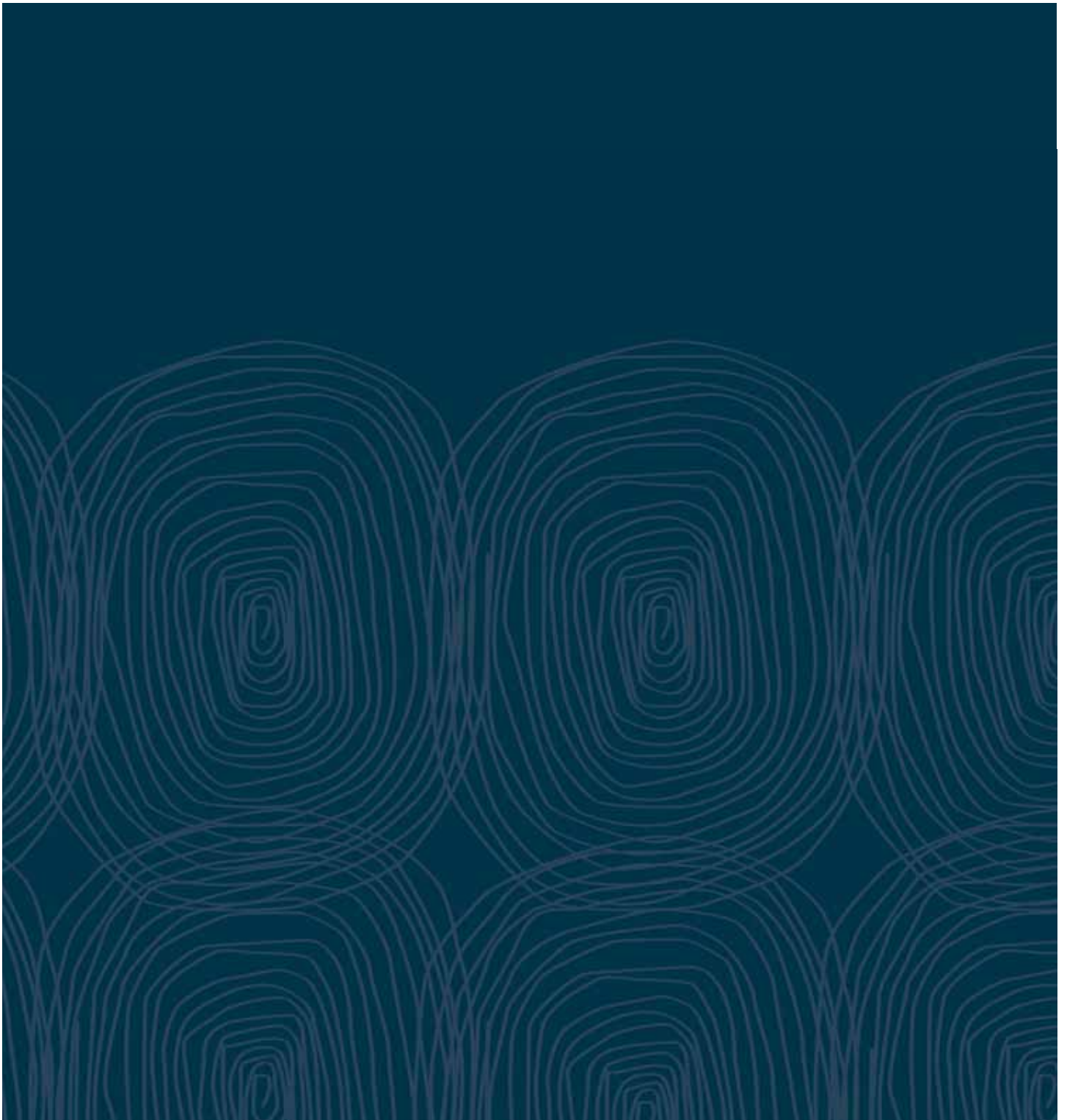


# E | Nature Conservation



- E1 Flora and Fauna Assessment
- E2 Aquatic Ecology Assessment
- E3 Stygofauna Survey

# E1 | Flora and Fauna Assessment







# Alpha Coal Project

## Flora and Fauna Assessment

Prepared for:  
**Hancock Prospecting Pty Ltd**

September 2010



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## **LIST OF ABBREVIATIONS**

%	-	Percent
°C	-	Degrees Celsius
AARC	-	AustralAsian Resource Consultants Pty Ltd
AnaBat <sup>™</sup>	-	Analyse a bat call
ANRA	-	Australian Natural Resources Atlas
BPA	-	Biodiversity Planning Assessment
CORVEG	-	Queensland Herbarium ecological site database
DEEDI	-	Department of Employment, Economic Development and Innovation
DERM	-	Department of Environment and Resource Management
EA	-	Environmental Authority
EIS	-	Environmental Impact Statement
EPBC Act	-	Environment Protection and Biodiversity Conservation Act 1999
GPS	-	Global Positioning System
ha	-	hectare(s)
HERBREC	-	Queensland Herbarium Records
HPPL	-	Hancock Prospecting Pty Ltd
km	-	kilometre(s)
LP Act	-	Land Protection (Pest and Stock Route Management) Act 2002





m	-	metre (s)
MLA	-	Mining Lease Application
mm	-	millimetre(s)
Mtpa	-	Million tonne per annum
NC Act	-	Nature Conservation Act 1992
NCWR	-	Nature Conservation (Wildlife) Regulation 2006
QGEOP	-	Queensland Government Environmental Offsets Policy
RE	-	Regional Ecosystem
REDD	-	Regional Ecosystems Descriptions Database
SP Act	-	Sustainable Planning Act 2009
VM Act or VMA	-	Vegetation Management Act 1999
VMR	-	Vegetation Management Regulation 2000
WMP	-	Weed Management Plan

## **EXECUTIVE SUMMARY**

---

AustralAsian Resource Consultants Pty Ltd was commissioned by Hancock Prospecting Pty Ltd to conduct a Terrestrial Flora and Fauna Assessment for the proposed Alpha Coal Project site (the Project).

A total of eight site visits to conduct flora and fauna surveys were undertaken as a part of this study between June 2008 and June 2010 on the Alpha Coal Project site and surrounding tenements. The surveys cover both wet and dry seasons to capture seasonal variation in flora and fauna assemblages.

To assess the environmental values of flora and fauna communities on the Project site, the following scope of works was undertaken:

- A literature and database review to identify species of conservation significance known from the region. This enabled these species to be targeted during the field survey components of the study;
- Standard field survey methodologies to determine the composition of species inhabiting the Project site and corridors, particularly species of conservation significance; and
- Preparation of a report describing significant ecological factors and outlining possible management strategies to reduce any foreseeable impacts associated with the proposed activities.

### **SITE DESCRIPTION**

The Project site is located in Central Queensland approximately 420 kilometres west of Rockhampton, 360 kilometres southwest of Mackay, and 130 kilometres southwest of Clermont. The closest residential area to the Project is the township of Alpha, located approximately 50 kilometres south of the Project site.

### **FIELD SURVEY METHODS**

Site scoping of the Project site was conducted using aerial photography and broad ground-truthing using four-wheel drive vehicles and where terrain proved impassable, on-foot.

A number of transects were surveyed to obtain a detailed floristic inventory of the dominant and associated woody plants within each vegetation community. In order to map and confirm the extent of the vegetation communities, plots were used along the boundaries of the communities. The quality of communities was assessed with regard to their likely value and viability as a representative vegetation type.

Fauna study sites were located in areas representative of the Project's vegetation types and habitat types. In addition, habitats potentially inhabited by species of conservation significance were targeted and thoroughly assessed for species occurrence. A range of trapping and survey techniques were employed at each study site including but not limited to pitfall trapping, Elliott trapping, habitat searching, avian observation, AnaBat™ recording and spotlighting. Incidental/opportunistic records were included in the species list to produce a comprehensive fauna species list for the Project site.



## SURVEY RESULTS

### Flora

Twelve vegetation communities were found to inhabit the Project site with a total of 418 flora species identified. No species of conservational significance were identified on the Project site.

Eleven of the twelve vegetation communities were classed as 'Remnant Vegetation' as defined in the *Queensland Vegetation Management Act 1999*. A summary of the conservation significance of all vegetation communities occurring on the Project site and their equivalent Regional Ecosystems is provided in **Table A** and Figure 8.

**Table A      Vegetation Communities and Corresponding Conservational Status**

Vegetation Community	RE or Ecological Community	EPBC Status	VM Act Status	DERM Biodiversity Status
Brigalow Open Woodland	10.3.3	Not Listed	Least Concern	No Concern at Present
Silver-leaved Ironbark Open Woodland	10.3.28	Not Listed	Least Concern	No Concern at Present
	10.5.5a	Not Listed	Least Concern	No Concern at Present
Poplar Box Open Woodland	10.3.27a	Not Listed	Least Concern	Of Concern
	10.5.12	Not Listed	Least Concern	No Concern at Present
Non-remnant Grassland	Not Classed	Not Listed	Not Listed	Not Listed
Silver-leaved Ironbark / Poplar Box Mixed Woodland	10.5.5a	Not Listed	Least Concern	No Concern at Present
	10.5.12	Not Listed	Least Concern	No Concern at Present
White Cypress Pine Woodland	11.5.5b	Not Listed	Least Concern	No Concern at Present
Gidgee Open Woodland	10.3.4	Not Listed	Least Concern	Of Concern
Fringing Riparian Woodland	10.3.14	Not Listed	Least Concern	Of Concern
	11.3.2 (south eastern watercourse only)	Not Listed	Of Concern	Of Concern

Vegetation Community	RE or Ecological Community	EPBC Status	VM Act Status	DERM Biodiversity Status
	11.5.3 (south eastern watercourse only)	Not Listed	Least Concern	No Concern at Present
Weeping Bottlebrush Heath	10.7.7	Not Listed	Least Concern	No Concern at Present
Thozet's Box Open Woodland	10.7.5	Not Listed	Least Concern	Of Concern
Lancewood Woodland	10.7.3	Not Listed	Least Concern	No Concern at Present
Queensland Yellowjacket Low Woodland	10.5.1	Not Listed	Least Concern	No Concern at Present

One Regional Ecosystem within the Poplar Box Open Woodland (10.3.27a) is listed as 'Of Concern' under the *Department of Environment and Resource Management Biodiversity Status*. Threatening processes to this ecosystem type includes increasing salinity due to clearing of recharge areas, clearing for pasture development and woody weed invasion due to high total grazing pressures. The overall condition of this Regional Ecosystem on the Project site has been reduced by cattle grazing and weed invasion. Based on proposed disturbance plans for the Project and current infrastructure, clearing within this Regional Ecosystem will be required.

The Gidgee Open Woodland (10.3.4) is listed as 'Of Concern' throughout Queensland under the *Department of Environment and Resource Management Biodiversity Status* due to total grazing pressures, in particular pasture degradation and significant loss of groundcover. This community is within the proposed disturbance footprint.

The Fringing Riparian Woodland (10.3.14) is listed as 'Of Concern' under the *Department of Environment and Resource Management Biodiversity Status* throughout Queensland. Threatening processes include weed invasion and high total grazing pressure. Feral pigs are attracted to these areas, causing major soil disturbance, fouling of water holes and destroying wildlife and habitat. Access tracks, diversion drains and dams are planned to intersect this vegetation community. Assuming erosion control and mitigation strategies are in place, the Project will not affect the health of this community at a regional scale.

The south eastern most watercourse within the Project site is comprised of two additional regional ecosystems. One of these, regional ecosystem 11.3.2 is listed as 'Of Concern' under both the *Queensland Vegetation Management Act 1999* and the *Department of Environment and Resource Management Biodiversity Status*. No disturbance is proposed within this community.

The Thozet's Box Open Woodland (10.7.5) is listed as 'Of Concern' under the *Department of Environment and Resource Management Biodiversity Status*. Threatening processes to the state wide occurrence of this community include salt scalding, pasture degradation and high salinity. Based on proposed plans for the Project, no disturbance within this community will be required.





## Fauna

A combined total of 164 vertebrate fauna species were identified on the Project site during the flora and fauna assessment, comprising 26 reptiles, 92 birds, 36 mammals and 10 amphibians.

### Species of Conservational Significance

#### *Migratory and Marine Listed Avian Species*

Twenty-four avian species listed as Migratory and/or Marine under the *Environment Protection and Biodiversity Conservation Act 1999* were observed on the Project site during the survey periods. The distribution of these species is widespread throughout eastern Queensland, and the local populations on the Project site are unlikely to constitute an 'ecologically significant proportion' of the total population of the species. Furthermore, the Project site is not at the limit of these species' range, nor are these species considered to be declining within the region. Therefore, it is unlikely the Project will have a significant impact on the regional populations of these species.

#### *Squatter Pigeon (southern subspecies)*

The southern Squatter Pigeon (*Geophaps scripta scripta*) was recorded during the survey within the Non-remnant Grassland vegetation community and is listed as Vulnerable under both the *Environment Protection and Biodiversity Conservation Act 1999* and Schedule 3 of the *Nature Conservation Wildlife Regulation 2006*.

Extensive areas of habitat suitable for the southern Squatter Pigeon exist on the Project site, and within the local region. It is likely some of the available Squatter Pigeon habitat will be disturbed by mining activities, however it is considered unlikely that there will be a significant impact on the regional population of the species due to the broad extent of habitat in the local region.

#### *Little Pied Bat*

The Little Pied Bat (*Chalinolobus picatus*), listed as 'Near Threatened' under Schedule 5 of the *Nature Conservation Wildlife Regulation 2006*, was identified on the Project site.

Being a tree-hollow roosting species, important habitat for the Little Pied Bat would occur in areas that have a high density of old hollow-bearing trees. The Little Pied Bat forages in a wide range of vegetation communities, ranging from dry sclerophyll forest, woodland, inland scrub and riparian areas. Therefore, the Little Pied Bat is unlikely to be impacted by mining due to the large regional extent of suitable foraging habitat.

### Pest Fauna

Eight introduced pest fauna species were recorded during the field surveys, including the Cane Toad (*Rhinella marina*), House Mouse (*Mus musculus*), Feral Cat (*Felis catus*), Feral Pig (*Sus scrofa*), European Rabbit (*Oryctolagus cuniculus*), Feral Goat (*Capra hircus*) and Dingo/Wild Dog (*Canis familiaris dingo*), the latter five of which are declared as 'Class 2' pests under the *Land Protection (Pest and Stock Route Management) Act 2002*.

Under the *Land Protection (Pest and Stock Route Management) Act 2002*, land managers must take reasonable steps to ensure that lands are kept free of Class 2 pests. Given this legal requirement, in addition to the potential for these species to impact the environmental values of the Project site, management strategies for each of the Class 2 pests are addressed below:



1. Feral Cat: Control methods for feral cats include shooting, poisoning, trapping and fencing in combination with current land management practices and should be implemented on site as part of a Feral Pest Control Program;
2. Feral Pig: Difficult to control, it is recommended that a combination of physical controls be employed, including shooting, poisoning, trapping and/or barrier construction. These controls should be implemented on site as part of a Feral Pest Control Program;
3. European Rabbit: Shooting rabbits is one of the most common control methods. However, this has little noticeable effect on rabbit populations. Destroying warrens through ripping, ploughing, blasting, and fumigating is widely used. Poisoning is probably the most widely-used of the conventional techniques, as it requires the least effort;
4. Feral Goat: Control methods include mustering, shooting, fencing and trapping, in conjunction with land management practices is most effective; and
5. Dingo/Wild Dog: Different control methods including shooting, poisoning, trapping and fencing in combination with current land management practices are most effective to control Dingoes and should be implemented on site as part of a Feral Pest Control Program.

## **POTENTIAL IMPACTS**

### Impacts on Flora

Vegetation communities within and adjacent to the Project site are important for reasons such as maintaining biodiversity of flora species, providing intact stands of vegetation communities which currently are under pressures elsewhere ('Of Concern' regional ecosystems), carbon sequestration and for providing natural mitigation strategies to issues such as increased soil salinity (which can potentially lead to scalding of the soil surface), erosion and downstream sedimentation.

