to affect this species as it is strictly aerial, remaining high above ground.
Black-faced Monarch <i>Monarcha melanopsis</i>	Mi, Ma	SLC	Found in coastal eastern Australia, east of the Great Dividing Range. Inhabits rainforest, Eucalypt forest and woodlands, and coastal scrub (Pizzey and Knight, 2007).	Unlikely to occur on site, as the Survey Area is located outside its main distribution area and does not contain its preferred habitat.
Spectacled Monarch <i>Monarcha trivirgatus</i>	Mi, Ma	SLC	Found in coastal north-east and eastern Australia, most abundant in the wet tropics. Inhabits rainforests, thickly wooded gullies and waterside vegetation (Pizzey and Knight, 2007).	Unlikely to occur on site, as the Survey Area is located outside its main distribution area and does not contain its preferred habitat.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Satin Flycatcher <i>Myiagra cyanoleuca</i>	Mi, Ma	SLC	Widespread but scattered in eastern Queensland, being recorded on passage on a few islands in the western Torres Strait. They are mainly recorded in Eucalypt forests, especially wet sclerophyll forest (DOE, 2015).	Unlikely to occur in the Survey Area due to the absence of suitable habitat.
Rufous Fantail <i>Rhipidura rufifrons</i>	Mi, Ma	SLC	Occurs in coastal and near coastal districts of northern and eastern Australia in wet sclerophyll forests and rainforests (DOE, 2015).	Unlikely to occur in the Survey Area due to the absence of suitable habitat.
Fork-tailed Swift <i>Apus pacificus</i>	Mi, Ma	SLC	Known to forage over any habitat. Strictly aerial. A summer visitor to Australia (Pizzey and Knight, 2006).	Potentially suitable habitat for this species occurs across the Survey Area and throughout the region. This species is unlikely to be impacted by Project development as it rarely comes into contact with the ground or vegetation.
Magpie Goose <i>Anseranas semipalmata</i>	Ma	NL	Occupies large seasonal wetlands and well-vegetated dams with rushes and sedges; wet grasslands and floodplains (Pizzey and Knight, 2006).	Potentially suitable habitat for this species exists in the wetland areas of the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species due to its mobility and the continued existence of suitable wetland habitat within the Survey Area.
Latham's Snipe <i>Gallinago hardwickii</i>	Mi, Ma	SLC	This species occurs in association with areas of soft wet ground or shallow water with tussocks, seepage areas below dams, irrigated areas, scrub or open woodland, alpine bogs, saltmarshes and mangrove fringes (Pizzey and Knight, 2006).	Potentially suitable habitat for this species exists in the wetland areas of the Survey Area. It was not observed during the survey. No significant impacts are expected on populations of this species due to its mobility and the continued existence of wetland habitat in the Survey Area.



Species	Status		Habitat Description and Likelihood of Occurrence	Assessment of Impact Significance
	EPBC Act	NC Act		
Eastern Osprey <i>Pandion haliaetus</i>	Ma	NL	This species predominantly occupies coastal and littoral habitats as well as terrestrial wetlands of tropical and temperate Australia and offshore islands (DOE, 2015). Eastern Ospreys require extensive areas of open fresh, brackish or saline water for foraging (Marchant and Higgins, 1993).	Unlikely to occur in the Survey Area due to the absence of suitable habitat.

- CE - Critically Endangered
- E - Endangered
- EX - Extinct
- LC - Least Concern
- NL - Not Listed
- NT - Near Threatened
- Ma - Marine species
- Mi - Migratory species
- SLC - Special Least Concern
- V - Vulnerable



## 7.0 CONCLUSIONS, IMPACTS AND RECOMMENDATIONS

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The survey identified two vegetation communities in the Survey Area, which provide habitat for a range of flora and fauna species. One of these communities is listed as Endangered under the VM Act, EHP Biodiversity Status, and EPBC Act: RE 11.4.8. The Survey Area supports populations of common mammal, bird, amphibian and reptile species. Fauna habitat features of the Survey Area include logs, dead trees, exfoliating bark, leaf litter, woody debris, dense groundcover, gilgais and small wetlands. These environmental values are compromised by weed and pest invasion, edge effects, fragmentation and lack of habitat connectivity.

Development of the Project proposes disturbance of approximately 181 ha of land and clearing of approximately 4.31 ha of remnant vegetation within the Survey Area. The area to be cleared is shown in Figure 13. Project development will result in the loss of part of one small, isolated area of vegetation and fauna habitat, with associated potential for fauna mortality.

Clearing and mining of the Survey Area has the potential to create erosion, sedimentation, noise, dust and contaminated surface water runoff. Project works should be undertaken in accordance with Jellinbah's existing environmental management practices and procedures, in order to minimise these potential impacts.

- Areas to be disturbed must be clearly delineated and clearing restricted to the disturbance footprint.
- Sediment and erosion controls should be implemented throughout both construction and operation, as per Jellinbah's Erosion and Sediment Control Plan.
- The topsoil stripped during mining activities should be stockpiled for use in rehabilitation, in accordance with Jellinbah's Topsoil Management Plan.
- A water management system will be developed that isolates dirty and clean surface water runoff, in accordance with the existing Water Management Plan. Clean water will be diverted around the mining area into natural watercourses. Dirty runoff water will be diverted to detention areas for settlement of particulates.
- Dust emissions should be controlled through the use of water trucks.
- Jellinbah's Weed and Pest Management Plan will also apply to the proposed works, and will minimise impacts on the flora and fauna of the Survey Area.

Significant residual environmental impacts will be offset. Offsetting requirements are outlined below.

### 7.1 ENVIRONMENTAL OFFSET REQUIREMENTS

Clearing of 4.31 ha of Brigalow dominant vegetation is considered a residual impact on the following prescribed environmental matters:

- Endangered RE (RE 11.4.8 – Community 1).

The *Significant Residual Impact Guideline* (EHP, 2014a) was consulted to determine if the potential impacts of the Project on MSES are considered significant. Table 1 of the guideline states that for clearing other than clearing for linear infrastructure, the clearing area for a dense to mid-dense RE



must be greater than 0.5 ha to be considered significant. Significant residual impacts on MSES require offsetting under the *Queensland Environmental Offsets Policy 2014* (EHP, 2014). Therefore the clearing of 4.31 ha of RE 11.4.8 is considered a significant residual impact and will require offsetting.

In summary, environmental offsetting is likely to be required for clearing of RE 11.4.8. Offsets may be delivered as a financial settlement, a land-based offset, delivery of actions contained in the government's Direct Benefit Management Plans, or a combination of these approaches.





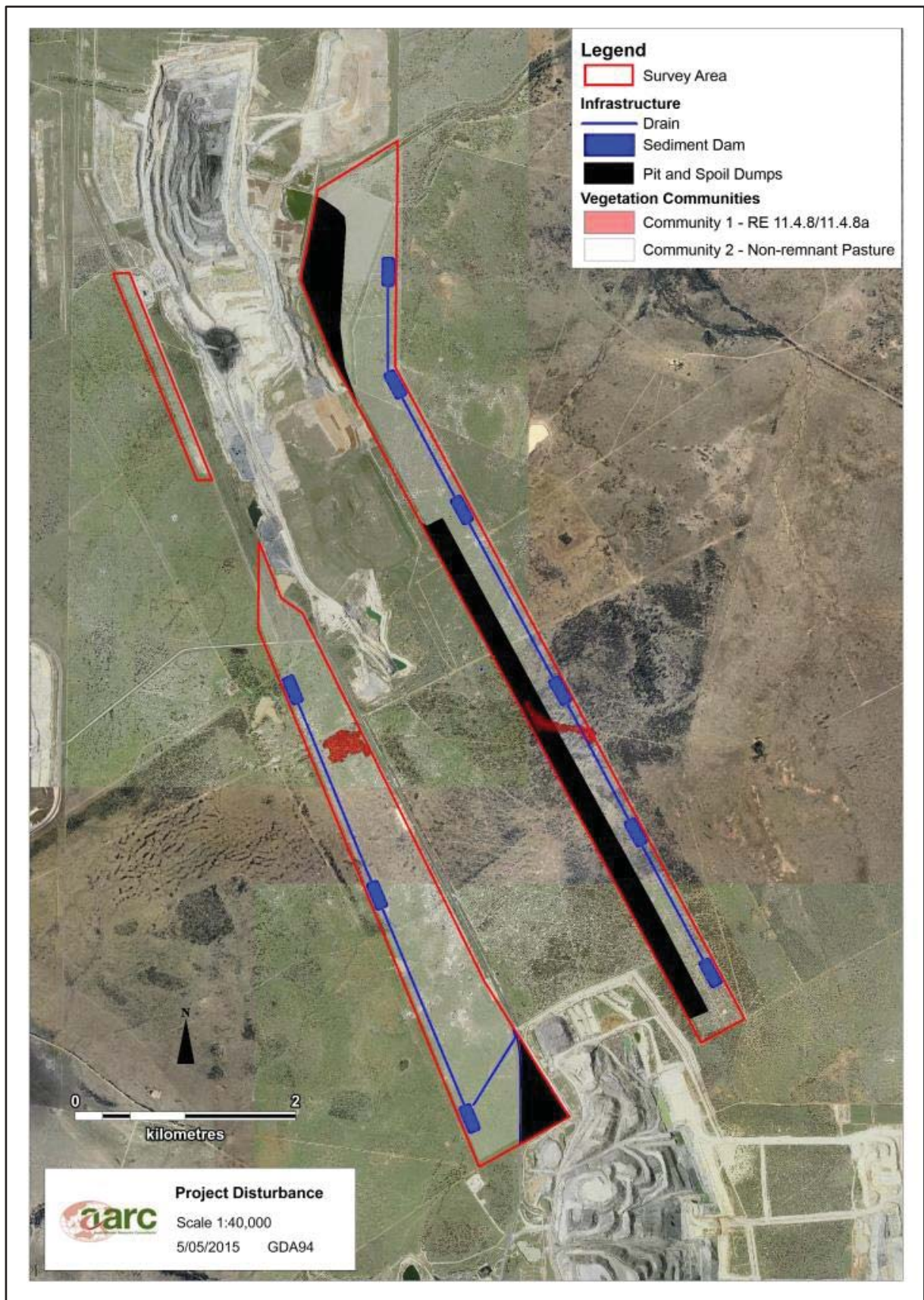


Figure 13 Proposed Project Impact Area

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Appendix A Database Searches





# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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: 02/03/15 16:26:01

[Summary](#)

[Details](#)

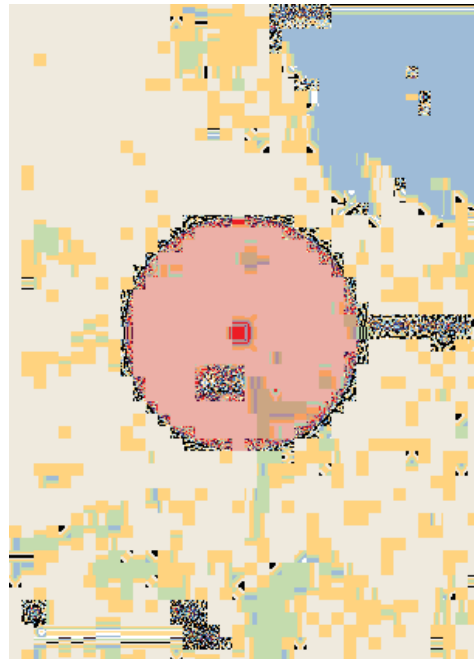
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

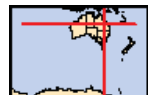
[Acknowledgements](#)



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

[Coordinates](#)

Buffer: 100.0Km



# 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 Areas:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	6
<a href="#">Listed Threatened Species:</a>	36
<a href="#">Listed Migratory Species:</a>	14

## 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 and the heritage values of a place on the Register of the National Estate.

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.

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>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	16
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine:</a>	None



## Extra Information

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

<a href="#">Place on the RNE:</a>	5
<a href="#">State and Territory Reserves:</a>	17
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	34
<a href="#">Nationally Important Wetlands:</a>	1
<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="#">Brigalow (Acacia harpophylla dominant and co-dominant)</a>	Endangered	Community known to occur within area
<a href="#">Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland</a>	Endangered	Community may occur within area
<a href="#">Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions</a>	Endangered	Community likely to occur within area
<a href="#">Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin</a>	Endangered	Community likely to occur within area
<a href="#">Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions</a>	Endangered	Community likely to occur within area
<a href="#">Weeping Myall Woodlands</a>	Endangered	Community likely to occur within area

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

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Erythrorichis radiatus</a> Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Geophaps scripta scripta</a> Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Neochmia ruficauda ruficauda</a> Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
<a href="#">Poephila cincta cincta</a> Black-throated Finch (southern) [64447]	Endangered	Species or species habitat likely to occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species

Name	Status	Type of Presence
<a href="#">Turnix melanogaster</a> Black-breasted Button-quail [923]	Vulnerable	habitat likely to occur within area Species or species habitat likely to occur within area
<b>Fish</b>		
<a href="#">Bidyanus bidyanus</a> Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat likely to occur within area
<b>Mammals</b>		
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dasyurus hallucatus</a> Northern Quoll [331]	Endangered	Species or species habitat likely to occur within area
<a href="#">Nyctophilus corbeni</a> South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
<a href="#">Onychogalea fraenata</a> Bridled Nail-tail Wallaby [239]	Endangered	Species or species habitat known to occur within area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
<b>Other</b>		
<a href="#">Cycas megacarpa</a> [55794]	Endangered	Species or species habitat likely to occur within area
<a href="#">Cycas ophiolitica</a> [55797]	Endangered	Species or species habitat known to occur within area
<a href="#">Macrozamia platyrhachis</a> cycad [3412]	Endangered	Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Acacia grandifolia</a> [3566]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Aristida annua</a> [17906]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Bertya opposens</a> [13792]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Cadellia pentastylis</a> Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Daviesia discolor</a> [3567]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dichanthium queenslandicum</a> King Blue-grass [5481]	Endangered	Species or species habitat known to occur within area
<a href="#">Dichanthium setosum</a> bluegrass [14159]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence
<a href="#">Eucalyptus raveretiana</a> Black Ironbox [16344]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Homoranthus decumbens</a> a shrub [55186]	Endangered	Species or species habitat known to occur within area
<a href="#">Logania diffusa</a> [24159]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Omphalea celata</a> [64586]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Phaius australis</a> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat known to occur within area
<a href="#">Polianthion minutiflorum</a> [82772]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Streblus pendulinus</a> Siah's Backbone, Sia's Backbone, Isaac Wood [21618]	Endangered	Species or species habitat likely to occur within area
<b>Reptiles</b>		
<a href="#">Delma torquata</a> Collared Delma [1656]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Denisonia maculata</a> Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Egernia rugosa</a> Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Elseya albagula</a> Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Furina dunmalli</a> Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
<a href="#">Lerista allanae</a> Allan's Lerista, Retro Slider [1378]	Endangered	Species or species habitat may occur within area
<a href="#">Rheodytes leukops</a> Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat may occur within area
<b>Listed Migratory Species</b>		<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>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Marine Species</b>		
<a href="#">Crocodylus porosus</a> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<b>Migratory Terrestrial Species</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat may occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Land [\[ Resource Information \]](#)

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

Name
Defence - BLACKWATER TRAINING DEPOT

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

\* 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="#">Anseranas semipalmata</a> Magpie Goose [978]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<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]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat may occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<b>Reptiles</b>		
<a href="#">Crocodylus porosus</a> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

## Extra Information

### Places on the RNE [ [Resource Information](#) ]

Note that not all Indigenous sites may be listed.

Name	State	Status
<b>Natural</b>		
<a href="#">Central Highlands Region</a>	QLD	Indicative Place
<a href="#">Blackdown Tableland Area</a>	QLD	Registered
<a href="#">Peak Range Areas</a>	QLD	Registered
<a href="#">Taunton Scientific Reserve (part)</a>	QLD	Registered
<b>Historic</b>		
<a href="#">Emerald Railway Station</a>	QLD	Registered

### State and Territory Reserves [ [Resource Information](#) ]

Name	State
Avocet	QLD
Belmah	QLD
Blackdown Tableland	QLD
Blackwater	QLD
Burwood	QLD
Caroa Island Paddock	QLD
Coolibah	QLD
German Creek	QLD
Ghungalu	QLD
Goodedulla	QLD
Humboldt	QLD
Junee	QLD
Kenmare	QLD
Norwich Park	QLD
Rifle Range	QLD
Taunton	QLD
Wallaby Lane	QLD

### 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>		
<a href="#">Acridotheres tristis</a> Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
<a href="#">Anas platyrhynchos</a> Mallard [974]		Species or species habitat likely to occur within area
<a href="#">Columba livia</a> Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<a href="#">Lonchura punctulata</a> Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
<a href="#">Passer domesticus</a> House Sparrow [405]		Species or species habitat likely to occur within area
<a href="#">Streptopelia chinensis</a> Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
<a href="#">Sturnus vulgaris</a> Common Starling [389]		Species or species

Name	Status	Type of Presence
<b>Frogs</b>		
<a href="#">Rhinella marina</a>		habitat likely to occur within area
Cane Toad [83218]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<a href="#">Bos taurus</a>		
Domestic Cattle [16]		Species or species habitat likely to occur within area
<a href="#">Canis lupus familiaris</a>		
Domestic Dog [82654]		Species or species habitat likely to occur within area
<a href="#">Equus caballus</a>		
Horse [5]		Species or species habitat likely to occur within area
<a href="#">Felis catus</a>		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<a href="#">Feral deer</a>		
Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
<a href="#">Lepus capensis</a>		
Brown Hare [127]		Species or species habitat likely to occur within area
<a href="#">Mus musculus</a>		
House Mouse [120]		Species or species habitat likely to occur within area
<a href="#">Oryctolagus cuniculus</a>		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<a href="#">Rattus rattus</a>		
Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
<a href="#">Sus scrofa</a>		
Pig [6]		Species or species habitat likely to occur within area
<a href="#">Vulpes vulpes</a>		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Acacia nilotica subsp. indica</a>		
Prickly Acacia [6196]		Species or species habitat may occur within area
<a href="#">Cryptostegia grandiflora</a>		
Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
<a href="#">Hymenachne amplexicaulis</a>		
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
<a href="#">Jatropha gossypifolia</a>		
Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
<a href="#">Lantana camara</a>		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sage, Wild Sage [10892] <a href="#">Lycium ferocissimum</a>		
African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
<a href="#">Opuntia spp.</a>		
Prickly Pears [82753]		Species or species habitat likely to occur within area
<a href="#">Parkinsonia aculeata</a>		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
<a href="#">Parthenium hysterophorus</a>		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
<a href="#">Prosopis spp.</a>		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
<a href="#">Salvinia molesta</a>		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
<a href="#">Solanum elaeagnifolium</a>		
Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
<a href="#">Tamarix aphylla</a>		
Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
<a href="#">Vachellia nilotica</a>		
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area
<b>Reptiles</b>		
<a href="#">Hemidactylus frenatus</a>		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
<b>Nationally Important Wetlands</b>		<b>[ Resource Information ]</b>
Name		State
<a href="#">Fairbairn Dam</a>		QLD



# Coordinates

-23.34121 148.93056

## 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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

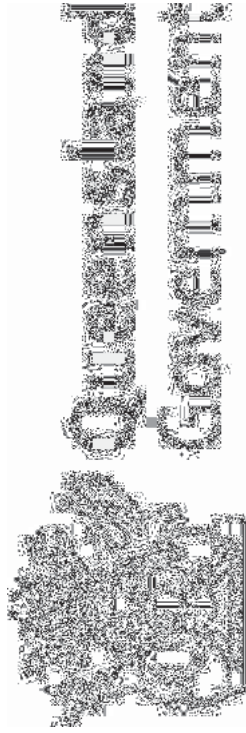
# Acknowledgements

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

- [Department of Environment, Climate Change and Water, New South Wales](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment and Natural Resources, South Australia](#)
- [Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [Environmental and Resource Management, Queensland](#)
- [Department of Environment and Conservation, Western Australia](#)
- [Department of the Environment, Climate Change, Energy and Water](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [SA 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, Atherton and Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [State Forests of NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- 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.



## Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: -23.3412

Longitude: 148.9305

Distance: 100

Email: [abuddery@aacrc.net.au](mailto:abuddery@aacrc.net.au)

Date submitted: Monday 02 Mar 2015 15:27:35

Date extracted: Monday 02 Mar 2015 15:30:03

The number of records retrieved = 3073

### **Disclaimer**

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	<i>Rhinella marina</i>	cane toad				140/2
animals	amphibians	<i>Litoria fallax</i>	eastern sedgefrog	Y	C		24/4
animals	amphibians	<i>Litoria rothii</i>	northern laughing treefrog		C		12/1
animals	amphibians	<i>Litoria inermis</i>	bumpy rocketfrog		C		30/4
animals	amphibians	<i>Litoria peronii</i>	emerald spotted treefrog		C		13/4
animals	amphibians	<i>Litoria rubella</i>	ruddy treefrog		C		36/5
animals	amphibians	<i>Litoria caerulea</i>	common green treefrog		C		83/7
animals	amphibians	<i>Litoria wilcoxii</i>	eastern stony creek frog		C		15/1
animals	amphibians	<i>Cyclorana brevipes</i>	superb collared frog		C		17/6
animals	amphibians	<i>Cyclorana cultripes</i>	grassland collared frog		C		5/4
animals	amphibians	<i>Cyclorana verrucosa</i>	rough collared frog		C		7/5
animals	amphibians	<i>Litoria latopalmata</i>	broad palmed rocketfrog		C		66/3
animals	amphibians	<i>Cyclorana alboguttata</i>	greenstripe frog		C		29/6
animals	amphibians	<i>Cyclorana platycephala</i>	water holding frog		C		5/1
animals	amphibians	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		C		31/4
animals	amphibians	<i>Litoria sp.</i>					1
animals	amphibians	<i>Cyclorana sp.</i>					1
animals	amphibians	<i>Adelotus brevis</i>	tusked frog	Y			10
animals	amphibians	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk		C		36/2
animals	amphibians	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		C		28/6
animals	amphibians	<i>Platylectrum ornatum</i>	ornate burrowing frog		C		56/4
animals	amphibians	<i>Limnodynastes salmini</i>	salmon striped frog		C		21/3
animals	amphibians	<i>Limnodynastes peronii</i>	striped marshfrog		C		10
animals	amphibians	<i>Pseudophryne major</i>	great brown broodfrog		C		23/3
animals	amphibians	<i>Crinia deserticola</i>	chirping froglet		C		1
animals	amphibians	<i>Crinia parinsignifera</i>	beeping froglet		C		10
animals	amphibians	<i>Uperoleia laevigata</i>	eastern gungan		C		10
animals	amphibians	<i>Uperoleia rugosa</i>	chubby gungan		C		7/3
animals	amphibians	<i>Pseudophryne sp.</i>					3
animals	amphibians	<i>Crinia signifera</i>	clicking froglet		C		5
animals	amphibians	<i>Uperoleia sp.</i>					3
animals	amphibians	<i>Smicrornis brevirostris</i>	weebill		C		332/1
animals	amphibians	<i>Sericornis magnirostra</i>	large-billed scrubwren		C		1
animals	amphibians	<i>Gerygone sp.</i>					1
animals	amphibians	<i>Acanthiza nana</i>	yellow thornbill		C		79
animals	amphibians	<i>Gerygone fusca</i>	western gerygone		C		21
animals	amphibians	<i>Gerygone mouki</i>	brown gerygone		C		1
animals	amphibians	<i>Acanthiza lineata</i>	striated thornbill		C		23/9
animals	amphibians	<i>Acanthiza pusilla</i>	brown thornbill		C		12
animals	amphibians	<i>Acanthiza apicalis</i>	inland thornbill		C		57
animals	amphibians	<i>Gerygone palpebrosa</i>	fairy gerygone		C		9
animals	amphibians	<i>Acanthiza reguloides</i>	buff-rumped thornbill		C		110/9
animals	amphibians	<i>Gerygone albogularis</i>	white-throated gerygone		C		274/1
animals	amphibians	<i>Sericornis frontalis</i>	white-browed scrubwren		C		44
animals	amphibians	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		48
animals	amphibians	<i>Chthonicola sagittata</i>	speckled warbler		C		41

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	Acanthizidae	<i>Sericornis citreogularis</i>	yellow-throated scrubwren		C		1
animals	Accipitridae	<i>Erythrorhynchus radiatus</i>	red goshawk		E	V	19/1
animals	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		172/3
animals	Accipitridae	<i>Milvus migrans</i>	black kite		C		132/1
animals	Accipitridae	<i>Haliastur indus</i>	brahminy kite		C		2
animals	Accipitridae	<i>Circus assimilis</i>	spotted harrier		C		21/1
animals	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite		C		67
animals	Accipitridae	<i>Pandion cristatus</i>	eastern osprey		SL		4
animals	Accipitridae	<i>Circus approximans</i>	swamp harrier		C		13
animals	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite		C		11/3
animals	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		43
animals	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		C		43/1
animals	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		231/2
animals	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle		SL		22
animals	Accipitridae	<i>Hieraetus morphnoides</i>	little eagle		C		12/3
animals	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk		C		16
animals	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk		C		1
animals	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		SL		43
animals	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		108
animals	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark		C		48
animals	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		C		26
animals	Anatidae	<i>Aythya australis</i>	hardhead		C		155
animals	Anatidae	<i>Oxyura australis</i>	blue-billed duck		C		1
animals	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		318
animals	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		151
animals	Anatidae	<i>Anas platyrhynchos</i>	northern mallard	Y			1
animals	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck		C		79
animals	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		C		25
animals	Anatidae	<i>Nettapus pulchellus</i>	green pygmy-goose		C		3
animals	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		C		24
animals	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck		C		30
animals	Anatidae	<i>Anas castanea</i>	chestnut teal		C		4
animals	Anatidae	<i>Anas rhynchos</i>	Australasian shoveler		C		34
animals	Anatidae	<i>Tadorna radjah</i>	radjah shelduck		C		3
animals	Anatidae	<i>Cygnus atratus</i>	black swan		C		85
animals	Anatidae	<i>Biziura lobata</i>	musk duck		C		1
animals	Anatidae	<i>Anas gracilis</i>	grey teal		C		202
animals	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter		C		169
animals	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose		C		24
animals	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		SL		9
animals	Apodidae	<i>Apus pacificus</i>	fork-tailed swift		SL		4
animals	Ardeidae	<i>Ixobrychus dubius</i>	Australian little bittern		C		1
animals	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern		C		11
animals	Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen night-heron		C		38
animals	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		170
animals	Ardeidae	<i>Ardea modesta</i>	eastern great egret		SL		96

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		126
animals	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		132
animals	Ardeidae	<i>Egretta garzetta</i>	little egret		C		41
animals	Ardeidae	<i>Ardea ibis</i>	cattle egret		SL		5
animals	Artamidae	<i>Strepera graculina</i>	pieb currawong		C		264/3
animals	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		C		8
animals	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird		C		335/1
animals	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		83
animals	Artamidae	<i>Artamus supercilliosus</i>	white-browed woodswallow		C		20
animals	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		668/4
animals	Artamidae	<i>Strepera graculina graculina</i>	pieb currawong (eastern Australia)		C		4
animals	Artamidae	<i>Artamus minor</i>	little woodswallow		C		21/1
animals	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		55/4
animals	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		17
animals	Artamidae	<i>Cracticus nigrogularis</i>	pieb butcherbird		C		471/1
animals	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		31/1
animals	Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo		C		8
animals	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo		V		20/2
animals	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		C		21
animals	Cacatuidae	<i>Eolophus roseicapillus</i>	galah		C		129
animals	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		167
animals	Cacatuidae	<i>Cacatua sanguinea</i>	little corella		C		15
animals	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		465
animals	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike		C		45
animals	Campephagidae	<i>Lalage sueurii</i>	white-winged triller		C		50/1
animals	Campephagidae	<i>Lalage leucomela</i>	varied triller		C		17
animals	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		67/1
animals	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird		SL		53
animals	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		309
animals	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar		C		2
animals	Casuaridae	<i>Dromaius novaehollandiae</i>	emu		C		69
animals	Charadriidae	<i>Pluvialis fulva</i>	Pacific golden plover		SL		3
animals	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		91
animals	Charadriidae	<i>Eisayornis melanops</i>	black-fronted dotterel		C		91
animals	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		C		1
animals	Charadriidae	<i>Vanellus tricolor</i>	banded lapwing		C		13
animals	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)		C		65
animals	Charadriidae	<i>Erythronyys cinctus</i>	red-kneed dotterel		C		7
animals	Charadriidae	<i>Vanellus miles miles</i>	masked lapwing (northern subspecies)		C		20
animals	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		C		19
animals	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		C		88
animals	Climacteridae	<i>Cormobates leucophaea</i>	white-throated treecreeper		C		12
animals	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated treecreeper (southern)		C		82/8
animals	Climacteridae	<i>Climacteris picumnus</i>	brown treecreeper		C		21/1
animals	Columbidae	<i>Streptopelia chinensis</i>	spotted dove		Y		1
animals	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove		C		2

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	Columbidae	<i>Leucosarcia picata</i>	wonga pigeon		C		6
animals	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		162/1
animals	Columbidae	<i>Chalcophaps indica</i>	emerald dove		C		6
animals	Columbidae	<i>Ptilinopus regina</i>	rose-crowned fruit-dove		C		2
animals	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		C		64
animals	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		264
animals	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		244
animals	Columbidae	<i>Geopelia cuneata</i>	diamond dove		C		29/1
animals	Columbidae	<i>Columba livia</i>	rock dove	Y			11
animals	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)		V	V	87
animals	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		121/1
animals	Corcoraciidae	<i>Corcorax melanorhamphos</i>	white-winged chough		C		73
animals	Corcoraciidae	<i>Struthidea cinerea</i>	apostlebird		C		267/1
animals	Corvidae	<i>Corvus sp.</i>					147
animals	Corvidae	<i>Corvus orru</i>	Torresian crow		C		536/1
animals	Corvidae	<i>Corvus bennetti</i>	little crow		C		8
animals	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		122/1
animals	Cuculidae	<i>Chalcites osculans</i>	black-eared cuckoo		C		10
animals	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo		C		37/2
animals	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo		C		37/2
animals	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo		SL		1
animals	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		40
animals	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		C		53
animals	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		8/1
animals	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		181/1
animals	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		60
animals	Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo		C		14/1
animals	Cuculidae	<i>Chalcites minutillus russatus</i>	Gould's bronze-cuckoo		C		1
animals	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		78
animals	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		51
animals	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		C		21/1
animals	Estrildidae	<i>Neochmia phaeton</i>	crimson finch		C		3
animals	Estrildidae	<i>Neochmia ruficauda</i>	star finch		C		3
animals	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch		C		13
animals	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		C		48
animals	Estrildidae	<i>Stagonopleura guttata</i>	diamond firetail		C		1
animals	Estrildidae	<i>Neochmia phaeton phaeton</i>	crimson finch		C		1
animals	Estrildidae	<i>Poephila cincta cincta</i>	black-throated finch (white-rumped subspecies)		E	E	4/1
animals	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		314
animals	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin		C		50
animals	Eurostopodidae	<i>Eurostopodus argus</i>	spotted nightjar		C		2
animals	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		C		15
animals	Falconidae	<i>Falco sp.</i>					1
animals	Falconidae	<i>Falco berigora</i>	brown falcon		C		154/2
animals	Falconidae	<i>Falco subniger</i>	black falcon		C		21

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		42/1
animals	Falconidae	<i>Falco peregrinus</i>	peregrine falcon		C		20
animals	Falconidae	<i>Falco cenchroides</i>	Nankeen kestrel		C		180
animals	Falconidae	<i>Falco hypoleucos</i>	grey falcon		NT		1/1
animals	Glaucidae	<i>Stiltia isabella</i>	Australian pratincole		C		2
animals	Gruidae	<i>Grus rubicunda</i>	brolga		C		111
animals	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		97/3
animals	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		438/1
animals	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher		C		30
animals	Halcyonidae	<i>Todiramphus macleayi</i>	forest kingfisher		C		82/1
animals	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		84
animals	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		91
animals	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		46/1
animals	Hirundinidae	<i>Cheramoeca leucosterna</i>	white-backed swallow		C		1
animals	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		105
animals	Jacaniidae	<i>Irediparra gallinacea</i>	comb-crested jacana		C		25
animals	Lariidae	<i>Anous minutus</i>	black noddy		C		2/2
animals	Lariidae	<i>Chidonias hybrida</i>	whiskered tern		C		17
animals	Lariidae	<i>Chroicocephalus novaehollandiae</i>	silver gull		C		36
animals	Lariidae	<i>Gelochelidon nilotica</i>	gull-billed tern		C		5
animals	Lariidae	<i>Hydroprogne caspia</i>	Caspian tern		SL		42
animals	Maluridae	<i>Malurus cyaneus</i>	superb fairy-wren		C		117
animals	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren		C		205/1
animals	Maluridae	<i>Malurus leucopterus</i>	white-winged fairy-wren		C		1
animals	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		C		440
animals	Maluridae	<i>Malurus sp.</i>	little grassbird		C		1
animals	Megaluridae	<i>Megalurus gramineus</i>	tawny grassbird		C		1/1
animals	Megaluridae	<i>Megalurus timoriensis</i>	brown songlark		C		17
animals	Megaluridae	<i>Cincloramphus cruralis</i>	rufous songlark		C		20
animals	Megaluridae	<i>Cincloramphus mathewsi</i>	Australian brush-turkey		C		46
animals	Megapodiidae	<i>Alectura lathami</i>	blue-faced honeyeater		C		26
animals	Meliphagidae	<i>Entomyzon cyanotis</i>	eastern spinebill		C		328/2
animals	Meliphagidae	<i>Acanthorhynchus tenuirostris</i>	brown-headed honeyeater		C		11/1
animals	Meliphagidae	<i>Melithreptus brevirostris</i>	striped honeyeater		C		4
animals	Meliphagidae	<i>Plectorhyncha lanceolata</i>	white-throated honeyeater		C		142/2
animals	Meliphagidae	<i>Melithreptus albogularis</i>	spiny-cheeked honeyeater		C		267
animals	Meliphagidae	<i>Acanthagenys rufogularis</i>	little wattletbird		C		49
animals	Meliphagidae	<i>Anthochaera chrysoptera</i>	red wattletbird		C		1
animals	Meliphagidae	<i>Anthochaera carunculata</i>	white-plumed honeyeater		C		1/1
animals	Meliphagidae	<i>Ptilotula penicillatus</i>	little friarbird		C		16
animals	Meliphagidae	<i>Philemon citreogularis</i>	scarlet honeyeater		C		229/4
animals	Meliphagidae	<i>Myzomela sanguinolenta</i>	painted honeyeater		C		44
animals	Meliphagidae	<i>Grantiella picta</i>	fuscous honeyeater		V		1
animals	Meliphagidae	<i>Ptilotula fusca</i>	Lewin's honeyeater		C		17/1
animals	Meliphagidae	<i>Meliphaga lewinii</i>	yellow honeyeater		C		73
animals	Meliphagidae	<i>Stomiopera flavus</i>			C		8



animals	birds	Meliphagidae	<i>Caligavis chrysops</i>	yellow-faced honeyeater	C		77/4
animals	birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	C		273
animals	birds	Meliphagidae	<i>Phylidonyris niger</i>	white-cheeked honeyeater	C		17
animals	birds	Meliphagidae	<i>Epthianura tricolor</i>	crimson chat	C		1
animals	birds	Meliphagidae	<i>Gavialis virescens</i>	singing honeyeater	C		140
animals	birds	Meliphagidae	<i>Philemon buceroides</i>	helmeted friarbird	C		2
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	C		203
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater	C		5
animals	birds	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater	C		57/4
animals	birds	Meliphagidae	<i>Nesoptilotis leucotis</i>	white-eared honeyeater	C		65/1
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	C		382/6
animals	birds	Meliphagidae	<i>Lichenostomus melanops</i>	yellow-tufted honeyeater	C		15
animals	birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	C		366/1
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	SL		198
animals	birds	Monarchidae	<i>Carterornis leucotis</i>	white-eared monarch	C		7
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	C		146
animals	birds	Monarchidae	<i>Myiagra alecto</i>	shining flycatcher	C		1
animals	birds	Monarchidae	<i>Symposiachrus trivirgatus</i>	spectacled monarch	SL		3
animals	birds	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher	C		72
animals	birds	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch	SL		2
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	C		449
animals	birds	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher	SL		12
animals	birds	Motacillidae	<i>Motacilla flava sensu lato</i>	yellow wagtail	SL		2
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	C		76
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	C		197
animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella	C		58/3
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	C		120/2
animals	birds	Oriolidae	<i>Sphecotheres vieillotii</i>	Australasian figbird	C		84
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard	C		110/1
animals	birds	Pachycephalidae	<i>Colluricincla megarrhyncha</i>	little shrike-thrush	C		15/2
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	C		432/1
animals	birds	Pachycephalidae	<i>Oreoica gutturalis</i>	crested bellbird	C		1
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	C		240/1
animals	birds	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler	C		27/2
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	C		650/2
animals	birds	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote	C		47/2
animals	birds	Pardalotidae	<i>Pardalotus rubricatus</i>	red-browed pardalote	C		9/1
animals	birds	Passeridae	<i>Passer domesticus</i>	house sparrow	Y		29
animals	birds	Pedionomidae	<i>Pedionomus torquatus</i>	plains-wanderer	V		1
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	C		114
animals	birds	Petroicidae	<i>Melanodryas cucullata</i>	hooded robin	C		1/1
animals	birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin	C		68/4
animals	birds	Petroicidae	<i>Petroica goodenovii</i>	red-capped robin	C		16
animals	birds	Petroicidae	<i>Microeca fascians</i>	jacky winter	C		77/2
animals	birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher	C		3
animals	birds	Petroicidae	<i>Petroica rosea</i>	rose robin	C		6

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animals	Phaethontidae	<i>Phaethon rubricauda</i>	red-tailed tropicbird		V		1
animals	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		130
animals	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		125
animals	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant		C		86
animals	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant		C		40
animals	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail		C		9
animals	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		56
animals	Pittidae	<i>Pitta versicolor</i>	noisy pitta		C		1
animals	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		97
animals	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		183
animals	Podicipedidae	<i>Polyocephalus poliocephalus</i>	hoary-headed grebe		C		4
animals	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe		C		54
animals	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		C		248/2
animals	Psittacidae	<i>Lathamus discolor</i>	swift parrot		E	E	1
animals	Psittacidae	<i>Platycercus elegans</i>	crimson rosella		C		2
animals	Psittacidae	<i>Platycercus eximius</i>	eastern rosella		C		2/2
animals	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot		C		29
animals	Psittacidae	<i>Glossopsitta pusilla</i>	little lorikeet		C		54/1
animals	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella		C		444
animals	Psittacidae	<i>Psephotus haematonotus</i>	red-rumped parrot		C		1
animals	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		C		106/1
animals	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet		C		506/5
animals	Psittacidae	<i>Psephotus pulcherrimus</i>	paradise parrot		PE	EX	10/2
animals	Psittacidae	<i>Melopsittacus undulatus</i>	budgerigar		C		12
animals	Psittacidae	<i>Aprosmitcus erythropterus</i>	red-winged parrot		C		270/1
animals	Psophodidae	<i>Psophodes olivaceus</i>	eastern whippbird		C		7
animals	Psophodidae	<i>Cincosoma punctatum</i>	spotted quail-thrush		C		16
animals	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird		C		240/3
animals	Rallidae	<i>Fulica atra</i>	Eurasian coot		C		102
animals	Rallidae	<i>Porzana pusilla</i>	Baillon's crane		C		2/2
animals	Rallidae	<i>Porzana fluminea</i>	Australian spotted crane		C		1
animals	Rallidae	<i>Tribonyx ventralis</i>	black-tailed native-hen		C		7
animals	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen		C		103
animals	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen		C		50
animals	Rallidae	<i>Galirallus philippensis</i>	buff-banded rail		C		2/1
animals	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt		C		83
animals	Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	red-necked avocet		C		3
animals	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		438/1
animals	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail		SL		19
animals	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		421/1
animals	Rostratulidae	<i>Rostratula australis</i>	Australian painted snipe		V	E	6
animals	Scolopacidae	<i>Tringa nebularia</i>	common greenshank		SL		1
animals	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe		SL		7/1
animals	Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint		SL		4
animals	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper		SL		2
animals	Scolopacidae	<i>Tringa stagnatilis</i>	marsh sandpiper		SL		9

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animals	Scolopacidae	<i>Tringa glareola</i>	wood sandpiper		SL		1
animals	Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit		SL		1
animals	Scolopacidae	<i>Arenaria interpres</i>	ruddy turnstone		SL		2
animals	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper		SL		20
animals	Stercorariidae	<i>Stercorarius pomarinus</i>	pomarine jaeger		SL		1/1
animals	Strigidae	<i>Ninox connivens</i>	barking owl		C		19/1
animals	Strigidae	<i>Ninox strenua</i>	powerful owl		V		5
animals	Strigidae	<i>Ninox boobook</i>	southern boobook		C		122
animals	Sturnidae	<i>Sturnus vulgaris</i>	common starling	Y	C		1
animals	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		C		68
animals	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		72
animals	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		C		64
animals	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		108
animals	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis		SL		16
animals	Timaliidae	<i>Zosterops lateralis</i>	silveryeye		C		73
animals	Turnicidae	<i>Turnix pyrrhorthorax</i>	red-chested button-quail		C		9/1
animals	Turnicidae	<i>Turnix maculosus</i>	red-backed button-quail		C		1/1
animals	Turnicidae	<i>Turnix varius</i>	painted button-quail		C		13
animals	Turnicidae	<i>Turnix velox</i>	little button-quail		C		11/1
animals	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail		V	V	11
animals	Tytonidae	<i>Tyto javanica</i>	eastern barn owl		C		49
animals	Tytonidae	<i>Tyto novaehollandiae</i>	masked owl		C		5
insects	Hesperiidae	<i>Cephenes augiades sperthias</i>	orange palm-dart				1
insects	Hesperiidae	<i>Ocybadistes walkeri sothis</i>	green grass-dart (Bassian subspecies)				2
insects	Hesperiidae	<i>Hesperilla ornata ornata</i>	spotted sedge-skipper (southern subspecies)				1
insects	Hesperiidae	<i>Badamia exclamatoris</i>	narrow-winged awl				1
insects	Hesperiidae	<i>Hesperilla malindeva</i>	two-spotted sedge-skipper				1
insects	Hesperiidae	<i>Trapezites phigalia</i>	heath ochre				1
insects	Hesperiidae	<i>Hesperilla furva</i>	grey sedge-skipper				2
insects	Hesperiidae	<i>Trapezites elena</i>	orange ochre				1
insects	Hesperiidae	<i>Trapezites taori</i>	sandstone ochre				1
insects	Hesperiidae	<i>Mesodina halyzia</i>	eastern iris-skipper				1
insects	Hesperiidae	<i>Ocybadistes hypomeloma hypomeloma</i>	white-margined grass-dart (eastern subspecies)				1
insects	Hesperiidae	<i>Parnara bada</i>	grey swift				1
insects	Hesperiidae	<i>Toxidia peron</i>	dingy grass-skipper				1
insects	Hesperiidae	<i>Trapezites maheta</i>	northern silver ochre				1
insects	Lycaenidae	<i>Nacaduba biocellata biocellata</i>	two-spotted line-blue				2
insects	Lycaenidae	<i>Candalides cyprotus pallescens</i>	copper pencilled-blue				1
insects	Lycaenidae	<i>Theclinessthes miskini miskini</i>	wattle blue (Australian subspecies)				1
insects	Lycaenidae	<i>Neolucia agricola agricola</i>	fringed heath-blue				1
insects	Lycaenidae	<i>Euchrysops cnejus cnidus</i>	five-spotted pea-blue				1
insects	Lycaenidae	<i>Nesolycaena albosericea</i>	satin opal				43
insects	Lycaenidae	<i>Zizeeria karsandra</i>	spotted grass-blue				1
insects	Lycaenidae	<i>Candalides geminus</i>	large dusky-blue				1

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animals	Lycaenidae	<i>Lampides boeticus</i>	long-tailed pea-blue				1
animals	Lycaenidae	<i>Zizina labradus</i>	pale imperial hairstreak				1
animals	Lycaenidae	<i>Jalmenus eubulus</i>	orange-streaked ringlet		V		17
animals	Nymphalidae	<i>Hypocysta irius</i>	Australian painted lady				1
animals	Nymphalidae	<i>Vanessa kershawi</i>	tailed emperor				1
animals	Nymphalidae	<i>Polyura sempronius sempronius</i>	glasswing				2
animals	Nymphalidae	<i>Acraea andromacha andromacha</i>	blue argus				3
animals	Nymphalidae	<i>Junonia orithya albicincta</i>	orange ringlet				3
animals	Nymphalidae	<i>Hypocysta adiante adiante</i>	brown ringlet				3
animals	Nymphalidae	<i>Hypocysta metirius</i>	common crow				1
animals	Nymphalidae	<i>Euploea core corinna</i>	grey ringlet				16
animals	Nymphalidae	<i>Hypocysta pseudirius</i>	common evening-brown				2
animals	Nymphalidae	<i>Melanitis leda bankia</i>	meadow argus				1
animals	Nymphalidae	<i>Junonia vilvida calybe</i>	blue tiger				6
animals	Nymphalidae	<i>Tirumala hamata hamata</i>	blue tiger				3
animals	Nymphalidae	<i>Ypthima arctous arctous</i>	dusky knight				1
animals	Nymphalidae	<i>Hypolimnas bolina nerina</i>	varied eggfly				3
animals	Nymphalidae	<i>Danaus chrysippus petilia</i>	lesser wanderer				6
animals	Papilionidae	<i>Papilio demoleus sthenelus</i>	chequered swallowtail				1
animals	Papilionidae	<i>Cressida cressida cressida</i>	greasy swallowtail				3
animals	Papilionidae	<i>Graphium eurypylus lycaon</i>	pale-blue triangle (eastern subspecies)				1
animals	Papilionidae	<i>Papilio anactus</i>	dingy swallowtail				1
animals	Papilionidae	<i>Papilio aegerus aegerus</i>	orchard swallowtail (Australian subspecies)				5
animals	Pieridae	<i>Belenois java teutonia</i>	caper white				5
animals	Pieridae	<i>Catopsilia pomona pomona</i>	lemon migrant				3
animals	Pieridae	<i>Cepora perimale scyllara</i>	caper gull (Australian subspecies)				3
animals	Pieridae	<i>Delias argenthona argenthona</i>	scarlet jezebel				2
animals	Pieridae	<i>Catopsilia gorgophone gorgophone</i>	yellow migrant				2
animals	Pieridae	<i>Eurema heria</i>	pink grass-yellow				1
animals	Pieridae	<i>Eurema hecabe</i>	large grass-yellow				1
animals	Pieridae	<i>Eurema smilax</i>	small grass-yellow				3
animals	Pieridae	<i>Elodina parthia</i>	striated pearl-white				1
animals	Pieridae	<i>Appias paulina ego</i>	yellow albatross				1
animals	Pieridae	<i>Elodina angulipennis</i>	southern pearl-white				2
animals	Parastacidae	<i>Cherax quadricarinatus</i>	redclaw				1
animals	Acrobatidae	<i>Acrobates pygmaeus</i>	feathertail glider		C		11
animals	Bovidae	<i>Bos taurus</i>	European cattle		Y		83
animals	Bovidae	<i>Bos sp.</i>	cattle		Y		3
animals	Canidae	<i>Canis lupus familiaris</i>	dog		Y		25
animals	Canidae	<i>Canis lupus dingo</i>	dingo				35
animals	Canidae	<i>Vulpes vulpes</i>	red fox		Y		11
animals	Dasyuridae	<i>Planigale ingrami</i>	long-tailed planigale		C		1/1
animals	Dasyuridae	<i>Planigale tenuirostris</i>	narrow-nosed planigale		C		1
animals	Dasyuridae	<i>Sminthopsis macroura</i>	stripe-faced dunnart		C		8/1

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animals	Dasyuridae	<i>Planigale maculata</i>	common planigale		C		7
animals	Dasyuridae	<i>Dasyurus hallucatus</i>	northern quoll		C	E	6/1
animals	Dasyuridae	<i>Dasyurus sp.</i>					1
animals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart		C		3
animals	Dasyuridae	<i>Antechinus flavipes flavipes</i>	yellow-footed antechinus (south-east Queensland)		C		7
animals	Emballonuridae	<i>Taphozous troughtoni</i>	Troughton's sheath-tail bat		C		1793
animals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat		C		24
animals	Equidae	<i>Equus caballus</i>	horse	Y			18
animals	Felidae	<i>Felis catus</i>	cat	Y			56
animals	Hipposideridae	<i>Hipposideros ater aruensis</i>	eastern dusky leaf-nosed bat		C		3
animals	Leporidae	<i>Lepus europaeus</i>	European brown hare	Y			3
animals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	Y			121
animals	Macropodidae	<i>Macropus agilis</i>	agile wallaby		C		1
animals	Macropodidae	<i>Lagorchestes conspicillatus</i>	spectacled hare-wallaby		C		20
animals	Macropodidae	<i>Onychogalea fraenata</i>	bridled nail-tail wallaby		E	E	41
animals	Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby		C		4
animals	Macropodidae	<i>Petrogale inornata</i>	unadorned rock-wallaby		C		18/14
animals	Macropodidae	<i>Petrogale herberti</i>	Herbert's rock-wallaby		C		17/5
animals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		C		155
animals	Macropodidae	<i>Macropus robustus</i>	common wallaroo		C		39/1
animals	Macropodidae	<i>Petrogale sp.</i>			C		1
animals	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby		C		15
animals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby		C		46
animals	Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby		C		46
animals	Miniopteridae	<i>Miniopterus australis</i>	little bent-wing bat		C		1
animals	Miniopteridae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-wing bat		C		4/1
animals	Molossidae	<i>Mormopterus sp.</i>			C		11/1
animals	Molossidae	<i>Mormopterus lumsdenae</i>	northern free-tailed bat		C		5/1
animals	Molossidae	<i>Mormopterus petersi</i>	inland free-tailed bat		C		1
animals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat		C		5/1
animals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat		C		5
animals	Molossidae	<i>Mormopterus ridei</i>	eastern free-tailed bat		C		2
animals	Muridae	<i>Rattus sp.</i>					3/2
animals	Muridae	<i>Mus musculus</i>	house mouse				3
animals	Muridae	<i>Pseudomys sp.</i>		Y			84
animals	Muridae	<i>Rattus tunneyi</i>	pale field-rat				1/1
animals	Muridae	<i>Melomys burtoni</i>	grassland melomys		C		27/3
animals	Muridae	<i>Rattus fuscipes</i>	bush rat		C		1/1
animals	Muridae	<i>Rattus sordidus</i>	canefield rat		C		2
animals	Muridae	<i>Zyzomys argurus</i>	common rock-rat		C		13/7
animals	Muridae	<i>Pseudomys argurus</i>	eastern pebble-mound mouse		C		1
animals	Muridae	<i>Pseudomys patrius</i>	Forrest's mouse		C		11/1
animals	Muridae	<i>Leggadina forresti</i>			C		7
animals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys		C		22
animals	Muridae	<i>Pseudomys desertor</i>	desert mouse		C		4

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animals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		14
animals	Muridae	<i>Pseudomys delicatulus</i>	delicate mouse		C		40/1
animals	Muridae	<i>Pseudomys gracilicaudatus</i>	eastern chestnut mouse		C		17/3
animals	Muridae	<i>Rattus sp. cf. villosissimus/sordidus</i>			C		3
animals	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus		SL		1
animals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot		C		17
animals	Peramelidae	<i>Perameles nasuta</i>	long-nosed bandicoot		C		5/1
animals	Petauridae	<i>Petaurus breviceps</i>	sugar glider		C		37/1
animals	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider		C		17
animals	Petauridae	<i>Petaurus sp.</i>			C		1
animals	Petauridae	<i>Petaurus australis australis</i>	yellow-bellied glider (southern subspecies)		C		37
animals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		83
animals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		SL	V	120
animals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		C		76/1
animals	Pseudocheiridae	<i>Pseudocheirus peregrinus</i>	common ringtail possum		C		2
animals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider		C		110
animals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox		C		1
animals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox		C		14
animals	Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe-bat		C		7
animals	Suidae	<i>Sus scrofa</i>	pig	Y			30
animals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		SL		68
animals	Vespertilionidae	<i>Scotorepens bairstoni</i>	inland broad-nosed bat		C		11
animals	Vespertilionidae	<i>Vespardelus vulturinus</i>	little forest bat		C		5
animals	Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat		C		3/1
animals	Vespertilionidae	<i>Vespardelus troughtoni</i>	eastern cave bat		C		6
animals	Vespertilionidae	<i>Vespardelus baverstocki</i>	inland forest bat		C		3
animals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat		C		8/1
animals	Vespertilionidae	<i>Scotorepens sp. (Parnaby)</i>	central-eastern broad-nosed bat		C		2
animals	Vespertilionidae	<i>Vespardelus pumilus</i>	eastern forest bat		C		4/1
animals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		C		17/1
animals	Vespertilionidae	<i>Nyctophilus gouldi</i>	Gould's long-eared bat		C		17/1
animals	Vespertilionidae	<i>Chalinolobus morio</i>	chocolate wattled bat		C		7
animals	Vespertilionidae	<i>Scotorepens sp.</i>			C		18
animals	Vespertilionidae	<i>Nyctophilus sp.</i>			C		3
animals	Vespertilionidae	<i>Vespardelus sp.</i>			C		2
animals	Vespertilionidae	<i>Chalinolobus dwyeri</i>	large-eared pied bat		V	V	2
animals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		C		18/4
animals	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat		C		24/1
animals	Vombatidae	<i>Lasiorhinus krefftii</i>	northern hairy-nosed wombat		E	E	1
animals	Ambassidae	<i>Ambassis agassizii</i>	Agassiz's glassfish				37/1
animals	Anguillidae	<i>Anguilla reinhardtii</i>	longfin eel				13
animals	Apogonidae	<i>Glossamia aprion</i>	mouth almighty				17/1
animals	Ariidae	<i>Neoarius graeffei</i>	blue catfish				249/1
animals	Atherinidae	<i>Craterocephalus stercusmuscarum</i>	flyspecked hardyhead				31/1
animals	Belontiidae	<i>Strongylura krefftii</i>	freshwater longtom				33

animals	ray-finned fishes	Centropomidae	<i>Lates calcarifer</i>	barramundi			2
animals	ray-finned fishes	Clupeidae	<i>Nematalosa erebi</i>	bony bream			1102
animals	ray-finned fishes	Eleotridae	<i>Hypseleotris compressa</i>	empire gudgeon			17
animals	ray-finned fishes	Eleotridae	<i>Philypnodon grandiceps</i>	flathead gudgeon			15
animals	ray-finned fishes	Eleotridae	<i>Oxyeleotris aruensis</i>	Aru gudgeon			11
animals	ray-finned fishes	Eleotridae	<i>Hypseleotris galli</i>	firetail gudgeon			2
animals	ray-finned fishes	Eleotridae	<i>Mogurnda adspersa</i>	southern purplespotted gudgeon			9
animals	ray-finned fishes	Eleotridae	<i>Hypseleotris kiunzingeri</i>	western carp gudgeon			20
animals	ray-finned fishes	Eleotridae	<i>Oxyeleotris lineolata</i>	sleepy cod			35/1
animals	ray-finned fishes	Eleotridae	<i>Hypseleotris species 1</i>	Midgley's carp gudgeon			33
animals	ray-finned fishes	Hemiramphidae	<i>Arrhamphus sclerolepis</i>	snubnose garfish			1
animals	ray-finned fishes	Megalopidae	<i>Megalops cyprinoides</i>	oxeye herring			3
animals	ray-finned fishes	Melanotaeniidae	<i>Melanotaenia splendida splendida</i>	eastern rainbowfish			52/1
animals	ray-finned fishes	Osteoglossidae	<i>Scleropages leichardti</i>	southern saratoga			115
animals	ray-finned fishes	Percichthyidae	<i>Maccullochella peelii</i>	Murray cod	V		1
animals	ray-finned fishes	Percichthyidae	<i>Macquaria ambigua</i>	golden perch			91/1
animals	ray-finned fishes	Plotosidae	<i>Tandanus tandanus</i>	freshwater catfish			61
animals	ray-finned fishes	Plotosidae	<i>Neosilurus ater</i>	black catfish			1
animals	ray-finned fishes	Plotosidae	<i>Neosilurus hyrtlii</i>	Hyrtl's catfish			63/1
animals	ray-finned fishes	Pseudomugilidae	<i>Pseudomugil signifer</i>	Pacific blue eye			3/1
animals	ray-finned fishes	Scorpaenidae	<i>Notesthes robusta</i>	bullrout			1/1
animals	ray-finned fishes	Terapontidae	<i>Hephaestus fuliginosus</i>	sooty grunter			2
animals	ray-finned fishes	Terapontidae	<i>Amniataba percoides</i>	barred grunter			67
animals	ray-finned fishes	Terapontidae	<i>Bidyanus bidyanus</i>	silver perch	CE		2
animals	ray-finned fishes	Terapontidae	<i>Scortum hillii</i>	leathery grunter			120/1
animals	ray-finned fishes	Terapontidae	<i>Leiopotherapon unicolor</i>	spangled perch			37/1
animals	reptiles	Agamidae	<i>Tympanocryptis lineata</i>	lined earless dragon	C		3/3
animals	reptiles	Agamidae	<i>Amphibolurus gilberti</i>	Gilbert's dragon	C		11/4
animals	reptiles	Agamidae	<i>Intellagama lesueurii</i>	eastern water dragon	C		10
animals	reptiles	Agamidae	<i>Diporiphora australis</i>	frilled lizard	C		23/11
animals	reptiles	Agamidae	<i>Chlamydosaurus kingii</i>	jacky lizard	C		5
animals	reptiles	Agamidae	<i>Amphibolurus muricatus</i>	nobbi	C		1
animals	reptiles	Agamidae	<i>Diporiphora lalliae</i>	bearded dragon	C		26/4
animals	reptiles	Agamidae	<i>Amphibolurus burnsi</i>		C		20/2
animals	reptiles	Agamidae	<i>Diporiphora nobbi</i>		C		1
animals	reptiles	Agamidae	<i>Pogona barbata</i>		C		14/1
animals	reptiles	Agamidae	<i>Diporiphora sp.</i>		C		1/1
animals	reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python	C		27/4
animals	reptiles	Boidae	<i>Antaresia stimsoni</i>	spotted python	C		8
animals	reptiles	Boidae	<i>Antaresia maculosa</i>	rough-throated leaf-tailed gecko	C		11
animals	reptiles	Boidae	<i>Morelia spilota</i>		C		1
animals	reptiles	Carphodactylidae	<i>Saltuarius salebrosus</i>	spiny knob-tailed gecko	C		35/5
animals	reptiles	Carphodactylidae	<i>Underwoodisaurus milii</i>	saw-shelled turtle	C		7
animals	reptiles	Carphodactylidae	<i>Nephurus asper</i>	southern snapping turtle	C	CE	10/2
animals	reptiles	Chelidae	<i>Wollumbinia latisternum</i>				
animals	reptiles	Chelidae	<i>Eiseya albagula</i>				

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animals	Chelidae	<i>Chelodina expansa</i>	broad-shelled river turtle		C		4
animals	Chelidae	<i>Emydura macquarii macquarii</i>	Murray turtle		C		1
animals	Chelidae	<i>Emydura macquarii krefftii</i>	Kreff's river turtle		C		33/3
animals	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle		C		10/1
animals	Chelidae	<i>Rheodytes leukops</i>	Fitzroy River turtle		V	V	17/1
animals	Colubridae	<i>Boiga irregularis</i>	brown tree snake		C		10/3
animals	Colubridae	<i>Dendrelaphis punctulatus</i>	green tree snake		C		19
animals	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake		C		8/1
animals	Diplodactylidae	<i>Oedura sp.</i>					1
animals	Diplodactylidae	<i>Diplodactylus conspiciellatus</i>	fat-tailed diplodactylus		C		11/2
animals	Diplodactylidae	<i>Lucasium steindachneri</i>	Steindachner's gecko		C		26/3
animals	Diplodactylidae	<i>Diplodactylus vittatus</i>	wood gecko		C		21/3
animals	Diplodactylidae	<i>Strophurus taenicauda</i>	golden-tailed gecko		NT		9/2
animals	Diplodactylidae	<i>Strophurus williamsi</i>	soft-spined gecko		C		12/1
animals	Diplodactylidae	<i>Nebulifera robusta</i>	robust velvet gecko		C		8
animals	Diplodactylidae	<i>Amalosa rhombifer</i>	zig-zag gecko		C		7/2
animals	Diplodactylidae	<i>Oedura tryoni</i>	southern spotted velvet gecko		C		25/3
animals	Diplodactylidae	<i>Oedura monilis</i>			C		56/16
animals	Diplodactylidae	<i>Oedura marmorata</i>	marbled velvet gecko		C		1/1
animals	Elapidae	<i>Suta suta</i>	myall snake		C		22/8
animals	Elapidae	<i>Furina ornata</i>	orange-naped snake		C		3
animals	Elapidae	<i>Furina diadema</i>	red-naped snake		C		7/4
animals	Elapidae	<i>Furina barnardi</i>	yellow-naped snake		C		1/1
animals	Elapidae	<i>Demansia torquata</i>	collared whipsnake		C		4/2
animals	Elapidae	<i>Hemiaspis darweli</i>	grey snake		E		3/1
animals	Elapidae	<i>Denisonia maculata</i>	ornamental snake		V	V	21/3
animals	Elapidae	<i>Cryptophis boschmai</i>	Carpentaria whip snake		C		15/8
animals	Elapidae	<i>Demansia psammophis</i>	yellow-faced whipsnake		C		14
animals	Elapidae	<i>Demansia vestigiata</i>	lesser black whipsnake		C		2
animals	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		C		22/2
animals	Elapidae	<i>Vermicella annulata</i>	bandy-bandy		C		8/3
animals	Elapidae	<i>Pseudechis australis</i>	king brown snake		C		8/1
animals	Elapidae	<i>Cryptophis nigrescens</i>	eastern small-eyed snake		C		10/1
animals	Elapidae	<i>Acanthophis antarcticus</i>	common death adder		NT		2
animals	Elapidae	<i>Brachyuropsis australis</i>	coral snake		C		7/1
animals	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake		C		17/6
animals	Gekkonidae	<i>Gehyra sp.</i>					1
animals	Gekkonidae	<i>Gehyra dubia</i>	house gecko		C		64/14
animals	Gekkonidae	<i>Hemidactylus frenatus</i>		Y			4/3
animals	Gekkonidae	<i>Gehyra versicolor</i>			C		4
animals	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		240/10
animals	Gekkonidae	<i>Gehyra catenata</i>			C		70/3
animals	Pygopodidae	<i>Delma tincta</i>	collared delma		C		3/2
animals	Pygopodidae	<i>Delma torquata</i>	brigalow scaly-foot		V	V	1
animals	Pygopodidae	<i>Paradelma orientalis</i>			C		15/3
animals	Pygopodidae	<i>Pygopus schraderi</i>	eastern hooded scaly-foot		C		4/1



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animals	Pygopodidae	<i>Pygopus lepidopodus</i>	common scaly-foot		C		2
animals	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		C		14/2
animals	Scincidae	<i>Carlia sp.</i>					5/1
animals	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink		C		105/7
animals	Scincidae	<i>Menetia sp.</i>					2/1
animals	Scincidae	<i>Carlia munda</i>			C		16/4
animals	Scincidae	<i>Carlia vivax</i>			C		7/2
animals	Scincidae	<i>Ctenotus sp.</i>					9/1
animals	Scincidae	<i>Eulamprus sp.</i>					4/1
animals	Scincidae	<i>Anomalopus sp.</i>					1/1
animals	Scincidae	<i>Egernia rugosa</i>	yakka skink		V	V	3/3
animals	Scincidae	<i>Menetia greyii</i>	common dwarf skink		C		25/1
animals	Scincidae	<i>Tiliqua rugosa</i>			C		9/1
animals	Scincidae	<i>Concinnia tenuis</i>	bar-sided skink		C		7/2
animals	Scincidae	<i>Lampropholis amacula</i>			C		8
animals	Scincidae	<i>Anomalopus verreauxii</i>			C		1/1
animals	Scincidae	<i>Lampropholis delicata</i>			C		21/3
animals	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink		C		29/5
animals	Scincidae	<i>Anomalopus brevicollis</i>			C		6/2
animals	Scincidae	<i>Pygmaeascincus timlowi</i>	dwarf litter-skink		C		16/8
animals	Scincidae	<i>Lerista punctatovittata</i>			C		17/1
animals	Scincidae	<i>Cryptoblepharus pannosus</i>	ragged snake-eyed skink		C		87/5
animals	Scincidae	<i>Cyclodomorphus gerrardii</i>	pink-tongued lizard		C		1
animals	Scincidae	<i>Eremiascincus fasciolatus</i>	narrow-banded sand swimmer		C		2
animals	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink		C		1
animals	Scincidae	<i>Glaphyromorphus punctulatus</i>			C		15/5
animals	Scincidae	<i>Carlia pectoralis sensu lato</i>			C		124/11
animals	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>			C		6
animals	Scincidae	<i>Cryptoblepharus virgatus sensu lato</i>	elegant snake-eyed skink		C		68/2
animals	Scincidae	<i>Ctenotus ingrami</i>			C		3/1
animals	Scincidae	<i>Eulamprus quoyii</i>	eastern water skink		C		10/1
animals	Scincidae	<i>Lampropholis sp.</i>			C		3
animals	Scincidae	<i>Lerista fragilis</i>			C		94/6
animals	Scincidae	<i>Carlia schmeltzii</i>			C		32/6
animals	Scincidae	<i>Concinnia martini</i>			C		1
animals	Scincidae	<i>Egernia striolata</i>	dark bar-sided skink		C		6/1
animals	Scincidae	<i>Bellatorias freerei</i>	tree skink		C		2/1
animals	Scincidae	<i>Concinnia sokosoma</i>	major skink		C		3/1
animals	Scincidae	<i>Ctenotus spaldingi</i>	stout bar-sided skink		C		53/3
animals	Scincidae	<i>Ctenotus strauchii</i>			C		12/2
animals	Scincidae	<i>Tiliqua scincoides</i>			C		22/3
animals	Scincidae	<i>Carlia rhomboidalis</i>	eastern blue-tongued lizard		C		1/1
animals	Scincidae	<i>Cryptoblepharus sp.</i>			C		1/1
animals	Scincidae	<i>Ctenotus leonhardtii</i>			C		2/1
animals	Scincidae	<i>Lampropholis adonis</i>			C		1/1
animals	Scincidae	<i>Lygisaurus foliorum</i>			C		50/13

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animals	Scincidae	<i>Morethia boulengeri</i>			C		109/6
animals	Scincidae	<i>Concinnia brachysoma</i>	northern bar-sided sknik		C		8/3
animals	Scincidae	<i>Lerista sp.</i>					1
animals	Typhlopidae	<i>Ramphotyphlops sp.</i>					2
animals	Typhlopidae	<i>Ramphotyphlops grypus</i>		C			1/1
animals	Typhlopidae	<i>Ramphotyphlops affinis</i>		C			1/1
animals	Typhlopidae	<i>Ramphotyphlops bituberculatus</i>		C			1
animals	Typhlopidae	<i>Ramphotyphlops proximus</i>		C			2/1
animals	Typhlopidae	<i>Ramphotyphlops nigrescens</i>		C			1/1
animals	Typhlopidae	<i>Ramphotyphlops ligatus</i>		C			5/4
animals	Varanidae	<i>Varanus varius</i>	lace monitor	C			10
animals	Varanidae	<i>Varanus tristis</i>	black-tailed monitor	C			21/1
animals	Varanidae	<i>Varanus gouldii</i>	sand monitor	C			20/1
animals	Indeterminate	<i>Indeterminate</i>	Unknown or Code Pending	C			30
fungi	Basidiomycota	<i>Polyporus</i>		C			1/1
fungi	Basidiomycota	<i>Coprinus</i>		C			1/1
fungi	Basidiomycota	<i>Stereum</i>		C			1/1
fungi	Basidiomycota	<i>Agrocybe</i>		C			1/1
fungi	Acarosporaceae	<i>Acarospora citrina</i>		C			1/1
fungi	Cladiaceae	<i>Cladia muelleri</i>		C			1/1
fungi	Cladoniaceae	<i>Cladonia rigida var. rigida</i>		C			1/1
fungi	Cladoniaceae	<i>Cladonia ochrochlora</i>		C			1/1
fungi	Cladoniaceae	<i>Cladonia</i>		C			2/2
fungi	Collemaaceae	<i>Collema</i>		C			1/1
fungi	Graphidaceae	<i>Diploschistes euganeus</i>		C			1/1
fungi	Lecanoraceae	<i>Lecidella</i>		C			1/1
fungi	Lecanoraceae	<i>Lecanora elatinoidea</i>		C			1/1
fungi	Parmeliaceae	<i>Flavoparmelia rutidota</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia antleriformis</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia stuartioides</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia neointaria</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia australasica</i>		C			3/3
fungi	Parmeliaceae	<i>Punctelia pseudocoralloidea</i>		C			1/1
fungi	Parmeliaceae	<i>Austroparmelina conlabrosa</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia isidiigera</i>		C			2/2
fungi	Parmeliaceae	<i>Parmotrema praesorediosum</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia tasmanica</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia amplexula</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia remanens</i>		C			1/1
fungi	Parmeliaceae	<i>Parmotrema subcaperatum</i>		C			1/1
fungi	Parmeliaceae	<i>Hypotrachyna immaculata</i>		C			2/2
fungi	Parmeliaceae	<i>Parmotrema lobulascens</i>		C			4/4
fungi	Parmeliaceae	<i>Relicina limbata</i>		C			3/3
fungi	Parmeliaceae	<i>Parmelia erumpens</i>		C			2/2
fungi	Parmeliaceae	<i>Parmelia signifera</i>		C			1/1
fungi	Parmeliaceae	<i>Parmotrema cooperi</i>		C			1/1

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fungi	Parmeliaceae	<i>Punctelia subflava</i>		C			1/1
fungi	Parmeliaceae	<i>Parmotrema euryssacum</i>		C			1/1
fungi	Parmeliaceae	<i>Parmotrema tinctorum</i>		C			2/2
fungi	Parmeliaceae	<i>Relicina sydneiyensis</i>		C			1/1
fungi	Parmeliaceae	<i>Xanthoparmelia calida</i>		C			1/1
fungi	Parmeliaceae	<i>Pannoparmelia wilsonii</i>		C			1/1
fungi	Pertusariaceae	<i>Pertusaria</i>		C			1/1
fungi	Physciaceae	<i>Rinodina williamsii</i>		C			1/1
fungi	Physciaceae	<i>Pyxine retrugella</i>		C			1/1
fungi	Physciaceae	<i>Heterodermia obscurata</i>		C			1/1
fungi	Stereocaulaceae	<i>Leparia jackii</i>		C			1/1
fungi	Stereocaulaceae	<i>Leprocaulon microscopicum</i>		C			1/1
fungi	Teloschistaceae	<i>Protoblastenia</i>		C			2/2
fungi	Teloschistaceae	<i>Teloschistes flavicans</i>		C			1/1
fungi	Usneaceae	<i>Usnea molluscula subsp. queenslandica</i>		C			1/1
fungi	Usneaceae	<i>Usnea nidifica</i>		C			1/1
fungi	Usneaceae	<i>Usnea baileyi</i>		C			6/6
fungi	Usneaceae	<i>Usnea</i>		C			1/1
fungi	Usneaceae	<i>Usnea trichodeoides</i>		C			1/1
fungi	Usneaceae	<i>Usnea rubicunda</i>		C			3/3
fungi	Usneaceae	<i>Usnea scabrida subsp. elegans</i>		C			5/5
plants	Lycopodiaceae	<i>Lycopodiella cernua</i>		C			2/1
plants	Araucariaceae	<i>Araucaria cunninghamii var. cunninghamii</i>	hoop pine	C			1/1
plants	Araucariaceae	<i>Araucaria cunninghamii</i>		C			1
plants	Cupressaceae	<i>Callitris</i>		C			1
plants	Cupressaceae	<i>Callitris glaucophylla</i>	white cypress pine	C			9/2
plants	Cupressaceae	<i>Callitris columellaris</i>		C			1
plants	Cupressaceae	<i>Callitris endlicheri</i>	black cypress pine	C			6/2
plants	Podocarpaceae	<i>Podocarpus spinulosus</i>	dwarf plum-pine	C			2/1
plants	Cycadaceae	<i>Cycas ophiolitica</i>	Marlborough blue	E		E	2/2
plants	Cycadaceae	<i>Cycas terryana</i>		C			10/10
plants	Cycadaceae	<i>Cycas megacarpa</i>		E		E	3
plants	Zamiaceae	<i>Macrozamia serpentina</i>		E			6/6
plants	Zamiaceae	<i>Macrozamia miquelii</i>		C			5/1
plants	Zamiaceae	<i>Macrozamia moorei</i>		C			19/16
plants	Zamiaceae	<i>Macrozamia</i>		C			1
plants	Zamiaceae	<i>Macrozamia platyrhachis</i>		E		E	37/28
plants	Adiantaceae	<i>Adiantum hispidulum var. minus</i>		C			2/2
plants	Adiantaceae	<i>Doryopteris concolor</i>		C			4/2
plants	Adiantaceae	<i>Cheilanthes nudiuscula</i>		C			5/3
plants	Adiantaceae	<i>Paraceterach muelleri</i>		C			1/1
plants	Adiantaceae	<i>Cheilanthes tenuifolia</i>	rock fern	C			1
plants	Adiantaceae	<i>Adiantum aethiopicum</i>		C			6
plants	Adiantaceae	<i>Cheilanthes sieberi</i>		C			32
plants	Adiantaceae	<i>Cheilanthes distans</i>	bristly cloak fern	C			18/11
plants	Adiantaceae	<i>Adiantum hispidulum</i>		C			5/2

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plants	Adiantaceae	<i>Adiantum atroviride</i>	heart fern	C			6/6
plants	Adiantaceae	<i>Pellaea paradoxa</i>		C			1/1
plants	Adiantaceae	<i>Pellaea nana</i>		C			2/2
plants	Adiantaceae	<i>Cheilanthes</i>		C			6
plants	Adiantaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>		C			20/7
plants	Adiantaceae	<i>Adiantum hispidulum</i> var. <i>hispidulum</i>		C			3/2
plants	Adiantaceae	<i>Adiantum hispidulum</i> var. <i>hypoglaucum</i>		C			1/1
plants	Aspleniaceae	<i>Asplenium australasicum</i>	scaly asplenium	C			1
plants	Aspleniaceae	<i>Asplenium paleaceum</i>		C			2/2
plants	Blechnaceae	<i>Blechnum orientale</i>		C			2/1
plants	Blechnaceae	<i>Blechnum ambiguum</i>		C			4/3
plants	Blechnaceae	<i>Blechnum nudum</i>	fishbone water fern	C			7/1
plants	Blechnaceae	<i>Doodia media</i>		C			1
plants	Blechnaceae	<i>Doodia caudata</i>		C			3/1
plants	Blechnaceae	<i>Blechnum cartilagineum</i>	gristle fern	C			1
plants	Blechnaceae	<i>Blechnum indicum</i>	swamp water fern	C			4/1
plants	Cyatheaceae	<i>Cyathea australis</i>		C			2/1
plants	Cyatheaceae	<i>Cyathea cooperi</i>		C			4/1
plants	Davalliaceae	<i>Davallia pyxidata</i>		C			2
plants	Dennstaedtiaceae	<i>Histiopteris incisa</i>	bats-wing fern	C			4
plants	Dennstaedtiaceae	<i>Pteridium esculentum</i>	common bracken	C			8
plants	Dicksoniaceae	<i>Calochlaena dubia</i>		C			9/1
plants	Dryopteridaceae	<i>Arachniodes aristata</i>	prickly shield fern	C			1
plants	Dryopteridaceae	<i>Lastreopsis tenera</i>		C			1/1
plants	Gleicheniaceae	<i>Gleichenia dicarpa</i>	pouched coral fern	C			6/2
plants	Gleicheniaceae	<i>Sticherus flabellatus</i> var. <i>flabellatus</i>		C			9/2
plants	Gleicheniaceae	<i>Dicranopteris linearis</i> var. <i>linearis</i>		C			2/1
plants	Gleicheniaceae	<i>Gleichenia rupestris</i>		C			2/1
plants	Gleicheniaceae	<i>Dicranopteris linearis</i>		C			4
plants	Hymenophyllaceae	<i>Abrodictyum caudatum</i>		C			1
plants	Hymenophyllaceae	<i>Abrodictyum brassii</i>		C			1
plants	Lindsaeaceae	<i>Lindsaea microphylla</i>	lacy wedge fern	C			3/1
plants	Marsileaceae	<i>Marsilea</i>		C			3
plants	Marsileaceae	<i>Marsilea hirsuta</i>	hairy nardoo	C			7
plants	Marsileaceae	<i>Marsilea mutica</i>	shiny nardoo	C			2/1
plants	Marsileaceae	<i>Marsilea costulifera</i>	narrow-leaved nardoo	C			3/1
plants	Marsileaceae	<i>Marsilea drummondii</i>	common nardoo	C			1
plants	Ophioglossaceae	<i>Ophioglossum reticulatum</i>		C			2/1
plants	Ophioglossaceae	<i>Ophioglossum lusitanicum</i>	adder's tongue	C			1/1
plants	Ophioglossaceae	<i>Ophioglossum pendulum</i>	ribbon fern	C			1
plants	Ophioglossaceae	<i>Ophioglossum gramineum</i>		C			1/1
plants	Osmundaceae	<i>Todea barbara</i>	king fern	C			3/1
plants	Polypodiaceae	<i>Drynaria rigidula</i>		C			3/1
plants	Polypodiaceae	<i>Pyrrosia rupestris</i>	rock felt fern	C			3/2
plants	Polypodiaceae	<i>Drynaria sparsisora</i>		C			1
plants	Polypodiaceae	<i>Platycentrium veitchii</i>	silver elkhorn	C			4/2

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plants	Polypodiaceae	<i>Pyrrosia confluens</i>			C		2/1
plants	Salviniaceae	<i>Salvinia molesta</i>	salvinia	Y			1/1
plants	Schizaeaceae	<i>Lygodium flexuosum</i>			C		1
plants	Schizaeaceae	<i>Schizaea bifida</i>	forked comb fern		C		1
plants	Schizaeaceae	<i>Lygodium microphyllum</i>	snake fern		C		8/4
plants	Thelypteridaceae	<i>Cyclosorus interruptus</i>			C		2/2
plants	Thelypteridaceae	<i>Christella dentata</i>			C		3
plants	Vittariaceae	<i>Vittaria elongata</i>	creek fern		C		1
plants	Acanthaceae	<i>Rostellularia adscendens var. adscendens</i>			C		1
plants	Acanthaceae	<i>Rostellularia adscendens subsp. adscendens</i>			C		1/1
plants	Acanthaceae	<i>Dipteracanthus australasicus subsp. corynothecus</i>			C		5/3
plants	Acanthaceae	<i>Dipteracanthus australasicus subsp. australasicus</i>			C		1/1
plants	Acanthaceae	<i>Pseuderanthemum</i>			C		1
plants	Acanthaceae	<i>Ruellia simplex</i>		Y			1/1
plants	Acanthaceae	<i>Hypoestes floribunda</i>	blue trumpet		C		2/1
plants	Acanthaceae	<i>Brunoniella australis</i>	sky flower		C		31/6
plants	Acanthaceae	<i>Thunbergia grandiflora</i>	white karambal	Y			1/1
plants	Acanthaceae	<i>Harniera hygrophilloides</i>			C		4/2
plants	Acanthaceae	<i>Pseuderanthemum tenellum</i>			C		1
plants	Acanthaceae	<i>Rostellularia adscendens</i>			C		26/9
plants	Acanthaceae	<i>Pseuderanthemum variabile</i>			C		21/12
plants	Acanthaceae	<i>Asystasia gangetica subsp. gangetica</i>	pastel flower	Y			1/1
plants	Acanthaceae	<i>Hypoestes floribunda var. floribunda</i>			C		1/1
plants	Acanthaceae	<i>Rostellularia adscendens var. juncea</i>			C		1/1
plants	Acanthaceae	<i>Rostellularia adscendens var. hispida</i>			C		1/1
plants	Acanthaceae	<i>Rostellularia adscendens var. clementii</i>			C		2/2
plants	Aizoaceae	<i>Zaleya galericulata</i>	red spinach		C		1/1
plants	Aizoaceae	<i>Trianthema triquetra</i>			C		1/1
plants	Aizoaceae	<i>Zaleya galericulata subsp. galericulata</i>			C		14/2
plants	Aizoaceae	<i>Trianthema portulacastrum</i>	black pigweed	Y			5/5
plants	Aizoaceae	<i>Tetragonia tetragonoides</i>	New Zealand spinach		C		10/3
plants	Aizoaceae	<i>Deeringia</i>			C		7/1
plants	Amaranthaceae	<i>Alternanthera denticulata var. micrantha</i>			C		1
plants	Amaranthaceae	<i>Alternanthera</i>			C		2/2
plants	Amaranthaceae	<i>Ptilotus nobilis</i>			C		4/1
plants	Amaranthaceae	<i>Guilleminea densa</i>	small matweed	Y			1
plants	Amaranthaceae	<i>Nyssanthes erecta</i>			C		1/1
plants	Amaranthaceae	<i>Achyranthes aspera</i>			C		9/9
plants	Amaranthaceae	<i>Alternanthera nana</i>	hairy joyweed	Y			28/9
plants	Amaranthaceae	<i>Amaranthus viridis</i>	green amaranth		C		17/7
plants	Amaranthaceae	<i>Nyssanthes diffusa</i>	barbed-wire weed		C		5/4
plants	Amaranthaceae	<i>Ptilotus decipiens</i>			C		5/2
plants	Amaranthaceae	<i>Alternanthera pungens</i>	khaki weed	Y			1/1
plants	Amaranthaceae	<i>Amaranthus mitchellii</i>	Boggabri weed	Y			8/4
plants	Amaranthaceae	<i>Gomphrena celosioides</i>	Gomphrena weed	Y			4/4
plants	Amaranthaceae	<i>Ptilotus polystachyus</i>	gomphrena weed	Y			12/8
plants	Amaranthaceae				C		2/2

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plants	Amaranthaceae	<i>Amaranthus interruptus</i>	dwarf amaranth		C		4/4
plants	Amaranthaceae	<i>Amaranthus macrocarpus</i>	green pussytails		C		1/1
plants	Amaranthaceae	<i>Ptilotus macrocephalus</i>	joyweed		C		3/2
plants	Amaranthaceae	<i>Alternanthera nodiflora</i>	redberry		C		11/5
plants	Amaranthaceae	<i>Deeringia amaranthoides</i>	lesser joyweed		C		20/8
plants	Amaranthaceae	<i>Alternanthera denticulata</i>			C		20/3
plants	Amaranthaceae	<i>Ptilotus nobilis</i> subsp. <i>semilanatus</i>			C		2/2
plants	Amaranthaceae	<i>Indobanalia</i>			C		1/1
plants	Anacardiaceae	<i>Euroschinus falcatus</i>			C		17
plants	Anacardiaceae	<i>Euroschinus falcatus</i> var. <i>angustifolius</i>			C		2/2
plants	Anacardiaceae	<i>Schinus terebinthifolius</i>	Burdekin plum	Y	C		2/2
plants	Anacardiaceae	<i>Pleiogynium timorense</i>			C		16/2
plants	Apiaceae	<i>Platysace valida</i>			C		2/2
plants	Apiaceae	<i>CyclospERMUM leptophyllum</i>	long eryngium	Y	C		1/1
plants	Apiaceae	<i>Eryngium plantagineum</i>	heath platysace		C		1/1
plants	Apiaceae	<i>Platysace ericoides</i>	Australian carrot		C		6/3
plants	Apiaceae	<i>Daucus glochidiatus</i>	flannel flower		C		2/2
plants	Apiaceae	<i>Actinotus helianthi</i>	dwarf flannel flower		C		1
plants	Apiaceae	<i>Actinotus gibbonsii</i>			C		1
plants	Apiaceae	<i>Centella asiatica</i>			C		3/1
plants	Apocynaceae	<i>Alyxia ruscifolia</i>	yellow oleander		C		28/12
plants	Apocynaceae	<i>Carissa lanceolata</i>	bowman's milkvine	Y	C		6/6
plants	Apocynaceae	<i>Cascabela thevetia</i>	crisped silkpod		C		15/1
plants	Apocynaceae	<i>Cynanchum bowmanii</i>	hairy silkpod		C		1
plants	Apocynaceae	<i>Parsonsia lilacina</i>			C		5/4
plants	Apocynaceae	<i>Parsonsia velutina</i>			C		28/6
plants	Apocynaceae	<i>Secamone elliptica</i>	bitterbark		C		62/9
plants	Apocynaceae	<i>Alstonia constricta</i>	pink periwinkle		C		4/4
plants	Apocynaceae	<i>Catharanthus roseus</i>		Y	C		1/1
plants	Apocynaceae	<i>Gymnanthera oblonga</i>	doubah		C		1
plants	Apocynaceae	<i>Marsdenia australis</i>	monkey rope		C		5/1
plants	Apocynaceae	<i>Parsonsia straminea</i>			C	V	14/14
plants	Apocynaceae	<i>Marsdenia brevifolia</i>	gymnema		C		4/1
plants	Apocynaceae	<i>Marsdenia micradenia</i>			C		13/8
plants	Apocynaceae	<i>Marsdenia microlepis</i>			C		8/4
plants	Apocynaceae	<i>Marsdenia pleiadenia</i>	northern silkpod		C		33/11
plants	Apocynaceae	<i>Parsonsia lanceolata</i>			C		5
plants	Apocynaceae	<i>Sarcostemma viminalis</i>	red-head cottonbush	Y	C		7/6
plants	Apocynaceae	<i>Asclepias curassavica</i>			C		6
plants	Apocynaceae	<i>Marsdenia viridiflora</i>			C		1
plants	Apocynaceae	<i>Parsonsia paulforsteri</i>	rubber vine		C		11/4
plants	Apocynaceae	<i>Parsonsia plaesiophylla</i>	balloon cottonbush	Y	C		27/13
plants	Apocynaceae	<i>Cryptostegia grandiflora</i>		Y	C		4/2
plants	Apocynaceae	<i>Gomphocarpus physocarpus</i>			C		1
plants	Apocynaceae	<i>Parsonsia longipetiolata</i>	gargaloo		C		11/5
plants	Apocynaceae	<i>Parsonsia eucalyptophylla</i>			C		

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plants	Apocynaceae	<i>Hoya australis</i> subsp. <i>australis</i>			C		6/6
plants	Apocynaceae	<i>Sarcostemma viminale</i> subsp. <i>australe</i>			C		3
plants	Apocynaceae	<i>Sarcostemma viminale</i> subsp. <i>brunonianum</i>			C		16/5
plants	Apocynaceae	<i>Alyxia magnifolia</i>			C		2/1
plants	Apocynaceae	<i>Tylophora erecta</i>			C		2/2
plants	Apocynaceae	<i>Parsonsia rotata</i>	veinless silkpod		C		1/1
plants	Apocynaceae	<i>Cerbera dumicola</i>			NT		12/12
plants	Apocynaceae	<i>Hoya australis</i>			C		6
plants	Apocynaceae	<i>Carissa ovata</i>	currantbush		C		138/8
plants	Apocynaceae	<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>			C		8/7
plants	Apocynaceae	<i>Marsdenia</i>			C		7
plants	Apocynaceae	<i>Parsonsia</i>			C		11
plants	Araliaceae	<i>Polyscias elegans</i>	celery wood		C		30/6
plants	Araliaceae	<i>Astrotricha cordata</i>			C		8/2
plants	Araliaceae	<i>Hydrocotyle acutiloba</i>			C		2/1
plants	Araliaceae	<i>Astrotricha biddulphiana</i>			C		1/1
plants	Araliaceae	<i>Astrotricha intermedia</i>			C		5/4
plants	Araliaceae	<i>Astrotricha longifolia</i>	star hair bush		C		1
plants	Araliaceae	<i>Schefflera actinophylla</i>	umbrella tree		C		2
plants	Araliaceae	<i>Trachymene procumbens</i>	creeping wild parsnip		C		2/1
plants	Asteraceae	<i>Centipeda minima</i> subsp. <i>minima</i>			C		5/5
plants	Asteraceae	<i>Vittadinia dissecta</i> var. <i>hirta</i>			C		5/3
plants	Asteraceae	<i>Lactuca serriola</i> forma <i>serriola</i>		Y			5/5
plants	Asteraceae	<i>Peripleura hispidula</i> var. <i>setosa</i>			C		6/6
plants	Asteraceae	<i>Gynura drymophila</i> var. <i>drymophila</i>			C		1/1
plants	Asteraceae	<i>Vittadinia dissecta</i> var. <i>dissecta</i>			C		2/2
plants	Asteraceae	<i>Coronidium oxylepis</i> subsp. <i>lanatum</i>			C		1/1
plants	Asteraceae	<i>Gynura drymophila</i> var. <i>glabrifolia</i>			C		1/1
plants	Asteraceae	<i>Emilia sonchifolia</i> var. <i>sonchifolia</i>		Y			2/2
plants	Asteraceae	<i>Peripleura hispidula</i> var. <i>hispidula</i>			C		7/6
plants	Asteraceae	<i>Thymophylla tenuiloba</i> var. <i>tenuiloba</i>		Y			1/1
plants	Asteraceae	<i>Acmella grandiflora</i> var. <i>brachyglossa</i>			C		7/7
plants	Asteraceae	<i>Ageratum conyzoides</i> subsp. <i>conyzoides</i>		Y			2/2
plants	Asteraceae	<i>Pterocaulon serrulatum</i> var. <i>serrulatum</i>			C		10/10
plants	Asteraceae	<i>Brachyscome microcarpa</i> subsp. <i>microcarpa</i>			C		2/2
plants	Asteraceae	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>			C		1/1
plants	Asteraceae	<i>Xerochrysium bracteatum</i> subsp. ( <i>Mount Elliot A.R.Bean 3593</i> )			C		1/1
plants	Asteraceae	<i>Podolepis longipedata</i>	tall copper-wire daisy		C		5/4
plants	Asteraceae	<i>Rutidosis murchisonii</i>			C		1
plants	Asteraceae	<i>Senecio bathurstianus</i>			C		2/1
plants	Asteraceae	<i>Senecio brigalowensis</i>			C		17/17
plants	Asteraceae	<i>Trioncinia retroflexa</i>			E		3/3
plants	Asteraceae	<i>Verbesina encelioides</i>	crownsbeard	Y			24/15
plants	Asteraceae	<i>Centratherum punctatum</i>		Y			1/1
plants	Asteraceae	<i>Pterocaulon serrulatum</i>			C		4

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plants	Asteraceae	<i>Pycnosorus chrysanthes</i>	golden billy buttons		C		1/1
plants	Asteraceae	<i>Senecio quadridentatus</i>	cotton fireweed		C		1
plants	Asteraceae	<i>Sigesbeckia orientalis</i>	Indian weed		C		7/6
plants	Asteraceae	<i>Vittadinia pterochaeta</i>	rough fuzzweed		C		2/2
plants	Asteraceae	<i>Xerochrysum bracteatum</i>	golden everlasting daisy		C		4/4
plants	Asteraceae	<i>Acanthospermum hispidum</i>	star burr	Y			2/2
plants	Asteraceae	<i>Gamochoaeta pensylvanica</i>	grass cushion	Y			1
plants	Asteraceae	<i>Isoetopsis graminifolia</i>			C		1
plants	Asteraceae	<i>Olearia macdonnellensis</i>			E		4/4
plants	Asteraceae	<i>Ozothamnus cassinioides</i>			C		6/3
plants	Asteraceae	<i>Pterocaulon sphacelatum</i>	applebush		C		9/2
plants	Asteraceae	<i>Gnaphalium diamantinense</i>	parthenium weed	Y			1/1
plants	Asteraceae	<i>Parthenium hysterophorus</i>			C		42/23
plants	Asteraceae	<i>Apowollastonia cylindrica</i>			C		1/1
plants	Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons		C		15/8
plants	Asteraceae	<i>Sphaeromorphaea australis</i>			C		4/4
plants	Asteraceae	<i>Sphaeromorphaea subintegra</i>			C		1/1
plants	Asteraceae	<i>Synedrellopsis grisebachii</i>		Y			2/2
plants	Asteraceae	<i>Crassocephalum crepidioides</i>	thickhead	Y			3/1
plants	Asteraceae	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed		C		4/3
plants	Asteraceae	<i>Apowollastonia spilanthoides</i>			C		3/3
plants	Asteraceae	<i>Schkuhria pinnata</i>		Y			4/4
plants	Asteraceae	<i>Sigesbeckia fugax</i>			C		4/4
plants	Asteraceae	<i>Sonchus oleraceus</i>	common sowthistle	Y			3/3
plants	Asteraceae	<i>Tridax procumbens</i>	tridax daisy	Y			10/7
plants	Asteraceae	<i>Trioncinia patens</i>			E		10/7
plants	Asteraceae	<i>Xanthium spinosum</i>	Bathurst burr	Y			2/2
plants	Asteraceae	<i>Calotis cuneifolia</i>	burr daisy		C		2/2
plants	Asteraceae	<i>Calotis lappulacea</i>	yellow burr daisy		C		9/8
plants	Asteraceae	<i>Calotis squamigera</i>			C		3/3
plants	Asteraceae	<i>Centipeda borealis</i>			C		1/1
plants	Asteraceae	<i>Centipeda racemosa</i>	snuffweed		C		1/1
plants	Asteraceae	<i>Coryza bonariensis</i>		Y			1/1
plants	Asteraceae	<i>Coronidium cymosum</i>			C		6/6
plants	Asteraceae	<i>Emilia sonchifolia</i>		Y			5/5
plants	Asteraceae	<i>Flaveria trinervia</i>		Y			2
plants	Asteraceae	<i>Peripleura bicolor</i>			C		1/1
plants	Asteraceae	<i>Peripleura diffusa</i>			C		7/7
plants	Asteraceae	<i>Vittadinia sulcata</i>	native daisy		C		3/3
plants	Asteraceae	<i>Ageratum conyzoides</i>	billygoat weed	Y			7/5
plants	Asteraceae	<i>Chromolaena odorata</i>		Y			2
plants	Asteraceae	<i>Coronidium rupicola</i>	Siam weed		C		1
plants	Asteraceae	<i>Cymbonotus maidenii</i>			E		1
plants	Asteraceae	<i>Eclipta platyglossa</i>			C		1/1
plants	Asteraceae	<i>Glossocardia bidens</i>	native cobbler's pegs		C		5/3
plants	Asteraceae	<i>Minuria integerrima</i>	smooth minuria		C		2/2