Potential impacts on floral species and vegetation community integrity include:

- Land clearing may reduce the available habitat for certain floral species, in particular species which thrive only in one general soil type, such as sandy loam or clay soils;
- Edge effects may result in an alteration in microclimatic conditions, thereby reducing plant health and increasing susceptibility to disease;
- Loss of integrity and connectivity in vegetation communities listed as having a high biodiversity status;
- Spread and introduction of weed seeds/propagules on footwear, machinery, vehicles and materials required for mine operation and construction; and
- Potential for additional weed invasion from earthworks activities in sensitive areas, particularly along watercourses.



## Impacts on Fauna

The construction of mine infrastructure has the potential to affect fauna populations through habitat loss, population isolation, edge and barrier effects, and an increase in mortality from mine activities and increased traffic in road use. The development of mine infrastructure will involve landscape modification procedures through vegetation clearing, a recognised threatening process that can affect different taxa in differing ways.

The following potential impacts on fauna may result from the proposed works at the Project site:

- Land clearing and mining activities may reduce the available breeding and foraging habitat for fauna native species;
- Increased risk of fauna mortality resulting from vehicle strike and the destruction of tree hollows;
- Vegetation clearing will result in a localised reduction in the amount of roost and nesting sites, microhabitats and potential foraging areas for many fauna species. This would add population pressure (such as competition for roost sites, mates and food resources) to resident bats in these adjacent areas and may potentially lead to decreased population viability;
- Increased habitat fragmentation and loss of connectivity from roadways and other mine infrastructure. Species most vulnerable to barrier effects are habitat specific fauna and low mobility species (where even a small reduction in movements can reduce genetic continuity within a population, hence reducing the effective population size);
- Low mobility species utilising the Project site have the potential to become genetically isolated. This occurs when individuals from a population within one fragment are unable to interbreed with individuals from populations in adjoining fragments;
- An increase in noise, vibration and dust associated with the construction and operational phases of the Project may lead to the displacement of native species from their current home ranges;
- An increase of introduced fauna species identified as utilising the Project Site may occur, including the Cane Toad, Feral Pig, European Rabbit, House Mouse and Feral Goat; and
- Mine-related infrastructure, such as sediment dams, may be accessible to fauna and may be additional water sources.

## **MANAGEMENT RECOMMENDATIONS**

Suggested strategies to minimise the impacts on native flora and fauna, and recommendations regarding rehabilitation of the Project site, are outlined below.

Avoiding environmental impacts has been planned for where possible throughout Project planning and design phases. There will also be ongoing opportunities to further avoid impacts at a local scale through the detailed design process.



Clearing of vegetation in the Lagoon Creek should be minimised to maintain habitat connectivity and provide a movement corridor for small terrestrial fauna species. Whilst this community will be physically fragmented, the actual degree of habitat fragmentation is highly dependent on the mobility of the organism in question (McIntyre and Hobbs 1999) and disconnected areas may continue to be utilised by some species if kept intact. Given the abundance of this community in the wider region it is unlikely the disturbance will have a significant impact on its ecological value or habitat provision;

Native vegetation removal should be conducted only after areas to be cleared have been clearly delineated and identified to equipment operators and supervisors and after clearance from environmental staff has been obtained. Measures should be taken to minimise harm to affected fauna communities by inspecting the vegetation to be disturbed prior to clearing to ascertain whether any fauna are present. If fauna is present, it should be given the opportunity to move on naturally before clearing occurs.

To maintain the integrity of vegetated land that is not cleared, appropriate erosion and sediment controls are recommended to prevent sediment deposition in remaining habitat. Maintenance of retained areas of existing vegetation would also provide a source of seed for mine rehabilitation works. It is recommended that the methodologies for the rehabilitation/revegetation works for the Project use the most appropriate species for the landscape elements of the site. Species chosen for revegetation should be selected from the lists provided in this report showing the dominant flora of each community. Areas such as the overburden emplacement should be assessed for species to ensure long-term stability and rehabilitation success. Recreated landforms should be contoured to resemble the original local topography.

A segment of the Staff Induction Program should be allocated to informing staff of the conservation values on the Project site and surrounding areas to increase staff awareness of the species present. This could include photographs, brief descriptions and management requirements of native species.

## 1.0 INTRODUCTION

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AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Hancock Prospecting Pty Ltd (HPPL) to conduct a Flora and Fauna Assessment of the proposed Alpha Coal Project (the Project).

The Alpha Coal Project is a proposed open-cut coal mining and export operation in Central Queensland. The Project is located on Mining Lease Application (MLA) 70426. Coal is to be mined by draglines, shovels and trucks, processed on site and then transported by rail to a proposed port site on the east coast of Australia. The Project will initially be a 30 million tonne per annum (Mtpa) open cut coal mine, with the potential for developing significant underground reserves.

A total of eight site visits to conduct flora and fauna surveys were undertaken as a part of this study between June 2008 and June 2010 on the Project site and surrounding tenements. The surveys were designed to capture seasonal variations in flora and fauna assemblages, and covered both the wet and dry seasons across MLA 70426 and adjacent MLA 70425, as required by the Queensland Department of Environment and Resource Management (DERM).

### 1.1 SCOPE OF STUDY

To assess the ecological values of flora and fauna communities on the Project site, the following scope of works was undertaken:

- A literature and database review to identify species of conservation significance known from the region (provided in Appendix A). This enabled these species to be targeted during the field survey component of the study;
- Field surveys employing standard methodologies to determine the composition of terrestrial and aquatic flora and fauna species inhabiting the Project site, particularly species of conservation significance; and
- The preparation of a report to HPPL describing the significant ecological features identified and outlining possible management strategies to reduce any foreseeable impacts associated with proposed mining activities.



## 2.0 PROJECT DESCRIPTION

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Sections 2.1 to 2.6 describe the relevant aspects of the Project site, including location, local geography, topography, local water courses, regional climate and current land uses.

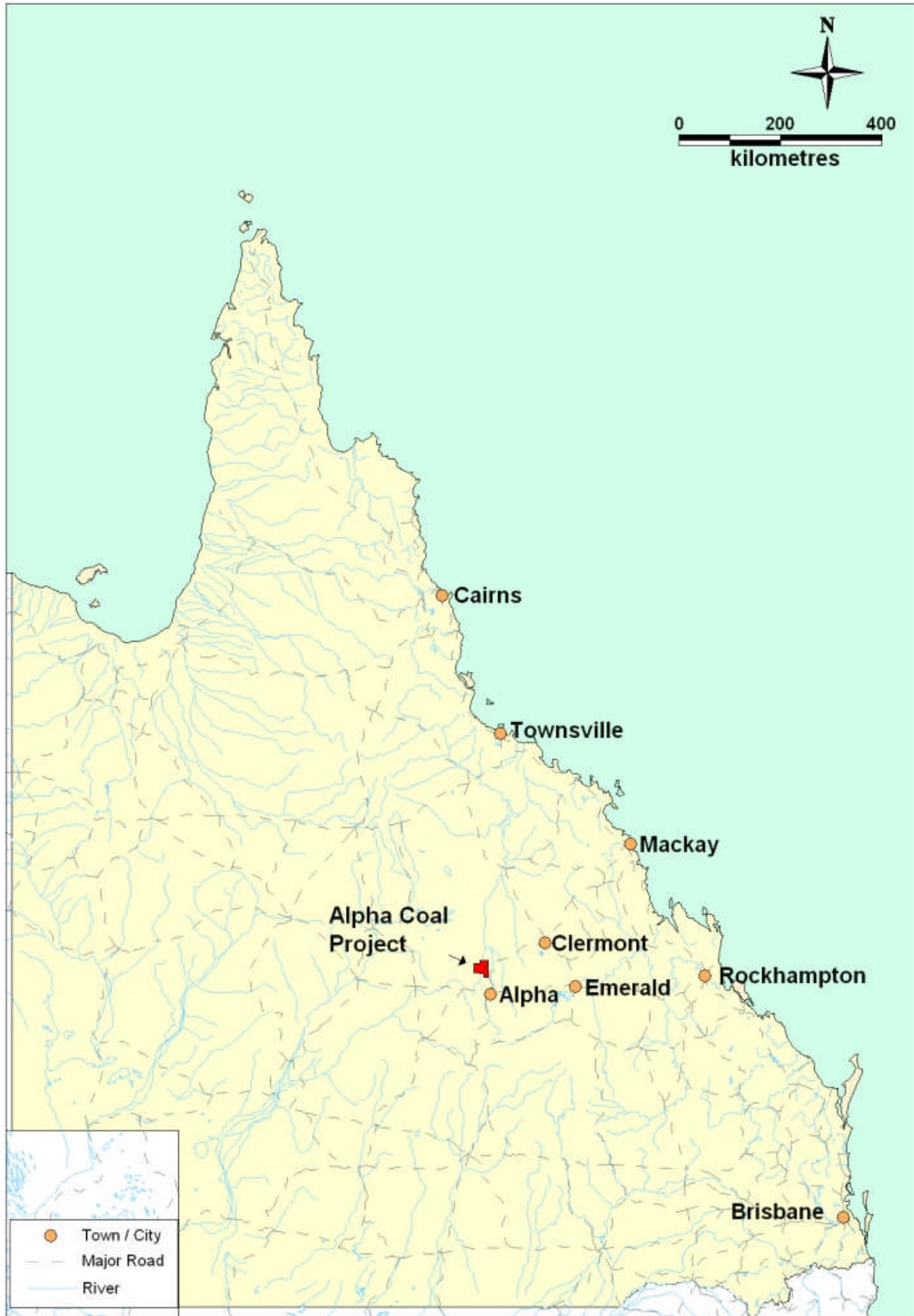
### 2.1 PROJECT LOCATION

The Project site is located in Central Queensland approximately 420 kilometres (km) west of Rockhampton, 360 km southwest of Mackay, and 130 km southwest of Clermont. The closest residential area to the Project is the township of Alpha, located approximately 50 km south of the Project site. The regional location of the Project site is shown in **Figure 1**.

### 2.2 LOCAL WATERWAYS AND TOPOGRAPHY

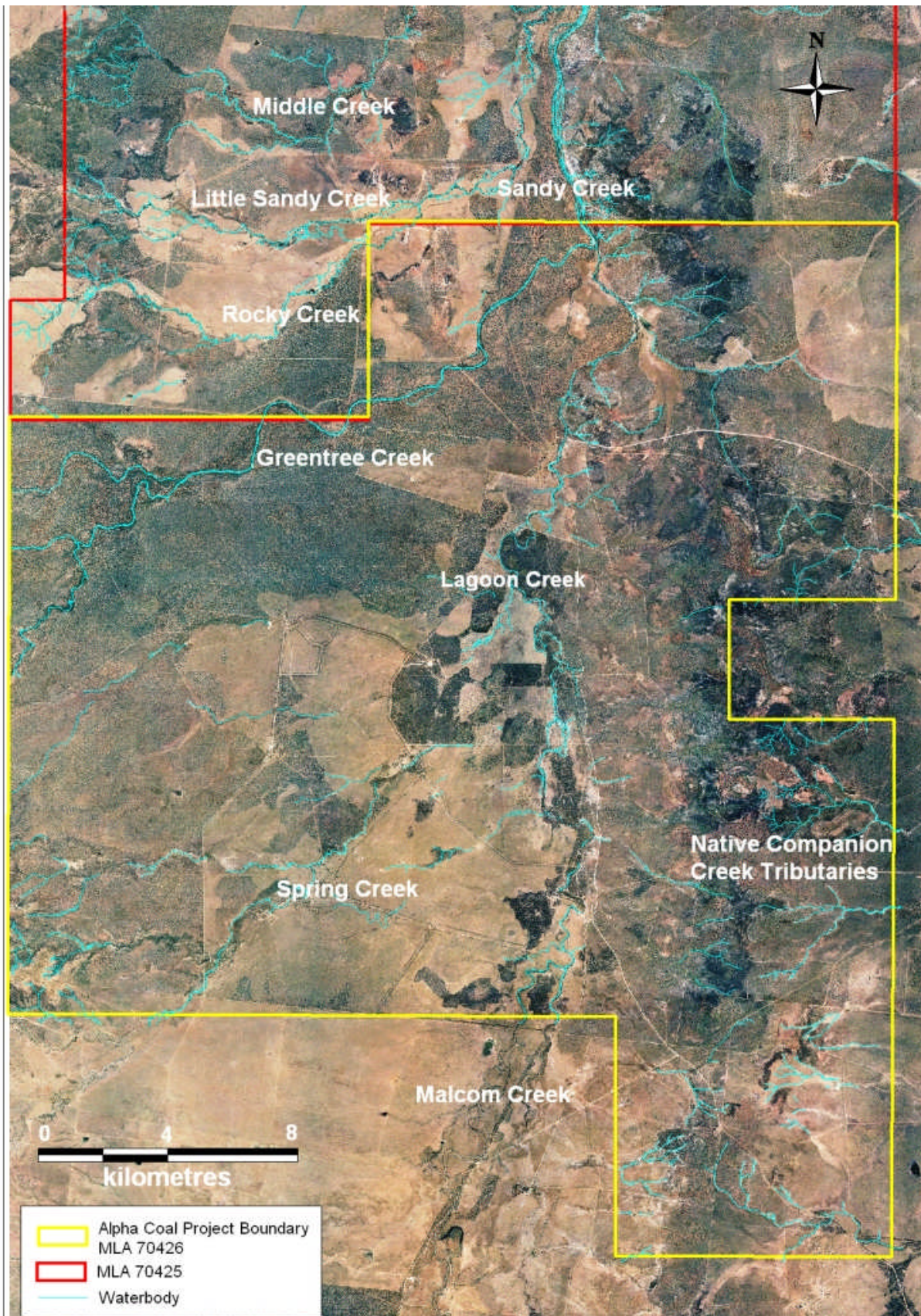
There are three main creek-lines within Project tenements: Greentree Creek, Lagoon Creek and Spring Creek. These creeks are tributaries of the Belyando River which flows in a northerly direction and eventually meets up the Burdekin River. The Belyando Catchment is approximately 35,411 km<sup>2</sup> and is one of the main sub-catchments in the Burdekin Basin. A number of small ephemeral drainages also exist on the Project site (refer to **Figure 2**).





**Figure 1 Regional Location of Project site**





**Figure 2 Watercourses within the Project site**

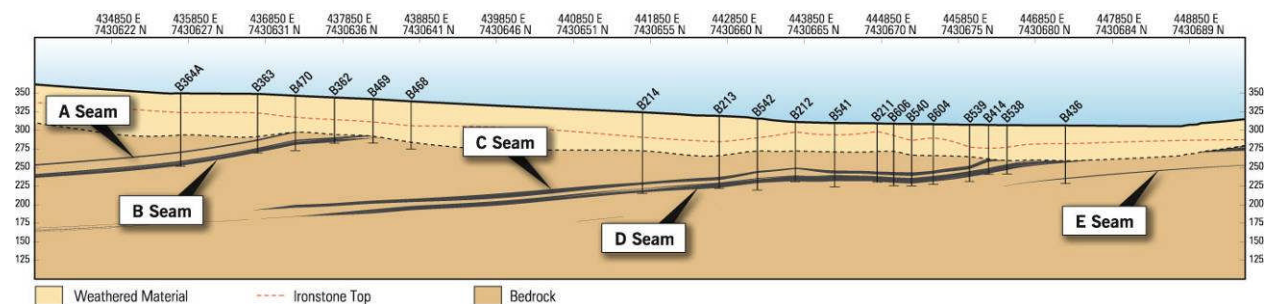


## 2.3 GEOLOGY

The Project deposit lies in the Galilee Basin within the late Permian Colinlea and Bandanna Formations. The coal bearing strata sub-crop is a linear, north-south trending belt in the central portion of the basin and is essentially flat lying. No major regional scale fold and fault structures have been identified in regional mapping of the Project site.

There are four major coal seams within the deposit, which vary in thickness from 5 m to 8 m. **Figure 3** shows a typical east-west cross section across the deposit.

The predominant soil type in the vicinity of the Project is a massive yellow earth.