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plants	Asteraceae	<i>Minuria leptophylla</i>			C		1/1
plants	Asteraceae	<i>Olearia microphylla</i>			C		2/1
plants	Asteraceae	<i>Podolepis jaceoides</i>	showy copper-wire daisy		C		2/2
plants	Asteraceae	<i>Praxelis clematidea</i>		Y			1/1
plants	Asteraceae	<i>Rutidosia leucantha</i>			C		2/2
plants	Asteraceae	<i>Senecio tenuiflorus</i>			C		1/1
plants	Asteraceae	<i>Ageratina adenophora</i>	crofton weed	Y			1/1
plants	Asteraceae	<i>Brachyoscome stuartii</i>			C		1/1
plants	Asteraceae	<i>Calyptocarpus vialis</i>	creeping cinderella weed	Y			1
plants	Asteraceae	<i>Centipeda nidiformis</i>			C		1/1
plants	Asteraceae	<i>Lagenophora gracilis</i>			C		2/1
plants	Asteraceae	<i>Peripleura hispidula</i>			C		1
plants	Asteraceae	<i>Pterocaulon ciliosum</i>			C		6/6
plants	Asteraceae	<i>Pterocaulon redolens</i>			C		6/3
plants	Asteraceae	<i>Rhodanthe polyphylla</i>			C		6/5
plants	Asteraceae	<i>Rutidosia glandulosa</i>			NT		6/6
plants	Asteraceae	<i>Senecio tuberculatus</i>			C		1/1
plants	Asteraceae	<i>Sphaeranthus indicus</i>			C		1/1
plants	Asteraceae	<i>Vittadinia pustulata</i>			C		2/1
plants	Asteraceae	<i>Xanthium occidentale</i>		Y			15/7
plants	Asteraceae	<i>Ageratum houstonianum</i>	blue billygoat weed	Y			2
plants	Asteraceae	<i>Brachyoscome basaltica</i>			C		2/2
plants	Asteraceae	<i>Calotis xanthosioidea</i>			C		1/1
plants	Asteraceae	<i>Cassinia quinquefaria</i>			C		1/1
plants	Asteraceae	<i>Coronidium glutinosum</i>			C		7/5
plants	Asteraceae	<i>Cyanthillium cinereum</i>			C		42/23
plants	Asteraceae	<i>Euchiton involucreatus</i>			C		1/1
plants	Asteraceae	<i>Gnaphalium polycaulon</i>		Y			1/1
plants	Asteraceae	<i>Lagenophora stipitata</i>			C		1
plants	Asteraceae	<i>Leiocarpa brevicompta</i>			C		3/3
plants	Asteraceae	Asteraceae			C		1/1
plants	Asteraceae	<i>Gnaphalium</i>			C		3
plants	Asteraceae	<i>Peripleura</i>			C		2
plants	Asteraceae	<i>Vittadinia</i>			C		1
plants	Asteraceae	<i>Conyza panva</i>		Y			1/1
plants	Asteraceae	<i>Bidens pilosa</i>	white burr daisy	Y			1/1
plants	Asteraceae	<i>Blumea lacera</i>	bowl daisy		C		1/1
plants	Asteraceae	<i>Blumea mollis</i>			C		1/1
plants	Asteraceae	<i>Calotis dentex</i>			C		12/8
plants	Asteraceae	<i>Pluchea dentex</i>	stinking roger	Y			4/4
plants	Asteraceae	<i>Tagetes minuta</i>	wild aster	Y			2/2
plants	Asteraceae	<i>Aster subulatus</i>			C		1
plants	Asteraceae	<i>Calotis cuneata</i>			C		5/5
plants	Asteraceae	<i>Cassinia laevis</i>			C		6/2
plants	Asteraceae	<i>Cirsium vulgare</i>	spear thistle	Y			1/1
plants	Asteraceae	<i>Bidens bipinnata</i>	bipinnate beggar's ticks	Y			3/2

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plants	Asteraceae	<i>Blumea saxatilis</i>			C		1/1
plants	Asteraceae	<i>Centipeda minima</i>			C		8
plants	Asteraceae	<i>Olearia nernstii</i>	Ipswich daisy		C		1
plants	Asteraceae	<i>Pluchea dunlopii</i>			C		2/2
plants	Asteraceae	<i>Pluchea xanthina</i>			C		4/4
plants	Asteraceae	<i>Zinnia peruviana</i>	wild zinnia	Y	C		4/4
plants	Asteraceae	<i>Campactra barbata</i>			C		5/4
plants	Asteraceae	<i>Conyza aegyptiaca</i>		Y			1/1
plants	Asteraceae	<i>Conyza canadensis</i>		Y			2/2
plants	Asteraceae	<i>Eclipta prostrata</i>	white eclipta	Y			12/6
plants	Asteraceae	<i>Epaltes australis</i>	spreading nutheads		C		8
plants	Asteraceae	<i>Gynura drymophila</i>			C		2
plants	Asteraceae	<i>Helianthus annuus</i>		Y			1/1
plants	Asteraceae	<i>Olearia canescens</i>			C		5/3
plants	Asteraceae	<i>Olearia xerophila</i>			C		5/2
plants	Asteraceae	<i>Conyza</i>			C		2
plants	Asteraceae	<i>Calotis</i>			C		2
plants	Asteraceae	<i>Olearia</i>			C		1
plants	Asteraceae	<i>Senecio</i>			C		4
plants	Asteraceae	<i>Xanthium</i>			C		2
plants	Bignoniaceae	<i>Tecoma stans</i> var. <i>stans</i>			C		1/1
plants	Bignoniaceae	<i>Pandorea pandorana</i>	wonga vine	Y	C		28/7
plants	Boraginaceae	<i>Heliotropium cunninghamii</i>			C		3/3
plants	Boraginaceae	<i>Heliotropium amplexicaule</i>		Y			9/5
plants	Boraginaceae	<i>Heliotropium tenuifolium</i>	blue heliotrope		C		1/1
plants	Boraginaceae	<i>Heliotropium peninsulare</i>			C		1/1
plants	Boraginaceae	<i>Heliotropium ovalifolium</i>			C		6/6
plants	Boraginaceae	<i>Heliotropium brachygynae</i>			C		3/3
plants	Boraginaceae	<i>Trichodesma zeylanicum</i>			C		2/1
plants	Boraginaceae	<i>Heliotropium geocharis</i>			C		1/1
plants	Boraginaceae	<i>Ehretia membranifolia</i>	weeping koda		C		36/1
plants	Boraginaceae	<i>Heliotropium indicum</i>		Y			13/12
plants	Boraginaceae	<i>Heliotropium moorei</i>			C		1/1
plants	Boraginaceae	<i>Ehretia</i>			C		1
plants	Boraginaceae	<i>Cordia dichotoma</i>			C		1/1
plants	Boraginaceae	<i>Ehretia grahamii</i>			C		6/6
plants	Boraginaceae	<i>Trichodesma zeylanicum</i> var. <i>latisepalum</i>			C		1/1
plants	Boraginaceae	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>			C		7/7
plants	Brassicaceae	<i>Lepidium sagittulatum</i>			C		1/1
plants	Brassicaceae	<i>Sisymbrium thellungii</i>	African turnip-weed	Y			3/3
plants	Brassicaceae	<i>Rorippa dietrichiana</i>		Y	C		1/1
plants	Brassicaceae	<i>Lepidium bonariense</i>	Argentine peppergrass		C		2/2
plants	Brassicaceae	<i>Rorippa eustylis</i>			C		2/2
plants	Byttneriaceae	<i>Keraudrenia lanceolata</i>			C		4/2
plants	Byttneriaceae	<i>Keraudrenia hookeriana</i>			C		4/4
plants	Byttneriaceae	<i>Commersonia dasyphylla</i>			C		1

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plants	Byttneriaceae	<i>Commersonia johnsonii</i>			C		19/19
plants	Byttneriaceae	<i>Hannafordia shanesii</i>			C		4/4
plants	Byttneriaceae	<i>Melochia pyramidata</i>		Y			5/5
plants	Byttneriaceae	<i>Seringia corollata</i>			C		10/5
plants	Byttneriaceae	<i>Commersonia pearnii</i>			E		2/2
plants	Byttneriaceae	<i>Commersonia leichhardtii</i>			C		2
plants	Byttneriaceae	<i>Commersonia</i>			C		1/1
plants	Byttneriaceae	<i>Keraudrenia</i>			C		1/1
plants	Byttneriaceae	<i>Waltheria indica</i>			C		10/9
plants	Byttneriaceae	<i>Keraudrenia collina</i>			C		1/1
plants	Cactaceae	<i>Opuntia streptacantha</i>	cardona pear	Y			12
plants	Cactaceae	<i>Harrisia pomanensis</i>		Y			4/2
plants	Cactaceae	<i>Opuntia aurantiaca</i>	tiger pear	Y			1
plants	Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear	Y			46/3
plants	Cactaceae	<i>Acanthocereus tetragonus</i>	sword pear	Y			2/1
plants	Cactaceae	<i>Opuntia stricta</i>		Y			20
plants	Cactaceae	<i>Opuntia</i>		Y			22
plants	Cactaceae	<i>Cylindropuntia imbricata</i>		Y			1/1
plants	Cactaceae	<i>Harrisia martinii</i>	devil's rope cactus	Y			25/2
plants	Caesalpinaceae	<i>Bauhinia galpinii</i>		Y			1/1
plants	Caesalpinaceae	<i>Cassia tomentella</i>			C		9/2
plants	Caesalpinaceae	<i>Senna surattensis</i>			C		1/1
plants	Caesalpinaceae	<i>Tamarindus indica</i>		Y			1/1
plants	Caesalpinaceae	<i>Labichea rupestris</i>			C		2/2
plants	Caesalpinaceae	<i>Senna gaudichaudii</i>			C		7/4
plants	Caesalpinaceae	<i>Senna occidentalis</i>		Y			5/5
plants	Caesalpinaceae	<i>Senna barclayana</i>			C		4/2
plants	Caesalpinaceae	<i>Cassia brewsteri</i>			C		74/17
plants	Caesalpinaceae	<i>Senna aciphylla</i>			C		6/6
plants	Caesalpinaceae	<i>Senna costata</i>			C		1/1
plants	Caesalpinaceae	<i>Delonix regia</i>		Y			1/1
plants	Caesalpinaceae	<i>Petalostylis</i>			C		1
plants	Caesalpinaceae	<i>Senna alata</i>		Y			1/1
plants	Caesalpinaceae	<i>Cassia</i>			C		2
plants	Caesalpinaceae	<i>Senna</i>			C		4
plants	Caesalpinaceae	<i>Chamaecrista nomame</i>			C		2/2
plants	Caesalpinaceae	<i>Senna sophora</i> var. (40Mile Scrub J.R.Clarkson+ 6908)			C		1/1
plants	Caesalpinaceae	<i>Chamaecrista rotundifolia</i> var. <i>rotundifolia</i>		Y			5/5
plants	Caesalpinaceae	<i>Senna artemisioides</i> subsp. <i>artemisioides</i>			C		1/1
plants	Caesalpinaceae	<i>Senna artemisioides</i> subsp. <i>coriacea</i>			C		2
plants	Caesalpinaceae	<i>Chamaecrista nomame</i> var. <i>nomame</i>			C		2/2
plants	Caesalpinaceae	<i>Chamaecrista absus</i> var. <i>absus</i>			C		3/3
plants	Caesalpinaceae	<i>Petalostylis labicheoides</i>			C		8/7
plants	Caesalpinaceae	<i>Chamaecrista rotundifolia</i>		Y			2
plants	Caesalpinaceae	<i>Parkinsonia aculeata</i>	parkinsonia	Y			24/16

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plants	Caesalpiniaceae	<i>Lysiphyllum carronii</i>	ebony tree		C		34/1
plants	Caesalpiniaceae	<i>Lysiphyllum hookeri</i>	Queensland ebony		C		57/13
plants	Caesalpiniaceae	<i>Senna artemisioides</i>			C		1
plants	Caesalpiniaceae	<i>Senna coronilloides</i>			C		9/4
plants	Caesalpiniaceae	<i>Barklya syringifolia</i>	golden shower tree		C		4
plants	Campanulaceae	<i>Lobelia trigonocaulis</i>	forest lobelia		C		2/1
plants	Campanulaceae	<i>Lobelia purpurascens</i>	white root		C		1
plants	Campanulaceae	<i>Isotoma gulliveri</i>			C		1
plants	Campanulaceae	<i>Isotoma axillaris</i>	australian harebell		C		5/4
plants	Campanulaceae	<i>Lobelia gibbosa</i>	native lobelia		C		1
plants	Campanulaceae	<i>Wahlenbergia tumidiflucta</i>			C		1/1
plants	Campanulaceae	<i>Lobelia quadrangularis</i>			C		4/3
plants	Campanulaceae	<i>Wahlenbergia islensis</i>			C		1/1
plants	Campanulaceae	<i>Wahlenbergia gracilis</i>	sprawling bluebell		C		3/2
plants	Campanulaceae	<i>Wahlenbergia communis</i>	tufted bluebell		C		1/1
plants	Campanulaceae	<i>Wahlenbergia</i>			C		2
plants	Capparaceae	<i>Capparis</i>			C		11
plants	Capparaceae	<i>Capparis ornans</i>			C		16/3
plants	Capparaceae	<i>Capparis arborea</i>	brush caper berry		C		25/1
plants	Capparaceae	<i>Capparis canescens</i>			C		31/5
plants	Capparaceae	<i>Capparis lasiantha</i>	nipan		C		43/9
plants	Capparaceae	<i>Apophyllum anomalum</i>	broom bush		C		41/3
plants	Capparaceae	<i>Capparis mitchellii</i>			C		11/1
plants	Capparaceae	<i>Capparis shanesiana</i>			C		1/1
plants	Capparaceae	<i>Capparis thozetiana</i>			V		9/9
plants	Capparaceae	<i>Capparis loranthifolia</i>			C		19
plants	Capparaceae	<i>Capparis loranthifolia</i> var. <i>bancroftii</i>			C		4/4
plants	Capparaceae	<i>Capparis loranthifolia</i> var. <i>loranthifolia</i>			C		4/4
plants	Carpodetaceae	<i>Cuttsia viburnea</i>	silver-leaf cuttsia		C		3/2
plants	Caryophyllaceae	<i>Polycarpaea breviflora</i>			C		2/1
plants	Caryophyllaceae	<i>Polycarpaea spirostylis</i> subsp. <i>spirostylis</i>			C		2/2
plants	Caryophyllaceae	<i>Polycarpaea spirostylis</i> subsp. <i>compacta</i>			C		2
plants	Caryophyllaceae	<i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>			C		1/1
plants	Caryophyllaceae	<i>Polycarpaea spirostylis</i>			C		1/1
plants	Caryophyllaceae	<i>Polycarpaea corymbosa</i>			C		5/4
plants	Casuarinaceae	<i>Casuarina cunninghamiana</i>			C		12
plants	Casuarinaceae	<i>Allocasuarina luehmannii</i>	bull oak		C		36/5
plants	Casuarinaceae	<i>Allocasuarina littoralis</i>			C		8/2
plants	Casuarinaceae	<i>Allocasuarina inophloia</i>			C		1
plants	Casuarinaceae	<i>Allocasuarina torulosa</i>			C		121/2
plants	Casuarinaceae	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>			C		1/1
plants	Casuarinaceae	<i>Casuarina cristata</i>	belah		C		20/4
plants	Celastraceae	<i>Denhamia disperma</i>			C		2/2
plants	Celastraceae	<i>Denhamia</i> sp. (June McDonald 553)			C		6/6
plants	Celastraceae	<i>Maytenus disperma</i>	orange boxwood		C		16
plants	Celastraceae	<i>Denhamia bilocularis</i>			C		1/1

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plants	Celastraceae	<i>Maytenus bilocularis</i>			C		10
plants	Celastraceae	<i>Siphonodon australis</i>	ivorywood		C		19/5
plants	Celastraceae	<i>Denhamia cunninghamii</i>			C		12/12
plants	Celastraceae	<i>Elaeodendron australe</i>			C		9/2
plants	Celastraceae	<i>Maytenus cunninghamii</i>	yellow berry bush		C		7/1
plants	Celastraceae	<i>Pleurostylia opposita</i>			C		5/2
plants	Celastraceae	<i>Denhamia pittosporoides</i>			C		12/2
plants	Celastraceae	<i>Elaeodendron melanocarpum</i>			C		9/2
plants	Celastraceae	<i>Elaeodendron australe var. integrifolium</i>			C		15/7
plants	Celastraceae	<i>Denhamia pittosporoides subsp. pittosporoides</i>			C		1/1
plants	Celastraceae	<i>Denhamia oleaster</i>			C		50/10
plants	Chenopodiaceae	<i>Maireana microphylla</i>			C		15/4
plants	Chenopodiaceae	<i>Sclerolaena muricata</i>			C		2
plants	Chenopodiaceae	<i>Sclerolaena ramulosa</i>			C		3/2
plants	Chenopodiaceae	<i>Chenopodium auricomum</i>			C		1/1
plants	Chenopodiaceae	<i>Dysphania glomulifera</i>			C		2/2
plants	Chenopodiaceae	<i>Sclerolaena calcarata</i>	red burr		C		3/2
plants	Chenopodiaceae	<i>Sclerolaena convexula</i>			C		1/1
plants	Chenopodiaceae	<i>Dysphania ambrosioides</i>		Y			2/1
plants	Chenopodiaceae	<i>Maireana enchylaenoides</i>			C		1/1
plants	Chenopodiaceae	<i>Sclerolaena tetracuspis</i>	brigalow burr		C		7/1
plants	Chenopodiaceae	<i>Chenopodium auricomiforme</i>			C		2/2
plants	Chenopodiaceae	<i>Sclerolaena anisacanthoides</i>			C		3/2
plants	Chenopodiaceae	<i>Einadia nutans subsp. nutans</i>			C		2/2
plants	Chenopodiaceae	<i>Einadia nutans subsp. linifolia</i>			C		4/4
plants	Chenopodiaceae	<i>Enchylaena tomentosa var. glabra</i>			C		1/1
plants	Chenopodiaceae	<i>Sclerolaena bicornis var. horrida</i>			C		3
plants	Chenopodiaceae	<i>Sclerolaena muricata var. villosa</i>			C		3/3
plants	Chenopodiaceae	<i>Einadia trigonos subsp. stellulata</i>			C		2/2
plants	Chenopodiaceae	<i>Sclerolaena muricata var. muricata</i>			C		3/3
plants	Chenopodiaceae	<i>Dysphania melanocarpa forma melanocarpa</i>			C		2/1
plants	Chenopodiaceae	<i>Chenopodium desertorum subsp. desertorum</i>			C		1/1
plants	Chenopodiaceae	<i>Dysphania glomulifera subsp. glomulifera</i>			C		5/5
plants	Chenopodiaceae	<i>Einadia</i>			C		1
plants	Chenopodiaceae	<i>Atriplex</i>			C		5
plants	Chenopodiaceae	<i>Maireana</i>			C		7
plants	Chenopodiaceae	<i>Chenopodium</i>			C		2
plants	Chenopodiaceae	<i>Sclerolaena</i>			C		4/1
plants	Chenopodiaceae	<i>Einadia nutans</i>			C		11/1
plants	Chenopodiaceae	<i>Einadia hastata</i>			C		14/5
plants	Chenopodiaceae	<i>Dysphania valida</i>			C		1/1
plants	Chenopodiaceae	<i>Einadia trigonos</i>			C		1
plants	Chenopodiaceae	<i>Atriplex muelleri</i>	lagoon saltbush		C		14/7
plants	Chenopodiaceae	<i>Dysphania pumilio</i>			C		2/2
plants	Chenopodiaceae	<i>Salsola australis</i>			C		3/3
plants	Chenopodiaceae	<i>Dysphania carinata</i>			C		11/6

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Chenopodiaceae	<i>Atriplex nummularia</i>			C		1
plants	Chenopodiaceae	<i>Rhagodia spinescens</i>	thorny saltbush		C		2/1
plants	Chenopodiaceae	<i>Sclerolaena birchii</i>	galvanised burr		C		8/3
plants	Chenopodiaceae	<i>Atriplex semibaccata</i>	creeping saltbush		C		2
plants	Chenopodiaceae	<i>Einadia polygonoides</i>	knotweed goosefoot		C		5/2
plants	Chenopodiaceae	<i>Enchylaena tomentosa</i>			C		37/2
plants	Cleomaceae	<i>Cleome viscosa</i>	tick-weed		C		7/4
plants	Clusiaceae	<i>Hypericum gramineum</i>			C		9/5
plants	Combretaceae	<i>Terminalia oblongata</i>			C		86
plants	Combretaceae	<i>Macropteranthes fitzalanii</i>			C		6
plants	Combretaceae	<i>Terminalia porphyrocarpa</i>			C		16/4
plants	Combretaceae	<i>Terminalia melanocarpa</i>			C		1/1
plants	Combretaceae	<i>Macropteranthes leichhardtii</i>	bonewood		C		3/3
plants	Combretaceae	<i>Terminalia oblongata subsp. oblongata</i>			C		14/14
plants	Combretaceae	<i>Macropteranthes leiocaulis</i>			NT		1/1
plants	Convolvulaceae	<i>Bonamia media</i>			C		4/4
plants	Convolvulaceae	<i>Jacquemontia paniculata var. tomentosa</i>			C		1/1
plants	Convolvulaceae	<i>Evolvulus alsinoides var. villosicalyx</i>			C		3/3
plants	Convolvulaceae	<i>Evolvulus alsinoides var. decumbens</i>			C		6/6
plants	Convolvulaceae	<i>Ipomoea carnea subsp. fistulosa</i>		Y	C		1/1
plants	Convolvulaceae	<i>Ipomoea polpha subsp. weirana</i>			C		1
plants	Convolvulaceae	<i>Convolvulus graminetinus</i>			C		9/9
plants	Convolvulaceae	<i>Bonamia media var. media</i>			C		1/1
plants	Convolvulaceae	<i>Jacquemontia paniculata</i>	Australian bindweed		C		6/5
plants	Convolvulaceae	<i>Convolvulus erubescens</i>	polymeria		C		4
plants	Convolvulaceae	<i>Polymeria longifolia</i>			C		5/5
plants	Convolvulaceae	<i>Ipomoea lonchophylla</i>			C		8/6
plants	Convolvulaceae	<i>Evolvulus alsinoides</i>			C		21/2
plants	Convolvulaceae	<i>Convolvulus arvensis</i>		Y	C		2/1
plants	Convolvulaceae	<i>Bonamia dietrichiana</i>			C		7/4
plants	Convolvulaceae	<i>Polymeria marginata</i>			C		1/1
plants	Convolvulaceae	<i>Polymeria calycina</i>	pink bindweed		C		2/1
plants	Convolvulaceae	<i>Ipomoea brownii</i>			C		2/2
plants	Convolvulaceae	<i>Ipomoea calobra</i>			C		6/6
plants	Convolvulaceae	<i>Ipomoea plebeia</i>	bellvine		C		11/7
plants	Convolvulaceae	<i>Polymeria pusilla</i>			C		8/6
plants	Convolvulaceae	<i>Cuscuta campestris</i>	dodder	Y	C		1/1
plants	Convolvulaceae	<i>Ipomoea polymorpha</i>			C		9/9
plants	Convolvulaceae	<i>Ipomoea racemigera</i>			C		1/1
plants	Convolvulaceae	<i>Merremia hederacea</i>			C		1/1
plants	Cornaceae	<i>Alangium villosum subsp. tomentosum</i>			C		1/1
plants	Crassulaceae	<i>Bryophyllum pinnatum</i>	resurrection plant	Y	C		1/1
plants	Crassulaceae	<i>Bryophyllum delagoense</i>		Y	C		31/11
plants	Crassulaceae	<i>Bryophyllum x houghtonii</i>		Y	C		4/4
plants	Crassulaceae	<i>Crassula colorata</i>			C		1
plants	Crassulaceae	<i>Crassula sieberiana</i>			C		1

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plants	Cucurbitaceae	<i>Diplocyclos palmatus</i>			C		3
plants	Cucurbitaceae	<i>Diplocyclos palmatus subsp. palmatus</i>			C		1/1
plants	Cucurbitaceae	<i>Cucumis anguria var. anguria</i>	West Indian gherkin	Y			2/2
plants	Cucurbitaceae	<i>Neosalsomitra capricornica</i>			C		3/1
plants	Cucurbitaceae	<i>Cucumis picrocarpus</i>			C		1/1
plants	Cucurbitaceae	<i>Cucumis myriocarpus</i>		Y			4
plants	Cucurbitaceae	<i>Cucumis althaeoides</i>			C		3/3
plants	Cucurbitaceae	<i>Neochamandra cunninghamii</i>			C		2
plants	Cucurbitaceae	<i>Sicyos australis</i>	star cucumber		C		3/2
plants	Cucurbitaceae	<i>Cucumis melo</i>			C		2/2
plants	Cucurbitaceae	<i>Cucumis argenteus</i>			C		1/1
plants	Dilleniaceae	<i>Hibbertia</i>			C		6/3
plants	Dilleniaceae	<i>Hibbertia aspera</i>			C		4
plants	Dilleniaceae	<i>Hibbertia sp. (Isle Gorge P. Sharpe 598)</i>			C		1/1
plants	Dilleniaceae	<i>Hibbertia linearis var. obtusifolia</i>			C		8/2
plants	Dilleniaceae	<i>Hibbertia stricta var. stricta</i>			C		2/2
plants	Dilleniaceae	<i>Hibbertia hendersonii</i>			C		4/4
plants	Dilleniaceae	<i>Hibbertia oligodonta</i>			C		13/7
plants	Dilleniaceae	<i>Hibbertia exultacioides</i>			C		2/2
plants	Dilleniaceae	<i>Hibbertia acicularis</i>		Y			1
plants	Dilleniaceae	<i>Hibbertia diffusa</i>			C		1
plants	Dilleniaceae	<i>Hibbertia riparia</i>			C		4
plants	Dilleniaceae	<i>Hibbertia stricta</i>			C		8/3
plants	Dilleniaceae	<i>Hibbertia linearis</i>			C		3/1
plants	Dilleniaceae	<i>Hibbertia cistoidea</i>			C		3/1
plants	Droseraceae	<i>Drosera binata</i>	forked sundew		C		4/2
plants	Droseraceae	<i>Drosera</i>			C		1
plants	Droseraceae	<i>Drosera spatulata</i>			C		3
plants	Droseraceae	<i>Drosera burmanni</i>			C		2/2
plants	Droseraceae	<i>Drosera peltata</i>			C		2
plants	Droseraceae	<i>Drosera lunata</i>	pale sundew		C		1/1
plants	Droseraceae	<i>Drosera indica</i>			C		1
plants	Droseraceae	<i>Drosera spatulata var. spatulata</i>			C		4/4
plants	Ebenaceae	<i>Diospyros geminata</i>	scaly ebony		C		28/4
plants	Ebenaceae	<i>Diospyros fasciculosa</i>	grey ebony		C		2
plants	Ebenaceae	<i>Diospyros australis</i>	black plum		C		4/1
plants	Ebenaceae	<i>Diospyros humilis</i>	small-leaved ebony		C		63/12
plants	Elaeagnaceae	<i>Elaeagnus triflora</i>			C		1/1
plants	Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	ash quandong		C		3/2
plants	Elaeocarpaceae	<i>Elaeocarpus obovatus</i>	blueberry ash		C		6/4
plants	Elatinaceae	<i>Elatine gratiolooides</i>	waterwort		C		1
plants	Ericaceae	<i>Lissanthe brevistyla</i>		V			10/10
plants	Ericaceae	<i>Agortia pleiosperma</i>			C		1
plants	Ericaceae	<i>Melichrus urceolatus</i>	honey gorse		C		2/1
plants	Ericaceae	<i>Brachylooma daphnoides</i>			C		4
plants	Ericaceae	<i>Leucopogon cuspidatus</i>			C		5/5

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plants	Ericaceae	<i>Leucopogon imbricatus</i>			C		2/2
plants	Ericaceae	<i>Leucopogon mitchellii</i>			C		6/4
plants	Ericaceae	<i>Leucopogon grandiflorus</i>			C		1/1
plants	Ericaceae	<i>Brachyoloma daphnoides subsp. daphnoides</i>			C		1/1
plants	Ericaceae	<i>Melichrus sp. (Isla Gorge P. Sharpe+ 601)</i>			C		7/4
plants	Ericaceae	<i>Melichrus procumbens</i>	jam tarts		C		1
plants	Ericaceae	<i>Acrotriche aggregata</i>	red cluster heath		C		6/4
plants	Ericaceae	<i>Leucopogon biflorus</i>			C		7/5
plants	Ericaceae	<i>Melichrus</i>			C		4/3
plants	Ericaceae	<i>Leucopogon</i>			C		3/1
plants	Ericaceae	<i>Monotoca scoparia</i>	prickly broom heath		C		5/2
plants	Ericaceae	<i>Leucopogon muticus</i>			C		6/5
plants	Ericaceae	<i>Epacris obtusifolia</i>	common heath		C		2/1
plants	Erythroxylaceae	<i>Erythroxylum sp. (Spityard Creek L. Pedley 5360)</i>			C		21/10
plants	Erythroxylaceae	<i>Erythroxylum australe</i>	cocaine tree		C		93/22
plants	Erythroxylaceae	<i>Erythroxylum</i>			C		1
plants	Euphorbiaceae	<i>Macaranga tanarius</i>	macaranga		C		1
plants	Euphorbiaceae	<i>Homalanthus nutans</i>			C		1
plants	Euphorbiaceae	<i>Croton pheballoides</i>	narrow-leaved croton		C		43/16
plants	Euphorbiaceae	<i>Euphorbia coghlanii</i>			C		5/5
plants	Euphorbiaceae	<i>Euphorbia prostrata</i>		Y			1/1
plants	Euphorbiaceae	<i>Alchornea ilicifolia</i>	native holly		C		9/1
plants	Euphorbiaceae	<i>Euphorbia drummondii</i>			C		6/3
plants	Euphorbiaceae	<i>Euphorbia lacinioloba</i>			C		3/3
plants	Euphorbiaceae	<i>Euphorbia thymifolia</i>		Y			1/1
plants	Euphorbiaceae	<i>Croton acronychioides</i>	thick-leaved croton		C		23/5
plants	Euphorbiaceae	<i>Euphorbia dallachyana</i>			C		7/3
plants	Euphorbiaceae	<i>Euphorbia ophiolitica</i>			C		1/1
plants	Euphorbiaceae	<i>Euphorbia planiticola</i>	plains spurge		C		1/1
plants	Euphorbiaceae	<i>Mallotus claoxyloides</i>	green kamala		C		14/4
plants	Euphorbiaceae	<i>Mallotus philippensis</i>	red kamala		C		17/2
plants	Euphorbiaceae	<i>Monotaxis macrophylla</i>	Queensland brittlewood		C		3/3
plants	Euphorbiaceae	<i>Claoxylon tenerifolium</i>			C		7
plants	Euphorbiaceae	<i>Euphorbia hyssopifolia</i>			C		6/5
plants	Euphorbiaceae	<i>Excoecaria dallachyana</i>	scrub poison tree	Y			25/8
plants	Euphorbiaceae	<i>Jatropha gossypifolia</i>	bellyache bush	Y			2/2
plants	Euphorbiaceae	<i>Ricinocarpos ruminatus</i>			C		4
plants	Euphorbiaceae	<i>Ricinocarpos ledifolius</i>	scrub wedding bush		C		16/9
plants	Euphorbiaceae	<i>Tragia novae-hollandiae</i>	stinging-vine		C		5/2
plants	Euphorbiaceae	<i>Euphorbia parvicaruncula</i>	rough-seeded spurge		C		1/1
plants	Euphorbiaceae	<i>Homalanthus populifolius</i>			C		1/1
plants	Euphorbiaceae	<i>Ricinocarpos linearifolius</i>			C		14/10
plants	Euphorbiaceae	<i>Homalanthus stillingifolius</i>			C		1/1
plants	Euphorbiaceae	<i>Adriana tomentosa var. tomentosa</i>			C		10/10
plants	Euphorbiaceae	<i>Bertya laticola subsp. brevifolia</i>			C		4/4
plants	Euphorbiaceae	<i>Euphorbia tannensis subsp. eremophila</i>			C		11/7



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plants	Euphorbiaceae	<i>Euphorbia mitchelliana</i> var. <i>mitchelliana</i>			C		3/3
plants	Euphorbiaceae	<i>Euphorbia papillifolia</i> var. <i>papillifolia</i>			C		1/1
plants	Euphorbiaceae	<i>Claoxylon tenerifolium</i> subsp. <i>tenerifolium</i>			C		1/1
plants	Euphorbiaceae	<i>Acalypha</i>			C		1
plants	Euphorbiaceae	<i>Euphorbia</i>			C		10
plants	Euphorbiaceae	<i>Ricinocarpos</i>			C		3/1
plants	Euphorbiaceae	<i>Bertya opposens</i>			C	V	7/6
plants	Euphorbiaceae	<i>Beyeria viscosa</i>			C		7/6
plants	Euphorbiaceae	<i>Euphorbia hirta</i>		Y	C		8/8
plants	Euphorbiaceae	<i>Bertya oleifolia</i>			C		1/1
plants	Euphorbiaceae	<i>Croton insularis</i>	Queensland cascarilla		C		36/9
plants	Euphorbiaceae	<i>Euphorbia bifida</i>			C		2/2
plants	Euphorbiaceae	<i>Ricinus communis</i>		Y	C		13/13
plants	Euphorbiaceae	<i>Acalypha eremorum</i>	castor oil bush		C		46/10
plants	Euphorbiaceae	<i>Acalypha australis</i>	soft acalypha	Y	C		1/1
plants	Euphorbiaceae	<i>Baloghia inophylla</i>	scrub bloodwood		C		6/4
plants	Euphorbiaceae	<i>Bertya pedicellata</i>			NT		10/7
plants	Euphorbiaceae	<i>Euphorbia stevenii</i>	bottle tree spurge		C		1/1
plants	Euphorbiaceae	<i>Acalypha capillipes</i>	small-leaved acalypha		C		9/1
plants	Fabaceae	<i>Hovea</i>			C		7/1
plants	Fabaceae	<i>Vigna</i>			C		2/1
plants	Fabaceae	<i>Zornia</i>			C		1
plants	Fabaceae	<i>Zornia</i>			C		10/4
plants	Fabaceae	<i>Glycine</i>			C		3/2
plants	Fabaceae	<i>Galactia</i>			C		1
plants	Fabaceae	<i>Kennedia</i>			C		1/1
plants	Fabaceae	<i>Mirbelia</i>			C		1/1
plants	Fabaceae	<i>Sesbania</i>			C		2
plants	Fabaceae	<i>Canavalia</i>			C		1
plants	Fabaceae	<i>Desmodium</i>			C		3
plants	Fabaceae	<i>Pultenaea</i>			C		1
plants	Fabaceae	<i>Swainsona</i>			C		1
plants	Fabaceae	<i>Tephrosia</i>		Y	C		4
plants	Fabaceae	<i>Indigofera</i>			C		9/1
plants	Fabaceae	<i>Cullen tenax</i>	emu-foot		C		3/3
plants	Fabaceae	<i>Hovea linearis</i>	erect hovea		C		4/3
plants	Fabaceae	<i>Hovea longipes</i>	brush hovea		C		25/10
plants	Fabaceae	<i>Zornia pallida</i>			C		1/1
plants	Fabaceae	<i>Aotus subglauca</i>			C		1
plants	Fabaceae	<i>Cullen cinereum</i>			C		2/2
plants	Fabaceae	<i>Glycine falcata</i>			C		4/4
plants	Fabaceae	<i>Lotus australis</i>	Australian trefoil		C		8/8
plants	Fabaceae	<i>Medicago sativa</i>	lucerne	Y	C		1
plants	Fabaceae	<i>Melilotus albus</i>	sweet clover	Y	C		1/1
plants	Fabaceae	<i>Pultenaea borea</i>			C		1/1
plants	Fabaceae	<i>Vigna suberecta</i>			C		5/5
plants	Fabaceae	<i>Vigna vexillata</i>			C		1

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plants	Fabaceae	<i>Zornia areolata</i>			C		1/1
plants	Fabaceae	<i>Bossiaea brownii</i>			C		7/1
plants	Fabaceae	<i>Daviesia filipes</i>			C		16/13
plants	Fabaceae	<i>Desmodium gunnii</i>			C		1/1
plants	Fabaceae	<i>Glycine tabacina</i>	glycine pea		C		6/1
plants	Fabaceae	<i>Hovea lanceolata</i>			C		1
plants	Fabaceae	<i>Hovea parvicalyx</i>			C		5/5
plants	Fabaceae	<i>Hovea planifolia</i>			C		13/4
plants	Fabaceae	<i>Lablab purpureus</i>	lablab	Y			1/1
plants	Fabaceae	<i>Mirbella pungens</i>			C		2/1
plants	Fabaceae	<i>Tephrosia juncea</i>			C		5/4
plants	Fabaceae	<i>Tephrosia rufula</i>			C		2/1
plants	Fabaceae	<i>Bossiaea concolor</i>			C		2/2
plants	Fabaceae	<i>Canavalia papuana</i>	wild jack bean		C		3/3
plants	Fabaceae	<i>Clitoria ternatea</i>	butterfly pea	Y			6/5
plants	Fabaceae	<i>Crotalaria brevis</i>			C		2/2
plants	Fabaceae	<i>Crotalaria juncea</i>	sunhemp	Y			5/5
plants	Fabaceae	<i>Daviesia discolor</i>			V	V	9/7
plants	Fabaceae	<i>Desmodium varians</i>	slender tick trefoil		C		5
plants	Fabaceae	<i>Glycine latifolia</i>			C		7/7
plants	Fabaceae	<i>Glycine syndetika</i>			C		1/1
plants	Fabaceae	<i>Hovea tholiformis</i>			C		14/7
plants	Fabaceae	<i>Mirbella aotoides</i>			C		2/2
plants	Fabaceae	<i>Pultenaea spinosa</i>			C		22/8
plants	Fabaceae	<i>Rhynchosia minima</i>			C		8/2
plants	Fabaceae	<i>Templetonia egena</i>			C		1/1
plants	Fabaceae	<i>Tephrosia filipes</i>	desert broombush		C		2/2
plants	Fabaceae	<i>Zornia muriculata</i>			C		3
plants	Fabaceae	<i>Bossiaea carinalis</i>			C		14/9
plants	Fabaceae	<i>Crotalaria montana</i>			C		5/1
plants	Fabaceae	<i>Daviesia vilifera</i>	prickly daviesia		C		3/1
plants	Fabaceae	<i>Daviesia wyattiana</i>	long-leaved bitter pea		C		8/5
plants	Fabaceae	<i>Glycine stenophita</i>			C		1/1
plants	Fabaceae	<i>Glycine tomentella</i>	woolly glycine		C		9/5
plants	Fabaceae	<i>Indigofera colutea</i>	sticky indigo		C		5/5
plants	Fabaceae	<i>Indigofera hirsuta</i>	hairy indigo		C		5/5
plants	Fabaceae	<i>Indigofera linnaei</i>	Birdsville indigo		C		9/6
plants	Fabaceae	<i>Indigofera tryonii</i>			C		1/1
plants	Fabaceae	<i>Jacksonia scoparia</i>			C		24/4
plants	Fabaceae	<i>Pultenaea millarii</i>			C		2/1
plants	Fabaceae	<i>Pultenaea paleacea</i>			C		1
plants	Fabaceae	<i>Pultenaea setulosa</i>			V	V	3/3
plants	Fabaceae	<i>Sesbania cannabina</i>			C		6
plants	Fabaceae	<i>Zornia dycitocarpa</i>			C		1
plants	Fabaceae	<i>Aeschynomene indica</i>	budda pea		C		7/2
plants	Fabaceae	<i>Cajanus acutifolius</i>			C		2/2

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plants	Fabaceae	<i>Daviesia acicularis</i>			C		2/1
plants	Fabaceae	<i>Daviesia ulicifolia</i>	native gorse		C		3
plants	Fabaceae	<i>Desmodium filiforme</i>			C		2/2
plants	Fabaceae	<i>Galactia tenuiflora</i>			C		6/5
plants	Fabaceae	<i>Glycine clandestina</i>			C		4
plants	Fabaceae	<i>Leptosema chapmanii</i>			C		5/5
plants	Fabaceae	<i>Medicago polymorpha</i>	burr medic	Y	C		1/1
plants	Fabaceae	<i>Mirbelia rubiifolia</i>	heathy mirbelia	Y	C		3/1
plants	Fabaceae	<i>Stylosanthes hamata</i>		Y			2/2
plants	Fabaceae	<i>Stylosanthes scabra</i>					32/17
plants	Fabaceae	<i>Alysicarpus muelleri</i>			C		5/5
plants	Fabaceae	<i>Crotalaria verrucosa</i>			C		1/1
plants	Fabaceae	<i>Desmodium gangeticum</i>			C		3
plants	Fabaceae	<i>Indigofera australis</i>			C		5
plants	Fabaceae	<i>Indigofera brevidens</i>			C		5/4
plants	Fabaceae	<i>Indigofera linifolia</i>			C		15/15
plants	Fabaceae	<i>Indigofera pratensis</i>			C		6/5
plants	Fabaceae	<i>Indigofera tinctoria</i>		Y			1/1
plants	Fabaceae	<i>Phyllota phyllicoides</i>	yellow peabush		C		5/3
plants	Fabaceae	<i>Pultenaea petiolaris</i>			C		15/10
plants	Fabaceae	<i>Stylosanthes humilis</i>	Townsville stylo	Y			1/1
plants	Fabaceae	<i>Tephrosia leptoclada</i>			C		2/2
plants	Fabaceae	<i>Cajanus scarabaeoides</i>			C		1
plants	Fabaceae	<i>Chorizema parviflorum</i>	eastern flame pea		C		1
plants	Fabaceae	<i>Daviesia quoquoversus</i>			V		7/2
plants	Fabaceae	<i>Desmodium brachypodium</i>	large ticktrefoil		C		7/2
plants	Fabaceae	<i>Desmodium macrocarpum</i>			C		9/9
plants	Fabaceae	<i>Dillwynia phyllicoides</i>			C		5/4
plants	Fabaceae	<i>Erythrina vespertilio</i>			C		11
plants	Fabaceae	<i>Gompholobium pinnatum</i>	poor mans gold		C		2
plants	Fabaceae	<i>Hardenbergia violacea</i>			C		10/4
plants	Fabaceae	<i>Indigofera trifoliata</i>			C		1
plants	Fabaceae	<i>Swainsona galegifolia</i>	smooth Darling pea		C		1/1
plants	Fabaceae	<i>Tephrosia dietrichiae</i>			C		1/1
plants	Fabaceae	<i>Tephrosia flagellaris</i>			C		1/1
plants	Fabaceae	<i>Cajanus confertiflorus</i>			C		3/3
plants	Fabaceae	<i>Indigofera haplophylla</i>			C		2/2
plants	Fabaceae	<i>Jacksonia rhadinoclona</i>	Miles dogwood	Y	C		2/1
plants	Fabaceae	<i>Aeschynomene brevifolia</i>	bloodvine		C		3/3
plants	Fabaceae	<i>Austrosteenisia blackii</i>			C		18
plants	Fabaceae	<i>Desmodium campylocaulon</i>	fern-leaved burtonia		C		1/1
plants	Fabaceae	<i>Gompholobium foliolosum</i>			C		3
plants	Fabaceae	<i>Indigastrum parviflorum</i>			C		2/2
plants	Fabaceae	<i>Indigofera polygaloides</i>			C		1/1
plants	Fabaceae	<i>Indigofera suffruticosa</i>		Y			1/1
plants	Fabaceae	<i>Stylosanthes guianensis</i>		Y			2/1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Fabaceae	<i>Swainsona queenslandica</i>			C		1/1
plants	Fabaceae	<i>Tephrosia astragaloides</i>			C		3/3
plants	Fabaceae	<i>Desmodium rhytidophyllum</i>			C		10/7
plants	Fabaceae	<i>Indigofera queenslandica</i>			C		4/4
plants	Fabaceae	<i>Macroptilium lathyroides</i>		Y			11/8
plants	Fabaceae	<i>Gastrolobium grandiflorum</i>			C		1/1
plants	Fabaceae	<i>Hardenbergia perbrevidens</i>			C		5/5
plants	Fabaceae	<i>Rhynchosia acuminatissima</i>			C		1/1
plants	Fabaceae	<i>Macroptilium atropurpureum</i>		Y			6/5
plants	Fabaceae	<i>Vigna radiata var. sublobata</i>	siratro		C		4/4
plants	Fabaceae	<i>Hovea linearis x H.planifolia</i>			C		3/3
plants	Fabaceae	<i>Rhynchosia minima var. minima</i>			C		7/6
plants	Fabaceae	<i>Aotus subglauca var. filiformis</i>		Y			1
plants	Fabaceae	<i>Crotalaria incana subsp. incana</i>		Y			6/6
plants	Fabaceae	<i>Crotalaria pallida var. obovata</i>		Y			3/3
plants	Fabaceae	<i>Galactia tenuiflora var. lucida</i>			C		5/5
plants	Fabaceae	<i>Glycine clandestina var. sericea</i>			C		2/1
plants	Fabaceae	<i>Hovea planifolia x H.tholiformis</i>			C		1/1
plants	Fabaceae	<i>Pultenaea millarii var. millarii</i>			C		8/7
plants	Fabaceae	<i>Rhynchosia minima var. australis</i>			C		4/4
plants	Fabaceae	<i>Tephrosia filipes subsp. filipes</i>			C		4/4
plants	Fabaceae	<i>Vigna lanceolata var. lanceolata</i>			C		6/4
plants	Fabaceae	<i>Sesbania cannabina var. cannabina</i>			C		3/3
plants	Fabaceae	<i>Zornia dycitocarpa var. filifolia</i>			C		2/2
plants	Fabaceae	<i>Galactia tenuiflora var. macrantha</i>			C		3/3
plants	Fabaceae	<i>Mirbelia speciosa subsp. ringrosei</i>			C		1/1
plants	Fabaceae	<i>Zornia muriculata subsp. angustata</i>			C		2/1
plants	Fabaceae	<i>Zornia muriculata subsp. muriculata</i>			C		8/8
plants	Fabaceae	<i>Aurosteenisia blackii var. blackii</i>			C		4/4
plants	Fabaceae	<i>Bossiaea rhombifolia subsp. concolor</i>			C		6/6
plants	Fabaceae	<i>Cajanus reticulatus var. reticulatus</i>			C		3
plants	Fabaceae	<i>Crotalaria medicaginea var. neglecta</i>			C		2/2
plants	Fabaceae	<i>Glycine sp. (Mackay S.B.Andrews+ 43)</i>		Y			2/2
plants	Fabaceae	<i>Indigofera australis subsp. australis</i>			C		1/1
plants	Fabaceae	<i>Zornia muelleriana subsp. muelleriana</i>			C		2/2
plants	Fabaceae	<i>Crotalaria medicaginea var. medicaginea</i>			C		1/1
plants	Fabaceae	<i>Crotalaria mitchellii subsp. mitchellii</i>			C		2/2
plants	Fabaceae	<i>Erythrina vespertilio subsp. vespertilio</i>			C		4/1
plants	Fabaceae	<i>Macroptilium lathyroides var. semierectum</i>		Y			1/1
plants	Fabaceae	<i>Vigna sp. (Greta Creek R.J.Lawn+ AQ532201)</i>			C		2/2
plants	Fabaceae	<i>Crotalaria dissitiflora subsp. dissitiflora</i>			C		1/1
plants	Fabaceae	<i>Glycine sp. (Laglan Station L.S.Smith 10302)</i>			C		4/4
plants	Fabaceae	<i>Tephrosia sp. (Miriam Vale E.J.Thompson+ MIR33)</i>			C		1/1
plants	Fabaceae	<i>Tephrosia filipes var. (Mt Blackjack A.R.Bean+ 7332)</i>			C		1/1
plants	Fabaceae				C		2/2