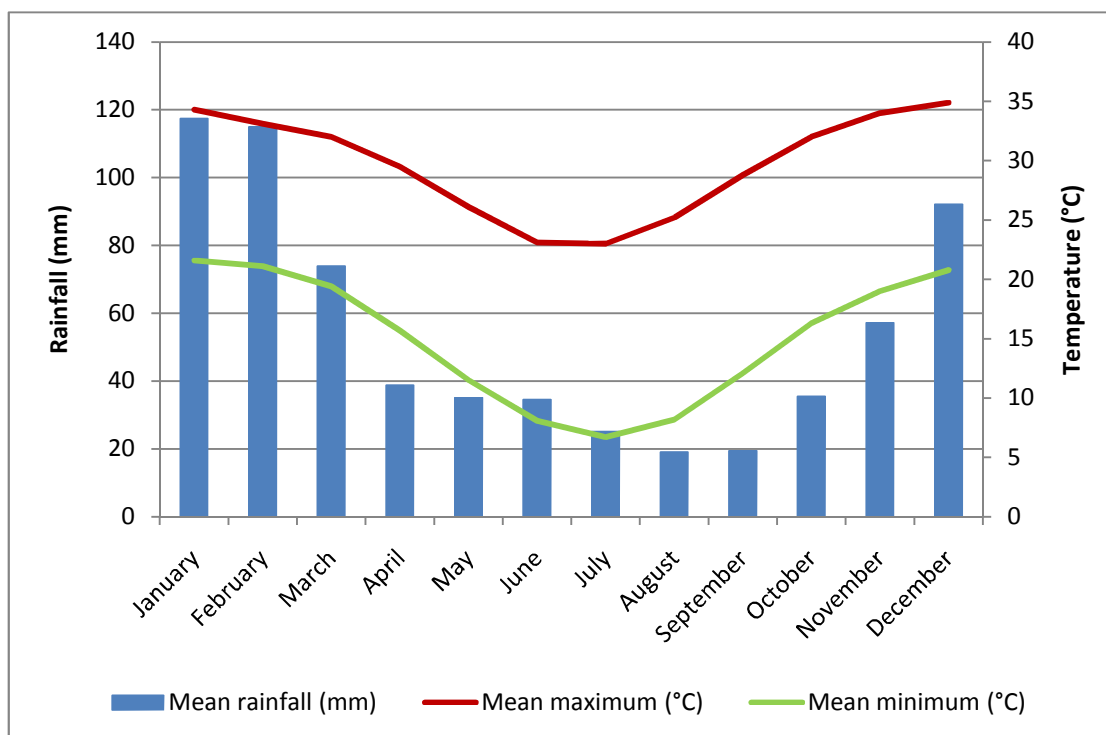
**Figure 3** Typical east-west cross section of MDL 285

## 2.4 REGIONAL CLIMATE

This climatic description of the region in which the Project site is located has been compiled using the regional data collected by Australian Bureau of Meteorology (<http://www.bom.gov.au>). Rainfall and temperature data is sourced from the Clermont Sirius Street Station (Station 035019), located approximately 128 km west-southwest of the Project site. Data has been compiled since 1971.

Data trends indicate that mean annual rainfall for the region is approximately 662 millimetres (mm). **Figure 4** shows that rainfall is highly seasonal, with the dry season peaking between August and September, and the wet season peaking from January through to February.

The coldest mean daily temperatures occur in July (6°C), with November to January having a mean maximum temperature of 34°C (shown in **Figure 4**).



**Figure 4 Climograph for Clermont Sirius St (1870 – 2009)**

## 2.5 CURRENT LAND USE

Low intensity cattle grazing and coal exploration are the predominant land use activities on the Project site.

## 2.6 CONDITIONS PRIOR TO AND DURING THE SURVEY

Site visits to conduct field assessments on the Project site and surrounding tenements have been undertaken at different times of year to capture seasonal variations in flora and fauna assemblages. Table 1 shows the survey dates and temperature range during each survey as well as rainfall recorded at Clermont Sirius St weather station for the two months leading up to each survey.



**Table 1 Conditions During and Leading up to Field Surveys**

<b>Site visit</b>	<b>Rain during and prior to survey (mm)</b>	<b>Temperature range (°C)</b>
25/06/2008 — 01/07/2008	12.8	3 – 25
08/10/2008 — 13/10/2008	54.4	17 – 34
04/03/2009 — 11/03/2009	216.9	18 – 33
28/09/2009 — 05/10/2009	1.4	9 – 35
23/11/2009 — 09/12/2009	61.4	15 – 40
15/03/2010 — 23/03/2010	338.7	17 – 30
12/04/2010 — 20/04/2010	237.2	15 – 32
22/06/2010 — 30/06/2010	17.6	13-25

## 3.0 RELEVANT LEGISLATION

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Legislation relevant to the assessment of flora, fauna and biodiversity on the Project site is discussed below.

### 3.1 QUEENSLAND NATURE CONSERVATION ACT 1992

The most relevant portions of the *Nature Conservation Act 1992* (NC Act) to the Project site are the sections which pertain to Wildlife and Habitat Conservation. The classes of wildlife<sup>1</sup> to which the NC Act applies includes protected wildlife, which is defined as:

- Extinct in the wild wildlife;
- Endangered wildlife;
- Vulnerable wildlife;
- Near threatened wildlife; and
- Least concern wildlife.

Species listed under the above classes are published in the associated *Nature Conservation (Wildlife) Regulation 2006* (NCWR).

The NC Act defines 'threatening processes' as any process that is capable of:

- Threatening the survival of any protected area, area of major interest, protected wildlife, community of native wildlife or native wildlife habitat; or
- Affecting the capacity of any protected area, area of major interest, protected wildlife, community of native wildlife or native wildlife habitat to sustain natural processes.

The NC Act is relevant to the Project site should any protected<sup>2</sup> flora or fauna species (as detailed in the NCWR) be found on the Project site.

### 3.2 COMMONWEALTH ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), an action will require approval from the Federal Environment Minister if the action has, will have, or is likely to have a significant impact on a Matter of National Environmental Significance, where a Matter of National Environmental Significance is:

- World Heritage properties;
- National Heritage places;

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<sup>1</sup> Under the *Nature Conservation Act 1992*, Wildlife is defined to be any taxon of an animal, plant, protista, prokaryote, or virus.

<sup>2</sup> Under the *Nature Conservation Act 1992*, a protected plant is any threatened, near threatened or least concern wildlife. Similarly, protected fauna is defined as being any native wildlife prescribed under the Act.

- RAMSAR wetlands of international importance;
- Listed threatened species and communities;
- Migratory species protected under international agreements;
- Nuclear actions; and
- The Commonwealth marine environment.

Of the above Matters of National Environmental Significance, two are applicable to the Project site:

- Listed threatened species and communities; and
- Migratory species protected under international agreements.

Consequently, as listed threatened species and communities and avian species identified as Migratory were identified on the Project site, the Project has been referred under guidelines provided in the EPBC Act. These guidelines have been produced to assist industry and the public in interpreting the EPBC Act. The referral decision was the Project will be assessed under the bilateral agreement with the Queensland government.

In addition, the EPBC Act provides for the identification and listing of key threatening processes. Based on information provided to AARC by HPPL, key threatening processes are not associated with the Project.

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

The *Vegetation Management Act 1999* (VM Act) was proclaimed on Thursday the 14<sup>th</sup> of September 2000 as part of a planning framework for the management of native vegetation across Queensland. The *Vegetation Management Regulation 2000* (VMR) prescribes the status of each Regional Ecosystem (RE) identified to occur within Queensland.

Although the VM Act does not apply to the clearing of vegetation on the Project site, the scientific basis for biodiversity conservation is still valid and can be used to assess the conservation significance of the vegetation communities on the Project site. This includes the conservation status categories of REs under the VM Act which are listed below, as is the definition of Remnant Vegetation:

Endangered Regional Ecosystems:

- <10 % of pre-clearing extent remaining; and
- 10-30% of pre-clearing extent remaining and remnant <10,000 hectares (ha).

Of Concern Regional Ecosystems:

- 10-30% of its pre-clearing distribution remains; and
- 30% of the pre-clearing extent remains and the remnant vegetation remaining is <10,000ha.



No Concern at Present Regional Ecosystems:

- >30% of the pre-clearing distribution remains and remnant vegetation remaining is >10,000ha.

Remnant Vegetation:

'Remnant Vegetation' for an area of Queensland for which there is no RE map or remnant vegetation map, means any vegetation where the predominant canopy:

- Covers more than 50% of the undisturbed predominant canopy;
- Averages more than 70% of the vegetation's undisturbed height; and
- Is composed of species characteristic of the vegetation's undisturbed predominant canopy.

### **3.4 QUEENSLAND 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 consolidate, amend and provide laws for the management, control, prohibition, and regulation of the introduction, spread and keeping of certain plants and animals declared under the Act. The LP Act is relevant to the Project site in regards to the control and management of declared pest plant (weed) and animal species.

Classes of Pest described in the LP Act include:

- *Class 1* – one that is not commonly present in Queensland, and if introduced would cause an adverse economic, environmental or social impact;
- *Class 2* – one that is somewhat established in Queensland and has, or could have, a substantial adverse economic, environmental or social impact; and
- *Class 3* – extensive in Queensland and has, or could have, an adverse economic, environmental or social impact.

Under the LP Act, landholders must ensure that all reasonable steps have been taken to ensure the effective management of declared weeds and that they not be spread throughout the Project site.

### **3.5 QUEENSLAND ENVIRONMENTAL PROTECTION AGENCY BIODIVERSITY STATUS**

The DERM Biodiversity Status is the status assigned by the DERM to REs to assist with biodiversity planning in Queensland. Unlike the status of REs under the VM Act, the DERM Biodiversity Status is based on an assessment of the condition of remnant vegetation in addition to the pre-clearing and extent of a regional ecosystem. It takes into account other threatening processes in addition to land clearing. Such processes include:

- The reduction in biodiversity within the REs;
- Weed invasion;



- Grazing pressures;
- Inappropriate fire management;
- Fragmentation; and
- Infrastructure development.

### **3.6 QUEENSLAND GOVERNMENT ENVIRONMENTAL OFFSETS POLICY 2008**

The *Queensland Government Environmental Offsets Policy (QGEOP) 2008* is a guide for appropriate use of environmental offsets across terrestrial and aquatic ecosystems in Queensland, based on the principles of ecologically sustainable development. It provides a generic framework for environmental offsets and guidance on when specific-issue offsets (refer to Section 3.7) should and should not be considered.

An environmental offset is an action taken to counterbalance unavoidable, negative environmental impacts that result from an activity or development that supports a growing economy and population. Environmental offsets are only applicable when the impacts cannot be avoided or minimised, and if all other Government environmental standards have been met.

Environmental offsets should be considered (where there may be a remaining environmental impact) as part of an EIS and in the development of an Environmental Management Plan, if a specific-issue offsets policy, consistent with the QGEOP applies to the Project. Environmental offsets required by a specific issue offsets policy, become a condition of the Environmental Authority (EA).

### **3.7 POLICY FOR VEGETATION MANAGEMENT OFFSETS**

The Policy for Vegetation Management Offsets applies to an offset proposed to meet a performance requirement in an applicable VMA code, and is administered by DERM. This policy is applicable for any RE listed as 'Endangered', 'Of Concern', 'Essential Habitat', 'Natural Wetland' or 'vegetation associated with watercourses' under the VMA *Vegetation Management Status*.

The Policy for Vegetation Management Offsets is enacted by the VM Act. As the VM Act is not application to the Project (VM Act does not apply to mining projects) the Policy for Vegetation Management Offsets also does not apply to the Project. Having said this, the Policy for Vegetation Management Offsets provides a useful guideline to propose voluntary vegetation offsets for the Project, even though this is not a legal requirement.

A vegetation management offset is a legal arrangement or agreement that, over time, guarantees to maintain the extent, structure and function of:

- Regional ecosystems;
- Essential habitat; and
- Vegetation associated with –
  - Watercourses;





- Natural wetlands; and
- Natural significant wetlands.

Seven criteria apply to a vegetation management offset, which are summarised in **Table 2** below.

**Table 2 Vegetation Management Offset Criteria and Descriptions**

Offset Criteria	Criteria Description
Limitations on offset vegetation	The proposed offset must be mapped as non-remnant vegetation or is expected to fall below criteria for remnant vegetation
Selection and location of RE	The proposed offset must maintain ecological processes at a subregional level and ideally be within the same bioregion and subregion as area proposed to be cleared
Remnant mapping	The proposed offset must be an area which is large enough to be mapped as remnant vegetation
Obtaining ecological equivalence	The proposed offset must become ecologically equivalent to the proposed area for clearing
Ensuring ongoing management	The proposed offset must include a management plan that specifies how the offset will be managed to ensure it achieves or maintains remnant RE status and ecological equivalence
Ensuring offset is legally secured	The offset area and arrangements for securing the future protection of the offset area must be proposed as part of the development application
Other requirements	The offset is not required to be on land owned by the applicant. The offset must be protected and managed under agreement with the landholder
	The proposed offset cannot be a financial donation or contribution, although a contribution may be made to a third party for the management of an approved offset

### 3.8 OFFSETS FOR NET BENEFIT TO KOALAS AND KOALA HABITAT

The *Offsets for Net Benefit to Koalas and Koala Habitat 2006* provides a framework and direction for the use of environmental offsets to provide net benefit for koala conservation for unavoidable development in high quality koala habitat in south-east Queensland, as required by the koala conservation criteria contained in the *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006–2016*.

This policy is enacted by the *Sustainable Planning Act 2009* (SP Act). As the SP Act does not apply to the Project (SP Act does not apply to mining projects) the *Offsets for Net Benefit to Koalas and Koala Habitat 2006* also do not apply to the Project. Having said this, this policy provides a useful guideline to propose voluntary koala habitat offsets for the Project, even though this is not a legal requirement.



The Project site lies within the 'Lowest Threat' koala management district, as defined in the *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006–2016*. Although there is evidence of decline in this district, koalas are classified as of 'Least Concern' wildlife under the NC Act due to a generally lower perceived threat to their survival.

Whilst the development impacts required to be offset under this policy are restricted to habitat loss, the offsetting actions that can be taken to demonstrate net benefit are not. Preference is given to habitat protection and restoration measures, but other actions, such as projects to reduce vehicle mortality on koalas, are able to count towards meeting the required value of the offset package. The required value of the offset package is 1.5 times the value of the residual habitat impact for that proportion of an offset package that comprises high quality habitat measures and 2.5 for the balance of the offset package. To be classified as being of high quality for the purposes of this policy, habitat measures must be in or adjoining the same Koala Conservation Area, Koala Sustainability Area, or contiguous Koala Conservation Area / Koala Sustainability Area cluster as the development impact and must involve either protecting habitat that can be cleared (without an obligation for replacement) under an existing development approval or improving habitat values through rehabilitation of cleared areas.

### **3.9 OFFSETS UNDER THE ENVIRONMENTAL PROTECTION AND BIODIVERSITY ACT 1999**

The purpose of the draft policy *Use of Environmental Offsets under the Environment Protection and Biodiversity Conservation Act 1999* statement is to outline the Australian Government's position on the use of environmental offsets under the EPBC Act. Environmental offsets can be used under the EPBC Act to maintain or enhance the health, diversity and productivity of the environment as it relates to matters protected by the EPBC Act.

Environmental offsets can be applied as an approval condition under the EPBC Act for developments that have undergone assessment. They may be used when a development will result in impacts on a matter protected by the EPBC Act. Environmental offsets are not applicable to all approvals under the EPBC Act. Offsets should not be applied where the impacts of a development are considered to be minor in nature or could reasonably be mitigated. In some circumstances suitable offsets may not be available to adequately compensate for the impacts of a development and a decision on the overall acceptability of the project will need to be made.

Eight principles have been identified by the Australian Government for the use of environmental offsets under the EPBC Act. These principles are used in assessment of any proposed environmental offsets. The eight principles include:

1. Environmental offsets should be targeted to the matter protected by the EPBC Act that is being impacted.
2. A flexible approach should be taken to the design and use of environmental offsets to achieve long-term and certain conservation outcomes which are cost effective for proponents.
3. Environmental offsets should deliver a real conservation outcome.
4. Environmental offsets should be developed as a package of actions - which may include both direct and indirect offsets.
5. Environmental offsets should, as a minimum, be commensurate with the magnitude of the impacts of the development and ideally deliver outcomes that are 'like for like'.



6. Environmental offsets should be located within the same general area as the development activity.
7. Environmental offsets should be delivered in a timely manner and be long lasting.
8. Environmental offsets should be enforceable, monitored and audited.

## 4.0 DATABASE SEARCH AND LITERATURE REVIEW

Database searches collate information on flora and fauna species identified in the region from previous surveys, community records and other sources. A review of such databases facilitates the formulation of specific field survey techniques to target certain flora and fauna species known from the region. The results of these database searches revealed that numerous flora and fauna species of conservation significance are known from the Alpha region, as discussed below. Database search results are included in **Appendix B**.

### 4.1 FLORA

The following databases were searched for historical records of flora within the broader area adjacent to the Project site:

EPBC Act Protected Matters Search Tool: This database provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act for a nominated area.

HERBREC Searches: This database provides information including taxon names and specimen data.

Wildlife Online Database (DERM): This database uses records collected from previous surveys, including the Queensland Museum surveys as well as records from the public. While screening of data occurs, some mis-identifications are possible.

Review of database searches indicated the potential presence of 86 species of conservation significance listed under the EPBC Act and NC Act within the Central Highlands Bioregion. These species and their habitat requirements are attached in **Appendix F**. Complete results from the database searches are provided in **Appendix B**.

Desktop research also revealed the possible presence of several ecological communities of conservation significance listed under Queensland and Commonwealth legislation. These communities are listed in **Table 3** below.

**Table 3 Ecological Communities of Conservation Significance Potentially on the Project Site**

RE or Community	Description	EPBC Status	VM Act Status	DERM Biodiversity Status
10.3.2	<i>Acacia argyrodendron</i> with or without <i>Eucalyptus cambageana</i> open woodland on alluvial plains (eastern)	Not Listed	Least concern	Of Concern
10.3.4	<i>Acacia cambagei</i> low open woodland to low woodland on alluvial plains	Not Listed	Least concern	Of Concern
10.3.14	<i>Eucalyptus camaldulensis</i> and/or <i>E. coolabah</i> open woodland along channels and on floodplains	Not Listed	Least concern	Of Concern

RE or Community	Description	EPBC Status	VM Act Status	DERM Biodiversity Status
10.3.25	<i>Eremophila mitchellii</i> with or without <i>Lysiphyllum carronii</i> shrublands to low woodlands. <i>Senna artemisioides</i> sometimes forming a shrub stratum on alluvial plains	Not Listed	Of Concern	Endangered
10.3.27	<i>Eucalyptus populnea</i> open woodland on alluvial plains	Not Listed	Least concern	Of Concern
Not Applicable	Bluegrass ( <i>Dichanthium spp.</i> ) dominant grasslands of the Brigalow Belt Bioregions (North and South)	Endangered	Not Classed	Not Classed
Not Applicable	Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant)	Endangered	Not Classed	Not Classed

## 4.2 FAUNA

The following databases were searched for historical records of fauna within the broader area adjacent to the Project site:

EPBC Act Protected Matters Search Tool: This database provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act for a nominated area.

Birdata Atlas of Australian Birds: This database documents the distribution and relative abundance of birds throughout Australia.

Wildlife Online Database (DERM): This database uses records collected from previous surveys, including the Queensland Museum surveys as well as records from the public. While screening of data occurs, some mis-identifications are possible.

Literature and database searches indicated that 56 fauna species of conservation significance have been identified in the region of the Project site. These species are listed in **Appendix B**.

### 4.2.1 Migratory Bird Presence

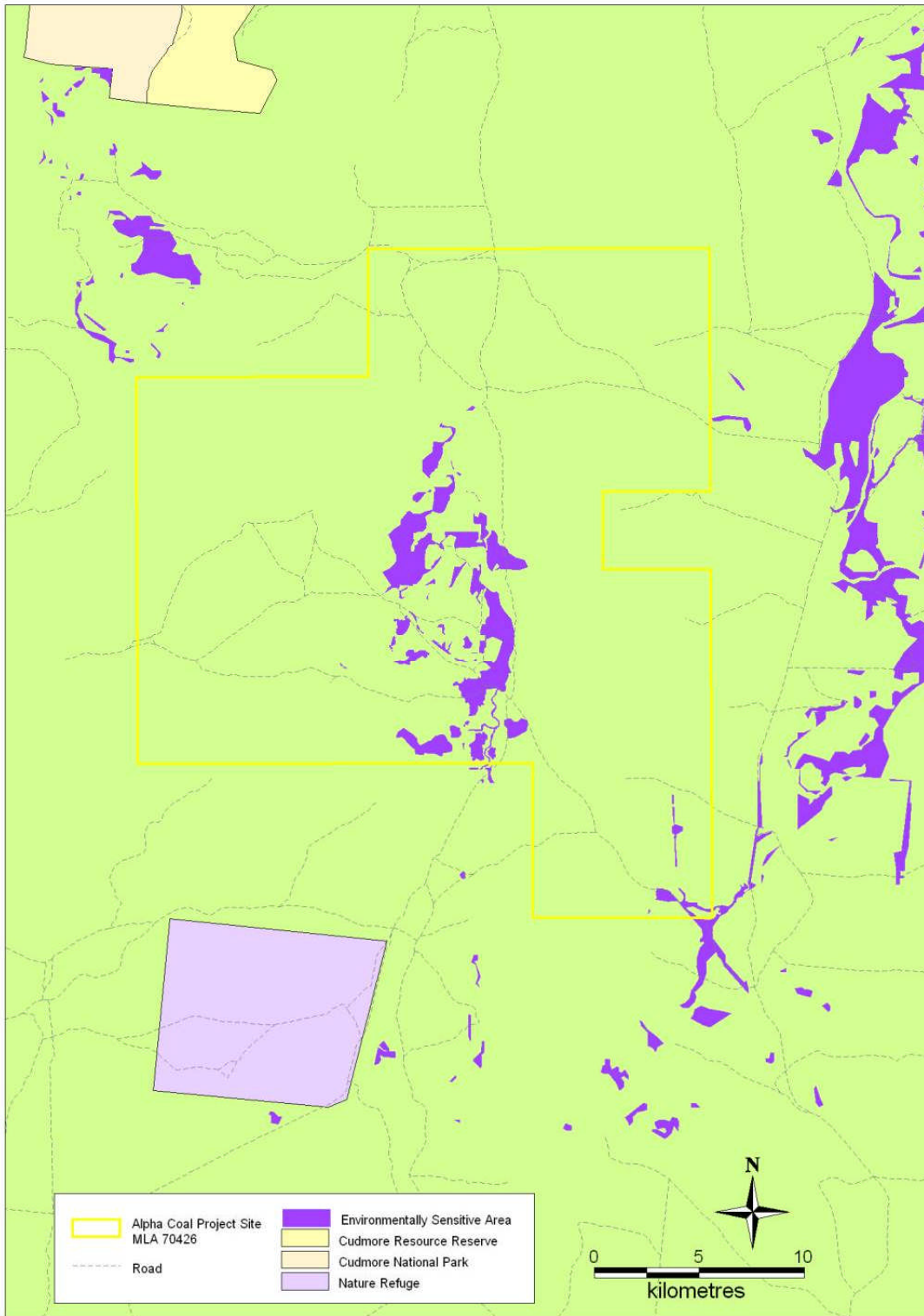
Database searches revealed a total of 41 Migratory or Marine bird species known to inhabit or pass through the Project site and surrounding area. The migrating patterns of these species were researched and used to plan field surveys so that overfly species potentially using the Project site could be recorded. The field assessment confirmed the presence of 24 of these species on the Project site. A full list of these species including their habitat requirements and migrating patterns is attached in **Appendix G**.

## 4.2.2 Environmentally Sensitive Areas

A review of DERM's Environmentally Sensitive Areas mapping revealed no conservation parks, declared fish habitat areas, wilderness areas, aquatic reserves, heritage or historic areas, national estates, world heritage listings, sites listed by international treaties or agreements or areas of cultural significance relating to biodiversity and scientific reserves.

Areas within the Project site are listed as 'Endangered Regional Ecosystem' under the DERM Biodiversity Status (**Figure 5**). A National Park, the Cudmore National Park, is located approximately 10 km northwest of the Project boundary. A Resource Reserve known as the Cudmore Resource Reserve is located approximately 8 km north-northwest of the Project boundary, and is located within HPPL mining tenements (MLA 70425). A nature refuge, on Lot 4 Plan BF 22 is located 6.5 km south of the Project boundary. This nature refuge was established in March 2001.





**Figure 5 Environmentally Sensitive Areas and Alpha Coal Project Site**

## 5.0 FIELD SURVEY METHODOLOGY

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Eight site visits to conduct terrestrial flora and fauna assessments across the Project site and surrounding areas were undertaken between June 2008 and June 2010 (refer to Table 1 in Section 2.6 for the timing of each survey).

The flora and fauna survey methods are discussed in **Sections 5.1 to 5.3**.

### 5.1 INITIAL SITE SCOPING

Site scoping was conducted using two methods. Firstly, aerial photography and Regional Ecosystem (RE) maps of the Project site were reviewed to gain an overall perspective of the vegetation distribution.

Secondly, accessible areas of the Project site were broadly surveyed from a vehicle. This allowed for the targeting of habitats potentially occupied by species of conservation significance, and enabled survey transects to be located in areas that maximised the sampling of representative vegetation types and habitats on the Project site.

### 5.2 FLORA

#### 5.2.1 Overall Approach

The field survey involved a baseline study of the Project using standard floristic survey methods. Methods used were in accordance with the Queensland Herbariums *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Version 3.1).

The Queensland Herbarium Methodology describes the following levels of sampling which were used in the field surveys:

- *Secondary* – Consists of 20 x 50 metres (m) plots. Data recorded in these transects includes a list of all species observed from all the major layers of vegetation. Species that fall outside the plot but are typical of the community are also listed. In addition, relative abundance for individual species in each strata is recorded, including density and foliage projection cover and height for the tree and shrub layers;
- *Quaternary* or observation sites – These plots include Global Positioning System (GPS) location, the dominant species in the characteristic layer, with some landform and structural data. An intuitive classification of the vegetation is also recorded. These plots are commonly used in the ground truthing of mapping previously completed for the local area.

Field data collected using this methodology is compatible with the Queensland Herbarium CORVEG database. Example flora pro-formas are attached in **Appendix H**. The level of assessment used in this study is discussed below in **Sections 5.2.2 to 5.2.6**.

#### 5.2.2 Regional Ecosystem Mapping

A comprehensive vegetation survey was undertaken across the Project site in order to confirm the current RE mapping sourced from the Queensland Herbarium. Consequently, the following methods were used:



- A number of *Secondary* transects (50 x 20 m plot) in each vegetation type were selected and a detailed floristic inventory of the dominant and associated woody plants (i.e. trees and shrubs) was undertaken. Secondary plots were positioned in vegetation representative of the community as a whole;
- In addition to the *Secondary* transects, a number of *Quaternary* transects were surveyed in order to assist with the mapping of REs;
- An assessment of the condition of the vegetation type with regard to quality and conservation value was undertaken at each transect; and
- The preparation of RE maps was undertaken through the use of aerial photographs, geological maps and ground-truthing.

### 5.2.3 Survey for Species of Conservation Significance

Targeted searches during field surveys for species of conservation significance was undertaken upon identification of suitable habitat. This specific search involved the use of methods discussed in the draft New South Wales *Threatened Species Survey and Assessment Guidelines* (New South Wales National Parks and Wildlife Service 2001).

The method outlined in the guidelines above that was used in this survey was the Random Meander Technique. As its name suggests, this technique involves traversing areas of suitable habitat in no set pattern whilst searching for the particular plant species. If there was any uncertainty in identifying the species, a voucher specimen was collected for confirmation by the Queensland Herbarium.

### 5.2.4 Plant and Regional Ecosystem Identification

All dominant plants representative of each vegetation community were identified using a number of taxonomic keys and other reference material. All REs were described in accordance with the Regional Ecosystem Descriptions Database (REDD). The use of the terms 'Remnant' and 'Non-remnant Vegetation' were as per the VM Act. For any plant species that could not be identified in the field, a sample was collected and sent to the Queensland Herbarium.

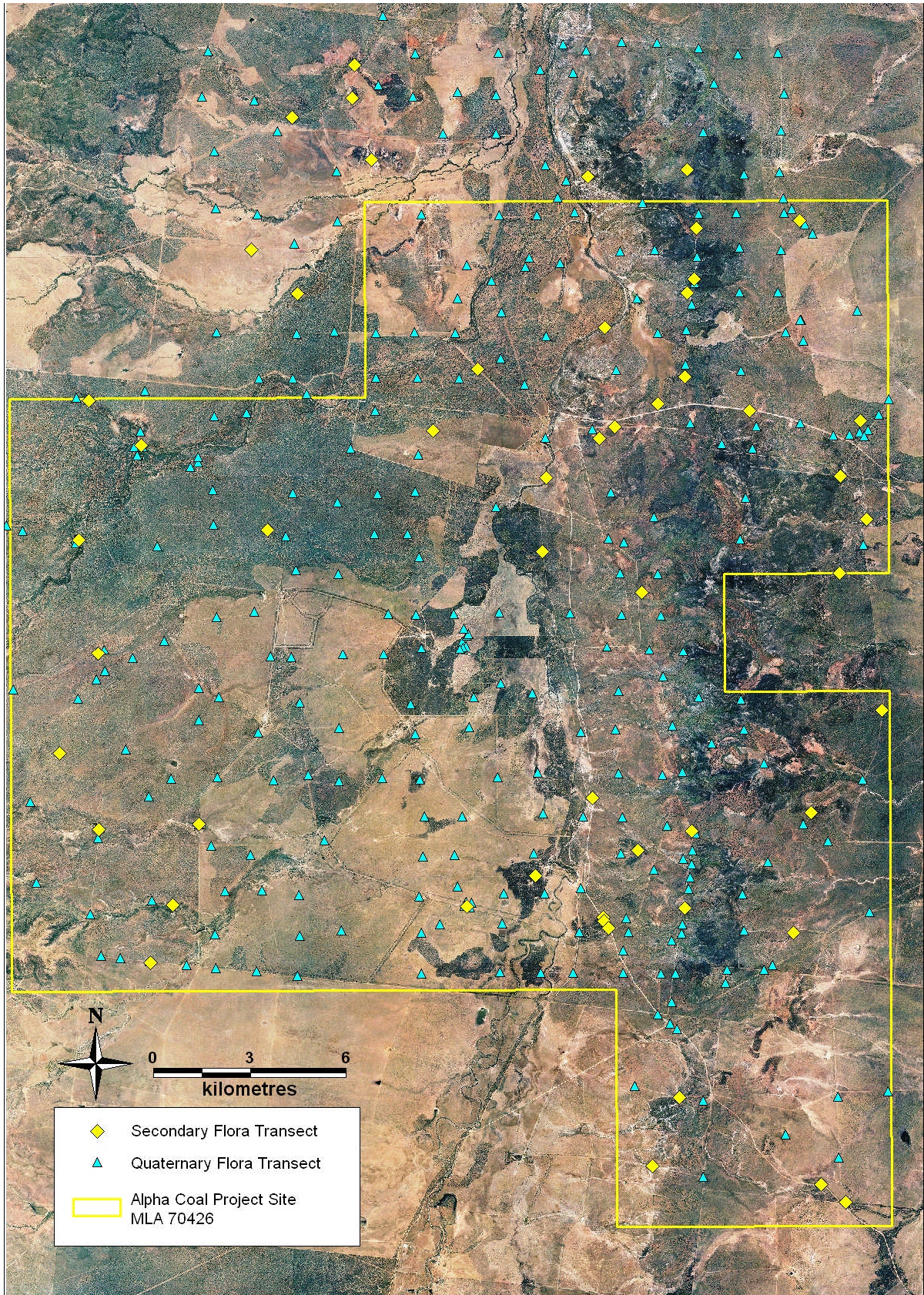
### 5.2.5 Mixed Polygons

RE and vegetation maps are produced at a certain scale that dictates the minimum continuous area of a vegetation community that can be represented as a polygon on any given map. This is known as the "minimum mappable area" and is directly related to the scale at which the data is collected. In the event that distinct vegetation communities are smaller than this minimum area, these are combined together with landzone classifications to form "mixed polygons" in the resultant vegetation dataset.

### 5.2.6 Flora Transects Surveyed

A total of 51 Secondary transects were conducted (refer to **Figure 6** for location details of each transect). All flora and vegetation community results are provided in **Section 6.0**.