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plants	Fabaceae	<i>Kennedia</i> sp. (Blackdown Tableland R.J.Henderson+ H747)			C		1/1
plants	Fabaceae	<i>Glycine</i> sp. (Melaleuca Creek Scrub P.I.Forster+ PIF7949)			C		3/2
plants	Flacourtiaceae	<i>Homalium alnifolium</i>	homalium		C		18/3
plants	Flacourtiaceae	<i>Scolopia braunii</i>	flintwood		C		2/1
plants	Gentianaceae	<i>Centaurium erythraea</i>	common centaury	Y			1
plants	Gentianaceae	<i>Schenkia australis</i>			C		1/1
plants	Goodeniaceae	<i>Goodenia gracilis</i>			C		1/1
plants	Goodeniaceae	<i>Goodenia bellidifolia</i> subsp. <i>argentea</i>			C		3/2
plants	Goodeniaceae	<i>Dampiera</i>			C		1
plants	Goodeniaceae	<i>Goodenia</i>			C		8/1
plants	Goodeniaceae	<i>Goodenia glabra</i>			C		8/6
plants	Goodeniaceae	<i>Dampiera stricta</i>			C		1
plants	Goodeniaceae	<i>Goodenia hirsuta</i>			C		1/1
plants	Goodeniaceae	<i>Scaevola humilis</i>			C		3/3
plants	Goodeniaceae	<i>Dampiera adpressa</i>			C		7/6
plants	Goodeniaceae	<i>Dampiera discolor</i>			C		7/3
plants	Goodeniaceae	<i>Goodenia</i> sp. (Mt Castletower M.D.Crisp 2753)			C		11/11
plants	Goodeniaceae	<i>Goodenia racemosa</i>			C		2
plants	Goodeniaceae	<i>Velleia pubescens</i>			C		2/2
plants	Goodeniaceae	<i>Brunonia australis</i>	blue pincushion		C		6
plants	Goodeniaceae	<i>Goodenia hederacea</i>			C		1
plants	Goodeniaceae	<i>Scaevola spinescens</i>	prickly fan flower		C		2/1
plants	Goodeniaceae	<i>Goodenia grandiflora</i>			C		14/13
plants	Goodeniaceae	<i>Scaevola ramosissima</i>			C		2/1
plants	Goodeniaceae	<i>Goodenia fascicularis</i>	purple fan flower		C		5/1
plants	Goodeniaceae	<i>Goodenia rotundifolia</i>			C		10/6
plants	Goodeniaceae	<i>Goodenia racemosa</i> var. <i>racemosa</i>			C		1
plants	Goodeniaceae	<i>Goodenia racemosa</i> var. <i>latifolia</i>			C		1
plants	Gyrostemonaceae	<i>Codonocarpus attenuatus</i>			C		7/5
plants	Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>			C		1
plants	Haloragaceae	<i>Gonocarpus</i>			C		2/1
plants	Haloragaceae	<i>Haloragis aspera</i>	raspweed		C		9/9
plants	Haloragaceae	<i>Gonocarpus elatus</i>			C		2/2
plants	Haloragaceae	<i>Haloragis stricta</i>			C		1/1
plants	Haloragaceae	<i>Gonocarpus humilis</i>			C		1/1
plants	Haloragaceae	<i>Myriophyllum simulans</i>			C		3/2
plants	Haloragaceae	<i>Gonocarpus micranthus</i> subsp. <i>ramosissimus</i>	rough raspweed		C		2/1
plants	Haloragaceae	<i>Haloragis heterophylla</i>	water milfoil		C		2/1
plants	Haloragaceae	<i>Myriophyllum verrucosum</i>			C		3/2
plants	Haloragaceae	<i>Myriophyllum variifolium</i>			C		1/1
plants	Haloragaceae	<i>Gonocarpus teucრიoides</i>			C		1/1
plants	Haloragaceae	<i>Gonocarpus chinensis</i> subsp. <i>verrucosus</i>			C		2/1
plants	Helicteraceae	<i>Helicteres semiglabra</i>			C		1/1
plants	Lamiaceae	<i>Teucrium</i>			C		8

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Lamiaceae	<i>Prostanthera</i> sp. (Blackdown Tableland K.A.W. Williams 79071)			C		2/2
plants	Lamiaceae	<i>Prostanthera cryptandroides</i> subsp. <i>euphrasioides</i>			C		11/7
plants	Lamiaceae	<i>Teucrium</i> sp. (Pittsworth A.R.Bean 18338)			C		1/1
plants	Lamiaceae	<i>Teucrium</i> sp. (Ormeau G.Leiper AQ476858)			C		4/4
plants	Lamiaceae	<i>Prostanthera suborbicularis</i>			C		2/2
plants	Lamiaceae	<i>Spartothamnella puberula</i>			C		1/1
plants	Lamiaceae	<i>Plectranthus parviflorus</i>			C		9/7
plants	Lamiaceae	<i>Clerodendrum floribundum</i>			C		16/6
plants	Lamiaceae	<i>Prostanthera parvifolia</i>			C		4/4
plants	Lamiaceae	<i>Plectranthus graveolens</i>	fllea bush	Y	C		8/6
plants	Lamiaceae	<i>Mesosphaerum suaveolens</i>			C		1/1
plants	Lamiaceae	<i>Clerodendrum tomentosum</i>			C		2
plants	Lamiaceae	<i>Teucrium integrifolium</i>			C		7/7
plants	Lamiaceae	<i>Spartothamnella juncea</i>	native broom		C		22/6
plants	Lamiaceae	<i>Callicarpa pedunculata</i>	velvet leaf		C		1/1
plants	Lamiaceae	<i>Basilicum polystachyon</i>			C		11/9
plants	Lamiaceae	<i>Plectranthus diversus</i>			C		2/2
plants	Lamiaceae	<i>Pityrodia salviifolia</i>	pityrodia		C		5/3
plants	Lamiaceae	<i>Hemigenia</i>			C		1/1
plants	Lamiaceae	<i>Anisomeles</i>			C		1/1
plants	Lamiaceae	<i>Clerodendrum</i>			C		1
plants	Lamiaceae	<i>Plectranthus</i>			C		4/1
plants	Lamiaceae	<i>Prostanthera</i>	common sage		C		5/4
plants	Lamiaceae	<i>Salvia plebeia</i>			C		1/1
plants	Lamiaceae	<i>Salvia reflexa</i>		Y	C		6/5
plants	Lamiaceae	<i>Ajuga australis</i>	Australian bugle		C		6/3
plants	Lamiaceae	<i>Vitex melicopea</i>			C		2/2
plants	Lamiaceae	<i>Teucrium argutum</i>			C		1
plants	Lamiaceae	<i>Mentha grandiflora</i>			C		1
plants	Lamiaceae	<i>Ocimum tenuiflorum</i>			C		8
plants	Lamiaceae	<i>Plectranthus blakei</i>			NT		10/10
plants	Lamiaceae	<i>Teucrium corymbosum</i>	forest germander		C		3/3
plants	Lamiaceae	<i>Leonotis nepetifolia</i>		Y	C		2/2
plants	Lamiaceae	<i>Plectranthus actites</i>			C		2/2
plants	Lamiaceae	<i>Prostanthera collina</i>			C		2/2
plants	Lamiaceae	<i>Anisomeles malabarica</i>			C		12/11
plants	Lamiaceae	<i>Chloanthes parviflora</i>			C		7/3
plants	Lamiaceae	<i>Glossocarya hemiderma</i>	cockatoo apple		C		18/2
plants	Lamiaceae	<i>Ocimum caryophyllinum</i>	fairy aprons		C		5/5
plants	Lecythidaceae	<i>Planchonia careya</i>	golden bladderwort		C		2/1
plants	Lentibulariaceae	<i>Utricularia dichotoma</i>			C		2/1
plants	Lentibulariaceae	<i>Utricularia aurea</i>			C		2/2
plants	Lentibulariaceae	<i>Utricularia bifida</i>			C		4
plants	Lentibulariaceae	<i>Utricularia uliginosa</i>	asian bladderwort		C		1/1
plants	Lentibulariaceae	<i>Utricularia blackmannii</i>			C		1/1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	<i>Utricularia lateriflora</i>	small bladderwort		C		1
plants	higher dicots	<i>Linum usitatissimum</i>	flax	Y			1/1
plants	higher dicots	<i>Logania diffusa</i>			V	V	4/2
plants	higher dicots	<i>Logania</i>			C		1
plants	higher dicots	<i>Mitrasacme nudicaulis</i> var. <i>nudicaulis</i>			C		1/1
plants	higher dicots	<i>Strychnos pilosperma</i>	strychnine tree		C		28/4
plants	higher dicots	<i>Logania albiflora</i>			C		8/5
plants	higher dicots	<i>Mitrasacme pygmaea</i>			C		1/1
plants	higher dicots	<i>Mitrasacme paludosa</i>			C		6/5
plants	higher dicots	<i>Mitrasacme prolifera</i>			C		1
plants	higher dicots	<i>Mitrasacme alsinoides</i>			C		3/2
plants	higher dicots	<i>Logania pusilla</i>			C		1
plants	higher dicots	<i>Mitrasacme oasena</i>			C		1/1
plants	higher dicots	<i>Amyema congener</i>			C		1/1
plants	higher dicots	<i>Amyema maidenii</i>			C		1
plants	higher dicots	<i>Amyema quandang</i>			C		3
plants	higher dicots	<i>Lysiana filifolia</i>			C		4/3
plants	higher dicots	<i>Lysiana subfalcata</i>			C		10/5
plants	higher dicots	<i>Muellerina bidwillii</i>			C		1
plants	higher dicots	<i>Dendrophthoe vitellina</i>	long-flowered mistletoe		C		2/1
plants	higher dicots	<i>Dendrophthoe glabrescens</i>			C		2/1
plants	higher dicots	<i>Dendrophthoe homoplastica</i>			C		2/2
plants	higher dicots	<i>Amyema quandang</i> var. <i>quandang</i>			C		5/4
plants	higher dicots	<i>Amyema congener</i> subsp. <i>congener</i>			C		1
plants	higher dicots	<i>Amyema quandang</i> var. <i>bancroftii</i>	broad-leaved grey mistletoe		C		7/2
plants	higher dicots	<i>Amyema conspicua</i> subsp. <i>conspicua</i>			C		3/3
plants	higher dicots	<i>Amyema congener</i> subsp. <i>rotundifolia</i>			C		6/6
plants	higher dicots	<i>Amyema</i>			C		2
plants	higher dicots	<i>Amyema cambagei</i>			C		1
plants	higher dicots	<i>Lythrum paradoxum</i>			C		1/1
plants	higher dicots	<i>Rotala mexicana</i>			C		4/4
plants	higher dicots	<i>Rotala</i>			C		1
plants	higher dicots	<i>Ammannia multiflora</i>	jerry-jerry		C		12/5
plants	higher dicots	<i>Sida</i> sp. (Greenvale R.J.Fensham 1150)			C		3/3
plants	higher dicots	<i>Abelmoschus moschatus</i> subsp. <i>tuberosus</i>			C		1/1
plants	higher dicots	<i>Sida</i> sp. (Aramac E.J.Thompson+ JER192)			C		2/2
plants	higher dicots	<i>Hibiscus</i> sp. (Emerald S.L.Everist 2124)			C		5/5
plants	higher dicots	<i>Sida</i> sp. (Jericho E.J.Thompson+ JER117)			C		1/1
plants	higher dicots	<i>Sida</i> sp. (Musselbrook M.B.Thomas+ MRS437)			C		8/8
plants	higher dicots	<i>Sida corrugata</i> subsp. (Bollon S.L.Everist 3674)			C		1/1
plants	higher dicots	<i>Sida</i> sp. (Charters Towers E.J.Thompson+ CHA456)			C		2/2
plants	higher dicots	<i>Malvastrum coromandelianum</i> subsp. <i>coromandelianum</i>		Y			3/3
plants	higher dicots	<i>Sida atherophora</i>			C		12/11
plants	higher dicots	<i>Sida everistiana</i>			C		1/1
plants	higher dicots	<i>Sida hackettiana</i>			C		34/14
plants	higher dicots	<i>Sida rhombifolia</i>		Y			16/4

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plants	Malvaceae	<i>Hibiscus heterophyllus</i>			C		21/12
plants	Malvaceae	<i>Hibiscus krichauffianus</i>			C		9/7
plants	Malvaceae	<i>Hibiscus phyllochlaenus</i>			C		1/1
plants	Malvaceae	<i>Sida aprica</i> var. <i>aprica</i>			C		4/4
plants	Malvaceae	<i>Sida</i>			C		41/4
plants	Malvaceae	<i>Abutilon</i>			C		29/5
plants	Malvaceae	<i>Hibiscus</i>			C		1/1
plants	Malvaceae	<i>Malvaceae</i>			C		1/1
plants	Malvaceae	<i>Sida laevis</i>			C		2/2
plants	Malvaceae	<i>Sida spinosa</i>	spiny sida	Y			11/11
plants	Malvaceae	<i>Urena lobata</i>	urena weed	Y			3/1
plants	Malvaceae	<i>Sida rohlenae</i>			C		12
plants	Malvaceae	<i>Sida corrugata</i>			C		9/3
plants	Malvaceae	<i>Sida pleiantha</i>			C		9/9
plants	Malvaceae	<i>Abutilon nobile</i>			C		6/6
plants	Malvaceae	<i>Sida brachypoda</i>			C		1/1
plants	Malvaceae	<i>Sida cordifolia</i>		Y			20/7
plants	Malvaceae	<i>Sida fibulifera</i>			C		5/5
plants	Malvaceae	<i>Sida trichopoda</i>			C		11/3
plants	Malvaceae	<i>Abutilon auritum</i>			C		9/7
plants	Malvaceae	<i>Abutilon fraseri</i>	Chinese lantern dwarf lantern flower		C		4
plants	Malvaceae	<i>Hibiscus sturtii</i>			C		16/13
plants	Malvaceae	<i>Hibiscus trionum</i>			C		4
plants	Malvaceae	<i>Malva parviflora</i>	small-flowered mallow	Y			2/2
plants	Malvaceae	<i>Sida cunninghamii</i>			C		4
plants	Malvaceae	<i>Abutilon guineense</i>		Y			9/9
plants	Malvaceae	<i>Abutilon otocarpum</i>			C		2/2
plants	Malvaceae	<i>Abutilon oxycarpum</i>			C		12/2
plants	Malvaceae	<i>Abutilon tubulosum</i>			C		1
plants	Malvaceae	<i>Gossypium australe</i>			C		4/4
plants	Malvaceae	<i>Gossypium hirsutum</i>		Y			6/6
plants	Malvaceae	<i>Hibiscus splendens</i>	pink hibiscus		C		2/1
plants	Malvaceae	<i>Hibiscus vitifolius</i>			C		3/3
plants	Malvaceae	<i>Abutilon malvifolium</i>			C		13/2
plants	Malvaceae	<i>Abutilon theophrasti</i>	bastard marshmallow velvet leaf	Y			2/1
plants	Malvaceae	<i>Gossypium sturtianum</i>			C		1/1
plants	Malvaceae	<i>Hibiscus divaricatus</i>			C		19/16
plants	Malvaceae	<i>Hibiscus meraukensis</i>	Merauke hibiscus		C		3/1
plants	Malvaceae	<i>Hibiscus verdcourtii</i>			C		7/7
plants	Malvaceae	<i>Abelmoschus ficulneus</i>	native rosella		C		5/5
plants	Malvaceae	<i>Abutilon calliphyllosum</i>	velvet lanternflower		C		1/1
plants	Malvaceae	<i>Abutilon leucopetalum</i>			C		1/1
plants	Malvaceae	<i>Abutilon micropetalum</i>			C		6/2
plants	Malvaceae	<i>Malvastrum americanum</i>		Y			16
plants	Malvaceae	<i>Hibiscus diversifolius</i>	swamp hibiscus		C		1
plants	Malvaceae	<i>Hibiscus sturtii</i> var. <i>sturtii</i>			C		5/3



Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Malvaceae	<i>Sida rohlenae</i> subsp. <i>rohlenae</i>			C		4/4
plants	Malvaceae	<i>Abutilon fraseri</i> subsp. <i>fraseri</i>			C		2/2
plants	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>incanum</i>			C		4/4
plants	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>oxycarpum</i>			C		12/9
plants	Malvaceae	<i>Abutilon tubulosum</i> var. <i>tubulosum</i>			C		1/1
plants	Malvaceae	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			C		1/1
plants	Malvaceae	<i>Malvastrum americanum</i> var. <i>stellatum</i>			C		7/7
plants	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>subsagittatum</i>			C		6/1
plants	Malvaceae	<i>Malvastrum americanum</i> var. <i>americanum</i>		Y			33/8
plants	Melastomataceae	<i>Melastoma malabathricum</i> subsp. <i>malabathricum</i>			C		8/1
plants	Meliaceae	<i>Owenia venosa</i>	crow's apple		C		19/5
plants	Meliaceae	<i>Turraea pubescens</i>	native honeysuckle		C		33/9
plants	Meliaceae	<i>Melia azedarach</i>	white cedar		C		16/6
plants	Meliaceae	<i>Owenia acidula</i>	emu apple		C		33/5
plants	Menyanthaceae	<i>Nymphoides indica</i>	water snowflake		C		5/4
plants	Menyanthaceae	<i>Nymphoides aurantiaca</i>			C		1/1
plants	Menyanthaceae	<i>Nymphoides geminata</i>			C		3/1
plants	Menyanthaceae	<i>Nymphoides crenata</i>			C		1/1
plants	Mimosaceae	<i>Albizia lebbek</i>	wavy marshwort		C		5/5
plants	Mimosaceae	<i>Acacia amblygona</i>	Indian siris		C		7/5
plants	Mimosaceae	<i>Acacia buxifolia</i>	fan-leaf wattle		C		1
plants	Mimosaceae	<i>Acacia decurrens</i>		Y			1
plants	Mimosaceae	<i>Acacia everistii</i>			C		8/7
plants	Mimosaceae	<i>Neptunia gracilis</i> forma <i>gracilis</i>			C		15/12
plants	Mimosaceae	<i>Acacia leiocalyx</i> subsp. <i>leiocalyx</i>			C		21/9
plants	Mimosaceae	<i>Acacia victoriae</i> subsp. <i>fasciaria</i>			C		1/1
plants	Mimosaceae	<i>Acacia victoriae</i> subsp. <i>victoriae</i>			C		6/6
plants	Mimosaceae	<i>Acacia julifera</i> subsp. <i>curvinervia</i>			C		12/11
plants	Mimosaceae	<i>Acacia disparrima</i> subsp. <i>disparrima</i>			C		3/3
plants	Mimosaceae	<i>Acacia penninervis</i> var. <i>penninervis</i>			C		2/2
plants	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle		C		27/2
plants	Mimosaceae	<i>Acacia holotricha</i>			C		4/4
plants	Mimosaceae	<i>Acacia juncifolia</i>			C		10/7
plants	Mimosaceae	<i>Acacia leptocarpa</i>	north coast wattle		C		2/1
plants	Mimosaceae	<i>Acacia macradenia</i>	zig-zag wattle		C		18/7
plants	Mimosaceae	<i>Acacia nerifolia</i>	pechey wattle		C		10/7
plants	Mimosaceae	<i>Acacia rhodoxylon</i>	ringy rosewood		C		114/4
plants	Mimosaceae	<i>Acacia semirigida</i>			C		3/2
plants	Mimosaceae	<i>Acacia ulicifolia</i>		Y			3/2
plants	Mimosaceae	<i>Albizia canescens</i>			C		2/1
plants	Mimosaceae	<i>Acacia aulacocarpa</i>			C		15
plants	Mimosaceae	<i>Acacia brachycarpa</i>			C		9/5
plants	Mimosaceae	<i>Acacia burdekenensis</i>			C		7/2
plants	Mimosaceae	<i>Acacia falciformis</i>	broad-leaved hickory		C		10/6
plants	Mimosaceae	<i>Acacia glaucocarpa</i>	hickory wattle		C		15
plants	Mimosaceae	<i>Acacia grandifolia</i>			C	V	1/1

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plants	Mimosaceae	<i>Acacia harpophylla</i>	brigalow		C		121/1
plants	Mimosaceae	<i>Acacia hendersonii</i>			C		5/5
plants	Mimosaceae	<i>Acacia holosericea</i>			C		2
plants	Mimosaceae	<i>Acacia melanoxylon</i>	blackwood		C		3
plants	Mimosaceae	<i>Acacia omalophylla</i>			C		2/2
plants	Mimosaceae	<i>Acacia penninervis</i>			C		5/1
plants	Mimosaceae	<i>Acacia sparsiflora</i>			C		1/1
plants	Mimosaceae	<i>Acacia stenophylla</i>	belalie		C		1/1
plants	Mimosaceae	<i>Acacia dietrichiana</i>			C		8/6
plants	Mimosaceae	<i>Acacia leichhardtii</i>			C		8/5
plants	Mimosaceae	<i>Acacia leptostachya</i>	Townsville wattle		C		14/5
plants	Mimosaceae	<i>Acacia longispicata</i>			C		7/7
plants	Mimosaceae	<i>Vachellia bidwillii</i>			C		12/10
plants	Mimosaceae	<i>Acacia argyrodendron</i>			C		1/1
plants	Mimosaceae	<i>Acacia bancroftiorum</i>			C		15/11
plants	Mimosaceae	<i>Acacia fasciculifera</i>	scaly bark		C		28/7
plants	Mimosaceae	<i>Acacia resinocostata</i>			C		4
plants	Mimosaceae	<i>Paraserianthes toona</i>	Mackay cedar		C		2
plants	Mimosaceae	<i>Vachellia farnesiana</i>		Y			12/8
plants	Mimosaceae	<i>Acacia</i>			C		24
plants	Mimosaceae	<i>Acacia blakei</i>			C		1
plants	Mimosaceae	<i>Acacia crassa</i>			C		3
plants	Mimosaceae	<i>Acacia decora</i>	pretty wattle		C		10/2
plants	Mimosaceae	<i>Acacia spania</i>			NT		4/4
plants	Mimosaceae	<i>Acacia storyi</i>			NT		19/16
plants	Mimosaceae	<i>Acacia angusta</i>			C		8/8
plants	Mimosaceae	<i>Acacia aprepta</i>	Miles muilga		C		1/1
plants	Mimosaceae	<i>Acacia podalyriifolia</i>	Queensland silver wattle		C		7/4
plants	Mimosaceae	<i>Desmanthus pernambucanus</i>		Y			3/3
plants	Mimosaceae	<i>Archidendropsis basaltica</i>	red lancewood		C		17/1
plants	Mimosaceae	<i>Archidendropsis thozetiana</i>			C		19/5
plants	Mimosaceae	<i>Acacia blakei subsp. blakei</i>			C		7/7
plants	Mimosaceae	<i>Acacia crassa subsp. crassa</i>			C		10/5
plants	Mimosaceae	<i>Acacia deanei subsp. deanei</i>			C		1/1
plants	Mimosaceae	<i>Acacia cretata - A. fodinalis</i>			C		1/1
plants	Mimosaceae	<i>Acacia cretata x A. fodinalis</i>			C		7/5
plants	Mimosaceae	<i>Acacia excelsa subsp. angusta</i>			C		1/1
plants	Mimosaceae	<i>Acacia excelsa subsp. excelsa</i>			C		16/7
plants	Mimosaceae	<i>Acacia crassa subsp. longicoma</i>			C		21/7
plants	Mimosaceae	<i>Acacia bancroftiorum x A. falciformis</i>			C		4/4
plants	Mimosaceae	<i>Acacia cretata - A. leiocalyx (Domin)</i>			C		2/2
plants	Mimosaceae	<i>Acacia sp. (Canoona S. T. Blake 15321)</i>			C		5/5
plants	Mimosaceae	<i>Leucaena leucocephala subsp. glabrata</i>		Y			1/1
plants	Mimosaceae	<i>Leucaena leucocephala subsp. leucocephala</i>		Y			8/8
plants	Mimosaceae	<i>Acacia julifera subsp. julifera</i>			C		5/5
plants	Mimosaceae	<i>Acacia sp. (Comet L. Pedley 4091)</i>			C		12/12

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plants	Mimosaceae	<i>Acacia fimbriata</i>	Brisbane golden wattle	C			6/3
plants	Mimosaceae	<i>Acacia fodinalis</i>		C			2/2
plants	Mimosaceae	<i>Acacia gittinsii</i>		C			31/24
plants	Mimosaceae	<i>Acacia leiocalyx</i>		C			12/1
plants	Mimosaceae	<i>Acacia melvillei</i>		C			5/5
plants	Mimosaceae	<i>Acacia polifolia</i>		C			5/4
plants	Mimosaceae	<i>Acacia pubicosta</i>		C			1
plants	Mimosaceae	<i>Acacia catenulata</i>	bendee	C			14/2
plants	Mimosaceae	<i>Acacia complanata</i>	flatstem wattle	C			11/2
plants	Mimosaceae	<i>Acacia concurrens</i>		C			1
plants	Mimosaceae	<i>Acacia disparrima</i>		C			1
plants	Mimosaceae	<i>Acacia arbiana</i>		NT			7/7
plants	Mimosaceae	<i>Acacia cretata</i>		C			21/17
plants	Mimosaceae	<i>Acacia excelsa</i>		C			24
plants	Mimosaceae	<i>Acacia falcata</i>	sickle wattle	C			1
plants	Mimosaceae	<i>Acacia gnidium</i>		C			2/2
plants	Mimosaceae	<i>Acacia implexa</i>		C			2/1
plants	Mimosaceae	<i>Acacia pendula</i>	lightwood	C			2/2
plants	Mimosaceae	<i>Acacia burrowii</i>	myall	C			6/2
plants	Mimosaceae	<i>Acacia caroleae</i>		C			7
plants	Mimosaceae	<i>Acacia conferta</i>		C			2/2
plants	Mimosaceae	<i>Acacia julifera</i>		C			4
plants	Mimosaceae	<i>Acacia maidenii</i>	Maiden's wattle	C			3
plants	Mimosaceae	<i>Acacia oswaldii</i>	miljee	C			10/5
plants	Mimosaceae	<i>Acacia salicina</i>	doolan	C			51/11
plants	Mimosaceae	<i>Acacia shirleyi</i>	lancewood	C			141/11
plants	Mimosaceae	<i>Acacia triptera</i>		C			1/1
plants	Mimosaceae	<i>Acacia venulosa</i>	veined wattle	C			8/7
plants	Molluginaceae	<i>Glinus lotoides</i>	hairy carpet weed	C			8/5
plants	Molluginaceae	<i>Glinus oppositifolius</i>		C			1/1
plants	Molluginaceae	<i>Macarthuria ephedroides</i>		C			12/8
plants	Moraceae	<i>Trophis scandens</i>		C			1
plants	Moraceae	<i>Streblus pendulinus</i>	whalebone tree	C	E		2/2
plants	Moraceae	<i>Streblus brunonianus</i>		C			1
plants	Moraceae	<i>Ficus virens var. virens</i>		C			3/3
plants	Moraceae	<i>Ficus racemosa var. racemosa</i>		C			3/1
plants	Moraceae	<i>Trophis scandens subsp. scandens</i>		C			17/2
plants	Moraceae	<i>Ficus rubiginosa forma rubiginosa</i>		C			7/7
plants	Moraceae	<i>Ficus platypoda</i>		C			5/1
plants	Moraceae	<i>Ficus obliqua</i>		C			13/1
plants	Moraceae	<i>Ficus coronata</i>	creek sandpaper fig	C			10/1
plants	Moraceae	<i>Ficus opposita</i>		C			26/12
plants	Moraceae	<i>Ficus fraseri</i>	white sandpaper fig	C			1/1
plants	Moraceae	<i>Ficus virens</i>		C			3
plants	Moraceae	<i>Ficus</i>		C			1
plants	Moraceae	<i>Ficus rubiginosa forma glabrescens</i>		C			1/1

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plants	Myoporaceae	<i>Eremophila maculata</i>			C		14
plants	Myoporaceae	<i>Myoporum</i>			C		3
plants	Myrsinaceae	<i>Myrsine variabilis</i>			C		20/8
plants	Myrsinaceae	<i>Myrsine serpicicola</i>			E		6/6
plants	Myrsinaceae	<i>Lysimachia arvensis</i>		Y			1/1
plants	Myrtaceae	<i>Harmogia densifolia</i>			C		4/3
plants	Myrtaceae	<i>Melaleuca bracteata</i>			C		28/4
plants	Myrtaceae	<i>Melaleuca lazaridis</i>			C		1/1
plants	Myrtaceae	<i>Melaleuca pearsonii</i>			NT		12/11
plants	Myrtaceae	<i>Melaleuca leucadendra</i>	broad-leaved tea-tree		C		9/4
plants	Myrtaceae	<i>Melaleuca tamariscina</i>			C		5/4
plants	Myrtaceae	<i>Ochrosperma adpressum</i>			C		1/1
plants	Myrtaceae	<i>Corymbia erythrophloia</i>	variable-barked bloodwood		C		55/11
plants	Myrtaceae	<i>Corymbia</i>			C		2
plants	Myrtaceae	<i>Melaleuca</i>			C		7/4
plants	Myrtaceae	<i>Eucalyptus</i>			C		10/6
plants	Myrtaceae	<i>Thryptomene</i>			C		1
plants	Myrtaceae	<i>Leptospermum</i>			C		3/1
plants	Myrtaceae	<i>Baeckea trapeza</i>			V		7/7
plants	Myrtaceae	<i>Kunzea opposita</i>			C		2
plants	Myrtaceae	<i>Corymbia aureola</i>			C		2/2
plants	Myrtaceae	<i>Corymbia bunites</i>			C		110/20
plants	Myrtaceae	<i>Gossia bidwillii</i>			C		34/10
plants	Myrtaceae	<i>Melaleuca decora</i>			C		1
plants	Myrtaceae	<i>Melaleuca nodosa</i>			C		3/2
plants	Myrtaceae	<i>Angophora costata</i>			C		1
plants	Myrtaceae	<i>Baekhouisia kingii</i>			C		14/2
plants	Myrtaceae	<i>Corymbia xanthope</i>	Glen Geddes bloodwood		V	V	13/7
plants	Myrtaceae	<i>Eucalyptus bakeri</i>	Baker's mallee		C		2/2
plants	Myrtaceae	<i>Eucalyptus carnea</i>			C		1
plants	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark		C		294/32
plants	Myrtaceae	<i>Melaleuca nervosa</i>			C		15/3
plants	Myrtaceae	<i>Syzygium australe</i>	scrub cherry		C		5/1
plants	Myrtaceae	<i>Calytrix tetragona</i>	fringe myrtle		C		9/5
plants	Myrtaceae	<i>Corymbia bloxsomei</i>			C		1
plants	Myrtaceae	<i>Corymbia polycarpa</i>	long-fruited bloodwood		C		1
plants	Myrtaceae	<i>Eucalyptus exserta</i>	Queensland peppermint		C		34/20
plants	Myrtaceae	<i>Eucalyptus fibrosa</i>			C		7/1
plants	Myrtaceae	<i>Eucalyptus saligna</i>			C		1
plants	Myrtaceae	<i>Melaleuca dealbata</i>	swamp tea-tree		C		1
plants	Myrtaceae	<i>Melaleuca groveana</i>			NT		6/4
plants	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum		C		69/3
plants	Myrtaceae	<i>Corymbia citriodora</i>	spotted gum		C		20
plants	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood		C		40/6
plants	Myrtaceae	<i>Corymbia terminalis</i>			C		1
plants	Myrtaceae	<i>Corymbia watsoniana</i>			C		1

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plants	Myrtaceae	<i>Eucalyptus coolabah</i>	coolabah		C		22/7
plants	Myrtaceae	<i>Eucalyptus mensalis</i>			C		15/15
plants	Myrtaceae	<i>Eucalyptus populnea</i>	poplar box		C		116/5
plants	Myrtaceae	<i>Eucalyptus tenuipes</i>	narrow-leaved white mahogany		C		12/11
plants	Myrtaceae	<i>Melaleuca viminalis</i>			C		11/8
plants	Myrtaceae	<i>Ochrosperma lineare</i>			C		1
plants	Myrtaceae	<i>Triplarina paludosa</i>			C		17/12
plants	Myrtaceae	<i>Angophora floribunda</i>			C		33/2
plants	Myrtaceae	<i>Corymbia brachycarpa</i>			C		1/1
plants	Myrtaceae	<i>Corymbia dallachiana</i>			C		29/6
plants	Myrtaceae	<i>Corymbia hendersonii</i>			C		33/11
plants	Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash		C		56/1
plants	Myrtaceae	<i>Eucalyptus baileyana</i>	Bailey's stringybark		C		65/13
plants	Myrtaceae	<i>Eucalyptus cloeziana</i>	Gympie messmate		C		39/7
plants	Myrtaceae	<i>Eucalyptus mediocris</i>			C		7/7
plants	Myrtaceae	<i>Eucalyptus moluccana</i>	gum-topped box		C		88/4
plants	Myrtaceae	<i>Eucalyptus propinqua</i>	small-fruited grey gum		C		13/8
plants	Myrtaceae	<i>Melaleuca hemisticta</i>			C		2/2
plants	Myrtaceae	<i>Micromyrtus gracilis</i>			C		1/1
plants	Myrtaceae	<i>Ochrosperma obovatum</i>			V		1/1
plants	Myrtaceae	<i>Sannantha brachypoda</i>			NT		8/7
plants	Myrtaceae	<i>Corymbia clarksoniana</i>			C		87/13
plants	Myrtaceae	<i>Corymbia lamprophylla</i>			C		1
plants	Myrtaceae	<i>Corymbia leichhardtii</i>	rustyjacket		C		14/8
plants	Myrtaceae	<i>Corymbia trachyphloia</i>			C		5/1
plants	Myrtaceae	<i>Eucalyptus acmenoides</i>			C		79/11
plants	Myrtaceae	<i>Eucalyptus caliginosa</i>	broad-leaved stringybark		C		18
plants	Myrtaceae	<i>Eucalyptus cambageana</i>	Dawson gum		C		67/4
plants	Myrtaceae	<i>Eucalyptus interstans</i>			C		11/11
plants	Myrtaceae	<i>Eucalyptus portuensis</i>			C		3/3
plants	Myrtaceae	<i>Eucalyptus suffulgens</i>			C		54/23
plants	Myrtaceae	<i>Eucalyptus thozetiana</i>			C		16/8
plants	Myrtaceae	<i>Homoranthus decasetus</i>			C		1
plants	Myrtaceae	<i>Lophostemon confertus</i>	brush box		C		13/5
plants	Myrtaceae	<i>Melaleuca fluviatilis</i>			C		5/2
plants	Myrtaceae	<i>Eucalyptus chloroclada</i>	Baradine red gum		C		4
plants	Myrtaceae	<i>Eucalyptus decorticans</i>			C		1/1
plants	Myrtaceae	<i>Eucalyptus eugeniooides</i>			C		3
plants	Myrtaceae	<i>Eucalyptus melanoleuca</i>	Nanango ironbark		C		39/8
plants	Myrtaceae	<i>Eucalyptus orgadophila</i>	mountain coolibah		C		54/5
plants	Myrtaceae	<i>Eucalyptus platyphylla</i>	poplar gum		C		4/1
plants	Myrtaceae	<i>Eucalyptus raveretiana</i>	black ironbox		C	V	6/5
plants	Myrtaceae	<i>Eucalyptus sicilifolia</i>			V		13/13
plants	Myrtaceae	<i>Eucalyptus tardecidens</i>			C		1/1
plants	Myrtaceae	<i>Eucalyptus tholiformis</i>			C		5/4
plants	Myrtaceae	<i>Leptospermum neglectum</i>			C		4/3

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plants	Myrtaceae	<i>Leptospermum sericatum</i>		C			5/3
plants	Myrtaceae	<i>Lophostemon suaveolens</i>	swamp box	C			73/5
plants	Myrtaceae	<i>Melaleuca linariifolia</i>	snow-in summer	C			8/2
plants	Myrtaceae	<i>Backhousia angustifolia</i>	narrow-leaved backhousia	C			1
plants	Myrtaceae	<i>Eucalyptus melanophloia</i>		C			30
plants	Myrtaceae	<i>Eucalyptus sphaerocarpa</i>	Blackdown stringybark	C			148/29
plants	Myrtaceae	<i>Eucalyptus tereticornis</i>		C			38
plants	Myrtaceae	<i>Homoranthus brevistylis</i>		C			2/2
plants	Myrtaceae	<i>Leptospermum lamellatum</i>		C			35/8
plants	Myrtaceae	<i>Melaleuca montis-zamiae</i>		C			5/5
plants	Myrtaceae	<i>Melaleuca quinquenervia</i>	swamp paperbark	C			1
plants	Myrtaceae	<i>Melaleuca trichostachya</i>		C			11/6
plants	Myrtaceae	<i>Micromyrtus capricornia</i>		C			21/16
plants	Myrtaceae	<i>Eucalyptus apothalassica</i>		C			7/3
plants	Myrtaceae	<i>Eucalyptus camaldulensis</i>		C			7/1
plants	Myrtaceae	<i>Eucalyptus drepanophylla</i>		C			2/1
plants	Myrtaceae	<i>Eucalyptus longirostrata</i>		C			45/6
plants	Myrtaceae	<i>Lophostemon grandiflorus</i>		C			3
plants	Myrtaceae	<i>Lysicarpus angustifolius</i>	budgeroo	C			53/6
plants	Myrtaceae	<i>Leptospermum brachyandrum</i>	weeping tea-tree	C			6/3
plants	Myrtaceae	<i>Leptospermum polygalifolium</i>	tantoon	C			17/8
plants	Myrtaceae	<i>Eucalyptus crebra</i> x <i>E. populnea</i>		C			5
plants	Myrtaceae	<i>Melaleuca nervosa</i> subsp. <i>nervosa</i>		C			2
plants	Myrtaceae	<i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i>		C			14/10
plants	Myrtaceae	<i>Eucalyptus saligna</i> subsp. <i>saligna</i>		C			4/4
plants	Myrtaceae	<i>Kunzea opposita</i> var. <i>leichhardtii</i>		C			2/2
plants	Myrtaceae	<i>Eucalyptus crebra</i> x <i>E. melanophloia</i>		C			2/2
plants	Myrtaceae	<i>Corymbia citriodora</i> subsp. <i>variegata</i>		C			41
plants	Myrtaceae	<i>Corymbia watsoniana</i> subsp. <i>capitata</i>		C			3/2
plants	Myrtaceae	<i>Corymbia citriodora</i> subsp. <i>citriodora</i>		C			227/6
plants	Myrtaceae	<i>Corymbia leichhardtii</i> x <i>C. tessellaris</i>		C			1/1
plants	Myrtaceae	<i>Corymbia watsoniana</i> subsp. <i>watsoniana</i>		C			3/1
plants	Myrtaceae	<i>Lophostemon grandiflorus</i> subsp. <i>riparius</i>		C			2/2
plants	Myrtaceae	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>		C			10/4
plants	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>carnarvonica</i>		C			1/1
plants	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>trachyphloia</i>		C			23/6
plants	Myrtaceae	<i>Corymbia</i> sp. ( <i>Springsure M.I. Brooker 9786</i> )		C			1/1
plants	Myrtaceae	<i>Eucalyptus melanophloia</i> subsp. <i>melanophloia</i>		C			1/1
plants	Myrtaceae	<i>Eucalyptus tereticornis</i> subsp. <i>tereticornis</i>		C			54/5
plants	Myrtaceae	<i>Eucalyptus crebra</i> x <i>E. thozetiana</i> ex <i>R. T. Baker</i>		C			2/2
plants	Myrtaceae	<i>Melaleuca</i> sp. ( <i>Ropers Peak P.I. Forster PIF7208</i> )		C			3/3
plants	Myrtaceae	<i>Melaleuca</i> sp. ( <i>Rainbow Falls P.I. Forster PIF13786</i> )		C			1/1
plants	Myrtaceae	<i>Melaleuca</i> sp. ( <i>Blackdown Tableland S.G. Pearson 287</i> )		C			3/3
plants	Myrtaceae	<i>Melaleuca</i> sp. ( <i>Marlborough Creek G.N. Batianoff+ MC9108006</i> )		C			4/4
plants	Nyctaginaceae	<i>Boerhavia</i>		C			3

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Nyctaginaceae	<i>Boerhavia dominii</i>			C		14/6
plants	Nyctaginaceae	<i>Boerhavia</i> sp. (St George A.Hill AQ399299)			C		3/3
plants	Nyctaginaceae	<i>Boerhavia burbridgeana</i>			C		3/3
plants	Nyctaginaceae	<i>Boerhavia pubescens</i>			C		5/4
plants	Olacaceae	<i>Olax stricta</i>			C		4/2
plants	Olacaceae	<i>Ximenia americana</i>			C		2/2
plants	Oleaceae	<i>Notelaea</i>			C		1/1
plants	Oleaceae	<i>Notelaea</i> sp. (Barakula A.R.Bean 7553)			C		2/2
plants	Oleaceae	<i>Notelaea microcarpa</i> var. <i>microcarpa</i>			C		9/4
plants	Oleaceae	<i>Jasminum didymum</i> subsp. <i>racemosum</i>			C		23/3
plants	Oleaceae	<i>Jasminum didymum</i> subsp. <i>lineare</i>			C		21/3
plants	Oleaceae	<i>Jasminum didymum</i> subsp. <i>didymum</i>			C		3
plants	Oleaceae	<i>Jasminum simplicifolium</i>			C		13
plants	Oleaceae	<i>Notelaea microcarpa</i>			C		38/6
plants	Oleaceae	<i>Notelaea longifolia</i>			C		5/5
plants	Oleaceae	<i>Notelaea punctata</i>			C		4
plants	Oleaceae	<i>Jasminum didymum</i>			C		12
plants	Oleaceae	<i>Jasminum simplicifolium</i> subsp. <i>australiense</i>			C		18/9
plants	Oleaceae	<i>Jasminum</i>			C		4
plants	Onagraceae	<i>Ludwigia peploides</i> subsp. <i>montevidensis</i>			C		2/1
plants	Onagraceae	<i>Ludwigia octovalvis</i>	willow primrose		C		14/1
plants	Onagraceae	<i>Ludwigia peploides</i>		Y			3
plants	Onagraceae	<i>Ludwigia</i>			C		1/1
plants	Orobanchaceae	<i>Striga parviflora</i>			C		1
plants	Orobanchaceae	<i>Buchnera urticifolia</i>			C		1
plants	Orobanchaceae	<i>Buchnera gracilis</i>			C		1
plants	Orobanchaceae	<i>Buchnera linearis</i>			C		1
plants	Oxalidaceae	<i>Oxalis chnoodes</i>			C		5/5
plants	Oxalidaceae	<i>Oxalis exilis</i>			C		1/1
plants	Oxalidaceae	<i>Oxalis</i>			C		10/1
plants	Oxalidaceae	<i>Oxalis perennans</i>			C		5/5
plants	Oxalidaceae	<i>Oxalis corniculata</i>			C		4/1
plants	Oxalidaceae	<i>Oxalis thompsoniae</i>		Y			1/1
plants	Oxalidaceae	<i>Oxalis radicata</i>			C		4/4
plants	Passifloraceae	<i>Passiflora foetida</i>		Y			12/12
plants	Passifloraceae	<i>Passiflora</i>			C		3
plants	Passifloraceae	<i>Passiflora aurantia</i> var. <i>aurantia</i>			C		7/7
plants	Passifloraceae	<i>Passiflora aurantia</i>			C		8
plants	Passifloraceae	<i>Passiflora suberosa</i>	corky passion flower	Y			9/7
plants	Pedaliaceae	<i>Josephinia eugeniae</i>	josephinia burr		C		2/2
plants	Pentapetaceae	<i>Melhania oblongifolia</i>			C		18/14
plants	Petiveriaceae	<i>Rivina humilis</i>		Y			3/1
plants	Phyllanthaceae	<i>Phyllanthus gunnii</i>			C		7/2
plants	Phyllanthaceae	<i>Phyllanthus</i>			C		12/3
plants	Phyllanthaceae	<i>Sauropus</i>			C		2/2
plants	Phyllanthaceae	<i>Flueggea</i>			C		1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Phyllanthaceae					
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>		C		19/13
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus microcladus</i>		C		3/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus carpentariae</i>		C		5/5
plants	higher dicots	Phyllanthaceae	<i>Poranthera obovata</i>		C		3/3
plants	higher dicots	Phyllanthaceae	<i>Sauropus hirtellus</i>		C		1
plants	higher dicots	Phyllanthaceae	<i>Flueggea leucopyrus</i>		C		27/6
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus similis</i>		C		1/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus simplex</i>		C		1/1
plants	higher dicots	Phyllanthaceae	<i>Sauropus albiflorus</i>		C		4/2
plants	higher dicots	Phyllanthaceae	<i>Breynia oblongifolia</i>		C		40/10
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus collinus</i>		C		3/3
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus tenellus</i>	Y			1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus virgatus</i>		C		28/10
plants	higher dicots	Phyllanthaceae	<i>Bridelia leichhardtii</i>		C		22/6
plants	higher dicots	Phyllanthaceae	<i>Glochidion apodogynum</i>		C		1/1
plants	higher dicots	Phyllanthaceae	<i>Glochidion ferdinandi</i>		C		1
plants	higher dicots	Phyllanthaceae	<i>Glochidion sumatranum</i>		C		1
plants	higher dicots	Phyllanthaceae	<i>Sauropus ramosissimus</i>		C		1/1
plants	higher dicots	Phyllanthaceae	<i>Actephila sessilifolia</i>		C		3/2
plants	higher dicots	Phyllanthaceae	<i>Notoleptopus decaisnei</i>		C		2/2
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus lacunarius</i>		C		1/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus mitchellii</i>		C		19/11
plants	higher dicots	Phyllanthaceae	<i>Poranthera microphylla</i>		C		3/1
plants	higher dicots	Phyllanthaceae	<i>Sauropus trachyspermus</i>		C		3/3
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus fuernrohrii</i>		C		7/1
plants	higher dicots	Phyllanthaceae	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>		C		7/6
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i> var. <i>maderaspatensis</i>		C		5/5
plants	higher dicots	Phytolaccaceae	<i>Phytolacca octandra</i>	Y			2/2
plants	higher dicots	Picrodendraceae	<i>Neoroepera buxifolia</i>		V	V	13/12
plants	higher dicots	Picrodendraceae	<i>Petalostigma pubescens</i>		C		68/12
plants	higher dicots	Picrodendraceae	<i>Pseudanthus orientalis</i>		C		2/1
plants	higher dicots	Picrodendraceae	<i>Petalostigma pachyphyllum</i>		C		16/6
plants	higher dicots	Picrodendraceae	<i>Pseudanthus pauciflorus</i> subsp. <i>arenicola</i>		NT		3/2
plants	higher dicots	Pittosporaceae	<i>Bursaria</i>		C		2
plants	higher dicots	Pittosporaceae	<i>Pittosporum</i>		C		1
plants	higher dicots	Pittosporaceae	<i>Bursaria incana</i>		C		20/7
plants	higher dicots	Pittosporaceae	<i>Bursaria spinosa</i>		C		3
plants	higher dicots	Pittosporaceae	<i>Bursaria reevesii</i>		V		6/6
plants	higher dicots	Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>		C		8/2
plants	higher dicots	Pittosporaceae	<i>Pittosporum viscidum</i>		C		2/1
plants	higher dicots	Pittosporaceae	<i>Pittosporum spinescens</i>		C		54/9
plants	higher dicots	Pittosporaceae	<i>Auranticarpa rhombifolia</i>		C		6/1
plants	higher dicots	Pittosporaceae	<i>Rhytidosporum diosmoides</i>		C		2/2
plants	higher dicots	Pittosporaceae	<i>Pittosporum angustifolium</i>		C		8/2
plants	higher dicots	Pittosporaceae	<i>Billardiera scandens</i>		C		2/1
plants	higher dicots	Plantaginaceae	<i>Scoparia dulcis</i>	Y			14/12