**Figure 6** Flora Transect Locations on the Project site



## 5.3 FAUNA

The fauna sampling methodology for the Project site was based on 'standard survey' techniques that are used to sample terrestrial and aquatic vertebrate fauna. Sampling of fauna was conducted primarily along transects established in each of the major vegetation communities.

At each of the standard trapping sites the following survey methods were used:

- Habitat assessment;
- Pitfall trapping;
- Elliott trapping;
- Ultrasonic bat detection (Anabat);
- Funnel trapping;
- Spotlighting; and
- Active searching.

### 5.3.1 Nomenclature

Many fauna species, particularly frogs and reptiles, do not have widely accepted common names. Where possible, the accepted common names of wildlife will be used preferentially in this report, with scientific names stated on all other occasions.

Nomenclature within this report follows the following references:

- Tyler and Knight (2009) for amphibians;
- Wilson (2005) for reptiles;
- Simpson and Day (2010) for birds;
- Cogger (2000) for reptiles and amphibians; and
- Menkhorst and Knight (2004) for mammals.

### 5.3.2 Detection Methods

A brief description of the techniques employed to survey fauna occurring on and surrounding the Project site is provided below.

#### *Elliott trapping*

Type A Elliott traps were used to target small ground-dwelling mammals inhabiting the Project site and surrounding areas. Traps were baited with a mixture of rolled oats, honey, peanut butter and vanilla essence. Elliott traps were positioned in two rows at each transect, approximately 100 m apart, with



each trap separated by approximately ten metres. The overall survey effort (combining each field survey) was 1709 Elliot trap nights.

#### *Pitfall trapping*

A pitfall trap-line was established at all primary transects to target small ground-dwelling fauna (reptilian, mammalian and amphibian). Each line consisted of a 20 centimetre (cm) tall wire-mesh drift fence running along the ground and crossing the middle of five 20 litre buckets buried flush with the soil surface. The bottoms of drift fences were buried slightly to guide target species towards a bucket. A small amount of soil, leaf litter and water (soaked into a sponge) was placed in the bottom of each bucket to provide shelter and moisture for captured wildlife. The overall survey effort was 400 pitfall trap nights.

#### *Funnel trapping*

Funnel traps were employed to catch medium and large-sized terrestrial, diurnal snakes and some of the widely foraging, medium-sized skinks, dragon and arboreal geckos, which are able to climb out of pitfall traps. Funnel traps were placed at the end of each drift fence at the pitfall trap-lines and along fallen timber at secondary trap sites. Total funnel trap effort for all surveys was 293 trap nights.

#### *Cage trapping*

Cage traps are mostly useful for capturing medium sized fauna that are unlikely to be caught in pit and funnel traps. The overall survey effort for cage trapping was 209 trap nights.

#### *Micro-bat surveying*

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 electronic bat call recorder called Anabat. The Anabat was utilised throughout surveys, recording micro-bat calls at each vegetation community. This method therefore represents a broad census technique which facilitates the detection of a broad suite of micro-bats which utilise the Project site and surrounding areas. Recordings were sent to an expert Anabat call analyst (Mr. Greg Ford – Toowoomba, Queensland) for species identification. The overall Anabat survey effort was 45 nights.

#### *Bird surveying*

A dedicated search for diurnal birds was conducted visually and aurally on mornings and afternoons of the survey in the immediate vicinity of each fauna transect. In addition, opportunistic diurnal searches were also conducted on foot in areas considered likely to have high avian diversity (e.g. vegetated creek lines, dams), or to contain cryptic or threatened bird species.

### *Spotlighting*

Spotlighting was carried out at night in various sections of the Project site and surrounding areas in an attempt to observe nocturnal wildlife not likely to be detected by other survey methods, such as owls and arboreal mammals. Two spotlighting techniques were employed:

**Walk searches:** Various habitats surrounding and within the Project site were selected for spotlighting on foot, especially those considered likely to have high wildlife diversity or to contain cryptic or threatened species. These areas were randomly traversed by two ecologists equipped with spotlights and binoculars. Where possible, rock fissures, bark crevices and tree hollows were investigated. A slow walking speed (approximately 1 km per hour) was maintained to facilitate intensive listening and thorough visual searching. While this technique improves the likelihood of detecting small cryptic species, it is a time consuming activity that does not permit the coverage of large areas. The total spotlight hours undertaken on foot within and surrounding the Project site was 67 hours.

**Vehicle searches:** Spotlighting was also conducted from a slow-moving vehicle where established roads/tracks permitted driving through areas considered likely to have high wildlife diversity or to contain cryptic or threatened species. A 55 watt 12 volt spotlight was used to scan roadside vegetation for arboreal and ground-dwelling wildlife. An advantage of this survey technique is the efficiency with which large areas can be covered, although small cryptic species can be easily overlooked. A total of 48 hours of vehicle spotlighting was undertaken throughout the course of all surveys.

### *Habitat searching*

To further enhance the likelihood of detecting small cryptic species, opportunistic diurnal searches of likely micro-habitats were conducted at each transect and in other selected areas surrounding the Project site. Searches involved the rolling of rocks and logs, rustling through leaf litter, and the peeling back of exfoliating bark from standing trees. Observed animals were caught where possible to aid positive species identification.

### *Scat/Track searching*

At each transect location a search of the immediate area was conducted for evidence of the presence of cryptic wildlife species through the identification of obvious tracks, scats and other signs of occupation (for example, tree trunk scratchings).

### *Incidental recordings*

Throughout the survey period numerous wildlife species were observed or heard on the Project site during the course of routine activities, such as setting and checking trap-lines, or driving between transects. Where required, a closer inspection of detected wildlife was carried out to ensure positive species identification. All incidental observations were recorded and appropriate notes made on the surrounding habitat.

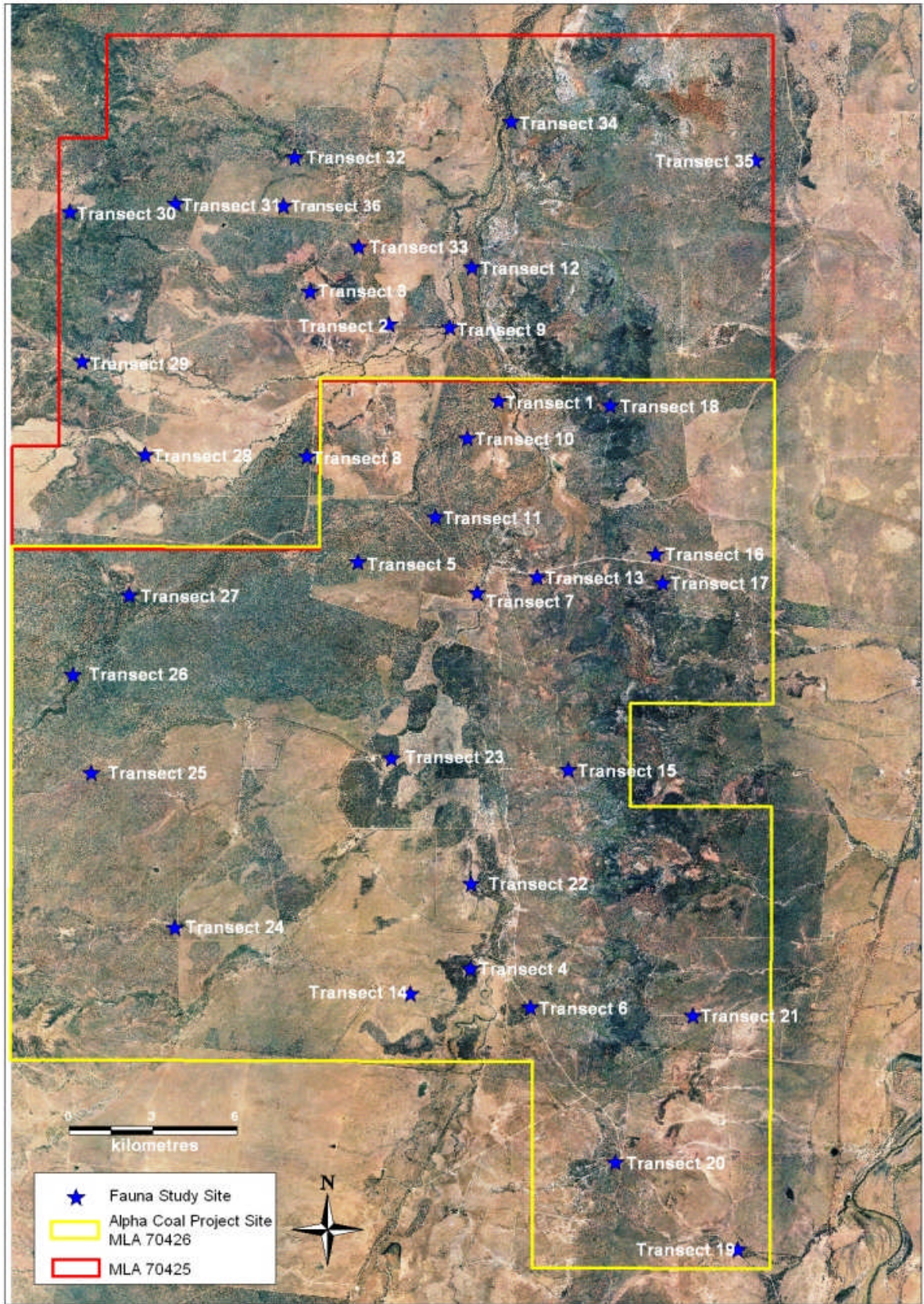
## **5.3.3 Fauna Transects Surveyed**

A total of 36 fauna transect sites were established on and surrounding the Project site. Each site was subject to trapping regimes of up to four consecutive nights for pitfall traps and five consecutive nights for all other traps. Locations of these fauna transects are shown in **Figure 7** below.



Fauna transects were established across the range of vegetation communities present on the Project site. Fauna transect sites outside the Project area were utilised in this fauna assessment, as habitat types are synonymous with habitat on the Project site. Also, most fauna species identified have the mobility to inhabit both MLAs. A combination of pitfall lines, funnel, cage, Elliot traps and Anabat recordings were used to assess the presence and abundance of species at these locations. Active searching and bird surveys were undertaken to supplement data from the transect sites. Transects were positioned to maximise the potential for sampling all wildlife present by targeting the full range of habitat types present on and surrounding the Project site. Fauna trap site descriptions and photoplates are provided in **Appendix I**.





**Figure 7 Fauna Transect Locations Surrounding the Project site**

## 6.0 FLORA RESULTS AND DISCUSSION

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The following sections describe the vegetation communities occurring on the Project site. This includes description of the vegetation structure and the dominant species of the canopy, sub canopy, shrub, lower shrub and ground layer. **Figure 8** shows the distribution of the identified communities on the Project site. **Appendix A** contains a detailed list of the identified flora species found during the survey. A total of 418 flora species were identified within and adjacent to the Project site.

The conservation status of each identified vegetation community is also discussed. This is based upon the following:

- a) Each community's extent in the surrounding region;
- b) The condition of the vegetation; and
- c) The conservation status of corresponding REs according to the VM Act, DERM Biodiversity Status and the EPBC Act.

Twelve vegetation communities were identified on the Project site during the AARC field survey. Eleven of these communities were classed as Remnant Vegetation as defined in the VM Act. Associations within the communities reflect different vegetation structures and compositions, which occur on different geophysical locations. The corresponding Queensland Herbarium RE classifications are noted for each of the described remnant vegetation communities.

The twelve distinct vegetation communities include:

- Community 1** – Brigalow Open Woodland
- Community 2** – Silver-leaved Ironbark Open Woodland
- Community 3** – Poplar Box Open Woodland
- Community 4** – White Cypress Pine Woodland
- Community 5** – Silver-leaved Ironbark / Poplar Box Mixed Woodland
- Community 6** – Gidgee Open Woodland
- Community 7** – Fringing Riparian Woodland
- Community 8** – Non-remnant Grassland
- Community 9** – Weeping Bottlebrush Heath
- Community 10** – Thozets Box Open Woodland
- Community 11** – Lancewood Woodland
- Community 12** – Queensland Yellowjacket Low Open Woodland





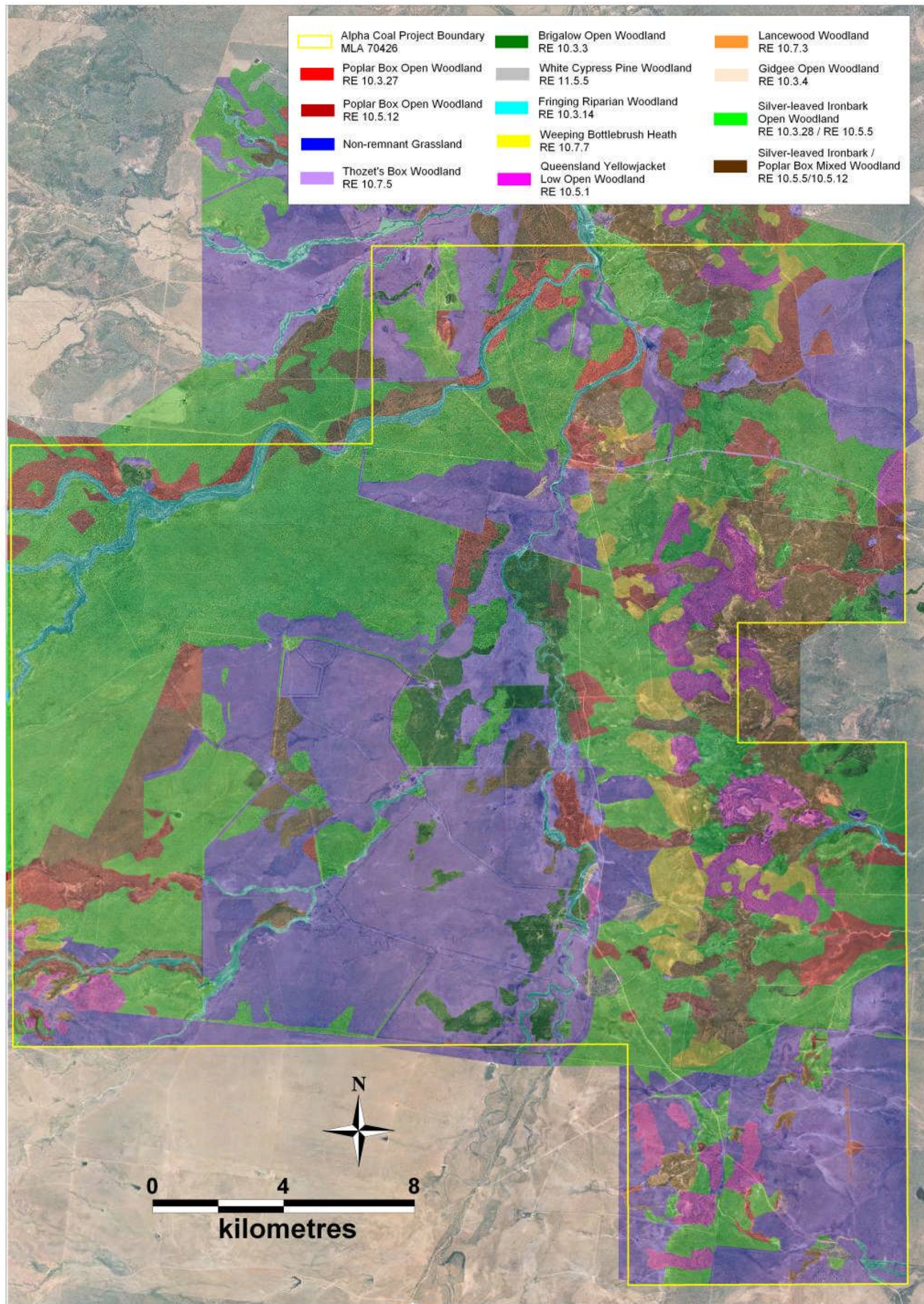


Figure 8 Vegetation Communities within the Project site



## 6.1 BRIGALOW OPEN WOODLAND

The Brigalow Open Woodland (**Photo Plate 1**) occurred along alluvial plains. The proposed mine access track and infrastructure will traverse the Brigalow Open Woodland vegetation community.