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plants	Plantaginaceae	<i>Plantago debilis</i>	shade plantain		C		3/3
plants	Plantaginaceae	<i>Veronica plebeia</i>	trailing speedwell		C		3/1
plants	Plantaginaceae	<i>Stemodia glabella</i>			C		1/1
plants	Plantaginaceae	<i>Limnophila brownii</i>			C		1/1
plants	Plantaginaceae	<i>Stemodia pubescens</i>			C		3/3
plants	Plantaginaceae	<i>Gratiola pedunculata</i>			C		2
plants	Plantaginaceae	<i>Mecardonia procumbens</i>		Y			2/1
plants	Plumbaginaceae	<i>Plumbago zeylanica</i>	native plumbago		C		11/8
plants	Polygalaceae	<i>Comesperma ericinum</i>			C		2/1
plants	Polygalaceae	<i>Comesperma retusum</i>			C		1
plants	Polygalaceae	<i>Polygala triflora</i>			C		9/9
plants	Polygalaceae	<i>Comesperma</i>			C		1
plants	Polygalaceae	<i>Comesperma sphaerocarpum</i>			C		6/2
plants	Polygalaceae	<i>Comesperma patentifolium</i>			C		11/6
plants	Polygalaceae	<i>Polygala crassitesta</i>			C		2/2
plants	Polygalaceae	<i>Polygala linariifolia</i>			C		3
plants	Polygonaceae	<i>Persicaria hydropiper</i>	water pepper		C		1/1
plants	Polygonaceae	<i>Persicaria orientalis</i>	princes feathers		C		6/5
plants	Polygonaceae	<i>Persicaria lapathifolia</i>	pale knotweed		C		8/6
plants	Polygonaceae	<i>Muehlenbeckia florulenta</i>	lignum		C		3
plants	Polygonaceae	<i>Muehlenbeckia rhyticarya</i>			C		1
plants	Polygonaceae	<i>Persicaria prostrata</i>	creeping knotweed		C		3/3
plants	Polygonaceae	<i>Persicaria attenuata</i>			C		5/4
plants	Polygonaceae	<i>Rumex brownii</i>	swamp dock		C		1/1
plants	Polygonaceae	<i>Rumex dumosus</i>	wiry dock		C		1
plants	Polygonaceae	<i>Duma florulenta</i>			C		3/3
plants	Polygonaceae	<i>Antigonon leptopus</i>		Y			2/2
plants	Polygonaceae	<i>Polygonum plebeium</i>	small knotweed		C		6/5
plants	Polygonaceae	<i>Fallopia convolvulus</i>	black bindweed	Y			2/2
plants	Polygonaceae	<i>Polygonum aviculare</i>	wireweed	Y			1/1
plants	Portulacaceae	<i>Calandrinia pleiopetala</i>			C		1
plants	Portulacaceae	<i>Calandrinia pickeringii</i>			C		4/2
plants	Portulacaceae	<i>Grahamia australiana</i>			C		3/3
plants	Portulacaceae	<i>Portulaca filifolia</i>			C		10/5
plants	Portulacaceae	<i>Portulaca australis</i>			C		3/3
plants	Portulacaceae	<i>Portulaca oleracea</i>	pigweed	Y			20/2
plants	Portulacaceae	<i>Portulaca bicolor</i>			C		8/5
plants	Portulacaceae	<i>Portulaca pilosa</i>		Y			8/3
plants	Portulacaceae	<i>Portulaca</i>			C		3/1
plants	Proteaceae	<i>Hakea</i>			C		9/5
plants	Proteaceae	<i>Grevillea parallela</i>			C		10/8
plants	Proteaceae	<i>Hakea lorea</i>			C		11
plants	Proteaceae	<i>Stenocarpus</i>			C		1/1
plants	Proteaceae	<i>Hakea purpurea</i>			C		1/1
plants	Proteaceae	<i>Hakea trineura</i>		Y	V		11/9
plants	Proteaceae	<i>Xylomelum benthamii</i>			C		2

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Proteaceae	<i>Banksia oblongifolia</i>	dwarf banksia	C			6
plants	Proteaceae	<i>Grevillea floribunda</i>		C			2
plants	Proteaceae	<i>Grevillea longistyla</i>		C			14/8
plants	Proteaceae	<i>Petrophile canescens</i>		C			6/2
plants	Proteaceae	<i>Stenocarpus salignus</i>	scrub beefwood	C			5/4
plants	Proteaceae	<i>Conospermum taxifolium</i>	devil's rice	C			1
plants	Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree	C			3
plants	Proteaceae	<i>Grevillea singuliflora</i>		C			4
plants	Proteaceae	<i>Hakea lorea subsp. lorea</i>		C			7/6
plants	Proteaceae	<i>Xylomelum cunninghamianum</i>		C			9/1
plants	Proteaceae	<i>Grevillea decora subsp. decora</i>		C			6/6
plants	Proteaceae	<i>Banksia spinulosa var. spinulosa</i>		C			3/3
plants	Proteaceae	<i>Persoonia terminalis subsp. recurva</i>		C			1/1
plants	Proteaceae	<i>Grevillea floribunda subsp. floribunda</i>		C			1/1
plants	Proteaceae	<i>Banksia integrifolia subsp. integrifolia</i>		C			1
plants	Proteaceae	<i>Hakea leucoptera</i>		C			1/1
plants	Proteaceae	<i>Banksia spinulosa</i>		C			5
plants	Proteaceae	<i>Grevillea striata</i>	beefwood	C			14
plants	Proteaceae	<i>Hakea plurinervis</i>		C			6/2
plants	Proteaceae	<i>Persoonia amaliae</i>		C			7/4
plants	Proteaceae	<i>Persoonia falcata</i>		C			27/4
plants	Proteaceae	<i>Grevillea helmsiae</i>		C			23/6
plants	Proteaceae	<i>Grevillea sessilis</i>		C			13/7
plants	Proteaceae	<i>Lomatia sitaifolia</i>	crinkle bush	C			6/1
plants	Proteaceae	<i>Persoonia subtilis</i>		C			9/7
plants	Proteaceae	<i>Grevillea</i>		C			1
plants	Putranjivaceae	<i>Drypetes deplanchei</i>	grey boxwood	C			39/7
plants	Rhamnaceae	<i>Ventilago viminalis</i>	supplejack	C			31/6
plants	Rhamnaceae	<i>Pomaderris</i>		C			1
plants	Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree	C			118/9
plants	Rhamnaceae	<i>Pomaderris lanigera</i>		C			3/1
plants	Rhamnaceae	<i>Rhamnella vitiensis</i>		C			1/1
plants	Rhamnaceae	<i>Cryptandra speciosa subsp. strigosa</i>		C			5/5
plants	Rhamnaceae	<i>Ziziphus mauritiana</i>	Indian jujube	C	Y		1/1
plants	Rhamnaceae	<i>Cryptandra propinqua</i>		C			1/1
plants	Rhamnaceae	<i>Pollanthion minutiflorum</i>		V	V		2/2
plants	Rhamnaceae	<i>Pomaderris queenstandica</i>		C			5/4
plants	Rosaceae	<i>Rubus probus</i>		C			1
plants	Rubiaceae	<i>Dentella repens</i>	dentella	C			3/3
plants	Rubiaceae	<i>Pomax umbellata</i>		C			7/1
plants	Rubiaceae	<i>Psychdrax odorata</i>		C			33/2
plants	Rubiaceae	<i>Psychdrax forsteri</i>		C			13/13
plants	Rubiaceae	<i>Psychotria</i>		C			2/1
plants	Rubiaceae	<i>Spermacoce</i>		C			1
plants	Rubiaceae	<i>Aidia racemosa</i>		C			1/1
plants	Rubiaceae	<i>Asperula conferta</i>		C			2/2

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plants	Rubiaceae	<i>Pavetta granitica</i>			C		2/2
plants	Rubiaceae	<i>Psychdrax attenuata</i>			C		6/3
plants	Rubiaceae	<i>Psychdrax johnsonii</i>			C		9/9
plants	Rubiaceae	<i>Psychdrax oleifolia</i>			C		21/2
plants	Rubiaceae	<i>Mitracarpus hirtus</i>		Y			2/2
plants	Rubiaceae	<i>Nauclea orientalis</i>	Leichhardt tree		C		1/1
plants	Rubiaceae	<i>Antirhea putaminosa</i>			C		26/12
plants	Rubiaceae	<i>Morinda jasminoides</i>	morinda		C		1
plants	Rubiaceae	<i>Larsenaikia ochreatea</i>			C		16/5
plants	Rubiaceae	<i>Opercularia diphylla</i>			C		3/2
plants	Rubiaceae	<i>Psychdrax lampophylla</i>			C		1/1
plants	Rubiaceae	<i>Spermacoce baileyana</i>			C		1/1
plants	Rubiaceae	<i>Oldenlandia galloides</i>			C		2/2
plants	Rubiaceae	<i>Pavetta australiensis</i>			C		10
plants	Rubiaceae	<i>Psychotria daphnoides</i>			C		15/5
plants	Rubiaceae	<i>Oldenlandia argillacea</i>			C		1/1
plants	Rubiaceae	<i>Richardia brasiliensis</i>	white eye	Y			6/5
plants	Rubiaceae	<i>Spermacoce brachystema</i>			C		18/17
plants	Rubiaceae	<i>Spermacoce multicaulis</i>			C		13/8
plants	Rubiaceae	<i>Triflorensia ixoroides</i>			C		20/9
plants	Rubiaceae	<i>Everistia vacciniifolia</i>			C		14
plants	Rubiaceae	<i>Pogonolobus reticulatus</i>			C		24
plants	Rubiaceae	<i>Atractocarpus fitzalanii</i>			C		3
plants	Rubiaceae	<i>Coelospermum reticulatum</i>			C		12/12
plants	Rubiaceae	<i>Gynochthodes jasminoides</i>			C		2/2
plants	Rubiaceae	<i>Oldenlandia coerulescens</i>			C		5/5
plants	Rubiaceae	<i>Cyclophyllum coprosmoides</i>			C		5
plants	Rubiaceae	<i>Timonius timon var. timon</i>			C		2/1
plants	Rubiaceae	<i>Psychdrax saligna forma saligna</i>			C		3/3
plants	Rubiaceae	<i>Psychdrax odorata forma buxifolia</i>			C		4
plants	Rubiaceae	<i>Psychdrax odorata forma australiana</i>			C		1/1
plants	Rubiaceae	<i>Psychdrax attenuata forma megalantha</i>			C		2/2
plants	Rubiaceae	<i>Psychdrax odorata subsp. australiana</i>			C		2/2
plants	Rubiaceae	<i>Oldenlandia corymbosa var. corymbosa</i>			C		10/10
plants	Rubiaceae	<i>Psychotria daphnoides var. pubescens</i>		Y			1/1
plants	Rubiaceae	<i>Oldenlandia corymbosa var. caespitosa</i>			C		2/2
plants	Rubiaceae	<i>Psychotria daphnoides var. daphnoides</i>		Y			1/1
plants	Rubiaceae	<i>Spermacoce sp. (Dislyn A.R.Bean 14098)</i>			C		5/4
plants	Rubiaceae	<i>Synaptantha tillaeacea var. tillaeacea</i>			C		2/2
plants	Rubiaceae	<i>Psychotria daphnoides var. angustifolia</i>			C		1/1
plants	Rubiaceae	<i>Pavetta australiensis var. australiensis</i>			C		8/8
plants	Rubiaceae	<i>Cyclophyllum coprosmoides var. spathulatum</i>			C		6/6
plants	Rubiaceae	<i>Everistia vacciniifolia var. vacciniifolia</i>			C		1/1
plants	Rubiaceae	<i>Cyclophyllum coprosmoides var. coprosmoides</i>			C		5/1
plants	Rubiaceae	<i>Everistia vacciniifolia forma vacciniifolia</i>			C		7/7
plants	Rubiaceae	<i>Oldenlandia mitrasacmoides subsp. trachymenoides</i>			C		7/7
plants	Rubiaceae				C		5/5

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Rutaceae	<i>Zieria fraseri</i>			C		1
plants	Rutaceae	<i>Citrus x limon</i>		Y			1/1
plants	Rutaceae	<i>Boronia obovata</i>			C		35/24
plants	Rutaceae	<i>Boronia odorata</i>			C		1/1
plants	Rutaceae	<i>Phebalium nottii</i>	pink phebalium		C		8/6
plants	Rutaceae	<i>Acronychia laevis</i>	glossy acronychia		C		11/8
plants	Rutaceae	<i>Boronia bipinnata</i>	rock boronia		C		6/2
plants	Rutaceae	<i>Boronia duiganiae</i>			C		8/8
plants	Rutaceae	<i>Boronia splendida</i>			C		2/2
plants	Rutaceae	<i>Phebalium woombye</i>	wallum phebalium		C		1/1
plants	Rutaceae	<i>Zieria cytisoides</i>	downy Zieria		C		2/2
plants	Rutaceae	<i>Flindersia collina</i>	broad-leaved leopard tree		C		1/1
plants	Rutaceae	<i>Geijera parviflora</i>	wilga		C		69/5
plants	Rutaceae	<i>Micromelum minutum</i>	clusterberry		C		1/1
plants	Rutaceae	<i>Murraya paniculata</i>			C		17
plants	Rutaceae	<i>Philotheca ciliata</i>			C		1
plants	Rutaceae	<i>Zieria minutiflora</i>			C		1
plants	Rutaceae	<i>Coatesia paniculata</i>			C		22/8
plants	Rutaceae	<i>Geijera salicifolia</i>	brush wilga		C		39/8
plants	Rutaceae	<i>Melicope micrococca</i>	white evodia		C		1/1
plants	Rutaceae	<i>Boronia occidentalis</i>			C		5/5
plants	Rutaceae	<i>Flindersia australis</i>	crow's ash		C		13/6
plants	Rutaceae	<i>Philotheca difformis</i>			C		1
plants	Rutaceae	<i>Acronychia pauciflora</i>	soft acronychia		C		18/7
plants	Rutaceae	<i>Flindersia dissosperma</i>			C		41/21
plants	Rutaceae	<i>Murraya ovatifoliolata</i>			C		4/4
plants	Rutaceae	<i>Dinosperma erythrococcum</i>			C		11/4
plants	Rutaceae	<i>Zanthoxylum brachyacanthum</i>			C		2/1
plants	Rutaceae	<i>Zieria fraseri subsp. robusta</i>			C		5/5
plants	Rutaceae	<i>Philotheca difformis subsp. difformis</i>			C		12/12
plants	Rutaceae	<i>Philotheca difformis subsp. smithiana</i>			C		1
plants	Rutaceae	<i>Zieria minutiflora subsp. minutiflora</i>			C		1/1
plants	Rutaceae	<i>Phebalium glandulosum subsp. glandulosum</i>			C		8/8
plants	Rutaceae	<i>Zieria aspalathoides subsp. aspalathoides</i>			C		9/8
plants	Rutaceae	<i>Sarcamelicope simplicifolia subsp. simplicifolia</i>	yellow aspen		C		3/2
plants	Rutaceae	<i>Boronia</i>			C		1
plants	Rutaceae	<i>Citrus glauca</i>			C		30/10
plants	Rutaceae	<i>Zieria smithii</i>			C		3/2
plants	Santalaceae	<i>Santalum lanceolatum</i>			C		30/6
plants	Santalaceae	<i>Exocarpos latifolius</i>			C		20/5
plants	Santalaceae	<i>Exocarpos cupressiformis</i>	native cherry		C		3
plants	Sapindaceae	<i>Atalaya hemiglauca</i>			C		45/5
plants	Sapindaceae	<i>Dodonaea filifolia</i>			C		10/5
plants	Sapindaceae	<i>Alectryon pubescens</i>			C		1/1
plants	Sapindaceae	<i>Dodonaea lanceolata</i>			C		2
plants	Sapindaceae	<i>Dodonaea tenuifolia</i>			C		1/1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Sapindaceae	<i>Alectryon oleifolius</i>			C		11
plants	Sapindaceae	<i>Dodonaea macrossanii</i>			C		1
plants	Sapindaceae	<i>Dodonaea stenophylla</i>			C		9/4
plants	Sapindaceae	<i>Alectryon subdentatus</i>			C		11/4
plants	Sapindaceae	<i>Dodonaea boroniifolia</i>			C		1/1
plants	Sapindaceae	<i>Dodonaea heteromorpha</i>			C		2/2
plants	Sapindaceae	<i>Dodonaea peduncularis</i>			C		7/3
plants	Sapindaceae	<i>Dodonaea triangularis</i>			C		5/3
plants	Sapindaceae	<i>Mischocarpus anodontus</i>	veiny pearfruit		C		1
plants	Sapindaceae	<i>Alectryon diversifolius</i>	scrub boonaree		C		79/8
plants	Sapindaceae	<i>Cupaniopsis wadsworthii</i>			C		9/6
plants	Sapindaceae	<i>Elaeostachys xylocarpa</i>	white tamarind		C		35/11
plants	Sapindaceae	<i>Cupaniopsis anacardioides</i>	tuckeroo		C		16/2
plants	Sapindaceae	<i>Cardiospermum grandiflorum</i>	heart seed vine	Y			1
plants	Sapindaceae	<i>Dodonaea viscosa subsp. viscosa</i>			C		1
plants	Sapindaceae	<i>Dodonaea viscosa subsp. spatulata</i>			C		10/5
plants	Sapindaceae	<i>Jagera pseudorhus var. pseudorhus</i>			C		2/2
plants	Sapindaceae	<i>Dodonaea viscosa subsp. burmanniana</i>			C		6/6
plants	Sapindaceae	<i>Alectryon oleifolius subsp. elongatus</i>			C		9/4
plants	Sapindaceae	<i>Dodonaea lanceolata var. subsessilifolia</i>			C		12/12
plants	Sapindaceae	<i>Cardiospermum halicacabum var. halicacabum</i>		Y			8/8
plants	Sapindaceae	<i>Arytera divaricata</i>	coogera		C		4/1
plants	Sapindaceae	<i>Alectryon connatus</i>	grey birds-eye		C		34/10
plants	Sapindaceae	<i>Dodonaea viscosa</i>			C		3
plants	Sapindaceae	<i>Harpullia pendula</i>			C		2/1
plants	Sapindaceae	<i>Dodonaea vestita</i>			C		13/7
plants	Sapindaceae	<i>Dodonaea</i>			C		15
plants	Sapindaceae	<i>Atalaya</i>			C		4
plants	Sapotaceae	<i>Planchonella pubescens</i>			C		10
plants	Sapotaceae	<i>Sersalisia sericea</i>			C		1/1
plants	Sapotaceae	<i>Planchonella pohimaniana</i>			C		3
plants	Sapotaceae	<i>Planchonella cotinifolia</i>			C		20
plants	Sapotaceae	<i>Amorhosperrum antilogum</i>			C		8/8
plants	Sapotaceae	<i>Planchonella cotinifolia var. pubescens</i>			C		9/9
plants	Sapotaceae	<i>Eremophila latrobei subsp. glabra</i>			C		6/3
plants	Scrophulariaceae	<i>Eremophila latrobei subsp. latrobei</i>			C		2/2
plants	Scrophulariaceae	<i>Eremophila maculata subsp. maculata</i>			C		7/7
plants	Scrophulariaceae	<i>Eremophila mitchellii</i>			C		85/5
plants	Scrophulariaceae	<i>Eremophila longifolia</i>	berrian		C		3/2
plants	Scrophulariaceae	<i>Myoporum acuminatum</i>	coastal boobialla		C		28/8
plants	Scrophulariaceae	<i>Eremophila latrobei</i>			C		5/5
plants	Scrophulariaceae	<i>Eremophila deserti</i>			C		21/4
plants	Scrophulariaceae	<i>Eremophila debilis</i>	winter apple		C		7/5
plants	Scrophulariaceae	<i>Eremophila bignoniiflora</i>	eurah		C		2/2
plants	Simaroubaceae	<i>Samadera bidwillii</i>		Y	V		2/2
plants	Simaroubaceae	<i>Ailanthus triphysa</i>	white siris		C		6

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Simaroubaceae					
plants	higher dicots	Solanaceae	<i>Samadera</i> sp. (Dam Creek T.S.Ryan 1006)		C		3/3
plants	higher dicots	Solanaceae	<i>Solanum mitchellianum</i>		C		6/6
plants	higher dicots	Solanaceae	<i>Solanum seafortianum</i>	Y			18/6
plants	higher dicots	Solanaceae	<i>Nicotiana megalosiphon</i>	Y	C		3/1
plants	higher dicots	Solanaceae	<i>Solanum nigrum</i> subsp. <i>nigrum</i>	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum lycopersicum</i> var. <i>cerasiforme</i>	Y			2/2
plants	higher dicots	Solanaceae	<i>Solanum latens</i> A.R.Bean x <i>S.nemophilum</i>		C		1/1
plants	higher dicots	Solanaceae	<i>Solanum parvifolium</i> subsp. <i>parvifolium</i>		C		12/12
plants	higher dicots	Solanaceae	<i>Solanum</i>		C		40
plants	higher dicots	Solanaceae	<i>Datura innoxia</i>	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum latens</i>		C		1/1
plants	higher dicots	Solanaceae	<i>Solanum nigrum</i>	Y			3
plants	higher dicots	Solanaceae	<i>Solanum opacum</i>		C		1
plants	higher dicots	Solanaceae	<i>Solanum torvum</i>	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum esuriale</i>		C		6/4
plants	higher dicots	Solanaceae	<i>Solanum galbinum</i>		C		1/1
plants	higher dicots	Solanaceae	<i>Solanum pusillum</i>		C		5/5
plants	higher dicots	Solanaceae	<i>Physalis angulata</i>	Y			5/5
plants	higher dicots	Solanaceae	<i>Physalis ixocarpa</i>	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum coracinum</i>		C		1
plants	higher dicots	Solanaceae	<i>Solanum dissectum</i>		E		2/2
plants	higher dicots	Solanaceae	<i>Solanum erianthum</i>	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum gympiense</i>		C		1
plants	higher dicots	Solanaceae	<i>Nicotiana forsteri</i>		C		2/2
plants	higher dicots	Solanaceae	<i>Solanum coccosoides</i>		C		6/6
plants	higher dicots	Solanaceae	<i>Solanum ellipticum</i>		C		27/15
plants	higher dicots	Solanaceae	<i>Solanum nemophilum</i>		C		7/2
plants	higher dicots	Solanaceae	<i>Solanum nodiflorum</i>		C		5/5
plants	higher dicots	Solanaceae	<i>Datura leichhardtii</i>	Y			4/4
plants	higher dicots	Solanaceae	<i>Lycianthes shanesii</i>	Y			2/1
plants	higher dicots	Solanaceae	<i>Nicandra physalodes</i>	Y	C		1/1
plants	higher dicots	Solanaceae	<i>Solanum adenophorum</i>		E		11/9
plants	higher dicots	Solanaceae	<i>Solanum furfuraceum</i>		C		13/7
plants	higher dicots	Solanaceae	<i>Solanum mauritianum</i>	Y			1
plants	higher dicots	Solanaceae	<i>Solanum parvifolium</i>		C		2
plants	higher dicots	Solanaceae	<i>Solanum semiarmatum</i>		C		3
plants	higher dicots	Solanaceae	<i>Solanum stelligerum</i>		C		8
plants	higher dicots	Solanaceae	<i>Physalis lanceifolia</i>	Y			2/2
plants	higher dicots	Solanaceae	<i>Solanum ferocissimum</i>		C		9/3
plants	higher dicots	Solanaceae	<i>Solanum orgadophilum</i>		C		4/4
plants	higher dicots	Solanaceae	<i>Solanum densevestitum</i>		C		2
plants	higher dicots	Solanaceae	<i>Solanum elachophyllum</i>		E		22/19
plants	higher dicots	Sparrmanniaceae	<i>Corchorus tomentellus</i>		C		8/7
plants	higher dicots	Sparrmanniaceae	<i>Grewia retusifolia</i>		C		9/6
plants	higher dicots	Sparrmanniaceae	<i>Corchorus thozetii</i>		PE		1/1
plants	higher dicots	Sparrmanniaceae	<i>Grewia scabrella</i>		C		11/4

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Sparrmanniaceae	<i>Grewia latifolia</i>	dysentery plant		C		59/22
plants	Sparrmanniaceae	<i>Corchorus</i>			C		1
plants	Sparrmanniaceae	<i>Grewia</i>	chinese burr	Y	C		2
plants	Sparrmanniaceae	<i>Triumfetta rhomboidea</i>					1/1
plants	Sparrmanniaceae	<i>Corchorus trilocularis</i>					9/9
plants	Stackhousiaceae	<i>Stackhousia tyonii</i>			NT		5/5
plants	Stackhousiaceae	<i>Stackhousia muricata</i>			C		2/2
plants	Stackhousiaceae	<i>Stackhousia viminea</i>	slender stackhousia		C		2
plants	Stackhousiaceae	<i>Stackhousia intermedia</i>			C		1/1
plants	Stackhousiaceae	<i>Stackhousia monogyna</i>	creamy candles		C		1/1
plants	Sterculiaceae	<i>Brachychiton populneus subsp. trilobus</i>			C		2/2
plants	Sterculiaceae	<i>Brachychiton x turgidulus</i>			C		2/2
plants	Sterculiaceae	<i>Brachychiton rupestris</i>			C		35/3
plants	Sterculiaceae	<i>Brachychiton populneus</i>			C		4
plants	Sterculiaceae	<i>Brachychiton bidwillii</i>	little kurrajong		C		11/7
plants	Sterculiaceae	<i>Brachychiton australis</i>	broad-leaved bottle tree		C		29/5
plants	Sterculiaceae	<i>Sterculia quadrifida</i>	peanut tree		C		12/3
plants	Sterculiaceae	<i>Brachychiton</i>			C		1/1
plants	Sterculiaceae	<i>Brachychiton populneus subsp. populneus</i>			C		1/1
plants	Stylidiaceae	<i>Stylidium eglanulosum</i>			C		6/4
plants	Stylidiaceae	<i>Stylidium eriorhizum</i>			C		7/7
plants	Stylidiaceae	<i>Stylidium tenerum</i>			C		3/1
plants	Stylidiaceae	<i>Stylidium debile</i>	frail trigger plant		C		11/5
plants	Stylidiaceae	<i>Stylidium graminifolium</i>	grassy-leaved trigger-flower		C		3/2
plants	Surianaceae	<i>Cadellia pentastylis</i>	ooline		V		6/5
plants	Tamaricaceae	<i>Tamarix aphylla</i>	athel pine	Y			1/1
plants	Thymelaeaceae	<i>Pimelea glauca</i>	smooth riceflower		C		2/2
plants	Thymelaeaceae	<i>Pimelea strigosa</i>			C		1/1
plants	Thymelaeaceae	<i>Pimelea linifolia</i>			C		3/1
plants	Thymelaeaceae	<i>Wikstroemia indica</i>	tie bush		C		1
plants	Thymelaeaceae	<i>Pimelea microcephala subsp. microcephala</i>			C		3/3
plants	Thymelaeaceae	<i>Pimelea haematostachya</i>			C		13/11
plants	Thymelaeaceae	<i>Pimelea leptospermoides</i>			NT		23/23
plants	Thymelaeaceae	<i>Pimelea latifolia subsp. altior</i>			C		1/1
plants	Thymelaeaceae	<i>Pimelea latifolia subsp. latifolia</i>			C		2/2
plants	Thymelaeaceae	<i>Pimelea linifolia subsp. linifolia</i>			C		4/4
plants	Thymelaeaceae	<i>Pimelea</i>			C		3/3
plants	Thymelaeaceae	<i>Pimelea microcephala</i>			C		1
plants	Ulmaceae	<i>Trema tomentosa</i>	native celtis		C		5/3
plants	Ulmaceae	<i>Celtis paniculata</i>			C		1
plants	Ulmaceae	<i>Trema tomentosa var. aspera</i>	shiny-leaved stinging tree		C		8/5
plants	Urticaceae	<i>Dendrocnide photinophylla</i>	white nettle		C		7/3
plants	Urticaceae	<i>Pipturus argenteus</i>			C		3
plants	Verbenaceae	<i>Glandularia aristigera</i>	creeping lantana	Y			5/4
plants	Verbenaceae	<i>Lantana montevidensis</i>		Y			3/2
plants	Verbenaceae	<i>Lippia alba var. alba</i>		Y			5/5

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plants	Verbenaceae	<i>Verbena macrostachya</i>			C		5/5
plants	Verbenaceae	<i>Verbena gaudichaudii</i>			C		4/4
plants	Verbenaceae	<i>Verbena bonariensis</i>	purpletop	Y			1
plants	Verbenaceae	<i>Verbena africana</i>		Y	C		4/4
plants	Verbenaceae	<i>Phyla canescens</i>		Y			1/1
plants	Verbenaceae	<i>Verbena rigida</i>		Y			2/1
plants	Verbenaceae	<i>Lantana camara</i>	lantana	Y			13/8
plants	Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Y			14/10
plants	Violaceae	<i>Hybanthus enneaspermus</i>			C		14/10
plants	Violaceae	<i>Hybanthus monopetalus</i>			C		2/1
plants	Violaceae	<i>Viola perreniformis</i>			C		1/1
plants	Violaceae	<i>Viola betonicifolia</i>			C		1
plants	Violaceae	<i>Viola hederacea</i>			C		2
plants	Violaceae	<i>Viola</i>			C		1
plants	Violaceae	<i>Hybanthus stellarioides</i>			C		4/2
plants	Violaceae	<i>Viola betonicifolia subsp. betonicifolia</i>			C		1/1
plants	Viscaceae	<i>Notothixos cornifolius</i>	kurrajong mistletoe		C		1
plants	Viscaceae	<i>Viscum articulatum</i>	flat mistletoe		C		2/2
plants	Viscaceae	<i>Notothixos incanus</i>			C		1/1
plants	Vitaceae	<i>Cissus repens</i>			C		1/1
plants	Vitaceae	<i>Cayratia acris</i>	hairy grape	Y	C		3/1
plants	Vitaceae	<i>Cissus oblonga</i>			C		5
plants	Vitaceae	<i>Cissus hypoglauca</i>			C		28/10
plants	Vitaceae	<i>Cissus reniformis</i>			C		2
plants	Vitaceae	<i>Tetragium nitens</i>	shining grape		C		13/4
plants	Vitaceae	<i>Cayratia clematidea</i>	slender grape	Y	C		2/1
plants	Vitaceae	<i>Clematicissus opaca</i>			C		6/2
plants	Zygophyllaceae	<i>Roepera apiculata</i>			C		58/7
plants	Zygophyllaceae	<i>Tribulus terrestris</i>	caltrop		C		2
plants	Zygophyllaceae	<i>Zygophyllum apiculatum</i>	gall weed		C		7/4
plants	Zygophyllaceae	<i>Tribulus eichlerianus</i>	bull head		C		5/5
plants	Zygophyllaceae	<i>Tribulus micrococcus</i>	yellow vine		C		6
plants	Frullaniaceae	<i>Frullania</i>			C		7/7
plants	Ricciaceae	<i>Riccia</i>			C		1/1
plants	Ricciaceae	<i>Riccia bifurca</i>			C		1/1
plants	Ricciaceae	<i>Riccia multifida var. multifida</i>			C		1/1
plants	Annonaceae	<i>Melodorum crassipetalum</i>			C		3/3
plants	Annonaceae	<i>Fitzalania heteropetala</i>			C		8/2
plants	Annonaceae	<i>Polyalthia nitidissima</i>	polyalthia		C		1/1
plants	Annonaceae	<i>Melodorum leichhardtii</i>			C		2/2
plants	Aristolochiaceae	<i>Aristolochia pubera var. pubera</i>			C		18/4
plants	Aristolochiaceae	<i>Aristolochia meridionalis subsp. centralis</i>			C		2/2
plants	Aristolochiaceae	<i>Aristolochia thozetii</i>			C		1/1
plants	Hernandiaceae	<i>Gyrocarpus americanus</i>			C		1/1
plants	Hernandiaceae	<i>Gyrocarpus americanus subsp. americanus</i>			C		8/1
plants	Lauraceae	<i>Cassytha pubescens</i>	downy devil's twine		C		1/1



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plants	Lauraceae	<i>Neolitsea brassii</i>			C		3/3
plants	Lauraceae	<i>Cryptocarya triplinervis</i>			C		7
plants	Lauraceae	<i>Neolitsea australiensis</i>	green bolly gum		C		1
plants	Lauraceae	<i>Cassytha filiformis</i>	dodder laurel		C		4/2
plants	Lauraceae	<i>Cassytha glabella forma glabella</i>			C		3/2
plants	Lauraceae	<i>Cryptocarya triplinervis var. triplinervis</i>			C		2/2
plants	Menispermaceae	<i>Sarcopetalum harveyanum</i>	pearl vine		C		1/1
plants	Menispermaceae	<i>Tinospora smilacina</i>	snakevine		C		12/1
plants	Menispermaceae	<i>Stephania japonica</i>			C		4/1
plants	Nelumbonaceae	<i>Nelumbo nucifera</i>	pink waterlily		C		1/1
plants	Nymphaeaceae	<i>Nymphaea caerulea</i>		Y			1/1
plants	Papaveraceae	<i>Argemone ochroleuca subsp. ochroleuca</i>	Mexican poppy	Y			10/9
plants	Papaveraceae	<i>Argemone mexicana</i>	prickly poppy	Y			2/2
plants	Piperaceae	<i>Peperomia blanda var. floribunda</i>		Y	C		3/1
plants	Ranunculaceae	<i>Ranunculus sceleratus</i>					1
plants	Ranunculaceae	<i>Ranunculus sessiliflorus var. sessiliflorus</i>			C		1/1
plants	Ranunculaceae	<i>Ranunculus meristus</i>			C		2/2
plants	Ranunculaceae	<i>Clematis decipiens</i>			C		1/1
plants	Ranunculaceae	<i>Ranunculus</i>			C		1
plants	Ranunculaceae	<i>Clematis pickeringii</i>			C		1/1
plants	Ranunculaceae	<i>Clematis glycinoides</i>			C		12/6
plants	Agavaceae	<i>Agave vivipara var. vivipara</i>		Y			2/2
plants	Alismataceae	<i>Damasonium minus</i>	starfruit		C		1/1
plants	Alismataceae	<i>Caldesia oligococca</i>			C		3/3
plants	Amaryllidaceae	<i>Proiphys cunninghamii</i>	Moreton Bay lily		C		1/1
plants	Amaryllidaceae	<i>Calostemma luteum</i>			C		1/1
plants	Amaryllidaceae	<i>Crinum flaccidum</i>	Murray lily		C		6/1
plants	Aponogetonaceae	<i>Aponogeton queenslandicus</i>			C		3/2
plants	Araceae	<i>Typhonium brownii</i>	black arum lily		C		1/1
plants	Araceae	<i>Gymnostachys anceps</i>	settler's flax		C		1/1
plants	Araceae	<i>Pistia stratiotes</i>	water lettuce	Y			1/1
plants	Araceae	<i>Livistona australis</i>	cabbage tree palm		C		2
plants	Araceae	<i>Livistona decora</i>			C		1/1
plants	Araceae	<i>Livistona fulva</i>			NT		16/12
plants	Araceae	<i>Livistona</i>			C		5
plants	Asparagaceae	<i>Asparagus racemosus</i>	native asparagus		C		1/1
plants	Asphodelaceae	<i>Bulbine bulbosa</i>	golden lily		C		1
plants	Burmanniaceae	<i>Burmannia disticha</i>			C		3/1
plants	Colchicaceae	<i>Iphigenia indica</i>		Y			2/2
plants	Commelinaceae	<i>Murdannia graminea</i>	murdannia		C		9/6
plants	Commelinaceae	<i>Cyanotis axillaris</i>			C		1/1
plants	Commelinaceae	<i>Commelina ensifolia</i>	scurvy grass		C		5/3
plants	Commelinaceae	<i>Commelina</i>			C		1
plants	Commelinaceae	<i>Commelina diffusa</i>	wandering jew		C		10/1
plants	Commelinaceae	<i>Commelina lanceolata</i>			C		2/1
plants	Cyperaceae	<i>Cyperus isabellinus</i>			C		4/4

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Cyperaceae	<i>Cyperus perangustus</i>			C		1/1
plants	Cyperaceae	<i>Eleocharis blakeana</i>			C		5/3
plants	Cyperaceae	<i>Fimbristylis nutans</i>			C		1
plants	Cyperaceae	<i>Tetraria capillaris</i>			C		2/1
plants	Cyperaceae	<i>Cyperus involucratus</i>		Y			1/1
plants	Cyperaceae	<i>Cyperus polystachyos</i>			C		6
plants	Cyperaceae	<i>Rhynchospora brownii</i>			C		2/2
plants	Cyperaceae	<i>Scleria mackaviensis</i>			C		19/9
plants	Cyperaceae	<i>Cyperus alterniflorus</i>			C		3/2
plants	Cyperaceae	<i>Eleocharis sphacelata</i>			C		3/1
plants	Cyperaceae	<i>Lepidosperma laterale</i>			C		5/2
plants	Cyperaceae	<i>Cyperus sanguinolentus</i>			C		2/1
plants	Cyperaceae	<i>Fimbristylis dichotoma</i>			C		20/10
plants	Cyperaceae	<i>Schoenoplectus erectus</i>		Y			1
plants	Cyperaceae	<i>Schoenus melanostachyus</i>			C		4/2
plants	Cyperaceae	<i>Fimbristylis acicularis</i>			C		1/1
plants	Cyperaceae	<i>Fimbristylis aestivalis</i>			C		5/2
plants	Cyperaceae	<i>Fimbristylis littoralis</i>			C		2/2
plants	Cyperaceae	<i>Fimbristylis microcarya</i>			C		1/1
plants	Cyperaceae	<i>Fimbristylis sieberiana</i>			C		3/3
plants	Cyperaceae	<i>Lipocarpha microcephala</i>			C		5/4
plants	Cyperaceae	<i>Fimbristylis depauperata</i>			C		1/1
plants	Cyperaceae	<i>Schoenoplectiella erecta</i>		Y			1/1
plants	Cyperaceae	<i>Schoenoplectus subulatus</i>			C		1/1
plants	Cyperaceae	<i>Eleocharis philippinensis</i>			C		2/2
plants	Cyperaceae	<i>Fimbristylis bisumbellata</i>			C		1/1
plants	Cyperaceae	<i>Schoenoplectus mucronatus</i>			C		5/2
plants	Cyperaceae	<i>Eleocharis cylindrostachys</i>			C		1/1
plants	Cyperaceae	<i>Fimbristylis polytrichoides</i>			C		1/1
plants	Cyperaceae	<i>Schoenus apogon var. apogon</i>			C		1/1
plants	Cyperaceae	<i>Cyperus betchei subsp. betchei</i>			C		3/3
plants	Cyperaceae	<i>Cyperus nutans var. eleusinoides</i>			C		1/1
plants	Cyperaceae	<i>Lepidosperma laterale var. laterale</i>			C		2
plants	Cyperaceae	<i>Cyperus dietrichiae var. dietrichiae</i>			C		4/1
plants	Cyperaceae	<i>Cyperus gunnii subsp. novae-hollandiae</i>			C		4/1
plants	Cyperaceae	<i>Fimbristylis aestivalis var. aestivalis</i>			C		1/1
plants	Cyperaceae	<i>Cyperus dietrichiae var. brevibracteatus</i>			C		1/1
plants	Cyperaceae	<i>Cyperus microcephalus subsp. microcephalus</i>			C		2/2
plants	Cyperaceae	<i>Bulbostylis sp. (Goonderoo R.J.Fensham 3815)</i>			C		1/1
plants	Cyperaceae	<i>Cautis sp. (Robinson Gorge P.I.Forster+ PIF11256)</i>			C		5/2
plants	Cyperaceae	<i>Cyperus cyperoides</i>		Y			1/1
plants	Cyperaceae	<i>Cyperus leiocaulon</i>			C		1/1
plants	Cyperaceae	<i>Cyperus rigidellus</i>			C		2/2
plants	Cyperaceae	<i>Cyperus squarrosus</i>			C		2/2
plants	Cyperaceae	<i>Eleocharis atricha</i>			C		5/2
plants	Cyperaceae	<i>Eleocharis pallens</i>			C		2
			bearded flatsedge				
			tuber spikerush				
			pale spikerush				

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plants	Cyperaceae	<i>Fuirena incrassata</i>			C		1/1
plants	Cyperaceae	<i>Schoenus vaginatus</i>			C		1/1
plants	Cyperaceae	<i>Scleria sphacelata</i>			C		21/11
plants	Cyperaceae	<i>Bulbostylis barbata</i>			C		6/6
plants	Cyperaceae	<i>Cyperus brevifolius</i>	Mullumbimby couch	Y			3/2
plants	Cyperaceae	<i>Cyperus curvistylis</i>			C		2/2
plants	Cyperaceae	<i>Cyperus dietrichiae</i>			C		1
plants	Cyperaceae	<i>Schoenus</i>			C		1
plants	Cyperaceae	<i>Eleocharis</i>			C		3
plants	Cyperaceae	<i>Cyperus iria</i>			C		6/2
plants	Cyperaceae	<i>Fimbristylis</i>			C		3
plants	Cyperaceae	<i>Cyperus bifax</i>	western nutgrass		C		12/6
plants	Cyperaceae	<i>Gahnia aspera</i>			C		17/6
plants	Cyperaceae	<i>Scleria levis</i>			C		2/1
plants	Cyperaceae	<i>Cyperus clarus</i>			V		2/2
plants	Cyperaceae	<i>Cyperus fulvus</i>			C		15/13
plants	Cyperaceae	<i>Cyperus gunnii</i>			C		1
plants	Cyperaceae	<i>Cyperus haspan</i>			C		7/2
plants	Cyperaceae	<i>Cyperus laevis</i>			C		1
plants	Cyperaceae	<i>Cyperus betchei</i>			C		9
plants	Cyperaceae	<i>Cyperus distans</i>			C		2/2
plants	Cyperaceae	<i>Cyperus enervis</i>			C		2/2
plants	Cyperaceae	<i>Cyperus gilesii</i>			C		5/5
plants	Cyperaceae	<i>Cyperus lucidus</i>			C		4/3
plants	Cyperaceae	<i>Schoenus apogon</i>			C		1
plants	Cyperaceae	<i>Schoenus kennyi</i>			C		4/4
plants	Cyperaceae	<i>Scleria brownii</i>			C		3/3
plants	Cyperaceae	<i>Caustis flexuosa</i>			C		3/1
plants	Cyperaceae	<i>Cyperus flavidus</i>			C		1/1
plants	Cyperaceae	<i>Cyperus gracilis</i>			C		33/10
plants	Cyperaceae	<i>Cyperus pygmaeus</i>	dwarf sedge		C		3/3
plants	Cyperaceae	<i>Cyperus rotundus</i>	nutgrass		C		3/2
plants	Cyperaceae	<i>Eleocharis plana</i>	ribbed spikerush	Y			4/2
plants	Cyperaceae	<i>Fuirena ciliaris</i>			C		4/1
plants	Cyperaceae	<i>Baumea planifolia</i>			C		5/3
plants	Cyperaceae	<i>Baumea rubiginosa</i>	soft twigrush		C		7/3
plants	Cyperaceae	<i>Caustis pentandra</i>	thick twistrush		C		6/4
plants	Cyperaceae	<i>Caustis recurvata</i>			C		1
plants	Cyperaceae	<i>Cyperus bowmannii</i>			C		3/3
plants	Cyperaceae	<i>Cyperus castaneus</i>			C		2/2
plants	Cyperaceae	<i>Cyperus concinnus</i>			C		11/8
plants	Cyperaceae	<i>Cyperus difformis</i>	rice sedge		C		13/4
plants	Cyperaceae	<i>Cyperus digitatus</i>			C		1/1
plants	Cyperaceae	<i>Cyperus eglobosus</i>			C		1
plants	Cyperaceae	<i>Cyperus exaltatus</i>	tall flatsedge		C		1/1
plants	Cyperaceae	<i>Cyperus flaccidus</i>			C		1/1

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plants	Cyperaceae	<i>Cyperus javanicus</i>			C		9/7
plants	Cyperaceae	<i>Cyperus trinervis</i>			C		3/3
plants	Cyperaceae	<i>Cyperus tuberosus</i>		Y			1
plants	Cyperaceae	<i>Gahnia steberiana</i>	sword grass		C		5/1
plants	Cyperaceae	<i>Isolepis inundata</i>	swamp club rush		C		1
plants	Cyperaceae	<i>Schoenus sparteus</i>			C		6/5
plants	Cyperaceae	<i>Schoenus villosus</i>			C		1
plants	Cyperaceae	<i>Abidgaardia ovata</i>			C		3/3
plants	Cyperaceae	<i>Cyperus cuspidatus</i>			C		2/2
plants	Cyperaceae	<i>Gahnia</i>			C		1/1
plants	Cyperaceae	<i>Cautis</i>			C		4
plants	Cyperaceae	<i>Cyperus</i>			C		17/1
plants	Cyperaceae	<i>Scleria</i>			C		1
plants	Dioscoreaceae	<i>Dioscorea transversa</i>	native yam		C		24/3
plants	Dracaenaceae	<i>Sansevieria trifasciata var. trifasciata</i>		Y			1/1
plants	Eriocaulaceae	<i>Eriocaulon scariosum</i>			C		7/3
plants	Eriocaulaceae	<i>Eriocaulon nanum</i>			C		1/1
plants	Haemodoraceae	<i>Haemodorum austroqueenslandicum</i>			C		4/2
plants	Hemerocallidaceae	<i>Dianella brevipedunculata</i>			C		2/2
plants	Hemerocallidaceae	<i>Dianella caerulea var. protensa</i>		Y			1/1
plants	Hemerocallidaceae	<i>Dianella longifolia var. stupata</i>			C		2/2
plants	Hemerocallidaceae	<i>Dianella caerulea var. petasmatodes</i>			C		1/1
plants	Hemerocallidaceae	<i>Dianella longifolia var. stenophylla</i>			C		1/1
plants	Hemerocallidaceae	<i>Dianella</i>			C		6
plants	Hemerocallidaceae	<i>Dianella rara</i>			C		5/5
plants	Hemerocallidaceae	<i>Dianella nervosa</i>			C		2/1
plants	Hemerocallidaceae	<i>Dianella caerulea</i>			C		9/5
plants	Hemerocallidaceae	<i>Dianella revoluta</i>			C		14/2
plants	Hemerocallidaceae	<i>Dianella longifolia</i>			C		5/1
plants	Hemerocallidaceae	<i>Geitonoplesium cymosum</i>	scrambling lily		C		11/2
plants	Hemerocallidaceae	<i>Dianella caerulea var. vannata</i>			C		2/2
plants	Hemerocallidaceae	<i>Dianella revoluta var. tenuis</i>			C		2/2
plants	Hydrocharitaceae	<i>Ottelia ovalifolia</i>			C		6/4
plants	Hydrocharitaceae	<i>Blyxa aubertii</i>	swamp lily		C		1/1
plants	Hydrocharitaceae	<i>Vallisneria nana</i>			C		4/4
plants	Hypoxidaceae	<i>Hypoxis pratensis</i>			C		2/2
plants	Hypoxidaceae	<i>Hypoxis pratensis var. pratensis</i>			C		1/1
plants	Hypoxidaceae	<i>Hypoxis hygrometrica var. villosispala</i>			C		2/1
plants	Hypoxidaceae	<i>Hypoxis arillacea</i>			C		2/2
plants	Iridaceae	<i>Patersonia sericea</i>			C		1
plants	Iridaceae	<i>Patersonia sericea var. sericea</i>			C		2/1
plants	Iridaceae	<i>Patersonia glabrata</i>			C		3/2
plants	Johnstoniaceae	<i>Tricoryne muricata</i>			C		4/1
plants	Johnstoniaceae	<i>Tricoryne elatior</i>	yellow autumn lily		C		11/4
plants	Johnstoniaceae	<i>Caesia parviflora</i>			C		1
plants	Johnstoniaceae	<i>Caesia chlorantha</i>			C		1