### 6.1.1 Community Description

#### *Woody Species*

Brigalow formed a canopy averaging 10 m in height, with an average canopy cover of 18%. Dawsons Gum (*Eucalyptus cambageana*) formed an associated emergent layer averaging 13 m tall. Lower canopy tree species included the Red Bauhinia (*Lysiphyllum carronii*) and Sally's Wattle (*Acacia salicina*). Stem counts for the emergent layer averaged 7 stems per transect, while the Brigalow stem count averaged 24 stems per transect. Lower canopy species did not occur along transects, therefore are only associated within this community. Dominant shrubs within this community included False Sandalwood (*Eremophila mitchelli*), Crimson Turkey Bush (*Eremophila latrobei*), Small-leaved Canthium (*Everistia vacciniifolia*), Currant Bush (*Carissa ovate*) and Quinine Bush (*Petalostigma pubescens*). Forbs were predominantly *Sida* sp., including Sponge Sida (*Sida cleisocalyx*) and Spiked Sida (*Sida subspicata*). False Sandalwood averaged 3 m in height and Currant Bush averaged 1.5 m in height. Stem counts for the shrub layer averaged 26 stems per transect and 10 stems per transect for the lower shrub layer. False Sandalwood and Crimson Turkey Bush have the highest species abundance within this community.

#### *Groundcover*

Dominant groundcover species included the Tangled Copperburr (*Sclerolaena divericata*), Sponge Sida (*Sida cleisocalyx*), Buffel Grass (*Pennisetum ciliare*), Feathertop Wiregrass (*Aristida latifolia*) and Native Millet (*Panicum decompostium*).

Ground cover along each secondary transect averaged 24% bare ground, 10% surface pebbles and rock, 22% leaf litter, 23% grass, 16% herbs and forbs and 5% low shrub. The Brigalow Open Woodland has a very open tussock grassland ground cover, with leaf litter and fallen timber having the potential to provide sheltered habitat for fauna species.



**Photo Plate 1 Brigalow Open Woodland**

The species presented in **Table 4** are indicative of the dominant species recorded within this community. For a list of all species found within the Brigalow Open Woodland community, refer to **Appendix A**.

**Table 4 Dominant Flora of Brigalow Open Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant	<i>Acacia harpophylla</i>	Brigalow
	Emergent	<i>Eucalyptus cambageana</i>	Dawson's Gum
Sub-Canopy	Occasional	<i>Lysiphyllum carronii</i>	Red Bauhinia
	Occasional	<i>Acacia salycina</i>	Sally's Wattle
Shrub	Co-dominant	<i>Eremophila mitchelli</i>	False Sandalwood
	Occasional	<i>Eremophila latrobei</i>	Crimson Turkey Bush
Lower Shrub	Co-dominant	<i>Carissa ovata</i>	Currant Bush

Stratum	Relative Dominance	Scientific Name	Common Name
	Associated	<i>Everistia vacciniifolia</i>	Small-leaved Canthium
	Associated	<i>Sida cleisocalyx</i>	Sponge Sida
	Associated	<i>Sida subspicata</i>	Spiked Sida
Groundcover	Associated	<i>Paspalidium caespitosum</i>	Brigalow Grass
	Associated	<i>Paspalidium distans</i>	Spreading Panicgrass
	Associated	<i>Panicum decompositum</i>	Native Millet
	Occasional	<i>Aristida latifolia</i>	Feathertop Wiregrass
	Occasional	<i>Pennisetum ciliare</i>	Buffel Grass

**Table 5** describes the community's conservation status. This RE occurs on heavy clay soils within alluvial plains.

**Table 5 Corresponding RE for Brigalow Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.3.3a	<i>Acacia harpophylla</i> and/or <i>Eucalyptus cambageana</i> low open woodland to open woodland on alluvial plains	Not Listed	Least Concern	No Concern at Present

## 6.1.2 Conservation Value

### 6.1.2.1 Species

No listed flora species were identified within this community.

Non-native species present within the Brigalow Open Woodland include Buffel Grass (*Pennisetum ciliare*), Common Pest Pear (*Opuntia stricta*) and Velvety Tree Pear (*Opuntia tomentosa*). The Common Pest Pear and Velvety Tree Pear are Class 2 pests declared under the LP Act. Fact sheets for Class 2 declared plants can be found in **Appendix E**.



### 6.1.2.2 Community

As detailed in **Table 5**, the Brigalow Open Woodland (RE 10.3.3a) is not listed as being of conservation significance under any of the relevant legislation. RE 10.3.3a is protected at the Cudmore Resource Reserve and Cudmore National Park. In 2005, the remnant extent of RE 10.3.3 within Queensland was 43,317 ha (Queensland Herbarium, 2005).

DERM's RE mapping of the Project site incorporates RE 10.3.25 with the Brigalow Open Woodland, as a mixed polygon. RE 10.3.25 is a False Sandalwood (*Eremophila mitchelli*) Low Open Woodland on alluvial plains. This RE may or may not include Red Bauhinia (*Lysiphyllum carronii*). These species are also dominant within the Brigalow Open Woodland (RE 10.3.3a). Much of the Brigalow Open Woodland community was traversed on foot, and no stands of False Sandalwood (*Eremophila mitchelli*) and Red Bauhinia (*Lysiphyllum carronii*) were identified to be without Brigalow (*Acacia harpophylla*) in the near vicinity (less than 10 metres). Therefore, while RE 10.3.25 has been mapped within mixed polygons, usually in 5% of the total polygon area, this community has not been mapped within this assessment. RE 10.3.25 is listed as 'Endangered' under the DERM's Biodiversity Status, with protected areas in the region including Moorrinya National Park and Forest Den National Park.

## 6.2 SILVER -LEAVED IRONBARK OPEN WOODLAND

The Silver-leaved Ironbark Open Woodland community (**Photo Plate 2**) was dominant throughout the site, occurring on alluvial flats and older sandy plains.

### 6.2.1 Community Description

#### Woody Species

The Silver-leaved Ironbark Open Woodland community consisted of the Silver-leaved Ironbark (*Eucalyptus melanopholia*), interdispersed with Dallachy's Gum (*Corymbia dallachiana*). Emergents were the Silver-leaved Ironbark; with an average height of 13 m. Average canopy heights for Silver-leaved Ironbark was 11 m and 10 m for Dallachy's Gum. Silver-leaved Ironbark was the most abundant amongst canopy species, with an average stem count along each secondary transect averaging 14 stems. The average stem count along each secondary transect for Dallachy's Gum was 2 stems.

The shrub layer consisted of two distinct strata that included species such as Dead Finish (*Archidendropsis basaltica*), Quinine Bush (*Petalostigma pubescens*), Yellowberry Bush (*Maytenus cunninghamii*) and the Desert Oak (*Acacia coriacea*). The upper shrub layer averaged 4 m in height while the lower shrub layer had an average height of 3 m and was predominantly made up of Currant Bush (*Carissa ovata*) and juvenile woody species found in the tree stratum. Quinine Bush was the most abundant species forming the shrub layer, with an average of 9 stems per secondary transect.

#### Groundcover

The Silver-leaved Ironbark Open Woodland contained a mid dense grassy groundcover with an average of 27% bare ground, 21% leaf litter, 45% grass, 5% herbs and forbs and 2% shrubs. Groundcover was predominantly comprised of Black Speargrass (*Heteropogon contortus*), Feathertop Wiregrass (*Aristida latifolia*) and Dark Wiregrass (*Aristida bigandulosa*).







**Photo Plate 2 Silver-leaved Ironbark Open Woodland**

The species found in **Table 6** are indicative of the dominant species found in the Silver-leaved Ironbark Open Woodland.

**Table 6 Dominant Flora of the Silver-leaved Ironbark Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant / Emergent	<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark
	Associated	<i>Corymbia dallachiana</i>	Dallachy's Gum
Shrub	Dominant	<i>Petalostigma pubescens</i>	Quinine Bush
	Associated	<i>Archidendropsis basaltica</i>	Dead Finish
	Occasional	<i>Acacia coriacea</i>	Desert Oak
	Occasional	<i>Maytenus cunninghamii</i>	Yellowberry Bush
Lower Shrub	Occasional	<i>Carissa ovata</i>	Current Bush
Groundcover	Occasional	<i>Heteropogon contortus</i>	Black Speargrass



Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Aristida latifolia</i>	Feathertop Wiregrass
	Occasional	<i>Aristida bigandulosa</i>	Dark Wiregrass

The corresponding RE's for the Silver-leaved Ironbark Open Woodland are 10.3.28a and 10.5.5a (Table 7). Dominant vegetation is similar, yet underlying geological features differ. RE 10.3.28 occurs on sandy alluvial fans with yellow earth and duplex soils formed from outwash from sandstone hills and RE 10.5.5a occurs on undulating yellow and orange sand plains.

**Table 7 Corresponding REs for Silver-Leaved Ironbark Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.3.28a	Open-woodland to woodland of <i>Eucalyptus melanophloia</i> on sandy fans	Not Listed	Least Concern	No Concern at Present
10.5.5a	Mostly <i>Eucalyptus melanophloia</i> open-woodland with open-grassland understorey of <i>Aristida spp.</i> and/or <i>Triodia spp</i> on sand plains	Not Listed	Least Concern	No Concern at Present

## 6.2.2 Conservation Value

### 6.2.2.1 Species

No floral species of conservational significance were identified within this community, which is consistent with all database searches undertaken prior to the site visit.

This vegetation community has been colonised with several introduced species, including Red Natal Grass (*Melinus repens*), Buffel Grass (*Pennisetum ciliare*), Prickly Pear (*Opuntia stricta*), Shrubby Stylo (*Stylosanthes scabra*) and Blackberry Nightshade (*Solanum nigrum*). Of these species, only the Prickly Pear is declared as a Class 2 weed under the LP Act. Although not classified as a declared weed species, Buffel Grass has the potential to dominate ground layers of vegetation communities. This grass is distributed extensively throughout northern Australia and can often displace native species.



### 6.2.2.2 Community

As detailed in **Table 7**, the Silver-leaved Ironbark Open Woodland community is not listed as being of conservation significance.

RE 10.3.28 is protected within Cudmore National Park, Cudmore Resource Reserve and White Mountains National Park. RE 10.5.5 is protected within Cudmore National Park and Cudmore Resource Reserve. In 2005, the mapped regional extent of RE 10.3.28 was 469,287 ha, while in 2006 the remaining remnant area of RE 10.5.5 was greater than 10,000 ha (Queensland Herbarium, 2005).

## 6.3 POPLAR BOX OPEN WOODLAND

### 6.3.1 Community Description

The Poplar Box (*Eucalyptus populnea*) Open Woodland (**Photo Plate 3**) occurred adjacent to waterbodies on both alluvial and old sandy plains.

#### Woody Species

Poplar Box (*Eucalyptus populnea*) formed an open canopy with an average height of 13 m with an average canopy cover of 16%. Associated species forming the sub canopy included Whitewood (*Atalaya hemiglauca*), Wilga (*Geijera parviflora*) and Dead Finish (*Archidendropsis basaltica*).

The lower shrub layer was moderately dense, consisting predominantly of Currant Bush (*Carissa ovata*). Associated shrubs in this stratum included the Quinine Tree (*Petalostigma pubescens*), Vine Tree (*Ventilago viminalis*), Desert Oak (*Acacia coriacea* subsp. *sericophylla*), Cocaine Bush (*Erythroxylum australe*), Canthium (*Psydrax oleifolia*) and Fuchsia Bush (*Eremophila maculata*).

#### Groundcover

Groundcover was co-dominated by Buck Spinifex (*Triodia mitchellii*) and Dark Wiregrass (*Aristida calycina*). The co-dominance of Buck Spinifex is considered to be a local variation of the Poplar Box Open Woodland RE 10.5.12, as described by DERM's RE description database. According to this database, Soft Spinifex (*Triodia pungens*) is the dominant groundcover for communities described as RE type 10.5.12. Other grasses inhabiting this vegetation community included Kangaroo Grass (*Themeda triandra*), Purple Lovegrass (*Eragrostis lacunaria*), Twirly Windmill Grass (*Enteropogon ramosus*), Soft Spinifex (*Triodia pungens*) and Buffel Grass (*Pennisetum ciliare*). The Common Finger Rush (*Fimbristylis dichotoma*) and Pinktongues (*Rostellularia adscendens*) were prevalent during the wet season survey

Average ground cover along each secondary transect consisted of 43% grass cover, 19% bare ground, 21% leaf litter, 9% herbs and forbs and 8% stem cover from trees and shrubs.



**Photo Plate 3 Poplar Box Open Woodland**

The species found in **Table 8** are indicative of the dominant species found in the Poplar Box Open Woodland. A comprehensive species list is located in **Appendix A**.

**Table 8 Dominant Flora of the Poplar Box Open Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant / Emergent	<i>Eucalyptus populnea</i>	Poplar Box
Sub canopy	Associated	<i>Atalaya hemiglauca</i>	Whitewood
	Associated	<i>Geijera parviflora</i>	Wilga
	Occasional	<i>Archidendropsis basaltica</i>	Dead Finish
Shrub	Associated	<i>Acaica coriacea</i> subsp <i>sericophylla</i>	Desert Oak
	Associated	<i>Ventilago viminalis</i>	Vine Tree
	Associated	<i>Petalostigma pubescens</i>	Quinine Tree
	Associated	<i>Psyrdrax oleifolia</i>	Canthium

Stratum	Relative Dominance	Scientific Name	Common Name
Lower Shrub	Dominant	<i>Carissa ovata</i>	Currant Bush
	Occasional	<i>Erythroxylum australe</i>	Cocaine Bush
	Occasional	<i>Eremophila maculata</i>	Fuchsia Bush
Groundcover	Co-Dominant	<i>Triodia mitchelli</i>	Soft Spinifex
	Co-Dominant	<i>Aristida calycina</i>	Dark Wiregrass
	Associated	<i>Themeda triandra</i>	Kangaroo Grass
	Associated	<i>Eragrostis lacunaria</i>	Purple Lovegrass
	Occasional	<i>Enteropogon ramosus</i>	Twirly Windmill Grass
	Occasional	<i>Fimbristylis dicotoma</i>	Common Finger Rush
	Occasional	<i>Rostellularia adscendens</i>	Pinktongues
	Occasional	<i>Pennisetum ciliare</i>	Buffel Grass

The corresponding REs for Poplar Box Open Woodland are 10.3.27a and 10.5.12 (refer to **Table 9**). RE 10.5.12 occurs on undulating terrain with sandy loam to sandy clay soils on Cainozoic sand plains. RE 10.3.27a occurs on alluvial plains with sandy duplex soils.

**Table 9 Corresponding RE's for Poplar Box Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.3.27a	Open woodland to woodland of <i>Eucalyptus populnea</i> occasionally with understorey of <i>Archidendropsis basaltica</i>	Not Listed	Least Concern	Of Concern
10.5.12	Open woodland to woodland of <i>Eucalyptus populnea</i> with sparse ground layer of <i>Triodia pungens</i> and/or tussock grasses	Not Listed	Least Concern	No Concern at Present



## 6.3.2 Conservation Value

### 6.3.2.1 Species

No flora species of conservation significance were found within the community.

Non-native species which inhabit this community include the Common Pest Pear (*Opuntia stricta*), Velvety Tree Pear (*Opuntia tomentosa*), Shrubby Stylo (*Stylosanthes scabra*) and Buffel Grass (*Pennisetum ciliare*). The Common Pest Pear and Velvety Tree Pear are listed as Class 2 Pests under the LP Act. Pest Fact Sheets for these species can be found in **Appendix C**.

### 6.3.2.2 Community

As detailed in **Table 9** above, the Poplar Box Open Woodland is not deemed threatened under EPBC or the VM Act. RE 10.3.27a is listed as 'Of Concern' under DERM's Biodiversity Status. Threatening processes include increasing salinity due to clearing of recharge areas, clearing for pasture development and woody weed invasion due to high total grazing pressures. Both Poplar Box Open Woodland regional ecosystems are currently protected within the Cudmore National Park and Cudmore Resources Reserve. Queensland Herbarium research ascertained remnant extent of RE 10.5.12 in 2005 was 316,444 ha. The remnant extent of RE 10.3.27 throughout all of Queensland in 2005 was 75,438 ha.

## 6.4 WHITE CYPRESS PINE WOODLAND

The White Cypress Pine Woodland community (**Photo Plate 4**) patchily inhabits sandy plains within the southern area of site.