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plants	Johnsoniaceae	<i>Tricoryne anceps</i>			C		1
plants	Johnsoniaceae	<i>Caesia parviflora</i> var. <i>parviflora</i>			C		3/1
plants	Juncaceae	<i>Juncus prismatocarpus</i>	branching rush		C		5/2
plants	Juncaceae	<i>Juncus polyanthemus</i>			C		1/1
plants	Juncaceae	<i>Juncus planifolius</i>			C		1
plants	Juncaceae	<i>Juncus continuus</i>			C		7/2
plants	Juncaceae	<i>Juncus aridicola</i>			C		5/1
plants	Juncaceae	<i>Juncus</i>	tussock rush		C		7
plants	Juncaceae	<i>Juncus usitatus</i>			C		2
plants	Juncaginaceae	<i>Triglochin</i>			C		2
plants	Juncaginaceae	<i>Triglochin procera</i>			C		2
plants	Juncaginaceae	<i>Triglochin multifructa</i>			C		1
plants	Laxmanniaceae	<i>Lomandra confertifolia</i>			C		1
plants	Laxmanniaceae	<i>Lomandra leucocephala</i>			C		2
plants	Laxmanniaceae	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>			C		11/4
plants	Laxmanniaceae	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>			C		9/4
plants	Laxmanniaceae	<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>			C		1/1
plants	Laxmanniaceae	<i>Lomandra</i>			C		13
plants	Laxmanniaceae	<i>Laxmannia</i>			C		1/1
plants	Laxmanniaceae	<i>Lomandra laxa</i>	broad-leaved matrush		C		1
plants	Laxmanniaceae	<i>Lomandra glauca</i>	pale matrush		C		1/1
plants	Laxmanniaceae	<i>Lomandra patens</i>			C		1/1
plants	Laxmanniaceae	<i>Lomandra obliqua</i>			C		8/3
plants	Laxmanniaceae	<i>Laxmannia compacta</i>			C		2/2
plants	Laxmanniaceae	<i>Laxmannia gracilis</i>			C		9/3
plants	Laxmanniaceae	<i>Lomandra filiformis</i>	slender wire lily		C		4
plants	Laxmanniaceae	<i>Lomandra longifolia</i>			C		26/3
plants	Laxmanniaceae	<i>Lomandra multiflora</i>			C		1
plants	Laxmanniaceae	<i>Thysanotus tuberosus</i>			C		1
plants	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry		C		23/6
plants	Laxmanniaceae	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>			C		14/4
plants	Orchidaceae	<i>Oberonia complanata</i>			C		1/1
plants	Orchidaceae	<i>Thelymitra ixioides</i> var. <i>ixioides</i>			C		1
plants	Orchidaceae	<i>Acianthus fornicatus</i>	pixie caps		C		1
plants	Orchidaceae	<i>Chiloglottis reflexa</i>	autumn bird orchid		C		1
plants	Orchidaceae	<i>Dendrobium speciosum</i>			C		3/2
plants	Orchidaceae	<i>Gastrodia sesamoides</i>	cinnamon bells		C		1
plants	Orchidaceae	<i>Geodorum densiflorum</i>	pink nodding orchid		C		1/1
plants	Orchidaceae	<i>Sarcochilus ceciliae</i>	fairy bells		C		1
plants	Orchidaceae	<i>Calochilus campestris</i>	copper beard orchid		C		2/1
plants	Orchidaceae	<i>Chiloglottis trullata</i>			C		2/2
plants	Orchidaceae	<i>Corybas aconitiflorus</i>			C		1
plants	Orchidaceae	<i>Dendrobium tetragonum</i>	tree spider orchid		C		2/1
plants	Orchidaceae	<i>Dockrillia cucumerina</i>			C		1
plants	Orchidaceae	<i>Gastrodia crebriflora</i>			V		1/1
plants	Orchidaceae	<i>Thelymitra pauciflora</i>	slender sun orchid		C		1/1

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plants	Orchidaceae	<i>Calochilus gracillimus</i>	slender beard orchid		C		1
plants	Orchidaceae	<i>Calochilus robertsonii</i>	purplish beard orchid		C		1
plants	Orchidaceae	<i>Dipodium hamiltonianum</i>	yellow hyacinth orchid		C		1
plants	Orchidaceae	<i>Genoplesium pedersonii</i>			V		1/1
plants	Orchidaceae	<i>Lyperanthus suaveolens</i>	brown beaks		C		2/1
plants	Orchidaceae	<i>Pterostylis longicurva</i>			C		1
plants	Orchidaceae	<i>Pterostylis longifolia</i>			C		1
plants	Orchidaceae	<i>Pterostylis parviflora</i>	tiny greenhood		C		1
plants	Orchidaceae	<i>Saccolabiopsis armittii</i>			C		2/1
plants	Orchidaceae	<i>Sarcochilus minutiflos</i>	white bells		C		4/1
plants	Orchidaceae	<i>Cymbidium canaliculatum</i>			C		34/2
plants	Orchidaceae	<i>Pterostylis ophioglossa</i>			C		1/1
plants	Orchidaceae	<i>Thelymitra angustifolia</i>			C		1/1
plants	Orchidaceae	<i>Bulbophyllum minutissimum</i>	grain-of-wheat orchid		C		1
plants	Orchidaceae	<i>Erythrorchis cassythoides</i>	climbing orchid		C		1
plants	Orchidaceae	<i>Cymbidium</i>			C		4
plants	Orchidaceae	<i>Calochilus</i>			C		2/1
plants	Orchidaceae	<i>Dendrobium</i>			C		1
plants	Orchidaceae	<i>Thelymitra</i>			C		1/1
plants	Orchidaceae	<i>Sarcochilus</i>			C		1
plants	Orchidaceae	<i>Prasophyllum</i>			C		1
plants	Orchidaceae	<i>Caleana major</i>			C		1
plants	Orchidaceae	<i>Diuris luteola</i>	flying duck orchid		C		1
plants	Orchidaceae	<i>Cymbidium suave</i>	northern yellow donkeys tails		C		2/2
plants	Orchidaceae	<i>Caladenia carnea</i>			C		1
plants	Orchidaceae	<i>Diuris sulphurea</i>			C		1
plants	Orchidaceae	<i>Phaius australis</i>	tiger orchid		C		1
plants	Orchidaceae	<i>Acianthus exsertus</i>			E	E	4/3
plants	Orchidaceae	<i>Caladenia catenata</i>			C		1
plants	Orchidaceae	<i>Dipodium punctatum</i>			C		1
plants	Orchidaceae	<i>Pterostylis nutans</i>			C		1
plants	Orchidaceae	<i>Sarcochilus hillii</i>			C		1
plants	Orchidaceae	<i>Cryptostylis erecta</i>	bonnet orchid		C		1
plants	Orchidaceae	<i>Dockrillia bowmanii</i>	scrub pencil orchid		C		8/3
plants	Orchidaceae	<i>Genoplesium archeri</i>	variable midge orchid		C		1
plants	Orchidaceae	<i>Genoplesium validum</i>			C		1
plants	Orchidaceae	<i>Microtis parviflora</i>	slender onion orchid		V		1/1
plants	Orchidaceae	<i>Bulbophyllum schillerianum</i>	red rope orchid		C		1
plants	Orchidaceae	<i>Caladenia carnea var. carnea</i>			C		2/1
plants	Orchidaceae	<i>Caladenia catenata var. catenata</i>			C		1/1
plants	Orchidaceae	<i>Spiranthes sinensis</i>	austral ladies tresses		C		1/1
plants	Philydreaeae	<i>Philydrium lanuginosum</i>	frogsmouth		C		10/1
plants	Poaceae	<i>Poaceae</i>			C		6
plants	Poaceae	<i>Sorghum</i>			C		1
plants	Poaceae	<i>Aristida</i>			C		59
plants	Poaceae	<i>Cenchrus</i>			C		1

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plants	Poaceae	<i>Eriachne</i>			C		1
plants	Poaceae	<i>Paspalum</i>			C		2
plants	Poaceae	<i>Tripogon</i>			C		2/2
plants	Poaceae	<i>Urochloa</i>			C		2
plants	Poaceae	<i>Digitaria</i>			C		13
plants	Poaceae	<i>Eriochloa</i>			C		2
plants	Poaceae	<i>Cymbopogon</i>			C		3
plants	Poaceae	<i>Enneapogon</i>			C		11/1
plants	Poaceae	<i>Eragrostis</i>			C		31/2
plants	Poaceae	<i>Leptochloa</i>			C		1
plants	Poaceae	<i>Opismenus</i>					1
plants	Poaceae	<i>Pennisetum</i>			C		1
plants	Poaceae	<i>Sporobolus</i>			C		6
plants	Poaceae	<i>Chrysopogon</i>					1
plants	Poaceae	<i>Echinochloa</i>			C		3
plants	Poaceae	<i>Enteropogon</i>			C		1
plants	Poaceae	<i>Paspalidium</i>			C		29
plants	Poaceae	<i>Bothriochloa</i>			C		10
plants	Poaceae	<i>Perotis rara</i>	comet grass		C		9/5
plants	Poaceae	<i>Rytidosperma</i>			C		1
plants	Poaceae	<i>Thyridolepis</i>			C		1
plants	Poaceae	<i>Eriachne rara</i>			C		2/2
plants	Poaceae	<i>Eulalia aurea</i>			C		8/4
plants	Poaceae	<i>Schizachyrium</i>			C		1
plants	Poaceae	<i>Aristida acuta</i>			C		1/1
plants	Poaceae	<i>Aristida annua</i>			V		4/4
plants	Poaceae	<i>Chloris gayana</i>					4/4
plants	Poaceae	<i>Dinebra neesii</i>	rhodes grass	Y			1
plants	Poaceae	<i>Melinis repens</i>			C		39/7
plants	Poaceae	<i>Panicum buncei</i>	red natal grass	Y			7/7
plants	Poaceae	<i>Panicum simile</i>			C		3/2
plants	Poaceae	<i>Digitaria ciliaris</i>			C		3/2
plants	Poaceae	<i>Digitaria diminuta</i>	summer grass	Y			3/2
plants	Poaceae	<i>Digitaria porrecta</i>			C		1/1
plants	Poaceae	<i>Dinebra retroflexa</i>			NT		3/3
plants	Poaceae	<i>Echinochloa colona</i>					1/1
plants	Poaceae	<i>Echinopogon ovatus</i>	awnless barnyard grass	Y			17/7
plants	Poaceae	<i>Eriachne aristidea</i>			C		1
plants	Poaceae	<i>Eriachne mucronata</i>			C		1/1
plants	Poaceae	<i>Sarga plumosum</i>			C		3
plants	Poaceae	<i>Aristida ramosa</i>	purple wiregrass		C		2/1
plants	Poaceae	<i>Entolasia whiteana</i>			C		24/6
plants	Poaceae	<i>Eragrostis brownii</i>			C		1
plants	Poaceae	<i>Aristida spuria</i>	Brown's lovegrass		C		18/5
plants	Poaceae	<i>Eragrostis curvula</i>			C		1/1
plants	Poaceae	<i>Eragrostis sororia</i>		Y			1
plants	Poaceae				C		16/9

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Poaceae	<i>Aristida vagans</i>			C		4/2
plants	Poaceae	<i>Chloris inflata</i>	purpletop chloris	Y			11/5
plants	Poaceae	<i>Chloris virgata</i>	feathertop rhodes grass	Y			10/2
plants	Poaceae	<i>Diplachne fusca</i>		Y			7
plants	Poaceae	<i>Eleusine indica</i>	crowsfoot grass	Y			3/3
plants	Poaceae	<i>Eriachne obtusa</i>			C		9/9
plants	Poaceae	<i>Isachne globosa</i>	swamp millet		C		2
plants	Poaceae	<i>Panicum effusum</i>			C		29/8
plants	Poaceae	<i>Setima nervosum</i>			C		2/2
plants	Poaceae	<i>Setaria italica</i>	foxtail millet	Y			1/1
plants	Poaceae	<i>Setaria surgens</i>			C		14/10
plants	Poaceae	<i>Sorghum bicolor</i>	forage sorghum	Y			2/2
plants	Poaceae	<i>Sorghum nitidum</i>			C		4
plants	Poaceae	<i>Sorghum x almum</i>		Y			7/6
plants	Poaceae	<i>Triodia pungens</i>			C		3/2
plants	Poaceae	<i>Aristida ingrata</i>			C		2/2
plants	Poaceae	<i>Aristida lignosa</i>			C		5/4
plants	Poaceae	<i>Chloris truncata</i>			C		1/1
plants	Poaceae	<i>Cynodon dactylon</i>		Y			3
plants	Poaceae	<i>Digitaria orbata</i>			C		6/4
plants	Poaceae	<i>Dinebra ligulata</i>			C		5/3
plants	Poaceae	<i>Eragrostis minor</i>	smaller stinkgrass	Y			2/1
plants	Poaceae	<i>Eriochloa crebra</i>	spring grass		C		17/9
plants	Poaceae	<i>Hyparrhenia rufa</i>		Y			3/3
plants	Poaceae	<i>Leersia hexandra</i>	swamp rice grass		C		6/2
plants	Poaceae	<i>Sarga leiocladum</i>			C		2/2
plants	Poaceae	<i>Themeda avenacea</i>			C		2/1
plants	Poaceae	<i>Themeda triandra</i>			C		56/6
plants	Poaceae	<i>Triraphis mollis</i>	kangaroo grass		C		1/1
plants	Poaceae	<i>Urochloa foliosa</i>	purple plumegrass		C		5/5
plants	Poaceae	<i>Aristida calycina</i>			C		18
plants	Poaceae	<i>Aristida contorta</i>	bunched kerosene grass		C		1
plants	Poaceae	<i>Aristida echinata</i>			C		1/1
plants	Poaceae	<i>Aristida muricata</i>			C		1/1
plants	Poaceae	<i>Astrebla lappacea</i>	curly mitchell grass		C		3/2
plants	Poaceae	<i>Chloris</i>			C		10
plants	Poaceae	<i>Eulalia</i>			C		1
plants	Poaceae	<i>Panicum</i>			C		11
plants	Poaceae	<i>Paspalidium gracile</i>	slender panic		C		28/16
plants	Poaceae	<i>Sporobolus sessilis</i>			C		2/2
plants	Poaceae	<i>Tragus australianus</i>	small burr grass		C		13/5
plants	Poaceae	<i>Aristida longicollis</i>			C		1
plants	Poaceae	<i>Bothriochloa bladhii</i>			C		8
plants	Poaceae	<i>Bothriochloa pertusa</i>	hillside burrgrass	Y			8/4
plants	Poaceae	<i>Cenchrus caliculatus</i>	barbed-wire grass		C		1/1
plants	Poaceae	<i>Cymbopogon refractus</i>			C		29/3



Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Poaceae	<i>Dichanthium fecundum</i>	curly bluegrass		C		5/5
plants	Poaceae	<i>Dichanthium sericeum</i>			C		9/1
plants	Poaceae	<i>Digitaria lanceolata</i>			C		1/1
plants	Poaceae	<i>Digitaria longiflora</i>			C		3/3
plants	Poaceae	<i>Digitaria parviflora</i>			C		6/4
plants	Poaceae	<i>Digitaria violascens</i>	bastard summergrass	Y			1/1
plants	Poaceae	<i>Dimorphochloa rigida</i>			C		2/2
plants	Poaceae	<i>Enneapogon nigricans</i>	niggerheads		C		2
plants	Poaceae	<i>Enneapogon truncatus</i>			C		12/12
plants	Poaceae	<i>Eragrostis basedowii</i>			C		2
plants	Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass	Y			26/7
plants	Poaceae	<i>Avena ludoviciana</i>		Y			1/1
plants	Poaceae	<i>Cenchrus ciliaris</i>		Y			68/6
plants	Poaceae	<i>Chloris pectinata</i>	comb chloris		C		2/2
plants	Poaceae	<i>Cymbopogon gratus</i>			C		2/2
plants	Poaceae	<i>Dichanthium tenue</i>	small bluegrass		C		2/2
plants	Poaceae	<i>Digitaria brownii</i>			C		17/15
plants	Poaceae	<i>Digitaria diffusa</i>			C		10/3
plants	Poaceae	<i>Dinebra decipiens</i>	lemon-scented grass		C		4/1
plants	Poaceae	<i>Elionurus citreus</i>			C		1
plants	Poaceae	<i>Enneapogon virens</i>			C		7/4
plants	Poaceae	<i>Entolasia stricta</i>	wiry panic		C		17/2
plants	Poaceae	<i>Eragrostis exigua</i>			C		1/1
plants	Poaceae	<i>Eragrostis pilosa</i>	soft lovegrass	Y			3/3
plants	Poaceae	<i>Eriachne glabrata</i>			C		2
plants	Poaceae	<i>Eriachne stipacea</i>			C		2/1
plants	Poaceae	<i>Eriochloa procera</i>	slender cupgrass		C		12/9
plants	Poaceae	<i>Holcolemma dispar</i>			C		4/4
plants	Poaceae	<i>Mnesithea formosa</i>			C		1/1
plants	Poaceae	<i>Panicum coloratum</i>		Y			1/1
plants	Poaceae	<i>Panicum laevinode</i>	pepper grass		C		2/2
plants	Poaceae	<i>Panicum paludosum</i>	swamp panic		C		1/1
plants	Poaceae	<i>Paspalidium rarum</i>			C		4/2
plants	Poaceae	<i>Phalaris paradoxa</i>	paradoxa grass	Y			1/1
plants	Poaceae	<i>Setaria apiculata</i>		Y			1/1
plants	Poaceae	<i>Sorghum halepense</i>	Johnson grass		C		2/2
plants	Poaceae	<i>Sporobolus caroli</i>	fairy grass		C		31/2
plants	Poaceae	<i>Sporobolus creber</i>			C		12/1
plants	Poaceae	<i>Theellungia advena</i>	coolibah grass		C		8/8
plants	Poaceae	<i>Urochloa piligera</i>			C		7/7
plants	Poaceae	<i>Urochloa pubigera</i>			C		3/2
plants	Poaceae	<i>Urochloa whiteana</i>			C		1/1
plants	Poaceae	<i>Aristida benthamii</i>			C		3
plants	Poaceae	<i>Aristida holathera</i>			C		1
plants	Poaceae	<i>Aristida latifolia</i>	feathertop wiregrass		C		23/12
plants	Poaceae	<i>Aristida lazaridis</i>			C		5/5

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plants	Poaceae	<i>Aristida leptopoda</i>	white speargrass		C		17/9
plants	Poaceae	<i>Aristida personata</i>			C		16/13
plants	Poaceae	<i>Astrelba elymoides</i>	hoop mitchell grass		C		2/2
plants	Poaceae	<i>Astrelba squarrosa</i>	bull mitchell grass		C		8/2
plants	Poaceae	<i>Cenchrus echinatus</i>	Mossman River grass	Y			3/2
plants	Poaceae	<i>Cenchrus purpureus</i>		Y			1/1
plants	Poaceae	<i>Cenchrus setigerus</i>		Y			1/1
plants	Poaceae	<i>Chloris ventricosa</i>	tall chloris		C		14/6
plants	Poaceae	<i>Chrysopogon fallax</i>			C		13/2
plants	Poaceae	<i>Digitaria bicornis</i>			C		8/8
plants	Poaceae	<i>Sporobolus contiguus</i>			C		2/1
plants	Poaceae	<i>Sporobolus elongatus</i>			C		6/1
plants	Poaceae	<i>Sporobolus scabridus</i>			C		9/8
plants	Poaceae	<i>Themeda quadrivalvis</i>	grader grass	Y			4/4
plants	Poaceae	<i>Tripogon loliiformis</i>	five minute grass		C		8/4
plants	Poaceae	<i>Urochloa holosericea</i>			C		3/3
plants	Poaceae	<i>Alloteropsis cimicina</i>			C		11/11
plants	Poaceae	<i>Aristida jerichoensis</i>			C		6/1
plants	Poaceae	<i>Chionachne cyathopoda</i>	river grass		C		2/2
plants	Poaceae	<i>Cymbopogon bombycinus</i>	silky oilgrass		C		14/10
plants	Poaceae	<i>Dichanthium annulatum</i>	sheda grass	Y			2/2
plants	Poaceae	<i>Dichanthium aristatum</i>	angleton grass	Y			2/2
plants	Poaceae	<i>Dichelachne micrantha</i>	shorthair plumegrass		C		3/2
plants	Poaceae	<i>Digitaria breviglumis</i>			C		12/6
plants	Poaceae	<i>Elytrophorus spicatus</i>			C		2
plants	Poaceae	<i>Eragrostiella bifaria</i>			C		1
plants	Poaceae	<i>Eragrostis interrupta</i>			C		1
plants	Poaceae	<i>Eragrostis leptocarpa</i>	drooping lovegrass		C		2/2
plants	Poaceae	<i>Eragrostis parviflora</i>	weeping lovegrass		C		10/4
plants	Poaceae	<i>Eragrostis tenuifolia</i>	elastic grass	Y			1/1
plants	Poaceae	<i>Eremochloa bimaiculata</i>	poverty grass		C		11/2
plants	Poaceae	<i>Heteropogon contortus</i>	black speargrass		C		53/5
plants	Poaceae	<i>Heteropogon triticeus</i>	giant speargrass		C		1
plants	Poaceae	<i>Iseilema membranaceum</i>	small flinders grass		C		3/3
plants	Poaceae	<i>Iseilema vaginiflorum</i>	red flinders grass		C		7/6
plants	Poaceae	<i>Oplismenus compositus</i>			C		1/1
plants	Poaceae	<i>Oplismenus imbecillis</i>	firegrass		C		1/1
plants	Poaceae	<i>Schizachyrium fragile</i>			C		3/3
plants	Poaceae	<i>Ischaemum australe</i>			C		5
plants	Poaceae	<i>Ophiuros exaltatus</i>			C		3/3
plants	Poaceae	<i>Oplismenus aemulus</i>	creeping shade grass		C		3/1
plants	Poaceae	<i>Panicum antidotale</i>	giant panic	Y			2
plants	Poaceae	<i>Panicum mitchellii</i>			C		2/1
plants	Poaceae	<i>Paspalidium gausum</i>			C		2/1
plants	Poaceae	<i>Paspalum dilatatum</i>	paspalum	Y			2/1
plants	Poaceae	<i>Paspalum distichum</i>	water couch		C		3/2

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Poaceae	<i>Sacciolepis indica</i>	Indian cupscale grass		C		5/2
plants	Poaceae	<i>Triodia mitchellii</i>	buck spinifex		C		26/20
plants	Poaceae	<i>Urochloa decumbens</i>		Y			1/1
plants	Poaceae	<i>Aristida gracilipes</i>			C		8/7
plants	Poaceae	<i>Aristida polyclados</i>			C		3
plants	Poaceae	<i>Axonopus compressus</i>		Y			1
plants	Poaceae	<i>Brachyachne tenella</i>			C		2/2
plants	Poaceae	<i>Chrysopogon filipes</i>			C		3/2
plants	Poaceae	<i>Cymbopogon ambiguus</i>	lemon grass		C		8/2
plants	Poaceae	<i>Cymbopogon obtectus</i>			C		6/6
plants	Poaceae	<i>Dichanthium setosum</i>			C	V	5/5
plants	Poaceae	<i>Dichelachne montana</i>			C		1/1
plants	Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass		C		2/1
plants	Poaceae	<i>Digitaria ramularis</i>			C		3/2
plants	Poaceae	<i>Enneapogon gracilis</i>	slender nineawn		C		23/13
plants	Poaceae	<i>Enneapogon pallidus</i>	conetop nineawn		C		2/2
plants	Poaceae	<i>Enteropogon minutus</i>			C		1/1
plants	Poaceae	<i>Enteropogon ramosus</i>			C		12/4
plants	Poaceae	<i>Entolasia marginata</i>			C		3/2
plants	Poaceae	<i>Eragrostis elongata</i>	bordered panic	Y			15/8
plants	Poaceae	<i>Eragrostis speciosa</i>			C		5/5
plants	Poaceae	<i>Eriachne pallescens</i>			C		3/2
plants	Poaceae	<i>Eriochloa fatmensis</i>			C		1/1
plants	Poaceae	<i>Imperata cylindrica</i>	blady grass		C		8
plants	Poaceae	<i>Leptochloa digitata</i>			C		8/1
plants	Poaceae	<i>Megathyrsus maximus</i>		Y			2
plants	Poaceae	<i>Panicum larcomianum</i>			C		7/5
plants	Poaceae	<i>Paspalidium distans</i>	shotgrass		C		5/1
plants	Poaceae	<i>Paspalidium disjunctum</i>			C		2/1
plants	Poaceae	<i>Paspalidium globoideum</i>	sago grass		C		11/8
plants	Poaceae	<i>Paspalidium jubiflorum</i>	warrego grass		C		6/4
plants	Poaceae	<i>Paspalidium spartellum</i>	ditch millet		C		1
plants	Poaceae	<i>Paspalum scrobiculatum</i>			C		6
plants	Poaceae	<i>Setaria paspalioides</i>			C		3/2
plants	Poaceae	<i>Sporobolus pyramidalis</i>		Y			1/1
plants	Poaceae	<i>Thyridolepis xerophila</i>			C		12/11
plants	Poaceae	<i>Urochloa mosambicensis</i>	sabi grass	Y			21/8
plants	Poaceae	<i>Urochloa subquadriflora</i>		Y			2/2
plants	Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass				36/12
plants	Poaceae	<i>Aristida leichhardtiana</i>			C		1/1
plants	Poaceae	<i>Calyptochloa gracillima</i>			C		10
plants	Poaceae	<i>Dactyloctenium australe</i>	sweet smother grass	Y			1/1
plants	Poaceae	<i>Dactyloctenium radulans</i>	button grass		C		14/5
plants	Poaceae	<i>Dinebra divaricatissima</i>			C		1/1
plants	Poaceae	<i>Enneapogon purpurascens</i>			C		1/1
plants	Poaceae	<i>Eragrostis leptostachya</i>			C		9/3

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plants	Poaceae	<i>Eragrostis megalosperma</i>			C		13/8
plants	Poaceae	<i>Eragrostis spartinooides</i>			C		2/1
plants	Poaceae	<i>Paspalidium breviflorum</i>			C		1/1
plants	Poaceae	<i>Paspalidium caespitosum</i>	brigalow grass		C		36/13
plants	Poaceae	<i>Paspalidium constrictum</i>			C		13/12
plants	Poaceae	<i>Pseudoraphis spinescens</i>	spiny mudgrass		C		1
plants	Poaceae	<i>Sporobolus actinocladius</i>	katoora grass	Y	C		8/3
plants	Poaceae	<i>Sporobolus jacquemontii</i>			C		2/2
plants	Poaceae	<i>Austrostipa verticillata</i>	slender bamboo grass		C		1
plants	Poaceae	<i>Calyptochloa johnsoniana</i>			C		1/1
plants	Poaceae	<i>Capillipedium spicigerum</i>	spicytop		C		1/1
plants	Poaceae	<i>Dactyloctenium aegyptium</i>	coast button grass	Y			1/1
plants	Poaceae	<i>Echinochloa dietricchiana</i>			C		1/1
plants	Poaceae	<i>Enneapogon robustissimus</i>			C		3/3
plants	Poaceae	<i>Enteropogon paucispiceus</i>			C		1
plants	Poaceae	<i>Paspalidium albobillosum</i>			C		9/6
plants	Poaceae	<i>Paspalidium scabrifolium</i>			C		2/2
plants	Poaceae	<i>Sporobolus australasicus</i>			C		1
plants	Poaceae	<i>Walwhalleya subxerophila</i>			C		15/4
plants	Poaceae	<i>Bothriochloa erianthoides</i>	satintop grass		C		1/1
plants	Poaceae	<i>Capillipedium parviflorum</i>	scented top		C		1/1
plants	Poaceae	<i>Cymbopogon queenslandicus</i>			C		9/4
plants	Poaceae	<i>Digitaria divaricatissima</i>	spreading umbrella grass		C		7/7
plants	Poaceae	<i>Mnesithea rottboellioides</i>			C		1/1
plants	Poaceae	<i>Thyridolepis mitchelliana</i>	mulga mitchell grass	Y	C		1
plants	Poaceae	<i>Dichanthium queenslandicum</i>			V	E	19/19
plants	Poaceae	<i>Diplachne fusca var. fusca</i>			C		8/7
plants	Poaceae	<i>Eriochloa pseudoacrotricha</i>			C		24/14
plants	Poaceae	<i>Eragrostis longipedicellata</i>			C		1/1
plants	Poaceae	<i>Hyparrhenia rufa subsp. rufa</i>		Y			9/9
plants	Poaceae	<i>Setaria australiensis</i>	scrub pigeon grass		C		3/3
plants	Poaceae	<i>Setaria oplismenoides</i>			C		5/5
plants	Poaceae	<i>Sporobolus disjunctus</i>			C		4/4
plants	Poaceae	<i>Sporobolus natalensis</i>		Y			1/1
plants	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass		C		8/1
plants	Poaceae	<i>Aristida caput-medusae</i>			C		15/4
plants	Poaceae	<i>Aristida queenslandica</i>			C		11/2
plants	Poaceae	<i>Arundinella nepalensis</i>	reedgrass		C		22/4
plants	Poaceae	<i>Bothriochloa decipiens</i>			C		5
plants	Poaceae	<i>Eragrostis tenellula</i>	delicate lovegrass		C		2/1
plants	Poaceae	<i>Iseilema macratherum</i>			C		2/2
plants	Poaceae	<i>Panicum decompositum</i>			C		9
plants	Poaceae	<i>Paspalum longifolium</i>			C		2/1
plants	Poaceae	<i>Phragmites australis</i>	common reed		C		1/1
plants	Poaceae	<i>Setaria verticillata</i>	whorled pigeon grass	Y			1
plants	Poaceae	<i>Sorghum arundinaceum</i>	Rhodesian Sudan grass	Y			1/1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Poaceae	<i>Dinebra panicea</i> var. <i>brachiata</i>		Y			1/1
plants	Poaceae	<i>Aristida calycina</i> var. <i>calycina</i>			C		13/11
plants	Poaceae	<i>Aristida calycina</i> var. <i>praealta</i>			C		1/1
plants	Poaceae	<i>Dinebra decipiens</i> var. <i>asthenes</i>			C		19/8
plants	Poaceae	<i>Sorghum nitidum</i> forma <i>aristatum</i>			C		4/4
plants	Poaceae	<i>Dinebra decipiens</i> var. <i>decipiens</i>			C		11/8
plants	Poaceae	<i>Dinebra decipiens</i> var. <i>peacockii</i>			C		1/1
plants	Poaceae	<i>Ischaemum australe</i> var. <i>australe</i>			C		1/1
plants	Poaceae	<i>Megathyrsus maximus</i> var. <i>maximus</i>		Y			2/1
plants	Poaceae	<i>Aristida benthamii</i> var. <i>benthamii</i>			C		4/4
plants	Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>		Y			7/6
plants	Poaceae	<i>Echinochloa polystachya</i> cv. <i>Amity</i>			C		1/1
plants	Poaceae	<i>Hemarthria uncinata</i> var. <i>uncinata</i>			C		1/1
plants	Poaceae	<i>Panicum decompositum</i> var. <i>tenuius</i>			C		6/4
plants	Poaceae	<i>Chloris divaricata</i> var. <i>divaricata</i>	slender chloris		C		15/9
plants	Poaceae	<i>Hymenacne amplexicaulis</i> cv. <i>Olive</i>		Y			3/3
plants	Poaceae	<i>Aristida benthamii</i> var. <i>spinulifera</i>			C		1/1
plants	Poaceae	<i>Bothriochloa bladhii</i> subsp. <i>bladhii</i>			C		5/4
plants	Poaceae	<i>Eriachne pallescens</i> var. <i>pallescens</i>			C		3/2
plants	Poaceae	<i>Megathyrsus maximus</i> var. <i>pubiglumis</i>		Y			27/6
plants	Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>			C		2/1
plants	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>humilius</i>			C		3/3
plants	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			C		14/14
plants	Poaceae	<i>Bothriochloa decipiens</i> var. <i>decipiens</i>			C		11/6
plants	Poaceae	<i>Aristida queenlandica</i> var. <i>dissimilis</i>			C		12/9
plants	Poaceae	<i>Panicum decompositum</i> var. <i>decompositum</i>			C		4/4
plants	Poaceae	<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>			C		7/3
plants	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>polystachyum</i>			C		1/1
plants	Poaceae	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>			C		12/6
plants	Poaceae	<i>Aristida queenlandica</i> var. <i>queenlandica</i>			C		4/4
plants	Poaceae	<i>Bothriochloa decipiens</i> var. <i>cloncurrensis</i>			C		3/3
plants	Poaceae	<i>Calyptochloa gracillima</i> subsp. <i>gracillima</i>			C		10/10
plants	Poaceae	<i>Cleistochloa</i> sp. ( <i>Duaringa</i> K.B.Addison 42)			C		13/13
plants	Poaceae	<i>Panicum queenlandicum</i> var. <i>queenlandicum</i>			C		5/5
plants	Poaceae	<i>Digitaria divaricatissima</i> var. <i>divaricatissima</i>			C		2/2
plants	Poaceae	<i>Eriachne mucronata</i> forma ( <i>Alpha C.E.Hubbard 7882</i> )	desert bluegrass		C		11/11
plants	Poaceae	<i>Bothriochloa ewartiana</i>	common native couch		C		22/10
plants	Poaceae	<i>Brachyachne convergens</i>			C		8/2
plants	Poaceae	<i>Chrysopogon oliganthus</i>			C		1/1
plants	Poaceae	<i>Chrysopogon sylvaticus</i>			C		1
plants	Poaceae	<i>Cleistochloa subjuncea</i>			C		11/8
plants	Poaceae	<i>Digitaria leucostachya</i>			C		3
plants	Poaceae	<i>Enneapogon intermedius</i>			C		3/3
plants	Poaceae	<i>Enneapogon lindleyanus</i>			C		27/17
plants	Poaceae	<i>Enneapogon polyphyllus</i>	leafy nineawn		C		6/5
plants	Poaceae	<i>Enteropogon acicularis</i>	curly windmill grass		C		10/2

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	Poaceae	<i>Enteropogon unispiceus</i>			C		16/5
plants	Poaceae	<i>Eragrostis alveiformis</i>			C		1/1
plants	Poaceae	<i>Eragrostis cilianensis</i>		Y			4/2
plants	Poaceae	<i>Moorochloa eruciformis</i>		Y			6/6
plants	Poaceae	<i>Panicum queenslandicum</i>			C		7
plants	Poaceae	<i>Paspalidium criniforme</i>			C		7/6
plants	Poaceae	<i>Urochloa gilesii</i> var. <i>gilesii</i>			C		4/4
plants	Poaceae	<i>Cynodora dactylon</i> var. <i>dactylon</i>		Y			4/4
plants	Pontederiaceae	<i>Monochoria cyanea</i>			C		6/3
plants	Potamogetonaceae	<i>Potamogeton tricarinatus</i>	floating pondweed		C		1
plants	Potamogetonaceae	<i>Potamogeton octandrus</i>			C		1/1
plants	Potamogetonaceae	<i>Stuckenia pectinata</i>			C		1/1
plants	Potamogetonaceae	<i>Potamogeton crispus</i>	curly pondweed		C		1/1
plants	Potamogetonaceae	<i>Potamogeton</i>			C		1/1
plants	Restionaceae	<i>Baloskion pallens</i>			C		7/5
plants	Smilacaceae	<i>Smilax australis</i>	barbed-wire vine		C		14/3
plants	Typhaceae	<i>Typha</i>			C		1
plants	Typhaceae	<i>Typha orientalis</i>	broad-leaved cumbungi		C		1
plants	Xanthorrhoeaceae	<i>Xanthorrhoea</i>			C		6
plants	Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>			C		17/2
plants	Xanthorrhoeaceae	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>		Y			4
plants	Xyridaceae	<i>Xyris complanata</i>	yellow-eye		C		6/4
plants	Bartramiaceae	<i>Philonotis hastata</i>			C		1/1
plants	Fissidentaceae	<i>Fissidens asplenioides</i>			C		1/1
plants	Fissidentaceae	<i>Fissidens</i>			C		1/1
plants	Funariaceae	<i>Entosthodon</i>		Y			1/1
plants	Leucobryaceae	<i>Leucobryum chlorophyllosum</i>			C		1/1
plants	Leucobryaceae	<i>Leucobryum aduncum</i>			C		2/2
plants	Meteoriaceae	<i>Papillaria crocea</i>			C		1/1
plants	Orthotrichaceae	<i>Macromitrium aurescens</i>			C		1/1
plants	Orthotrichaceae	<i>Macromitrium hemitrichodes</i>			C		1/1
plants	Ptychomitriaceae	<i>Ptychomitrium australe</i>			C		2/2
plants	Sphagnaceae	<i>Sphagnum</i>			C		2/2
plants	Isoetaceae	<i>Isoetes muelleri</i>	quillwort		C		1/1
plants	Indet.	<i>Indet.</i>			C		11
plants	Psilotaceae	<i>Psilotum nudum</i>	skeleton fork fern		C		5/4
plants	Linderniaceae	<i>Lindernia alsinoides</i>			C		1/1
plants	Phrymaceae	<i>Peplidium foecundum</i>			C		3/1
plants	Phrymaceae	<i>Mimulus gracilis</i>	slender monkey flower		C		7/3
plants	Phrymaceae	<i>Glossostigma diandrum</i>			C		4/3
plants	Streptophyceae	<i>Chara</i>			C		1/1
plants	Streptophyceae	<i>Nitella</i>			C		1/1
protists	Cyanophyceae	<i>Aphanothece stagnina</i>			C		1/1
protists	Cyanophyceae	<i>Stigonema multipartitum</i>			C		1/1
protists	Cyanophyceae	<i>Scytonema hofman-bangii</i>			C		2/2
protists	Cyanophyceae	<i>Schizothrix friesii</i>			C		1/1

Kingdom Class	Family	Scientific Name	Common Name	I	Q	A	Records
protists	blue-green algae	<i>Stigonema hormoides</i>			C		1/1
protists	blue-green algae	<i>Schizothrix calcicola</i>			C		1/1
protists	green algae	<i>Ulothrix cylindricum</i>			C		1/1
protists	red algae	<i>Hypnea pannosa</i>			C		1/1
protists	yellow-green algae	<i>Phyllosporon</i>			C		1

#### CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

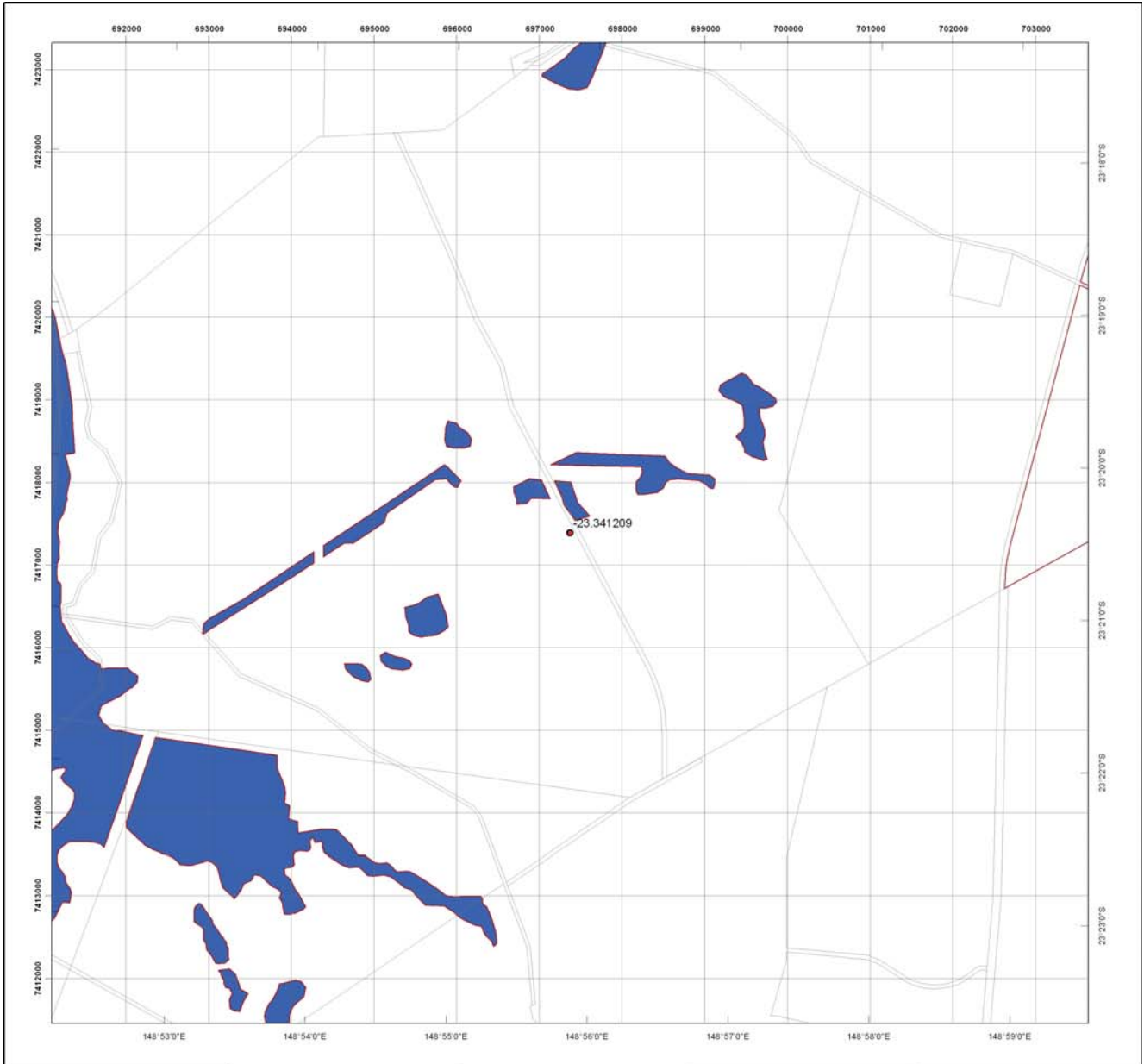
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

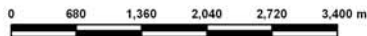
This number is output as 999 if it equals or exceeds this value.



### Regulated Vegetation Management Map

**Legend**

- Coordinates
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Vegetation not regulated under the VMA)
- Water
- Area not categorised
- Cadastral line
- Property boundaries shown are provided as a locational aid only



This product is projected into:  
GDA 1994 MGA Zone 55

**Disclaimer:**

While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Mines makes no representations or warranties about its accuracy, reliability, completeness or suitability or any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

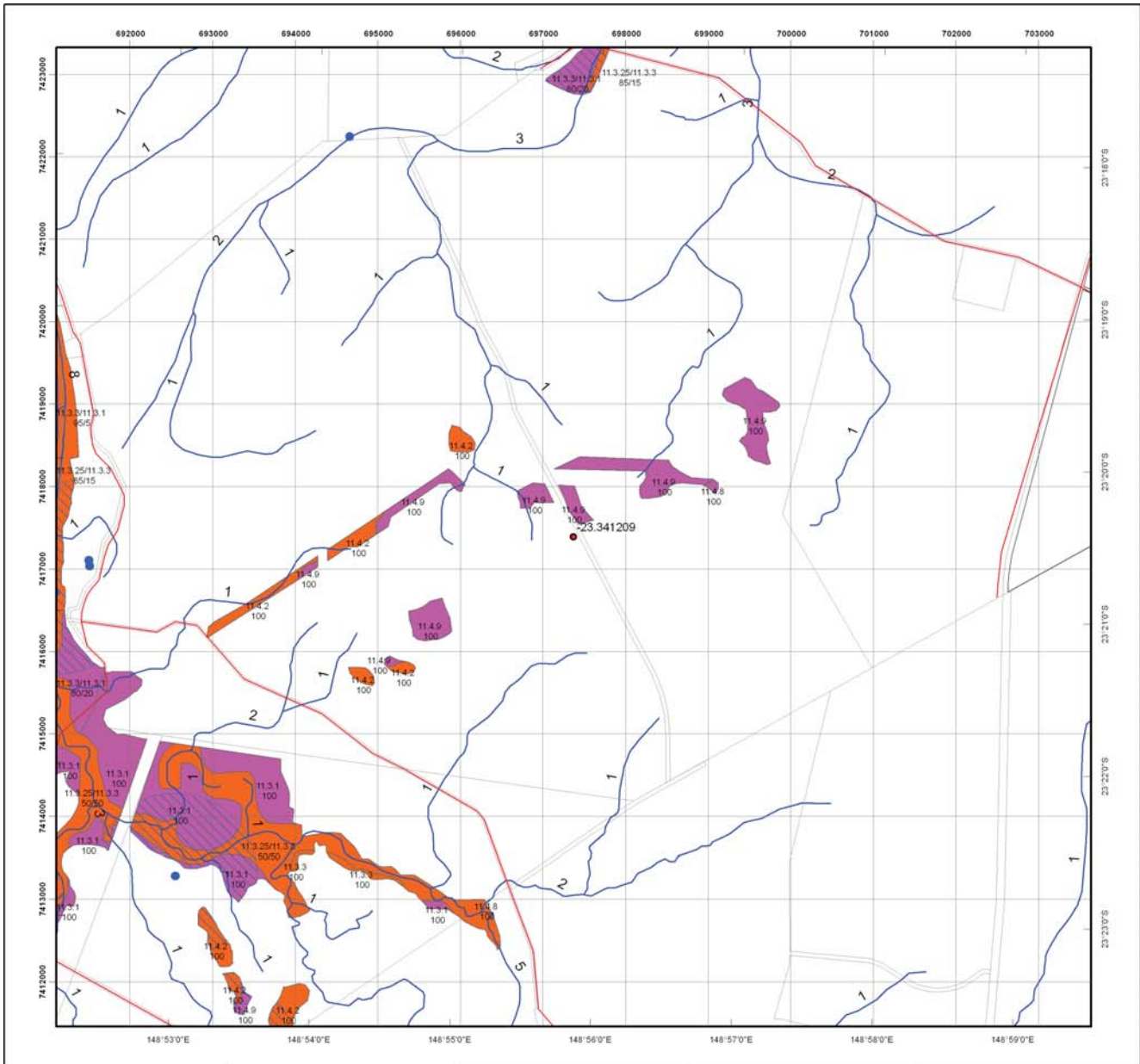
Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: [www.dnrm.qld.gov.au](http://www.dnrm.qld.gov.au) or contact the Department of Natural Resources and Mines.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.







### Vegetation Management Supporting Map

**Legend**

- Coordinates
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area containing remnant vegetation
- Category A or B area under Section 20AH  
These areas are edged in yellow and filled with the remnant RE Status
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem
- Category C area containing high value regrowth vegetation
- Category C area under Section 20AI  
These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- ▨ Wetland on the vegetation management wetlands map
- ▨ Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourse on the vegetation management watercourse map  
(Stream order shown as black number against stream where available)
- Roads
- © Pitney Bowes Software Pty Ltd
- National Parks, State Forest and other reserves
- Cadastral line
- Property boundaries shown are provided as a locational aid only

Labels for Essential Habitat are centred on the area of enquiry.

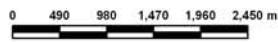
Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: [www.dnrn.qld.gov.au](http://www.dnrn.qld.gov.au) or contact the Department of Natural Resources and Mines.

Digital data for the vegetation management watercourse map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>



This product is projected into:  
GDA 1994 MGA Zone 55



## Vegetation Management Act 1999 - Extract from the essential habitat database - version 4.0

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - Module 8: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Sustainable Planning Act 2009*; and
- Self-assessable vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s or on and within 2.2 km of an identified coordinate on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources and Mines website (<http://www.dnrm.qld.gov.au>) has more information on how the layer is applied under the State Development Assessment Provisions - Module 8: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

- 1) (a) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or
- 2) (b) in which the protected wildlife, at any stage of its life cycle, is located.

Essential habitat identifies endangered or vulnerable native wildlife prescribed under the *Nature Conservation Act 1994*.