### 6.4.1 Community Description

#### *Woody Species*

This community was dominated by White Cypress Pine (*Callitris glaucophylla*) canopy with intermittent emergents of Silver leaved Ironbark (*Eucalyptus melanophloia*). Canopy cover across the community averaged 30% while canopy height was approximately 6 – 7 m. Average stem cover of the White Cypress Pine was 112 stems per transect. The White Cypress Pine was observed within each stratum within this community, including canopy, shrub and lower shrub layers.

The shrub layer was non-existent to sparse, with occasional observations of Desert Oak (*Acacia coriacea*) and Smooth-leaved Quinine Trees (*Petalostigma banksii*). This was demonstrated by a low average stem cover within this stratum, being 2 stems per transect.

#### *Groundcover*

Groundcover consisted of tussock grass species, with occasional forbs and bare ground. Average groundcover composition along secondary transects averaged 23% bare ground, 13% leaf litter, 8% forbs and herbs, 52% tussock grass and 5% stem cover from Cypress Pine trees. Co-dominant with tussock grasses include the Native Millet (*Panicum decompositum*) and Feathertop Wiregrass (*Artistida latifolia*). Other grasses associated within this community include Handsome Lovegrass (*Eragrostis speciosa*) and Mulka (*Eragrostis dielsii*).







**Photo Plate 4 White Cypress Pine Woodland**

Species presented within **Table 10** are indicative of the dominant species recorded within this community. For a full list of species found within this community, refer to **Appendix A**.

**Table 10 Dominant Flora of White Cypress Pine Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant	<i>Callitris glaucophylla</i>	White Cypress Pine
	Emergent / Associated	<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark
Sub canopy	Absent	-	-
Shrub	Occasional	<i>Petalostigma banksii</i>	Smooth-leaved Quinine Tree
	Occasional	<i>Acacia coriacea</i>	Desert Oak
Lower Shrub	Infrequent	<i>Carissa ovata</i>	Currant Bush
Groundcover	Co-Dominant	<i>Panicum decompositum</i>	Native Millet
	Co-Dominant	<i>Artistida latifolia</i>	Feathertop Wiregrass
	Associated	<i>Stylosanthes scabra</i>	Shrubby Stylo

Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Cheilanthes distans</i>	Rock Fern
	Occasional	<i>Eragrostis dielsii</i>	Mulka
	Occasional	<i>Eragrostis speciosa</i>	Handsome Lovegrass

The corresponding RE and conservation status for the White Cypress Pine Woodland is detailed below in **Table 11**. The White Cypress Pine Woodland occurs on undulating plains and rises formed on Cainozoic deposits. Associated soils are usually deep texture contrast soils, with thick, sandy surface horizons overlying yellow, mottled clay subsoils.

RE 11.5.5b is considered an outlier for the Project region. An outlier is a RE which is spatially within one bioregion but has an RE code from an adjacent bioregion. All vegetation communities located on the Project site are included in bioregion 10, the Desert Uplands. The White Cypress Pine Woodland is part of bioregion 11, the Brigalow Belt. The Brigalow Belt region 'extends' slightly into adjacent parts of the Desert Uplands bioregion.

**Table 11 Corresponding RE for White Cypress Pine Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
11.5.5b	<i>Callitris glaucophylla</i> , <i>Eucalyptus melanophloia</i> , <i>Eucalyptus populnea</i> +/- <i>Corymbia tessellaris</i> woodlands	Not Listed	Least Concern	No Concern at Present

## 6.4.2 Conservation Value

### 6.4.2.1 Species

No threatened flora species were identified within this community.

Two non-native species were found within this community, the Shrubby Stylo (*Stylosanthes scabra*) and the Buffel Grass (*Pennisetum ciliare*). These species are not listed under the LP Act.

### 6.4.2.2 Community

As detailed in **Table 11**, the White Cypress Pine Woodland is not listed as being of conservation significance. However, DERM has noted an ongoing threatening process – land clearing for pasture development, as occurring within this community type.



Areas within the region which the White Cypress Pine Woodland is protected include Alton National Park, Morven National Park and Narrien Range National Park. The total mapped extent of RE 11.5.5 within Queensland as of 2005 was 134,829 ha (Queensland Herbarium, 2005).

## 6.5 SILVER-LEAVED IRONBARK / POPLAR BOX MIXED WOODLAND

The Silver-leaved Ironbark / Poplar Box Mixed Woodland (**Photo Plate 5**) is a heterogeneous community which has been mapped as a single polygon (**Figure 8**). This community has a high spatial diversity, and with the 1:25,000 scale which vegetation has been mapped for the Project site, it is not possible to spatially delineate these vegetation communities into homogeneous communities.

### 6.5.1 Community Description

#### *Woody Species*

This community had a mixed canopy consisting of the Silver-leaved Ironbark (*Eucalyptus melanophloia*) and Poplar Box (*Eucalyptus populnea*) associated with woody canopy species such as Dallachy's Gum (*Corymbia dallachiana*) and the Shiny-leaved Bloodwood (*Corymbia lamprophylla*). The sub canopy consisted of occasional Kurrajong (*Brachychiton populneus*), Vine Tree (*Ventilago viminalis*) and Dead Finish (*Archidendropsis basaltica*). Across the community, canopy cover averaged 17% with canopy height averaging 12 m. Both Silver-leaved Ironbark and Poplar Box were observed occurring as emergents within this community. Stem cover averaged only 11 stems per transect, which is consistent with a relatively sparse woodland.

The shrub layer was dominated by the Smooth-leaved Quinine Tree (*Petalostigma banksii*) and Canthium (*Psydrax oleifolia*) with the lower shrub stratum being sparse to absent having an average of 4 stems per transect. Species within this stratum included Shrubby Stylo (*Stylosanthes scabra*) and Current Bush (*Carissa ovata*).

#### *Groundcover*

Groundcover within this community averaged 11% bare ground, 29% leaf litter, 44% grass, 10% herbs and forbs and 6% stem cover from trees and shrubs. Grasses most often encountered along transects included Buffel Grass (*Pennisetum ciliare*), Kangaroo Grass (*Themeda triandra*) and Soft Spinifex (*Triodia pугens*). Forbs associated within this community included Saltbush (*Einadia nutans*) and Pinktongues (*Rostellularia adscendens*).





**Photo Plate 5 Silver-leaved Ironbark / Poplar Box Mixed Woodland**

**Table 12** lists the dominant flora present in the Silver-leaved Ironbark / Poplar Box Mixed Woodland. A full species list is present in **Appendix A**.

**Table 12 Dominant Flora of Silver-leaved Ironbark / Poplar Box Mixed Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Co-Dominant	<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark
	Co-dominant	<i>Eucalyptus populnea</i>	Poplar Box
	Associated	<i>Corymbia dallachiana</i>	Dallachy's Gum
	Associated	<i>Corymbia lamprophylla</i>	Shiny-leaved Bloodwood
Sub canopy	Occasional	<i>Brachychiton populneus</i>	Kurrajong
	Occasional	<i>Archidendropsis basaltica</i>	Dead Finish
	Occasional	<i>Ventilago viminalis</i>	Vine Tree

Shrub	Associated	<i>Petalostigma banksii</i>	Smooth-leaved Quinine Tree
	Associated	<i>Psydrax oleifolia</i>	Canthium
Lower Shrub	Occasional	<i>Stylosanthes scabra</i>	Shrubby Stylo
	Occasional	<i>Carissa ovata</i>	Current Bush
Groundcover	Associated	<i>Triodia pungens</i>	Soft Spinifex
	Associated	<i>Themeda triandra</i>	Kangaroo Grass
	Associated	<i>Pennisetum ciliare</i>	Buffel Grass

The corresponding REs and conservation status for the Silver-leaved Ironbark / Poplar Box Mixed Woodland can be found in **Table 13**. This community is found on sand plains.

**Table 13 Corresponding RE's for Silver-leaved Ironbark / Poplar Box Mixed Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.5.5a	Mostly <i>Eucalyptus melanophloia</i> open-woodland with open-grassland understorey of <i>Aristida spp.</i> and/or <i>Triodia spp.</i> on sand plains	Not Listed	Least Concern	No Concern at Present
10.5.12	Open woodland to woodland of <i>Eucalyptus populnea</i> with sparse ground layer of <i>Triodia pungens</i> and/or tussock grasses	Not Listed	Least Concern	No Concern at Present

## 6.5.2 Conservation Value

This community contained numerous non-native flora species. In order to ensure that these non – native species are not further spread, appropriate weed management strategies consistent with the relevant DEEDI factsheets should be undertaken in this area.

### 6.5.2.1 Species

As found in the database searches prior to the site visit, no threatened flora species were identified during any surveys undertaken across this community type.





Five non-native flora species were identified within this community, including one LP Act listed weed. Non-natives included the Buffel Grass (*Pennisetum ciliare*), Shrubby Stylo (*Stylosanthes scabra*) Prickly Malvastrum (*Malvastrum coromandelianum* subsp. *coromandelianum*), Common Pest Pear (*Opuntia stricta*) and Sida-retusa (*Sida rhombifolia*). The Common Pest Pear is a Class 2 Pest according to the LP Act. Appropriate management of this weed species is required. Pest Fact Sheets for this species can be found in **Appendix C**.

### 6.5.2.2 Community

As detailed in **Table 13**, the Silver-leaved Ironbark / Poplar Gum Mixed Woodland is not listed as being of conservation significance. Total area of remnant vegetation within Queensland and protected areas within the region for each RE are discussed in Sections 6.2.2.2 and 6.3.2.2.

## 6.6 GIDGEE OPEN WOODLAND

The Gidgee Open Woodland (**Photo Plate 6**) occurs in small patches and fringes riparian areas.

### 6.6.1 Community Description

#### Woody Species

The canopy of this community is dominated by Gidgee (*Acacia cambagei*), with an emergent layer of Dawsons Gum (*Eucalyptus cambageana*). Canopy height across the community averaged 7 m and the emergent layer averaged 9 m in height. The sub canopy was composed of Red Bauhinia (*Lysiphyllum carronii*) and Whitewood (*Atalaya hemiglauca*). Stem counts for the emergent layer was 2 stems per transect and for the canopy layer the count was 30 stems per transect.

The shrub layer was sparse, with an average of 4 stems per transect. Shrub species included False Sandalwood (*Eremophila mitchelli*), Ellangowan Poison Bush (*Eremophila deserti*), Yellowberry Bush (*Maytenus cunninghamii*), Broom Brush (*Apophyllum anomalum*) and Canthium (*Psudras olefolia*). A secondary shrub layer was present consisting of a dense layer of Currant Bush (*Carrisa ovata*). The shrub layer averaged 3 m in height and the secondary, lower shrub layer averaged 1 m in height.

#### Groundcover

Groundcover within the Gidgee Open Woodland consisted of a very open tussocky grass layer and averaged 45% bare ground, 9% leaf litter, 13% grass, 28% forbs and 5% shrub and tree stem cover.

Forbs common within this community were salt tolerant and are known to colonise in degraded areas. Common species included Soft Roly-poly (*Salsola kali*), Copperburr (*Sclerolaena convexula*), Tangled Copperburr (*Sclerolaena divaricata*) and Wait-a-while (*Capparis lasiantha*). Grasses within the community were sparse and included Brigalow Grass (*Paspalidium distans*), Rapsy Dropseed (*Sporobolous scabridus*) and Fairy Grass (*Sporobolous caroli*).





**Photo Plate 6 Gidgee Open Woodland**

**Table 14** outlines the dominant flora present in the Gidgee Open Woodland community. A full species list can be found in **Appendix A**.

**Table 14 Dominant Flora of Gidgee Open Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Emergent	<i>Eucalyptus cambageana</i>	Dawsons Gum
	Dominant	<i>Acacia cambagei</i>	Gidgee
Sub canopy	Occasional	<i>Atalaya hemiglauca</i>	Whitewood
	Occasional	<i>Lysiphyllum carronii</i>	Red Bauhinia
Shrub	Associated	<i>Eremophila mitchelli</i>	False Sandalwood
	Associated	<i>Eremophila deserti</i>	Ellangowan Poison Bush
	Occasional	<i>Maytenus cunninghamii</i>	Yellowberry Bush
	Occasional	<i>Apophyllum anomalum</i>	Broom Brush

Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Psydrax olefolia</i>	Canthium
Lower Shrub	Dominant	<i>Carrisa ovata</i>	Current Bush
Groundcover	Associated	<i>Sclerolaena divaricata</i>	Tangled Copperburr
	Associated	<i>Salsola kali</i>	Soft Roly-poly
	Associated	<i>Sclerolaena convexula</i>	Copperburr
	Occasional	<i>Capparis lasiantha</i>	Wait-a-While
	Sparse	<i>Paspalidium distans</i>	Brigalow Grass
	Sparse	<i>Sporobolous scabridus</i>	Rapsy Dropseed
	Sparse	<i>Sporobolous caroli</i>	Fairy Grass

The corresponding RE and conservation status for the Gidgee Open Woodland is detailed below in **Table 15**. This community is occurs on heavy clay and texture contrast soils on alluvial plains.

**Table 15 Corresponding RE for Gidgee Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.3.4b	Low open-woodland to woodland of <i>Acacia cambagei</i> with very open tussock grassland	Not Listed	Least Concern	Of Concern

## 6.6.2 Conservation Value

### 6.6.2.1 Species

No flora species of conservation significance were found within the community.

One LP Act Class 2 pest species was identified within the Gidgee Open Woodland, the Velvety Tree Pear (*Opuntia tomentosa*). Pest Fact Sheets for this species can be found in **Appendix C**.

### 6.6.2.2 Community

As detailed in **Table 15** above, RE 10.3.4b is listed as 'Of Concern' under the DERM Biodiversity status. Pressures within this community include total grazing pressures, in particular pasture degradation and significant loss of groundcover. The Desert Uplands Biodiversity Assessment



suggested management strategies include fire management, habitat protection on other state lands, private lands and reserves and research (Australian Natural Resources Atlas (ANRA), 2009).

The regional extent of Gidgee Open Woodland community protected within parks and reserves is low, and includes the Moorrinya National Park. The remnant area of RE 10.3.4 mapped within Queensland, as of 2005, was 80,996 ha (Queensland Herbarium, 2005).

## 6.7 FRINGING RIPARIAN WOODLAND

### 6.7.1 Community Description

The Fringing Riparian Woodland community (**Photo Plate 7**) was found along all moderate to large waterbodies, such as Lagoon Creek.

#### *Woody Species*

This community consisted of a River Red Gum (*Eucalyptus camaldulensis*) canopy, with a variable co-dominance of species along watercourses. Communities occurring on sandy soils were generally dominated by Red River Gum along with a co-dominant canopy of Queensland Yellowjacket (*Corymbia leichhardtii*). Other communities observed on clay soils consisted of River Red Gum, Brigalow (*Acacia harpophylla*) and Gidgee (*Acacia cambagei*). Other associated canopy species were the Red Bauhinia (*Lysiphyllum carronii*), Whitewood (*Atalaya hemiglauca*) and Western Bloodwood (*Corymbia erythrophloia*). Average canopy height was 18 m and canopy cover was 24%. Stem cover averaged 15 stems per transect for the dominant species and 3 stems per transect for associated species.

The shrub layer density was sparse to moderate and included species such as Soap Bush (*Acacia holosericea*), Bitterbark (*Alistonia constricta*) and Quinine Tree (*Petalostigma pubescens*). Average height for the shrub layer was 4 m, with a stem count of 9 stems per transect. The lower shrub stratum averaged 1.5 m in height and predominantly consisted of the Current Bush (*Carissa ovata*).

#### *Groundcover*

Forbs and herbs which were observed during the wet season survey included the Fruit Salad Plant (*Pterocaulon sphacelatum*), Maloga Bean (*Vigna lanceolata*), Long-leaved Matrush (*Lomandra longifolia*) and Spurge (*Phyllanthus maderaspatensis*). Grasses which inhabited this community included Umbrella Canegrass (*Leptochloa digitata*), Desert Bluegrass (*Bothriochloa ewartiana*), Dark Wiregrass, Kangaroo Grass (*Themeda triandra*), Clustered Lovegrass (*Eragrostis elongata*), Hairy Finger Grass (*Digitaria bicornis*) and Handsome Lovegrass (*Eragrostis speciosa*). Average ground cover along each Secondary transect consisted of 43% grass cover, 19% bare ground, 7% herbs and forbs and 24% litter and 3% stem cover from shrubs and trees.