### Essential habitat in Category A and B (Remnant vegetation species record) areas:2200m Species Information

(no results)

### Essential habitat in Category A and B (Remnant vegetation species record) areas:2200m Regional Ecosystems Information

(no results)

### Essential habitat in Category A and B (Remnant vegetation) areas:2200m Species Information

(no results)

### Essential habitat in Category A and B (Remnant vegetation) areas:2200m Regional Ecosystems Information

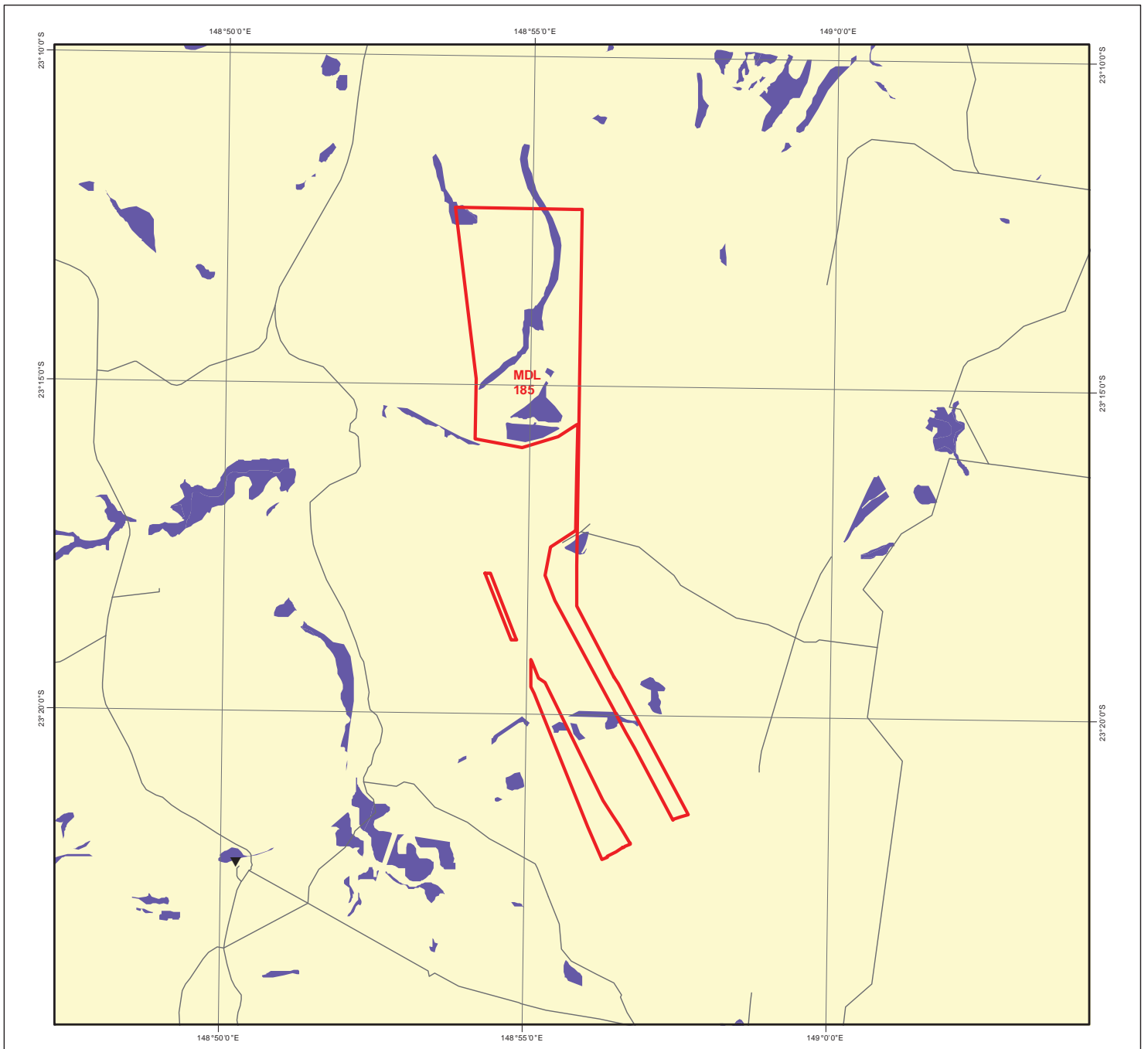
(no results)

### Essential habitat in Category C (High value regrowth vegetation) areas:2200m Species Information

(no results)

### Essential habitat in Category C (High value regrowth vegetation) areas:2200m Regional Ecosystems Information

(no results)

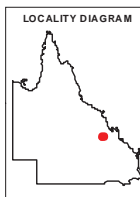


## ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

Requested By: ABUDDERY@AARC.NET.AU

Date: 02 Mar 15 Time: 15.24.16

Centred on Tenure:  
**MDL 185**



0 1,500 3,000 4,500 6,000 7,500 m

This product is projected into GDA 1994 MGA Zone 55

- |   |   |
|---|---|
| Selected Mineral Development Licence                              | <b>CATEGORY C</b>                             |
| <b>CATEGORY A</b><br>National Parks                               | Nature Refuges                                |
| Regional Parks (general)  | Regional Parks (resource use area)            |
| Forest Reserves   | State Forests                                 |
| Wet Tropics World Heritage Area                                   | Timber Reserves                               |
| Great Barrier Reef Marine Park Area                               | Declared Catchment Areas                      |
| Marine Parks other than General Use Zones                         | Declared Irrigation Areas                     |
| <b>CATEGORY B</b>   | Drainage Areas                                |
| World Heritage Areas  | River Improvement Areas                       |
| Queensland Heritage Register Places                               | Stanbroke DLA                                 |
| Ramsar Sites  | Coastal Management District                   |
| Cultural Heritage Registered Areas and DLA's other than Stanbroke | Dams and Weirs                                |
| Special Forestry Areas  | <b>OTHERS</b>                                 |
| Fish Habitat Areas  | Towns   |
| Koala Plan  | Roads   |
| Coordinated Conservation Areas                                    | © Pitney Bowes Software Pty Ltd 2015          |
| Endangered Regional Ecosystems (Biodiversity Status)              | Wild River                                    |
| Marine Parks other than General Use Zones                         | Nominated Waterways - Repealed                |
| Marine Plants   | Wild River High Preservation Areas - Repealed |
|   | Wild River Preservation Areas - Repealed      |
|   | Mahogany Glider Habitat                       |
|   | Directory of Important Wetlands               |
|   | Queensland                                    |

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, Pitney Bowes Software and the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

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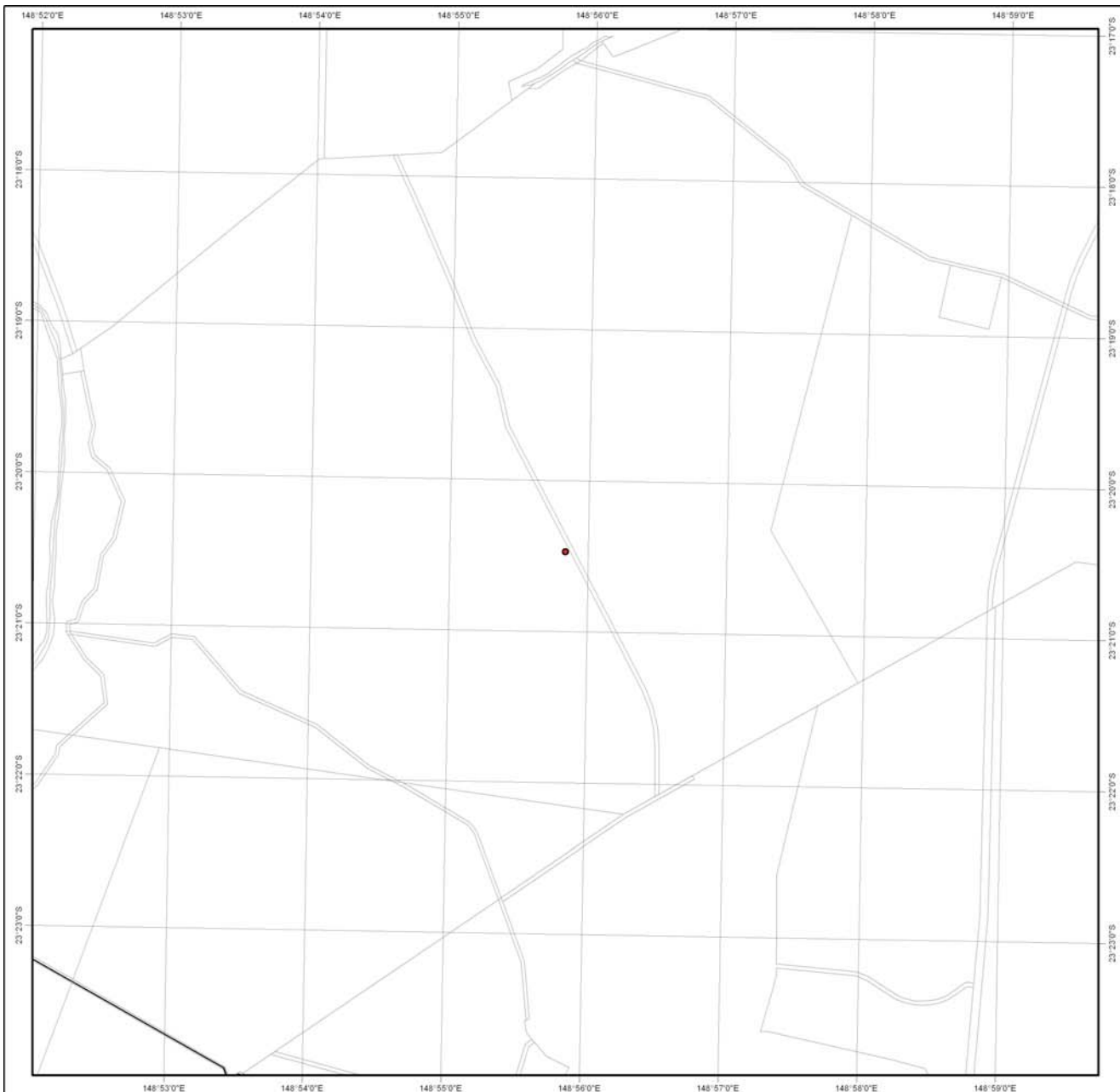
External contributors (non-government parties) of the data for this product are: Great Barrier Reef Marine Park Authority and Pitney Bowes Software

Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QGIS.

**NOTE TO USER:** Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

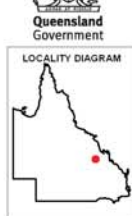
The user should be aware that due to multiple overlapping themes/layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.



### Protected Plants Flora Survey Trigger Map

#### Legend

- Coordinates
- High risk area
- Cadastral line  
Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets



This product is projected into:  
 GDA 1994 Queensland Albers

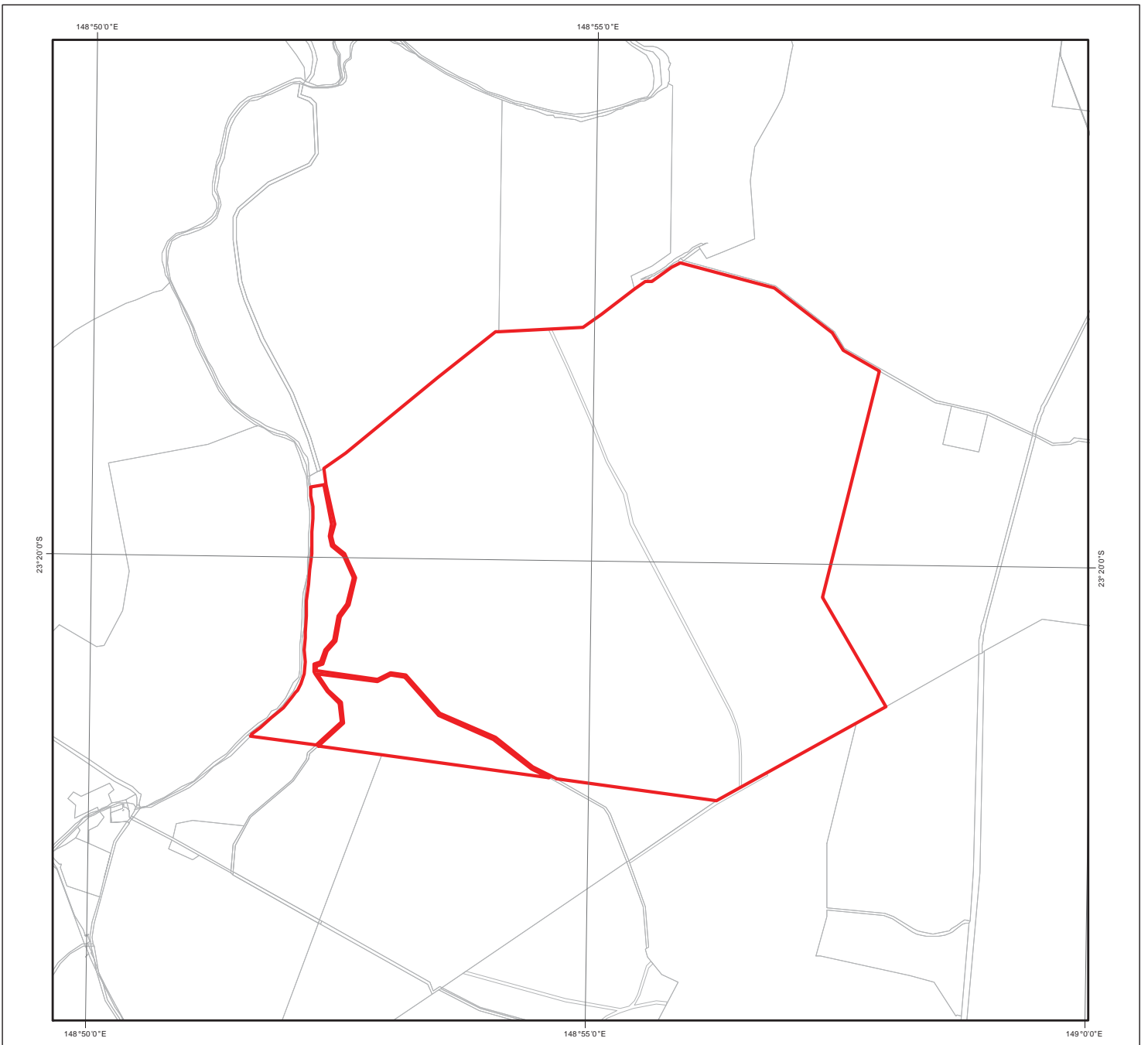
This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at [palm@ehp.qld.gov.au](mailto:palm@ehp.qld.gov.au)

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## Map of Referable Wetlands Wetland Protection Areas

Requested By: ABUDDERY@AARC.NET.AU

Date: 02 Mar 15 Time: 15.38.43

**Centred on Lot on Plan:  
6 LR94**



-  Selected Land Parcel
-  Cadastral Boundary
- Wetland Protection Areas**
-  Wetland
-  Trigger Area

**Note:**

This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Heritage Protection is a technical agency.

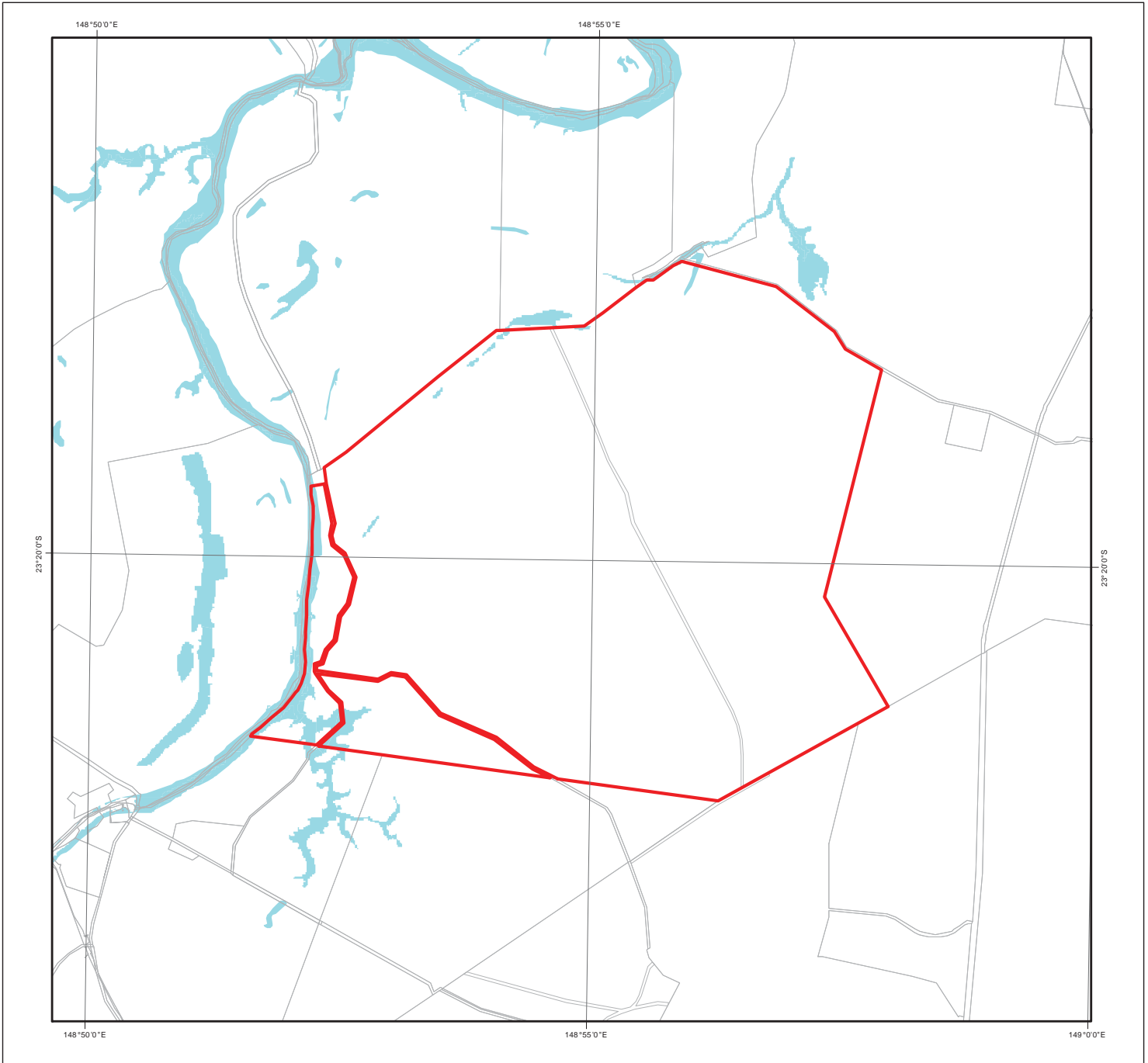
The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *Module 11: Wetlands and wild rivers*.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at [www.ehp.qld.gov.au](http://www.ehp.qld.gov.au) or email [planning.support@ehp.qld.gov.au](mailto:planning.support@ehp.qld.gov.au).

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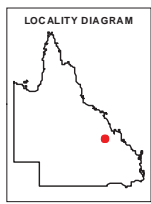


## Map of Referable Wetlands for the Environmental Protection Act 1994

Requested By: ABUDDERY@AARC.NET.AU  
Date: 02 Mar 15 Time: 15.38.46

**Centred on Lot on Plan:  
6 LR94**

-  Selected Land Parcel
-  Cadastral Boundary
-  HES Wetland
-  GES Wetland



**Note:**  
This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

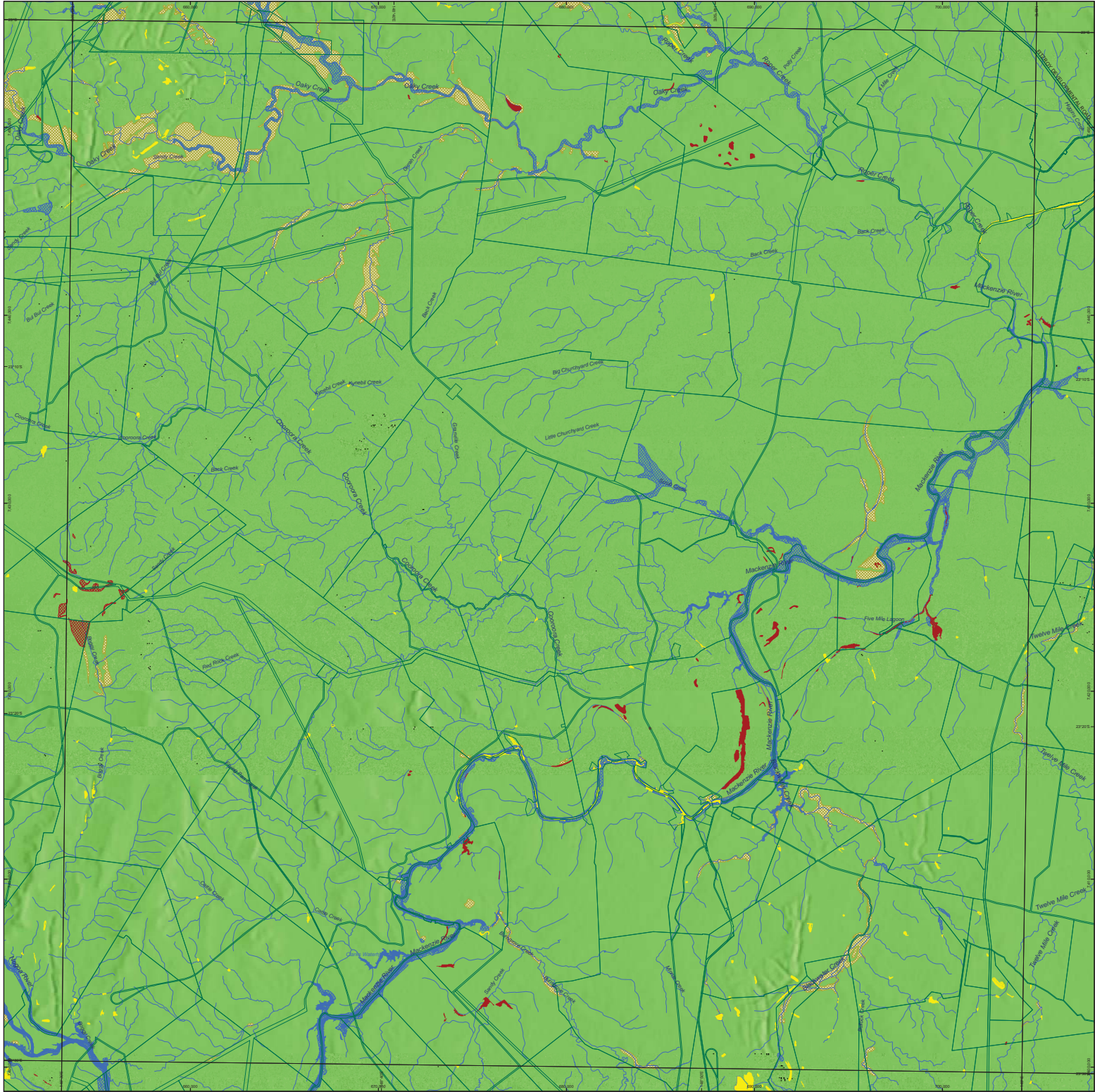
Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at <[www.ehp.qld.gov.au](http://www.ehp.qld.gov.au)> or email <[planning.support@ehp.qld.gov.au](mailto:planning.support@ehp.qld.gov.au)>

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### Water bodies and wetland regional ecosystems

- | Water bodies | Wetland regional ecosystem  |
|--------------|---|
|              | Marine system (e.g. open ocean) Open ocean extending to the Queensland 3km coastal limit. Includes shallow coastal indentations or bays without appreciable freshwater inflows, and coasts that are exposed to oceanic waves and currents. Water regimes are determined primarily by oceanic tides. |
|              | Estuarine system (e.g. mangroves, salt flats and estuaries) Includes wetlands with oceanic water that are significantly diluted with freshwater derived from land drainage.   |
|              | Riverine system (e.g. river and creek channels) Wetlands and depositional habitats contained within a channel. Due to scale constraints these areas may include fringing palustrine vegetation.   |
|              | Lacustrine system (e.g. lakes) Wetlands and depositor habitats situated in a topographic depression or a dammed river channel. Includes areas where emergent perennial vegetation has less than 30% areal coverage and total wetlands area exceeds 5ha.   |
|              | Palustrine system (e.g. vegetated swamps) Wetlands dominated by persistent emergent vegetation or where water in deepest part of the basin is less than 2m, active wave formed shores or bedrock features are lacking.  |
|              | Wetland point features (e.g. springs, rockholes)  |
|              | Riverine system (drainage lines)  |
- Areas that may include wetlands**
- Remnant regional ecosystem 51-80% wetland (mosaic units)
  - Remnant regional ecosystem 1-50% wetland (mosaic units)
- The above descriptions are an abbreviated version of the full descriptions in the Wetland Mapping and Classification Methodology [http://www.dnr.qld.gov.au](#)
- Wetlands**
- For the purposes of mapping and classification, wetlands are areas of permanent or periodic/seasonal inundation, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 m. To be a wetland the area must have one or more of the following attributes:
- at least periodically the land supports plants or animals that are adapted to wet conditions for a major part of their life cycles, or
  - the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
  - the substratum is not soil and is saturated with water, or covered by water at some time.

- Other Feature**
- Towns
  - Roads
  - Cadastral boundaries (>0.5km<sup>2</sup> area)
  - Built-up areas of Queensland
  - Ocean outside 3km limit
  - Land at least 1km outside Queensland

## Queensland Wetlands 2009

### MAP SERIES VERSION 3.0

**COOROORAH**  
8651



Horizontal Datum: GDA 1994  
Projection: Map Grid of Australia 1994 (MGA94 Zone 55)

Scale 1:100,000 at A1 size



Further information on wetland mapping (including methodology and digital data) is available from [www.wetlands.qld.gov.au](http://www.wetlands.qld.gov.au)

**Accuracy information:** The positional accuracy of wetland data mapped at a scale of 1:100,000 is +/-100m with a minimum polygon size of 5ha or 75m wide for linear features, except for areas along the east coast which are mapped at the 150,000 scale with a positional accuracy of +/-50m, with a minimum polygon size of 1ha or 30m wide for linear features. Wetlands smaller than this are not delineated on the wetland data. Consideration of the effects of mapped scale is necessary when interpreting data at a larger scale, e.g. 1:25,000. For property assessment, digital linework should be used as a guide only. The extent of wetlands depicted on this map is based on rectified 2004 Landsat ETM+ imagery supplied by Statewide Landcover and Trees Study (SLATS), Department of Science, Information Technology, Innovation and the Arts (DSITA). The extent of water bodies is based on the maximum extent of inundation derived from available Landsat imagery up to and including the 2009 imagery.

**Data sources:** Water body mapping derived from satellite imagery, DSITA; regional ecosystem mapping, DSITA; drainage mapping, Geoscience Australia (GA), Department of Defence and DSITA; Roads, MapInfo Australia Pty Ltd, 2006; Towns and Built-up areas, GA, 2003; Coastline, GA, 2004; Queensland 3km Limit, Australian Maritime Boundaries Information System (AMBS), GA, 2001; Digital Cadastral Database (DCDB), Department of Natural Resources and Mines, July 2011; Springs database, Queensland Herbarium, 2011; SRM 5km DEM, LISSE/NSA, 2006; Landsat ETM+ imagery supplied by the Australian Centre for Remote Sensing (ACRES), Australian Surveying and Land Information Group (AUSLIG), Canberra. The satellite imagery used in this product has been pre-processed by SLATS, DSITA.

**Disclaimer:** While every care is taken to ensure the accuracy of this product, the Queensland and Australian governments and MapInfo Australia Pty Ltd make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which might be incurred as a consequence of reliance on the product, or as a result of the product being inaccurate or incomplete in any way and for any reason.

Date of map production: April 2013 © The State of Queensland 2013

#### MAP LOCATION IN QUEENSLAND



#### ADJOINING MAPS



Appendix B Flora Species List





Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Acanthaceae	<i>Acanthaceae</i> sp.	-	LC	NL						X	
Acanthaceae	<i>Acanthaceae</i> sp.	-	LC	NL						X	
Acanthaceae	<i>Pseuderanthemum variabile</i>	Pastel Flower	LC	NL					X		
Acanthaceae	<i>Rostellularia adscendens</i>	Pink Tongues	LC	NL			X				
Aizoaceae	<i>Trianthes portulacastrum</i>	Black Pigweed	*	NL					X		
Aizoaceae	<i>Trianthes triquetra</i>	Red Spinach	LC	NL	X		X				
Amaranthaceae	<i>Alternanthera nodiflora</i>	Common Joyweed	LC	NL							X
Amaranthaceae	<i>Dysphania melanocarpa</i>	Black Crumbweed	LC	NL			X				
Amaranthaceae	<i>Nyssanthes erecta</i>	Barbed-wire Weed	LC	NL						X	
Amaranthaceae	<i>Achyranthes aspera</i>	Chaff Flower	LC	NL			X	X			
Amaranthaceae	<i>Alternanthera denticulata</i>	Lesser Joyweed	LC	NL	X		X				
Amaranthaceae	<i>Amaranthus macrocarpus</i>	Dwarf Amaranth	LC	NL			X				
Amaranthaceae	<i>Gomphrena celosoides</i>	Gomphrena Weed	*	NL		X					
Apocynaceae	<i>Carissa ovata</i>	Currant Bush	LC	NL	X	X	X	X		X	
Apocynaceae	<i>Alstonia constricta</i>	Bitterbark	LC	NL							X
Apocynaceae	<i>Marsdenia australis</i>	Doubah	LC	NL						X	
Apocynaceae	<i>Parsonsia lanceolata</i>	Northern Silk-pod	LC	NL			X	X	X		
Apocynaceae	<i>Sarcostemma viminale</i>	Caustic Vine	LC	NL						X	
Asteraceae	<i>Conyza bonariensis</i>	Flaxleaf Fleabane	*	NL							X
Asteraceae	<i>Eclipta prostrata</i>	White Eclipta	*	NL							X
Asteraceae	<i>Minuria integerrima</i>	Smooth Minuria	LC	NL	X						
Asteraceae	<i>Peripleura hispidula</i>	Rough Fuzzweed	LC	NL		X					
Boraginaceae	<i>Ehretia membranifolia</i>	Peachwood	LC	NL		X	X	X	X	X	



Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Cactaceae	<i>Harrisia martinii</i>	Harissa Cactus	C2	NL		X		X	X	X	
Cactaceae	<i>Opuntia tomentosa</i>	Velvety Tree Pear	C2	WoNS			X				
Capparaceae	<i>Capparis loranthifolia</i>	Narrowleaf Bumble	LC	NL	X		X	X		X	
Capparaceae	<i>Capparis lasiantha</i>	Wait a While	LC	NL	X		X			X	
Casuarinaceae	<i>Casuarina cristata</i>	Belah	LC	NL							X
Celastraceae	<i>Denhamia cunninghamii</i>	Yellowberry Bush	LC	NL						X	
Chenopodiaceae	<i>Atriplex muelleri</i>	Annual Saltbush	LC	NL	X				X		
Chenopodiaceae	<i>Einadia nutans</i>	Climbing Saltbush	LC	NL	X		X				
Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	LC	NL	X	X	X	X		X	
Chenopodiaceae	<i>Maireana microphylla</i>	Eastern Cottonbush	LC	NL	X	X					
Chenopodiaceae	<i>Maireana villosa</i>	Silky Bluebush	LC	NL			X				
Chenopodiaceae	<i>Salsola kali</i>	Soft Roly Poly	LC	NL	X	X	X			X	
Chenopodiaceae	<i>Sclerolaena anisacanthoides</i>	Yellow Copperburr	LC	NL	X						
Chenopodiaceae	<i>Sclerolaena muricata</i>	Black Roly Poly	LC	NL					X		
Combretaceae	<i>Terminalia oblongata</i> var. <i>oblongata</i>	Yellowwood	LC	NL					X	X	
Commelinaceae	<i>Commelina ensifolia</i>	Wandering Jew	LC	NL				X			
Convolvulaceae	<i>Evolvulus alsinoides</i>	Tropical Speedwell	LC	NL	X	X					
Crassulaceae	<i>Bryophyllum delagoense</i>	Mother of Millions	C2	NL							X
Cucurbitaceae	<i>Cucumis melo</i>	Native Cucumber	LC	NL				X	X		
Cucurbitaceae	<i>Cucumis myriocarpus</i>	Prickly Pademelon	*	NL				X			
Cyperaceae	<i>Cyperus bifax</i>	Downs Nutgrass	LC	NL	X				X		
Cyperaceae	<i>Cyperus iria</i>	Variable Sedge	LC	NL	X						



Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Cyperaceae	<i>Fimbristylis dichotoma</i>	Common Fringe-rush	LC	NL		X					
Cyperaceae	<i>Cyperus gracilis</i>	Slender Flat-sedge	LC	NL				X		X	
Erythroxylaceae	<i>Erythroxylum australe</i>	Cocaine Bush	LC	NL			X	X		X	
Euphorbiaceae	<i>Euphorbia biconvexa</i>	-	LC	NL					X		
Euphorbiaceae	<i>Euphorbia drummondii</i>	Caustic Weed	LC	NL		X		X			
Euphorbiaceae	<i>Euphorbia tannensis</i>	Desert Spurge	LC	NL				X			
Fabaceae	<i>Macroptilium atropurpureum</i>	Siratro	*	NL							X
Fabaceae	<i>Macroptilium lathyroides</i>	Phasey Bean	*	NL							X
Fabaceae	<i>Parkinsonia aculeata</i>	Parkinsonia	C2	WoNS							X
Fabaceae	<i>Rhynchosia minima</i>	Rhynco	LC	NL					X		
Fabaceae	<i>Stylosanthes scabra</i>	Shrubby Stylo	*	NL							X
Fabaceae	<i>Acacia harpophylla</i>	Brigalow	LC	NL	X		X	X	X	X	
Fabaceae	<i>Bauhinia carronii</i>	Bean Tree	LC	NL					X		X
Fabaceae	<i>Cassia brewsteri</i>	Leichhardt Bean	LC	NL			X				
Fabaceae	<i>Crotalaria medicaginea</i>	Trefoil Rattlepod	LC	NL							X
Fabaceae	<i>Cullen tenax</i>	Emu Foot	LC	NL	X		X	X		X	
Fabaceae	<i>Desmodium varians</i>	Slender Tick Trefoil	LC	NL		X					
Fabaceae	<i>Indigofera brevidens</i>	Desert Indigo	LC	NL				X		X	
Fabaceae	<i>Sesbania cannabina</i>	Sesbania Pea	LC	NL	X			X	X		
Juncaceae	<i>Juncus usitatus</i>	Common Rush	LC	NL							X
Lythraceae	<i>Ammannia multiflora</i>	Jerry-jerry	LC	NL	X						
Malvaceae	<i>Abutilon fraseri</i>	Dwarf Lantern-flower	LC	NL							X
Malvaceae	<i>Abutilon guineense</i>	Hairy Indian-mallow	*	NL					X		

Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Malvaceae	<i>Abutilon oxycarpum</i> var. <i>incanum</i>	Lantern Bush	LC	NL	x					x	
Malvaceae	<i>Grewia scabrella</i>	Rough Grewia	LC	NL			x			x	
Malvaceae	<i>Malvaceae</i> sp.	-	LC	NL					x		
Malvaceae	<i>Malvaceae</i> sp.	-	LC	NL		x					
Malvaceae	<i>Malvastrum americanum</i>	Malvastrum	*	NL		x			x		
Malvaceae	<i>Melhania ovata</i>	Velvet Hibiscus	LC	NL		x	x				
Malvaceae	<i>Abutilon leucopetalum</i>	Desert Chinese Lantern	LC	NL			x		x		
Malvaceae	<i>Abutilon oxycarpum</i>	Lantern Flower	LC	NL	x		x	x			
Malvaceae	<i>Corchorus trilocularis</i>	Native Jute	LC	NL				x			
Malvaceae	<i>Hibiscus brachysiphonius</i>	Low Hibiscus	LC	NL	x						
Malvaceae	<i>Hibiscus sturtii</i>	Hill Hibiscus	LC	NL		x				x	
Malvaceae	<i>Sida fibulifera</i>	Pin Sida	LC	NL		x					
Malvaceae	<i>Sida spinosa</i>	Paddy's Lucerne	*	NL					x		
Malvaceae	<i>Sida subspicata</i>	Spiked Sida	LC	NL		x					
Meliaceae	<i>Owenia acidula</i>	Emu Apple	LC	NL							x
Mimosaceae	<i>Acacia excelsa</i>	Ironwood	LC	NL							x
Mimosaceae	<i>Archidendropsis basaltica</i>	Dead Finish	LC	NL			x				
Myrtaceae	<i>Eucalyptus cambageana</i>	Dawson Gum	LC	NL			x	x		x	
Myrtaceae	<i>Eucalyptus populnea</i>	Poplar Box	LC	NL							x
Nyctaginaceae	<i>Boerhavia coccinea</i>	Tarvine	LC	NL			x	x			
Oleaceae	<i>Jasminum didymum</i>	Native Jasmine	LC	NL			x	x			
Onagraceae	<i>Ludwigia octovalvis</i>	Willow Primrose	LC	NL							x
Orchidaceae	<i>Cymbidium canaliculatum</i>	Black Tree Orchid	LC	NL							x



Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Orchidaceae	<i>Microtis parviflora</i>	Slender Onion Orchid	LC	NL			X	X		X	
Phrymaceae	<i>Mimulus gracilis</i>	Slender Monkey Flower	LC	NL							X
Phyllanthaceae	<i>Flueggea leucopyrus</i>	Bushweed	LC	NL						X	
Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>	Spurge	LC	NL					X		
Phyllanthaceae	<i>Phyllanthus virgatus</i>	Creeping Phyllanthus	LC	NL			X	X		X	
Poaceae	<i>Aristida calycina</i>	Purple Wiregrass	LC	NL			X	X			
Poaceae	<i>Bothriochloa ewartiana</i>	Desert Blue Grass	LC	NL	X	X					
Poaceae	<i>Cenchrus ciliaris</i>	Buffel Grass	*	NL	X		X	X	X	X	
Poaceae	<i>Chloris inflata</i>	Purpletop Chloris	*	NL							X
Poaceae	<i>Chloris virgata</i>	Feathertop Rhodes Grass	*	NL	X						
Poaceae	<i>Dactyloctenium radulans</i>	Button Grass	LC	NL	X	X					
Poaceae	<i>Dichanthium sericeum</i>	Queensland Bluegrass	LC	NL	X						
Poaceae	<i>Echinochloa colona</i>	Awnless Barnyard Grass	*	NL	X						
Poaceae	<i>Enteropogon acicularis</i>	Curly Windmill Grass	LC	NL	X					X	
Poaceae	<i>Enteropogon ramosus</i>	Twirly Windmill Grass	LC	NL		X	X			X	
Poaceae	<i>Eriachne obtusa</i>	Northern Wanderrie Grass	LC	NL	X						
Poaceae	<i>Eriochloa crebra</i>	Early Spring Grass	LC	NL	X			X			
Poaceae	<i>Heteropogon contortus</i>	Black Speargrass	LC	NL							X
Poaceae	<i>Leptochloa digitata</i>	Umbrella Cane Grass	LC	NL			X				
Poaceae	<i>Melinis repens</i>	Red Natal Grass	*	NL							X
Poaceae	<i>Panicum decompositum</i>	Australian Millet	LC	NL							X



Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Poaceae	<i>Panicum larcomianum</i>	-	LC	NL	X						
Poaceae	<i>Panicum maximum</i>	Guinea Grass	*	NL			X				
Poaceae	<i>Paspalum caespitosum</i>	Brigalow Grass	LC	NL			X			X	
Poaceae	<i>Sporobolus australasicus</i>	Australian Dropseed	LC	NL						X	
Poaceae	<i>Sporobolus caroli</i>	Fairy Grass	LC	NL	X	X		X		X	
Poaceae	<i>Sporobolus creber</i>	Rats Tail Grass	LC	NL	X						
Poaceae	<i>Tragus australianus</i>	Small Burr Grass	LC	NL							X
Poaceae	<i>Urochloa mosambicensis</i>	Sabi Grass	*	NL	X	X	X	X		X	
Pontederiaceae	<i>Monochoria cyanea</i>	Blue Hyacinth	LC	NL							X
Portulacaceae	<i>Portulaca filifolia</i>	Slender Pigweed	LC	NL	X	X	X				
Portulacaceae	<i>Portulaca oleracea</i>	Pigweed	LC	NL	X	X	X	X		X	
Proteaceae	<i>Xylomelum cunninghamianum</i>	Woody Pear	LC	NL			X	X	X	X	
Rhamnaceae	<i>Alphitonia excelsa</i>	Soap Tree	LC	NL				X			
Rhamnaceae	<i>Ventilago viminalis</i>	Vine Tree	LC	NL			X			X	
Rubiaceae	<i>Psychotria attenuata</i>	Myrtle	LC	NL			X	X			X
Rutaceae	<i>Citrus glauca</i>	Native Lime	LC	NL	X	X					
Rutaceae	<i>Geijera parviflora</i>	Wilga	LC	NL			X	X		X	
Rutaceae	<i>Flindersia dissosperma</i>	Leopard Tree	LC	NL			X				
Sapindaceae	<i>Atalaya hemiglauca</i>	Whitewood	LC	NL		X	X				
Sapindaceae	<i>Alectryon diversifolius</i>	Scrub Boonaree	LC	NL		X	X	X	X	X	
Sapindaceae	<i>Dodonaea viscosa</i>	Broad Leaf Hopbush	LC	NL		X					
Scrophulariaceae	<i>Eremophila deserti</i>	Ellangowan Poison Bush	LC	NL						X	
Scrophulariaceae	<i>Eremophila mitchellii</i>	False Sandalwood	LC	NL						X	



Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status	FT1	FT2	FT3	FT4	FT5	FT6	OPPS
Scrophulariaceae	<i>Eremopholia</i> sp.	-	LC	NL					X		
Solanaceae	<i>Physalis minima</i>	Wild Gooseberry	LC	NL				X	X		
Solanaceae	<i>Solanum esuriale</i>	Quena	LC	NL	X						
Sterculiaceae	<i>Brachychiton rupestris</i>	Narrow-leaf Bottletree	LC	NL							X
Violaceae	<i>Hybanthus enneaspermus</i>	Purple Spade Flower	LC	NL							X
Vitaceae	<i>Clematicissus opaca</i>	Pepper Vine	LC	NL			X	X		X	
Zygophyllaceae	<i>Tribulus terrestris</i>	Caltrop	LC	NL					X		

EPBC Act Environment Protection and Biodiversity Conservation Act 1999

NC Act Nature Conservation Act 1992

\* Introduced species

C2 Class 2 declared weed

LC Least Concern

NL Not Listed

OPPS Opportunistic observation

WoNS Weed of National Significance



Appendix C Fauna Species List





Family	Scientific Name	Common Name	NC Act	EPBC Act	FA1	FA2	FA3	FA4	FA5	OPPS	Offsite
<b>BIRDS</b>											
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle	LC	NL						X	
Accipitridae	<i>Haliastur spheurnurus</i>	Whistling Kite	LC	Ma		X					
Accipitridae	<i>Milvus migrans</i>	Black Kite	LC	NL		X					
Anatidae	<i>Anas superciliosa</i>	Pacific Black Duck	LC	NL					X		X
Anatidae	<i>Dendrocygna arcuata</i>	Wandering Whistling Duck	LC	Ma		X			X		
Ardeidae	<i>Ardea modesta</i>	Great Egret	LC	Mi, Ma						X	
Ardeidae	<i>Ardea pacifica</i>	White-necked Heron	LC	NL		X			X		
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	LC	NL						X	
Artamidae	<i>Artamus cinereus</i>	Black-faced Woodswallow	LC	NL						X	
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	LC	NL	X		X				
Artamidae	<i>Cracticus tibicen</i>	Australian Magpie	LC	NL		X	X				
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	LC	NL		X			X		
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah	LC	NL		X					
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo Shrike	LC	Ma	X						
Charadriidae	<i>Vanellus miles</i>	Masked Lapwing	LC	NL		X					
Cisticolidae	<i>Cisticola exilis</i>	Golden-headed Cisticola	LC	NL						X	
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	LC	NL			X				
Coraciidae	<i>Eurystomus orientalis</i>	Dollarbird	LC	Ma						X	
Corcoraciidae	<i>Struthidea cinerea</i>	Apostlebird	LC	NL		X		X			
Corvidae	<i>Corvus orru</i>	Torresian Crow	LC	NL	X	X	X				
Cuculidae	<i>Centropus phasianinus</i>	Pheasant Coucal	LC	NL					X		
Estrilidae	<i>Taeniopygia guttata</i>	Zebra Finch	LC	NL						X	
Falconidae	<i>Falco berigora</i>	Brown Falcon	LC	NL						X	
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel	LC	Ma						X	
Gruidae	<i>Grus rubicunda</i>	Brolga	LC	NL						X	



Family	Scientific Name	Common Name	NC Act	EPBC Act	FA1	FA2	FA3	FA4	FA5	OPPS	Offsite
Halcyonidae	<i>Dacelo leachii</i>	Blue-winged Kookaburra	LC	NL		X					
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	LC	NL		X					
Maluridae	<i>Malurus melanocephalus</i>	Red-backed Fairy-wren	LC	NL						X	
Megaluridae	<i>Cincloramphus mathewsi</i>	Rufous Songlark	LC	NL					X	X	
Meliphagidae	<i>Philemon corniculatus</i>	Noisy Friarbird	LC	NL	X						
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	LC	NL		X					
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater	LC	Mi, Ma	X		X			X	
Monarchidae	<i>Gallina cyanoleuca</i>	Magpie-lark	LC	Ma						X	
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian Pipit	LC	Ma						X	
Otididae	<i>Ardeotis australis</i>	Australian Bustard	LC	NL		X				X	
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	LC	NL				X			
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote	LC	NL		X					
Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian Pelican	LC	Ma						X	
Phalacrocoracidae	<i>Phalacrocorax carbo</i>	Great Cormorant	LC	NL						X	
Phalacrocoracidae	<i>Phalacrocorax varius</i>	Pied Cormorant	LC	NL						X	
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	LC	NL	X						
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	LC	NL						X	
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey Crowned Babbler	LC	NL		X					
Psittaculidae	<i>Melopsittacus undulatus</i>	Budgerigar	LC	NL							X
Psittacidae	<i>Platycercus adscitus</i>	Pale-headed Rosella	LC	NL		X					
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	LC	Ma						X	
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willy Wagtail	LC	NL	X			X			
Threskiornithidae	<i>Platalea regia</i>	Royal Spoonbill	LC	NL							X
Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	LC	Ma		X					
<b>MAMMALS</b>											
Bovidae	<i>Bos taurus</i>	Cow	*	NL				X			



Family	Scientific Name	Common Name	NC Act	EPBC Act	FA1	FA2	FA3	FA4	FA5	OPPS	Offsite
Canidae	<i>Canis familiaris</i>	Wild Dog	C2	NL		X					
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail Bat	LC	NL	X						
Equidae	<i>Equus caballus</i>	Horse	*	NL						X	
Macropodidae	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	LC	NL		X	X		X	X	
Macropodidae	<i>Wallabia bicolor</i>	Swamp Wallaby	LC	NL	X					X	
Molossidae	<i>Chaerephon jobensis</i>	Northern Freetail Bat	LC	NL	?						
Phalangeridae	<i>Trichosurus vulpecula</i>	Common Brush-tail Possum	LC	NL	X	X				X	
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC	NL	X						
Vespertilionidae	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC	NL	?						
Vespertilionidae	<i>Chalinolobus picatus</i>	Little Pied Bat	LC	NL	X						
Vespertilionidae	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	LC	NL	?						
Vespertilionidae	<i>Vespardelus baverstocki</i>	Inland Forest Bat	LC	NL	X						
Vespertilionidae	<i>Vespardelus troughtoni</i>	Eastern Cave Bat	LC	NL	?						
<b>AMPHIBIANS</b>											
Hylidae	<i>Cyclorana alboguttata</i>	Green Stripe Frog	LC	NL	X						
Hylidae	<i>Cyclorana novaehollandiae</i>	New Holland Frog	LC	NL		X					
Hylidae	<i>Litoria caerulea</i>	Green Tree Frog	LC	NL	X	X					
Hylidae	<i>Litoria fallax</i>	Eastern Sedgefrog	LC	NL			X				
Hylidae	<i>Litoria rothii</i>	Laughing Tree Frog	LC	NL						X	
Bufonidae	<i>Rhinella marina</i>	Cane Toad	*	NL	X	X			X		
<b>REPTILES</b>											
Elapidae	<i>Pseudechis australis</i>	King Brown Snake	LC	NL	X						
Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's Gecko	LC	NL		X		X			
Scincidae	<i>Carlia munda</i>	Shaded-litter Rainbow-skink	LC	NL						X	
Scincidae	<i>Carlia pectoralis</i>	Open-litter Rainbow Skink	LC	NL		X					
Scincidae	<i>Carlia schmeltzii</i>	Robust Rainbow-skink	LC	NL	X						

Family	Scientific Name	Common Name	NC Act	EPBC Act	FA1	FA2	FA3	FA4	FA5	OPPS	Offsite
Scincidae	<i>Cryptoblepharus virgatus</i>	Striped Snake-eyed Skink	LC	NL			X			X	
Scincidae	<i>Menetia greyii</i>	Common Dwarf Skink	LC	NL		X					
Scincidae	<i>Morethia boulengeri</i>	Boulenger's Snake-eyed Skink	LC	NL		X					
Scincidae	<i>Lygisaurus foliorum</i>	Tree-base Litter-skink	LC	NL		X					
Typhlopidae	<i>Ramphotyphlops affinis</i>	Small-headed Blind Snake	LC	NL		X					

Environment Protection and Biodiversity Conservation Act 1999

Nature Conservation Act 1992

Species possibly present but not confirmed

Class 2 declared pest

Introduced species

Least Concern

Marine species

Migratory species

Not Listed

Opportunistic observation

EPBC Act

NC Act

?

C2

\*

LC

Ma

Mi

NL

OPPS



Appendix D Bat Call Identification Report





## Microbat Call Identification Report

<b>Prepared for (“Client”):</b>	AustralAsian Resource Consultants
<b>Survey location/project name:</b>	Jellinbah Central North
<b>Survey dates:</b>	16-19 February 2015
<b>Client project reference:</b>	
<b>Job no.:</b>	AARC1502
<b>Report date:</b>	13 March 2015

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## Methods

### Data receipt and post-processing

Bat call data were recorded at two sites, for three nights per site, using a Song Meter SM2BAT detector (Wildlife Acoustics, USA) and an Anabat detector (Titley Scientific, Brisbane).

Data received for analysis included the following:

Site	Detector	Recording dates	Data received	Anabat sequence files generated from data
FA1	Anabat	Nights of 16, 17, 18 Feb. 2015	Anabat data (.DAT) file @ 917MB	49,133
FA2	Song Meter	Nights of 16, 17, 18 Feb. 2015	70 compressed audio (WAC) files	10,707

All Song Meter WAC files were post-processed with Wildlife Acoustics' *Kaleidoscope Version 2.2.1* to generate call sequence files in Anabat zero-crossing analysis (ZCA) format. *CFCread Version 4.4s* (Corben 2014a) was used to extract sequence files from the Anabat DAT files.

### Bat call identification

All ZCA sequence files were analysed using *AnalookW* (Corben 2014b), with species identification achieved manually by comparing the *AnalookW* call sonograms with those of regionally-relevant reference calls and with published call descriptions (e.g. Reinhold *et al.* 2001; Milne 2002; Pennay *et al.* 2004).

Species' identification was also guided by considering their probability of occurrence based on general distribution information (Churchill 2008; van Dyck *et al.* 2013) and/or database records obtained from Wildlife Online (<http://www.ehp.qld.gov.au/wildlife/wildlife-online>) and/or the Atlas of Living Australia (<http://www.ala.org.au>).

### Reporting standard

The format and content of this report follows Australasian Bat Society standards for the interpretation and reporting of bat call data (Reardon 2003), available on-line at <http://www.ausbats.org.au/>.

Species nomenclature follows van Dyck *et al.* (2013).

## Results & Discussion

The majority of the sequence files generated from the Anabat data contained only background noise, suggesting that the sensitivity setting was too low during deployment. Only 78 of the 49,133 sequence files contained bat call sequences of sufficient quality to allow an attempt at species identification. All of these 78 files contained substantial noise and mostly only weak bat call recordings, which made species identification difficult.

No bat calls were recorded by the Song Meter. Every Anabat file extracted from the WAC data contained just a short (0.5-2.0 second) pure-tone signal at approximately 63 kHz. No other noise was noted in any of the files viewed and there was no evidence of any bat calls or even bat-like signals..

The Anabat data yielded reliable species identification for the following species, recorded at FA1:

- *Chalinolobus gouldii*;
- *Chalinolobus picatus*;
- *Vespadelus baverstocki*; and
- *Saccolaimus flaviventris*.

Several other species may also have been present but very low call quality, along with potential confusion with some of the species listed above, meant that it was not possible to obtain a reliable diagnosis to species. These unconfirmed species included:

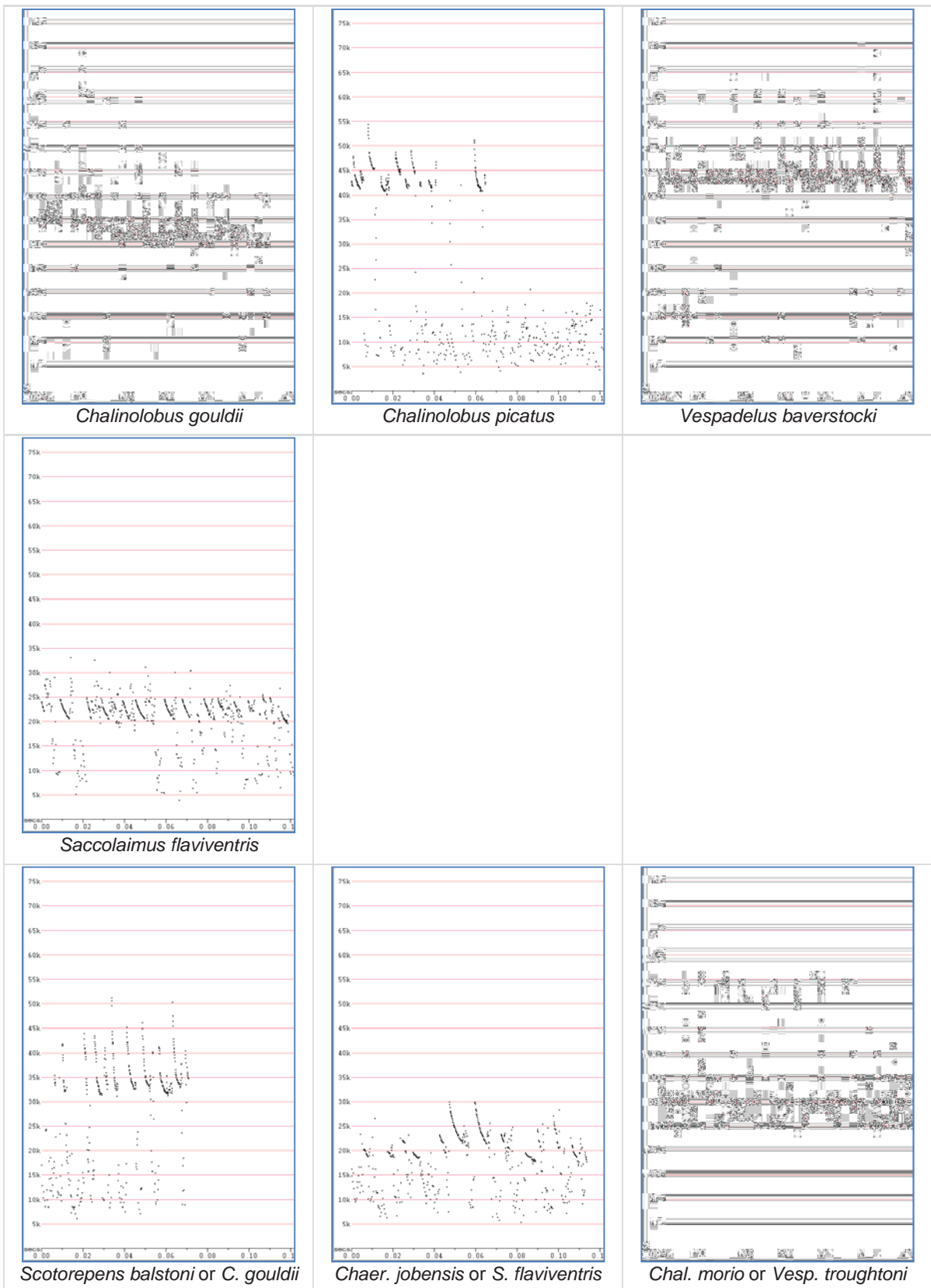
- *Scotorepens balstoni* (potentially confused with poor calls of *C. gouldii*);
- either *Chalinolobus morio* or *Vespadelus troughtoni* (single weak call with characteristic frequency around 52 kHz); and
- *Chaerephon jobensis* (potentially confused with weak/poor calls from *S. flaviventris*).

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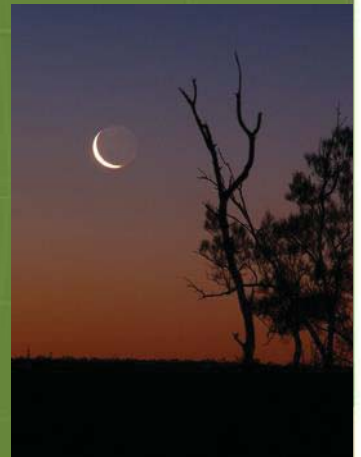


**Appendix 1** Representative call sequences recorded at Jellinbah, 16-19 February 2015.  
 x-axis: time (sec) with time between pulses removed. y-axis: frequency (kHz)



Appendix B Environmental Offset Strategy





# Central North Extension

## Environmental Offsets Strategy

Prepared for:  
**Jellinbah Group Pty Ltd**

May 2015



## Document History and Status

Issue	Rev.	Issued To	Qty	Date	Reviewed	Approved
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## **LIST OF ABBREVIATIONS**

AARC	AustralAsian Resource Consultants Pty Ltd
BVG	Broad Vegetation Group
DBMP	Direct Benefit Management Plan
DOE	(Commonwealth) Department of Environment
E	Endangered
EA	Environmental Authority
EHP	Department of Environment and Heritage Protection
EO Act	<i>Environmental Offsets Act 2014</i>
EO Regulation	<i>Environmental Offsets Regulation 2014</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmentally Sensitive Area
ha	hectare(s)
km	kilometre(s)
MDL	Mineral Development Licence
ML	Mining Lease
MLA	Mining Lease Application
MLES	Matters of Local Environmental Significance
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	<i>Nature Conservation Act 1992</i>
QEOP	Queensland Environmental Offsets Policy 2014 v1.1
RE	Regional Ecosystem
TEC	Threatened Ecological Community
VM Act	<i>Vegetation Management Act 1999</i>



## 1.0 INTRODUCTION

---

AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Jellinbah Group Pty Ltd (Jellinbah) to prepare an Environmental Offsets Strategy for the Central North Extension (the Project) to be submitted alongside the Supporting Information for the Environmental Authority (EA) Amendment Application. The Central North Extension is a proposed extension of the existing Jellinbah Coal Mine, located in the Bowen Basin in central Queensland. An application to amend the current EA (EPML00516813) has been submitted to the Department of Environment and Heritage Protection (EHP).

### 1.1 PURPOSE AND SCOPE

The purpose of this Environmental Offsets Strategy is to address the offset requirements stipulated in the relevant legislation and policies. To achieve this, the following elements will be addressed:

- Significant residual impacts to prescribed environmental matters resulting from the Central North Extension;
- Offset obligations in accordance with the *Environmental Offsets Act 2014* (EO Act), *Environmental Offsets Regulation 2014* (EO Regulation) and Queensland Environmental Offsets Policy 2014 v1.1 (QEOP);
- Available potential offset opportunities; and
- Methods for delivering offsets.

### 1.2 PROJECT DESCRIPTION

The operational area of the Jellinbah Coal Mine is located approximately 24 kilometres (km) north-north-east of Blackwater and 190 km west of Rockhampton, within the Central Highlands Regional Council area. The proposed Project area is located south of the Mackenzie River and adjacent to Jellinbah Plains within Mineral Development Licence (MDL) 185. Figure 1 shows the regional location of the Project and Jellinbah Coal Mine.

The purpose of the Central North Extension is to extend mining activities at Jellinbah Coal Mine into new resource areas and expand the area available for dumping of overburden. No changes to the currently approved mining methods or production rates are proposed as part of the Project. Figure 2 indicates the proposed Project area in relation to the existing Mine. Three new Mining Leases Applications (MLAs) are proposed for the Project.

The proposed infrastructure layout for the Central North Extension is shown in Figure 3. Development of the Project will involve construction and operation of the following major elements:

- Open-cut mining excavations;
- Access / haul roads;
- Sediment dams for water management;
- Water management drains; and
- Topsoil stockpiling and spoil dumping.





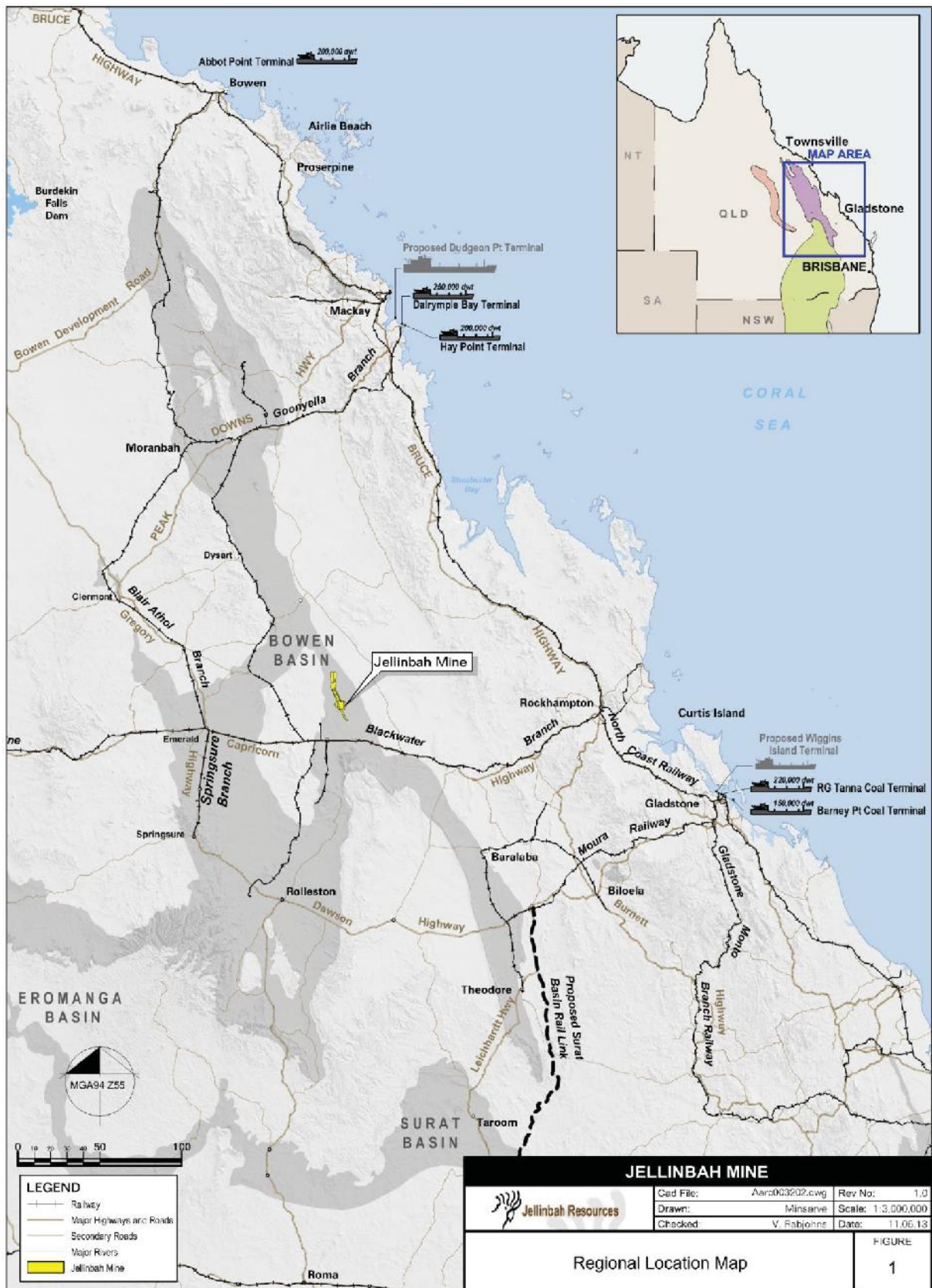


Figure 1 Regional Location of the Project and Jellinbah Coal Mine



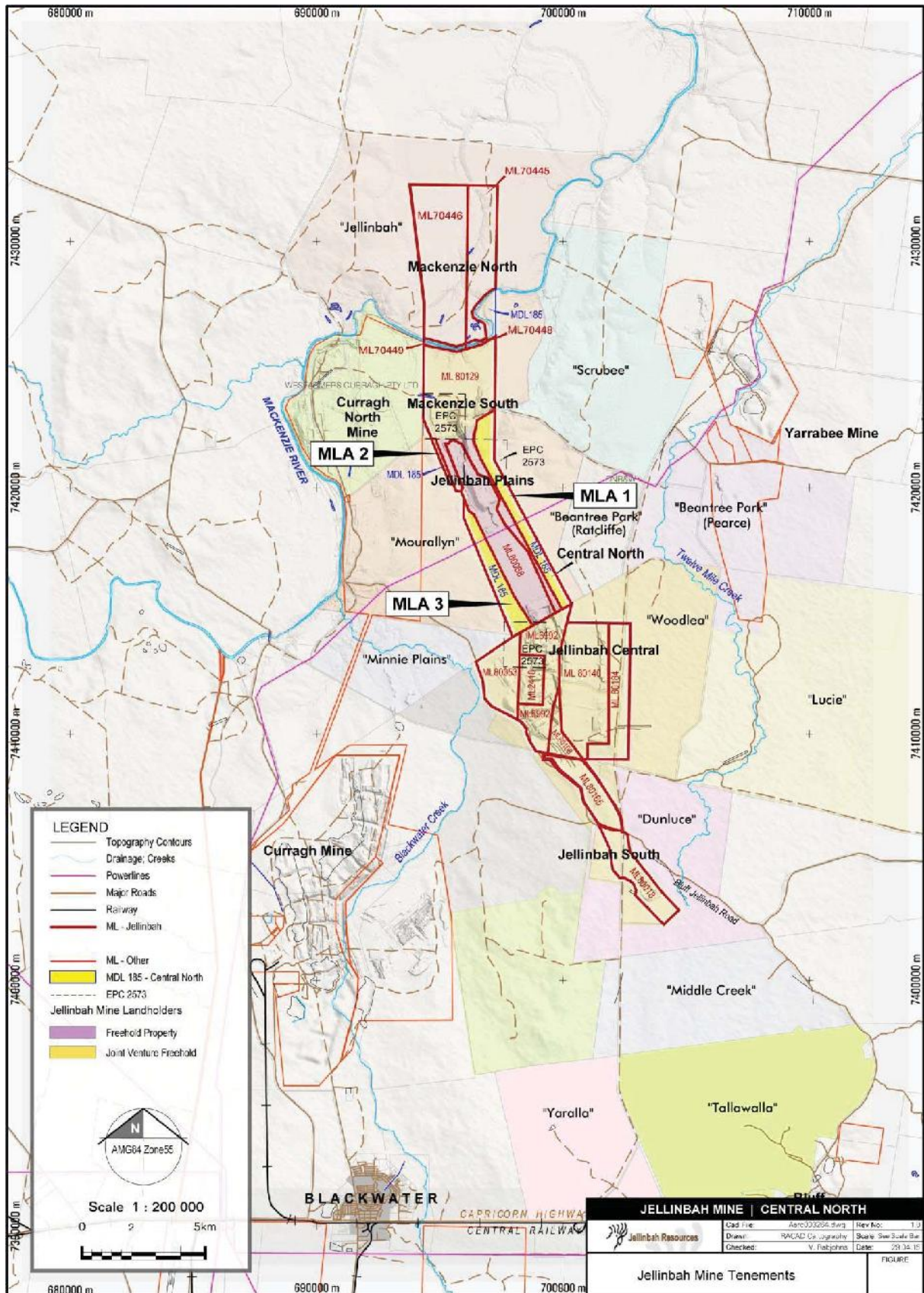


Figure 2 Central North Extension Project Area and the Jellinbah Coal Mine



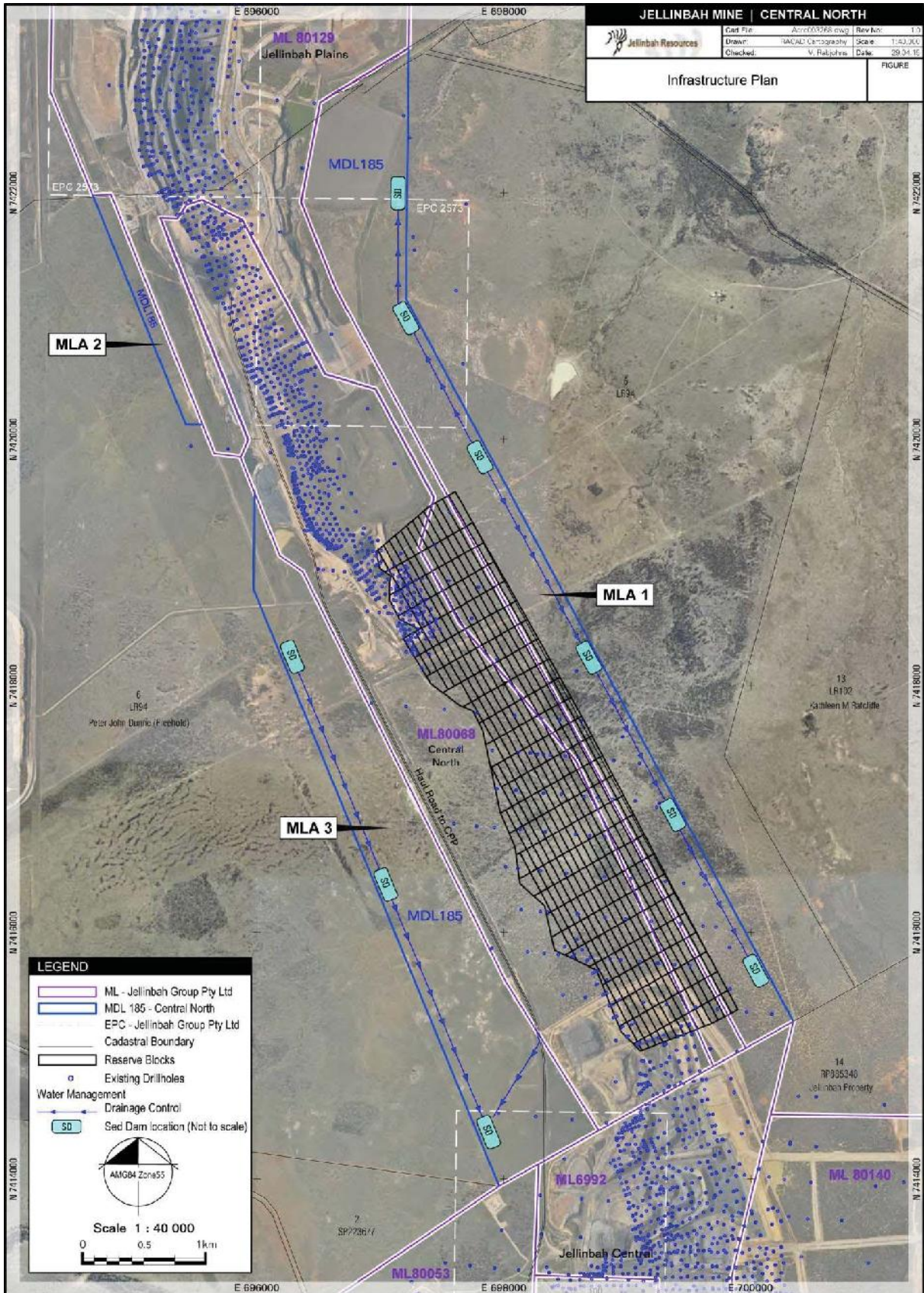


Figure 3 Infrastructure Layout



### **1.3 DELIVERY SCHEDULE**

The proposed schedule for the delivery of environmental offsets is outlined below:

1. Submit EA Amendment Application for the Central North Extension to EHP;
2. Public comment period;
3. Revised EA issued;
4. MLAs granted;
5. Finalise offset delivery method and prepare Offset Delivery Plan;
6. Deliver offsets; and
7. Commence development of the Project.



## 2.0 LEGISLATIVE REQUIREMENTS

---

### 2.1 ENVIRONMENTAL OFFSETS ACT 2014

The purpose of the EO Act is to “counterbalance the significance residual impacts of particular activities on prescribed environmental matters through the use of environmental offsets”. The EO Act proposes that its object will be achieved through:

- An environmental offsets framework;
- Recognition of the level of protection afforded to prescribed environmental matters under other legislation;
- Recognition of matters of national, state and local environmental significance; and
- Coordination of framework implementation in conjunction with other legislation.

The EO Act provides for the offset of significant residual impact to prescribed environmental matters, which include: Matters of State Environmental Significance (MSES), Matters of National Environmental Significance (MNES), and Matters of Local Environmental Significance (MLES). MSES are listed in Schedule 2 of the EO Regulation and include (but are not limited to) the following:

- Regulated vegetation:
  - Endangered and Of Concern Regional Ecosystems (REs);
  - RE intersecting a wetland on the Vegetation Management Wetlands Map;
  - RE intersecting an area indicated as essential habitat for endangered or vulnerable wildlife or on the Essential Habitat Map;
  - RE within the defined distance of the defining banks of a watercourse on the Vegetation Management Watercourse Map;
- Connectivity areas;
- Wetlands and watercourses:
  - Wetland in a wetland protection area;
  - Wetland of high ecological significance shown on the Map of Referable Wetlands;
  - Wetland or watercourse in high ecological value waters;
- Protected wildlife habitat;
- Protected areas; and
- Legally secured offset areas.



## 2.2 QUEENSLAND ENVIRONMENTAL OFFSETS POLICY

The QEOP (EHP 2014) is the principal tool under the EO Act. The QEOP aims to support decision-making and assessment of environmental offsets to ensure offsets meet the requirements of the *Environmental Offsets Act 2014*. It is the intention of the QEOP and EO Act that an environmental offset provides a 'conservation outcome'. A conservation outcome for a prescribed environmental matter is said to be achieved by an environmental offset if "the offset is selected, designed and managed to maintain the viability of the matter" (s.11, EO Act). In order to guide the application and delivery of environmental offsets, the QEOP requires offsets to meet the following principles:

1. Offsets will not replace or undermine existing environmental standards or regulatory requirements, or be used to allow development in areas otherwise prohibited through legislation or policy;
2. Environmental impacts must first be avoided, then minimised, before considering the use of offsets for any remaining impact;
3. Offsets must achieve a conservation outcome that achieves an equivalent environmental outcome;
4. Offsets must provide environmental values as similar as possible to those being lost;
5. Offset provision must minimise the time-lag between the impact and delivery of the offset;
6. Offsets must provide additional protection to environmental values at risk, or additional management actions to improve environmental values; and
7. Where legal security is required, offsets must be legally secured for the duration of the impact on the prescribed environmental matter.

## 2.3 GALILEE BASIN OFFSETS STRATEGY 2013

The QEOP defines 'strategic offset investment corridors' as areas identified and delineated specifically for the benefit of prescribed environmental matters. Proponents seeking to offset significant residual impacts are expected to prioritise offset delivery within these strategic offset investment corridors. The Galilee Basin Strategic Offset Corridors are located in the Brigalow Belt and Desert Uplands bioregions and are managed through the Galilee Basin Offsets Strategy (EHP 2013).

The purpose of the Galilee Basin Offsets Strategy is to identify areas which may be suitable to replace environmental values potentially lost as a result of development in the Galilee Basin. These identified areas, selected specifically for their potential to provide alternative habitat areas or augment the region's conservation and environmental values, facilitate the strategic placement of offsets to achieve conservation outcomes for the Galilee Basin.



## 3.0 OFFSET OBLIGATIONS

---

### 3.1 IMPACTS TO MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

A terrestrial flora and fauna assessment was conducted over the Project site. Two vegetation communities were identified:

- Community 1 – Dawson Gum (*Eucalyptus cambageana*) woodland to open forest with Brigalow (*Acacia harpophylla*) on Cainozoic clay plains (RE 11.4.8/11.4.8a); and
- Community 2 – Non-remnant grassland.

Community 1 will be impacted by progression of the mining pit into MLA 1 and development of a diversion drain in MLA 3.

Community 2 does not constitute a Matter of State Environmental Significance.

No regulated vegetation is associated with any wetland or riparian areas of a watercourse.

#### 3.1.1 Endangered or Of Concern Regional Ecosystems

RE 11.4.8 and RE 11.4.8a are MSES, as they are classified as Endangered under the VM Act, and MNES, as they are also Threatened Ecological Communities (TECs) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to the presence of Brigalow vegetation.

The total area of residual impact to RE 11.4.8/11.4.8a is 4.31 ha.

##### 3.1.1.1 Offset Conditions for Endangered or Of Concern Regional Ecosystems

Impacts to Endangered or Of Concern REs must be offset with areas that meet the following conditions:

- Within the same BVG as the impacted RE;
- Of equivalent RE conservation status; and
- Within the same bioregion.



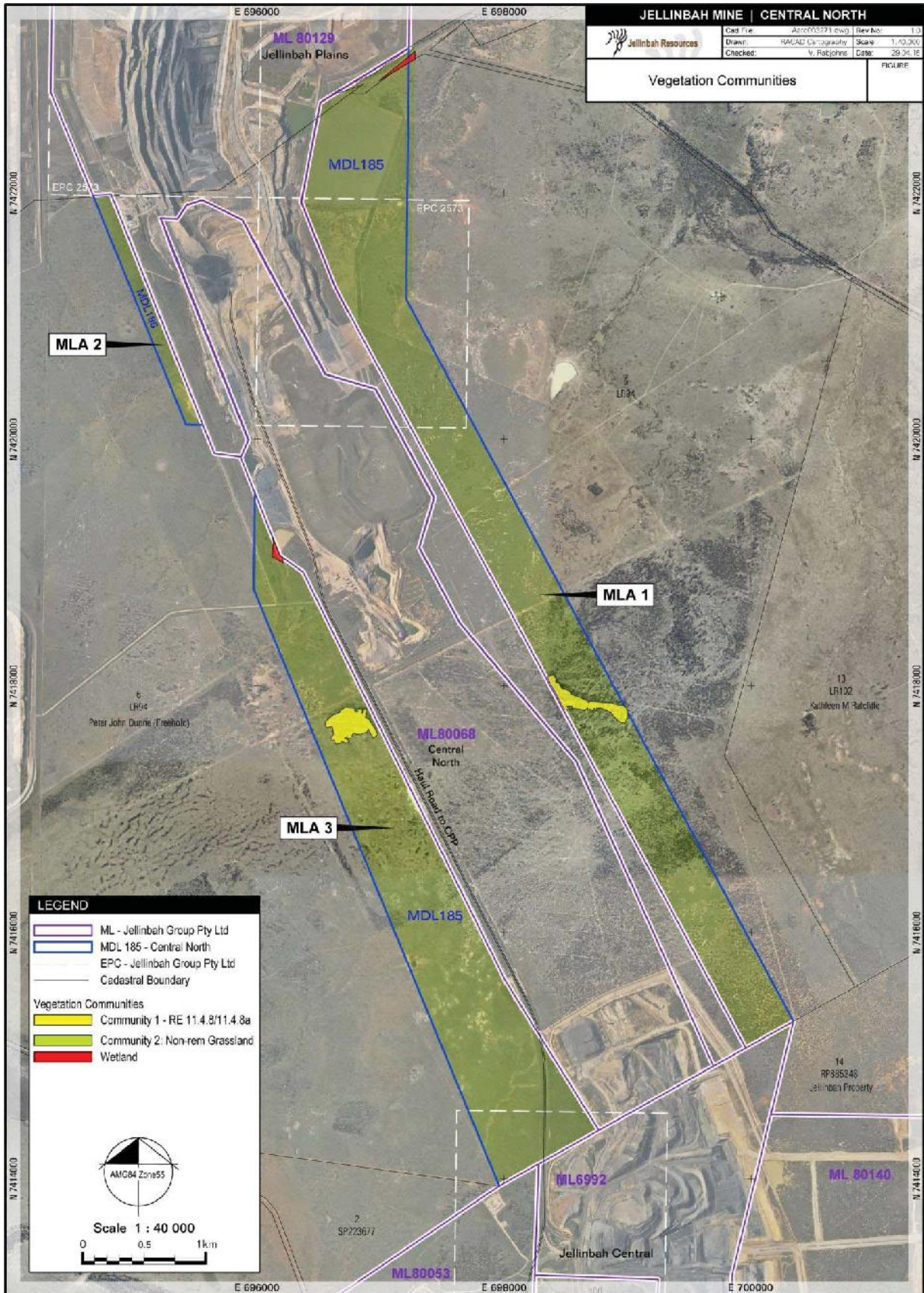


Figure 4 Vegetation Communities on the Project Site





### 3.2 OFFSET OBLIGATION

An offset area must be proportionate to the impact area in terms of size and scale. The QEOP sets multipliers for prescribed environmental matters, with a maximum multiplier of four. A multiplier is defined as “a number used to calculate the size of the offset requirement given the significant residual impact area, for a given prescribed environmental matter” (EHP 2014). The offset area is calculated by multiplying the area of impact by the prescribed multiplier:  $Offset\ Area = Area\ of\ Impact \times Multiplier$ . For the purposes of this Environmental Offsets Strategy, a multiplier of four has been used, as per the QEOP.

The ratio of Community 1 (11.4.8 / 11.4.8a) is estimated to be 99/1. The *Significant Residual Impact Guideline* (EHP 2014) provides criteria for determining whether a residual impact to a MSES is considered to be significant. The area of RE 11.4.8a within Community 1 is too small for impacts to be considered significant. RE 11.4.8a will not be considered further in this Environmental Offsets Strategy. Only impacts to the portion of RE 11.4.8 within Community 1 are considered.

**Table 1 Summary of Impacts to Prescribed Environmental Matters**

RE	Short Description	Status		BVG	Impact Area (ha)
		EPBC Act	VM Act		
11.4.8	11.4.8: <i>Eucalyptus cambageana</i> woodland to open forest with <i>Acacia harpophylla</i> or <i>A. argyrodendron</i> on Cainozoic clay plains.	TEC	E	25a / 34f	4.22
<b>Total</b>					<b>4.22</b>

**Table 2 Broad Vegetation Group Description**

BVG	Description
25a	Open forests to woodlands dominated by <i>Acacia harpophylla</i> (brigalow) sometimes with <i>Casuarina cristata</i> (belah) on heavy clay soils. Includes areas co-dominated with <i>A. cambagei</i> (gidgee) and/or emergent Eucalypts.

### 3.3 OFFSET AREA REQUIREMENTS

Offset area requirements for the Project’s impact to Community 1 (RE 11.4.8 only) are summarised in Table 3.

BVG 25a is particularly prominent throughout the Brigalow Belt Bioregion, with approximately 87% of state-wide coverage occurring within this bioregion (Department of Science, Information Technology, Innovation and the Arts 2014).

**Table 3 Offset Area Requirements**

Matter	BVG	RE Status	Bioregion	Multiplier	Offset Area (Area of Impact x Multiplier)
Endangered RE	25a	Endangered	Brigalow Belt	4	4.22 x 4 = 16.88 ha



## 4.0 OFFSET OPPORTUNITIES

### 4.1 DESKTOP METHODOLOGY

Desktop assessment of potential offset supply within the Brigalow Belt Bioregion was undertaken using MapInfo Professional GIS software. The desktop assessment included interrogation of a variety of spatial datasets obtained from the Queensland Spatial Catalogue:

- To identify potential offset supply within Category X (unregulated), C (high value regrowth) and B (remnant) vegetation, the *Vegetation management – regulated vegetation management map (version 1.16)* was assessed.
- To identify the potential vegetation suitable for offset provision, the *Biodiversity status of pre-clearing and remnant regional ecosystems* spatial datasets were interrogated.
- To prevent conflicting land uses within potential offset supply, Mining Leases (MLs), protected areas, nature refuges and coordinated conservation areas were removed.
- To ensure suitable potential offsets were identified, only vegetation of the same RE status (Endangered), same bioregion, and same BVG (25a and/or 34f) was included.

### 4.2 DESKTOP RESULTS

The QEOP states that both remnant and non-remnant vegetation may be used to supply an offset. Area calculations for three categories of vegetation, as per the *regulated vegetation management map*, have therefore been provided:

- Category X – vegetation classified as unregulated (i.e. non-remnant) and subject to vegetation clearing;
- Category C – vegetation classified as high value regrowth, which is also considered to be non-remnant vegetation; and
- Category B – vegetation classified as remnant.

Results of the desktop assessment are provided in Table 4 and Table 5. The desktop assessment of Queensland Government data indicates that a total of approximately 4,911,775 ha of land is potentially suitable to offset impacts to RE 11.4.8 within the Brigalow Belt Bioregion.

Assessment of offset supply indicates that approximately 137,668 ha of land is potentially suitable to offset impacts within the Galilee Basin Strategic Offset Corridors, which occur within the Brigalow Belt and adjacent Desert Uplands bioregions.

**Table 4 Offset Supply Availability within Brigalow Belt Bioregion**

Matter	Offset Area Requirements	Category X	Category C	Category B
Endangered RE	BVG: 25a RE Status: E Bioregion: Brigalow Belt Area: 16.88 ha	4,636,608 ha	24,958 ha	250,210 ha
<b>Total Available</b>		<b>4,911,775 ha</b>		

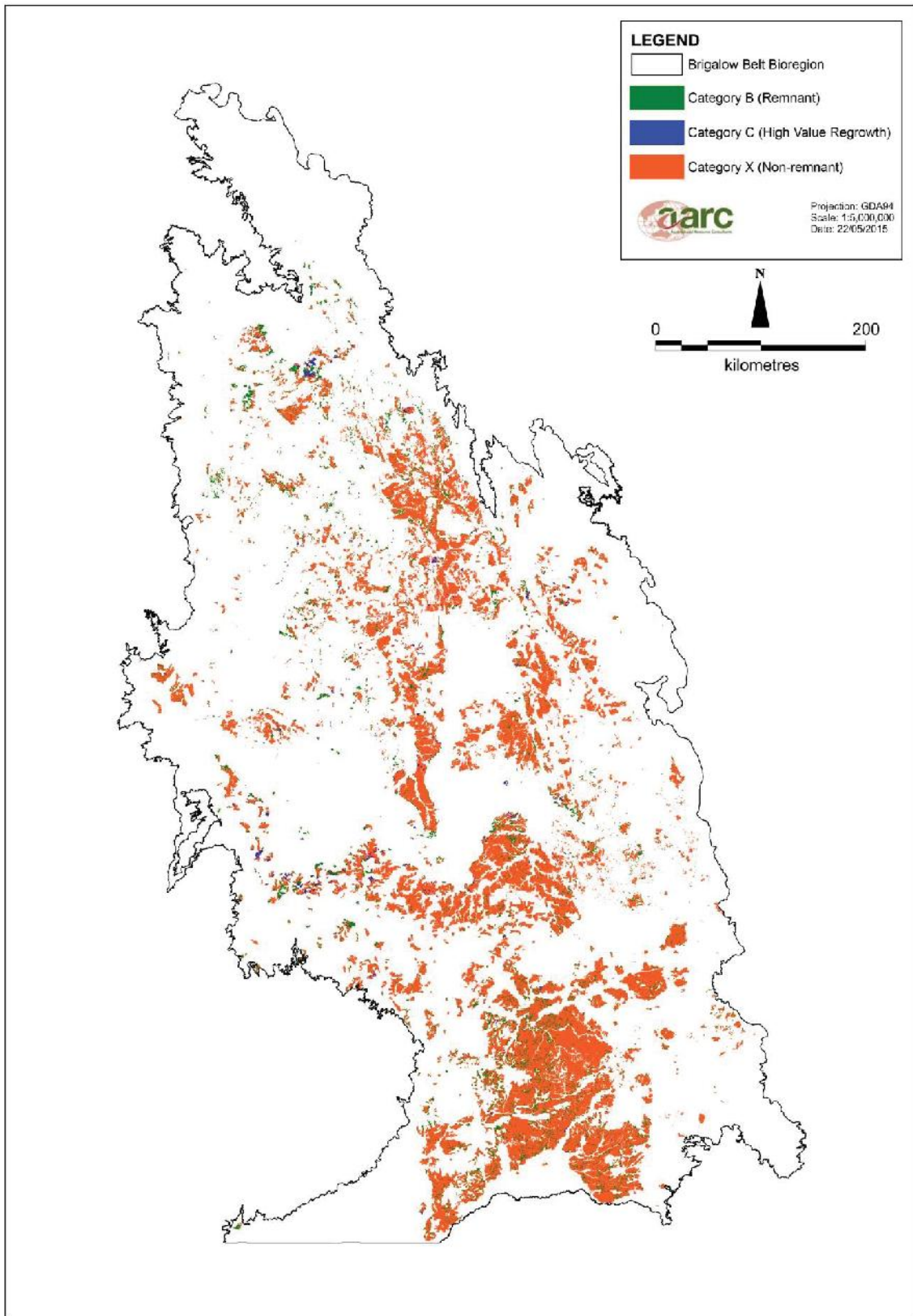


**Table 5 Offset Supply Availability within Galilee Basin Strategic Offset Corridors**

Matter	Offset Area Requirements	Category X	Category C	Category B
Endangered RE	BVG: 25a RE Status: E Bioregion: Brigalow Belt Area: 16.88 ha	104,301 ha	5,330 ha	28,038 ha
<b>Total Available</b>		<b>137,668 ha</b>		

Figure 5 illustrates the vegetation available in each category for offsetting Project impacts within the Brigalow Belt Bioregion.





**Figure 5 Land Potentially Available for Offset within the Brigalow Belt Bioregion**

### **4.3 QUALIFICATION OF DESKTOP ASSESSMENT**

GIS-based interpretation of available supply land was based on data downloaded from the Queensland Spatial Catalogue in May 2015. Ground-truthing of potential offset supply will be undertaken at a later stage of Project development, following approval of the EA and MLAs.

The availability of land for offset supply will depend on the willingness of current land managers and land holders to make areas of land available for offsetting and the outcome of any subsequent negotiations.



## 5.0 OFFSET DELIVERY

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Two broad options for offset delivery are available under the QEOP:

1. Proponent-driven offsets, which involve the proponent directly identifies suitable land and implements an offset; or
2. Financial Settlement Offset, which involves the payment of a financial settlement amount, calculated using the Financial Settlement Offset Calculation Methodology.

### 5.1 LAND-BASED OFFSET

Conventional land-based offsets require verification of the suitability of a proposed offset site to ensure it will provide an adequate conservation outcome to counterbalance the loss at the impact site. Verification is achieved through habitat quality analysis in accordance with EHP's Guide to Determining Terrestrial Habitat Quality.

In accordance with the QEOP, land-based offsets must:

- Result in a conservation outcome; and
- Be implemented on land owned by the Project proponent (i.e. Jellinbah Group); or
- Be implemented on land that is subject to a contractual agreement between the proponent, offset provider and any other relevant third party.

### 5.2 DIRECT BENEFIT MANAGEMENT PLAN

Proponents may deliver offsets through a Direct Benefit Management Plan (DBMP). A DBMP is a pre-approved investment package that identifies priority actions for addressing threats to and providing benefits for prescribed environmental matters. DBMPs aim to achieve landscape-scale benefits or improved conservation outcomes in comparison to traditional offsets. Up to 10% of offset delivery under a DBMP may be delivered as compensatory measures, such as research or education.

### 5.3 FINANCIAL SETTLEMENT OFFSET

Alternatively, Jellinbah Group may opt to deliver offsets via financial settlement. This involves payment of an amount, calculated in accordance with the Financial Settlement Offset Calculation Methodology, to the offset account, administered by EHP. Payment of a financial settlement offset removes the liability of delivering the land-based offset from the proponent to the State Government. Preliminary calculation of financial settlement using EHP's online Financial Settlement Offset Calculator indicates that an amount of \$128,822 would be required to secure an offset of 16.88 ha, as detailed in Table 6.

**Table 6 Financial Settlement Offset Calculation**

<b>Non-Protected Area Costs</b>	<b>Cost</b>
On-ground Cost	\$67,520
Landholder Incentive Payment	\$11,302
Administrative Cost	\$50,000
<b>Total Area Cost</b>	<b>\$128,822</b>



## 5.4 OFFSET DELIVERY PLAN

The proponent will seek EHP's agreement on the offset delivery method. Notification to EHP must identify the type of offset delivery method and be accompanied by an Offset Delivery Plan. An Offset Delivery Plan must:

- Describe the prescribed environmental matters to which the offset pertains;
- Describe the proposed method for offset delivery and how a conservation outcome will be achieved;
- Provide details of the land (including attributes, land uses, persons with interests in the land) on which the offset is proposed to be delivered and any impacts that may arise from offset delivery;
- Detail the mechanism for legally securing the offset land, the period over which the land will be legally secured, and state why this approach is considered appropriate; and
- Detail agreement between the proponent and the landholders that the offset may be delivered on that land, including signatures of the proponent and landholders.

The Offset Delivery Plan will be developed in accordance with the requirements of the QEOP, EO Act and EO Regulation.

## 5.5 LEGALLY SECURING OFFSETS

Land utilised for provision of a land-based offset is required to be legally secured to ensure a conservation outcome is achieved. Offset land is legally secured if it is:

- An environmental offset protection area in accordance with the EO Act;
- An area of high nature conservation value in accordance with the VM Act, secured for the purposes of an offset;
- A nature refuge under the *Nature Conservation Act 1992* (NC Act), secured for the purposes of an offset;
- A protected area under the NC Act, secured for the purposes of an offset; or
- Covered by a statutory covenant for environmental purposes under the *Land Act 1994* or *Land Title Act 1994*.

The relevant legislation prescribes the mechanisms for legally securing such areas.

A legally secured offset area is required for delivery of an offset, until such time that:

- EHP is satisfied that the actions and obligations detailed in the Offset Delivery Plan have been completed; and
- The offset area has been legally secured for at least as long as the duration of the impact to the prescribed environmental matter to which the offset applies.



## 6.0 MANAGEMENT, MONITORING AND REPORTING

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Jellinbah Group will deliver offsets in accordance with the EO Act, EO Regulation and QEOP, as well as the Offset Delivery Plan developed for the Project. Routine monitoring of progress towards offset delivery and performance goals will be undertaken to facilitate timely and compliant delivery of offsets. Where necessary, Jellinbah Group will contract a suitably qualified person to provide independent advice on offset delivery progress.

Regular monitoring of offset areas will be conducted to gauge progress towards conservation outcomes for the prescribed environmental matter. This will involve regular assessment of vegetation condition and health in accordance with EHP's *Guide to Determining Terrestrial Habitat Quality*. Monitoring data and records will be provided to EHP upon request.





## 7.0 REFERENCES

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Department of Environment and Heritage Protection (EHP) 2014, *Queensland Environmental Offsets Policy v1.1*, Queensland Government.

Department of Environment and Heritage Protection (EHP) 2013, *Galilee Basin Offsets Strategy*, Queensland Government.

Department of Science, Information Technology, Innovation and the Arts (DSITIA) 2014, *The Vegetation of Queensland: Descriptions of Broad Vegetation Groups v1.1*, Queensland Herbarium, Queensland Government.

Department of Sustainability, Environment, Water, Population and Communities 2012, *Environment Protection and Biodiversity Conservation Act 1999: Environmental Offsets Policy*, Australian Government.