**Photo Plate 7 Fringing Riparian Woodland**

**Table 16** presents dominant flora found in the Fringing Riparian Woodland community. A complete list of flora species identified can be found in **Appendix A**.

**Table 16 Dominant Flora of Fringing Riparian Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant	<i>Eucalyptus camaldulensis</i>	Red River Gum
	Associated	<i>Acacia harpophylla</i>	Brigalow
	Associated	<i>Acacia cambagei</i>	Gidgee
	Associated	<i>Corymbia leichhardtii</i>	Queensland Yellowjacket
	Occasional	<i>Corymbia erythrophloia</i>	Western Bloodwood
Sub canopy	Associated	<i>Corymbia terminalis</i>	Western Bloodwood
	Occasional	<i>Lysiphyllum carronii</i>	Red Bauhinia
	Occasional	<i>Atalaya hemiglauca</i>	Whitewood
Shrub	Associated	<i>Acacia holosericea</i>	Soap Bush



Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Alstonia constricta</i>	Bitterbark
	Occasional	<i>Petalostigma pubescens</i>	Quinine Tree
Lower Shrub	Associated	<i>Carissa ovata</i>	Currant Bush
Groundcover	Associated	<i>Pterocaulon sphacelatum</i>	Fruit Salad Plant
	Associated	<i>Vigna lanceolata</i>	Maloga Bean
	Occasional	<i>Lomandra longifolia</i>	Long-leaved Matrush
	Associated	<i>Leptochloa digitata</i>	Umbrella Canegrass
	Associated	<i>Aristida calycina</i>	Dark Wiregrass
	Associated	<i>Bothriochloa ewartiana</i>	Desert Bluegrass
	Associated	<i>Eragrostis elongata</i>	Clustered Lovegrass
	Occasional	<i>Themeda triandra</i>	Kangaroo Grass

The corresponding REs and conservation status for the Fringing Riparian Woodland community are detailed below in **Table 17**. RE 10.3.14 is occurs along channels, levees and flood plains with sandy to clayey soils along watercourses. RE's 11.3.2 and 11.5.3 occur solely on the most south eastern watercourse within the Project site. RE 11.3.2 occurs on Cainozoic alluvial plains with variable soil types including texture contrast, deep uniform clays, massive earths and cracking clays. RE 11.5.3 occurs on flat to gently undulating plains formed from Cainozoic sediments, with associated soils having generally deep texture contrast with thick sandy surface horizons and some deep red earths.

**Table 17 Corresponding RE for Fringing Riparian Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.3.14	<i>Eucalyptus camaldulensis</i> and/or <i>Eucalyptus coolabah</i> woodlands and open woodlands on channels, levees and flood plains with sandy to clayey soils along larger watercourses	Not Listed	Least Concern	Of Concern
11.3.2 (south eastern watercourse only)	<i>Eucalyptus populnea</i> woodland on alluvial plains	Not Listed	Of Concern	Of Concern



Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
11.5.3 (south eastern watercourse only)	<i>Eucalyptus populnea</i> +/- <i>Eucalyptus melanophloia</i> +/- <i>Corymbia clarksoniana</i> on Cainozoic sand plains/remnant surfaces	Not Listed	Least Concern	No Concern at Present

## 6.7.2 Conservation Value

### 6.7.2.1 Species

No flora species of conservation significance were identified during all surveys conducted within the Fringing Riparian Woodland community.

Several non-native species were identified within this community, including Red Natal Grass (*Melinis repens*), Buffel Grass (*Pennisetum ciliare*), Shrubby Stylo, Common Pest Pear (*Opuntia stricta*), Malvastrum (*Malvastrum americanum*), Awnless Barnyard Grass (*Echinochloa colona*), Paddy's Lucern (*Sidaretusa*), West-Indian Gherkin (*Cucumis anguria* var. *anguria*), Licorice Weed (*Scoparia dulcis*) and Purpletop (*Verbena incompta*). The Common Pest Pear is listed as a Class 2 pest under the LP Act. DEEDI Pest Fact Sheets for the management of this species can be found in **Appendix C**.

### 6.7.2.2 Community

As detailed in **Table 17**, RE 10.3.14 is listed as 'Of Concern' under DERM Biodiversity. Threatening processes include weed invasion and very high total grazing pressure. Feral pigs are attracted to these areas, causing major soil disturbance, fouling of water holes and destroying wildlife and habitat. In 2005, the remnant extent of RE 10.3.14 was 172,863 ha (Queensland Herbarium, 2008). This RE is protected within the Moorrinya National Park, Forest Den National Park, White Mountains National Park, Cudmore National Park, White Mountains Resource Reserve and Cudmore Resource Reserve. ANRA's Biodiversity Assessment of the Desert Uplands has also highlighted both the invasion of the weed Parkinsonia (*Parkinsonia aculeata*) (Weed of National Significance and Class 2 declared weed under the LP Act) and soil and pasture degradation due to grazing pressures as threatening processes for this RE. Recommended recovery actions include fire management, habitat protection on private lands, habitat retention through reserves, research and weed control (ANRA, 2009).

RE 11.3.2 is listed as 'Of Concern' under the Queensland VMA 1999 Status and DERM's Biodiversity Status. Threatening processes include broad scale vegetation clearing, grazing pressure and infrastructure such as roads and cattle yards causing erosion (ANRA, 2009). Regional representation of this RE includes the Carnarvon National Park, Expedition (Limited Depth) National Park, Dipperu National Park (Scientific ((S)), Homevale Resource Reserve, Chesterton Range National Park, Homevale National Park, Expedition Resource Reserve, Taunton National Park (S), Nuga Nuga National Park, Isla Gorge National Park, Blackdown Tableland National Park, Alton National Park, Dawson River Conservation Park, Narrien Range National Park, Bouldercombe Gorge Resource Reserve, Epping Forest National Park (S), Lake Murphy Conservation Park, Carraba Conservation



Park, Lake Broadwater Conservation Park, Highworth Bend Conservation Park and Lake Broadwater Resource Reserve.

## 6.8 NON-REMNANT GRASSLAND

### 6.8.1 Community Description

Non-remnant grassland (**Photo Plate 8**) is the dominant vegetation across the Project site and is used for low intensity cattle grazing. The pre-cleared vegetation community would have primarily been Brigalow Open Woodland.

#### *Woody Species*

No canopy was observed within this community. The understorey was sparse, averaging 2 m in height, and consisted of regrowth from tree species occurring in adjacent communities and included species such as Brigalow (*Acacia harpophylla*), Poplar Box (*Eucalyptus populnea*) and Silver-leaved Ironbark (*Eucalyptus melanophloia*).

The lower shrub layer was moderate in density, predominantly consisting of Currant Bush (*Carissa ovata*) and forbs such as Shrubby Stylo (*Stylosanthes scabra*), Budda Pea (*Aeschynomene indica*) and Ruby Saltbush (*Enchylaena tomentosa*). Other forb species included Soft Roly-poly (*Salsola kali*), Lesser Joyweed (*Alternanthera denticulata*) and Hairy Caustic Weed (*Chamaesyce australis*).

#### *Groundcover*

Grasses which dominated the Non-remnant Grassland community include Fairy Grass (*Sporobolus caroli*) and Buffel Grass (*Pennisetum ciliare*). Other grass species which occurred frequently in this community were Twirly Windmill Grass (*Enteropogon ramosus*), Weeping Lovegrass (*Eragrostis parviflora*), Kangaroo Grass (*Themeda triandra*), Black Speargrass (*Heteropogon contortus*), Feathertop Wiregrass (*Aristida latifolia*), Hairy Panic (*Panicum effusum*) and Spring Grass (*Eriochloa crebra*). Depressions in the ground held moisture within the clay soils during the wet season, resulting in an abundance of sedges and Nardoo (*Marsilea drummondii*), including the Flat Sedge (*Cyperus rigidellus*), Trim Flat-sedge (*Cyperus concinnus*), Sedge (*Cyperus dietrichiae* var. *brevibracteatus*), Sticky Sedge (*Cyperus fulvus*), and Downs Nutgrass (*Cyperus bifax*).

These depressions hold moisture for greater time periods than surrounding areas, creating a microhabitat for amphibians and ephemeral flora species. During the wet season survey, ground cover was dense, with an average cover of approximately 62% grass, 5% bare ground, 13% herbs and forbs and 20% litter. Dry season surveys held differing structural composition, with an average of 58% grass, 32% bare ground, 3% herbs and forbs and 6% leaf litter.





**Photo Plate 8 Non-remnant Grassland**

**Table 18** outlines the dominant flora present in the Non-remnant Grassland community. A full species list is present in **Appendix A**.

**Table 18 Dominant Flora of Non-remnant Grassland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Absent		
Shrub	Occasional	<i>Acacia harpophylla</i>	Brigalow
	Occasional	<i>Eucalyptus populnea</i>	Poplar Box
	Occasional	<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark
Lower Shrub / Forbs	Associated	<i>Stylosanthes scabra</i>	Shrubby Stylo
	Associated	<i>Aeschynomene indica</i>	Budda Pea
	Associated	<i>Enchylaena tomentosa</i>	Ruby Saltbush
	Occasional	<i>Carissa ovata</i>	Currant Bush
	Occasional	<i>Salsola kali</i>	Soft Roly-poly



Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Alternanthera denticulata</i>	Lesser Joyweed
	Occasional	<i>Chamaesyce australis</i>	Hairy Caustic Weed
Groundcover	Co-dominant	<i>Sporobolus caroli</i>	Fairy Grass
	Co-dominant	<i>Pennisetum ciliare</i>	Buffel Grass
	Associated	<i>Enteropogon ramosus</i>	Twirly Windmill Grass
	Associated	<i>Cyperus concinnus</i>	Trim Flat-sedge
	Associated	<i>Cyperus rigidellus</i>	Flat Sedge
	Associated	<i>Marsilea drummondii</i>	Nardoo
	Occasional	<i>Eragrostis parviflora</i>	Weeping Lovegrass
	Occasional	<i>Themeda triandra</i>	Kangaroo Grass
	Occasional	<i>Heteropogon contortus</i>	Black Speargrass
	Occasional	<i>Aristida latifolia</i>	Feathertop Wiregrass

RE classifications do not exist for non-remnant vegetation.

## 6.8.2 Conservation Value

### 6.8.2.1 Species

Targeted searches for species of conservation significance determined that there were NC Act or EPBC listed plant species inhabiting the Non-remnant Grassland community.

Several non-native species were observed within this community. Species listed under the LP Act as a Class 2 Pest included the Common Pest Pear (*Opuntia stricta*), Velvety Tree Pear (*Opuntia tomentosa*) and Parkinsonia (*Parkinsonia aculeata*) (also a declared Weed of National Significance). Other non-native plants found in this community included Buffel Grass, Feathertop Rhodes Grass (*Chloris virgata*), Awnless Barnyard Grass (*Echinochloa colona*), Indian Heliotrope (*Heliotropium indicum*), Spiked Malvastrum (*Malvastrum americanum*), Red Natal Grass, Hairy Portulaca (*Portulaca pilosa*), Sida-retusa (*Sida rhombifolia*), Spiked Sida (*Sida hackettiana*), Caribbean Stylo (*Stylosanthes hamata*), Shrubby Stylo (*Stylosanthes scabra*) and Golden Crownbeard (*Verbesina encelioides*).

### 6.8.2.2 Community

This community is not listed as threatened under any legislation. The Non-remnant Grassland community was colonised by non-native species, due to previous land management practices, leading to a high species diversity and abundance of these non-native species.



## 6.9 WEEPING BOTTLEBRUSH HEATH

The Weeping Bottlebrush Heath (**Photo Plate 9**) located primarily on the Project site's eastern portion, where dominant topography was rolling hills.

### 6.9.1 Community Description

#### *Woody Species*

This low heathland community consisted of Weeping Bottlebrush (*Melaleuca tamariscina*) dominating the low canopy, with the emergent Narrow-leaved Wattle (*Acacia tenuissima*) interdispersed throughout. Associated species included Golden Grevillea (*Grevillea pteridiflora*) Western Dogwood (*Jacksonia rhadinoclona*) and Geebung (*Persoonia falcata*) individuals were also scattered throughout the community. Average height of the Weeping Bottlebrush was 5 m and the Narrow leaved Wattle was 8 m. The canopy was very open, with approximately 7% cover. The canopy stratum was relatively dense in stem coverage, with an average of 39 stems per transect for Weeping Bottlebrush and 1 stem per transect for the Narrow-leaved Wattle.

The Desert Star Flower (*Calytrix microcoma*) was dominant throughout the vegetation community, with various *Acacia spp.* inhabiting the community. The shrub layer was approximately 3 m in height and averaged 34 stems per transect, which created a diverse and abundant shrub stratum. The lower shrub layer was approximately 2 m in height, with common species including Matchsticks (*Comesperma pallidum*) and *Psyrax forsteri*.

#### *Groundcover*

Groundcover was mid-dense, with Soft Spinifex (*Triodia pungens*) and Mountain Wanderrie Grass (*Eriachne mucronata*) tussock grass. Average groundcover composition along transects was 20% bare ground, 2% surface pebbles, 23% leaf litter, 39% grass, 7% herbs and forbs and 9% stem cover from shrubs and trees.



**Photo Plate 9 Weeping Bottlebrush Heath**

**Table 19** presents dominant flora found in the Weeping Bottlebrush Heath community. A complete list of flora species identified can be found in **Appendix A**.

**Table 19 Dominant Flora of Weeping Bottlebrush Heath**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant	<i>Melaleuca tamariscina</i>	Weeping Bottlebrush
	Associated	<i>Acacia tenuissima</i>	Narrow-leaved Wattle
Sub canopy	Associated	<i>Persoonia falcata</i>	Geebung
	Associated	<i>Grevillea pteridifolia</i>	Golden Grevillea
	Occasional	<i>Jacksonia rhadinoclona</i>	Western Dogwood
Shrub	Dominant	<i>Calytrix microcoma</i>	Desert Star Flower
	Associated	<i>Acacia leptostachya</i>	Townsville Wattle
	Associated	<i>Acacia oswaldii</i>	Milijee
	Associated	<i>Acacia lazaridis</i>	Lazarides Wattle
Lower Shrub	Occasional	<i>Comesperma pallidum</i>	Matchsticks

Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Psdrax foresteri</i>	No Common Name
Groundcover	Dominant	<i>Triodia pungens</i>	Soft Spinifex
	Occasional	<i>Scaevola parvifolia</i>	Fan flower
	Occasional	<i>Andropogon caricinus</i> <i>var. sericeus</i>	No Common Name
	Occasional	<i>Eriachne mucronata</i>	Mountain Wanderrie Grass

The corresponding RE and conservation status for the Weeping Bottlebrush Heath community is detailed below in **Table 20**. The Weeping Bottlebrush Heath occurs on ferricrete with skeletal soils and shallow earths often on margins of Tertiary plateaus.

**Table 20 Corresponding RE's for Weeping Bottlebrush Heath**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.7.7	Shrubland dominated by a range of <i>Acacia spp.</i> , <i>Calytrix spp.</i> , <i>Melaleuca spp.</i> and heathy species	Not Listed	Least Concern	No Concern at Present

## 6.9.2 Conservation Value

### 6.9.2.1 Species

No species of conservational significance were identified within this community.

The Weeping Bottlebrush Heath was relatively healthy, with minimal establishment of introduced species, with only Shrubby Stylo (*Stylosanthes scabra*) being encountered. This species is not listed as a declared pest species and has been introduced as a forage species for low intensity cattle grazing.

### 6.9.2.2 Community

As detailed in **Table 20**, RE 10.7.7 is not listed as being threatened under any of the relevant legislation. Areas within the greater region which this RE is protected include the White Mountains National Park, Cudmore Resource Reserve and Cudmore National Park. The state-wide extent of this RE is 32,595 ha (Queensland Herbarium, 2005).





## 6.10 THOZET'S BOX OPEN WOODLAND

The Thozet's Box Open Woodland (**Photo Plate 10**) inhabited isolated patches where hills and escarpments were present.

### 6.10.1 Community Description

#### *Woody Species*

This community consisted of sparsely distributed Thozet's Box (*Eucalyptus thozetiana*) interspersed with Lancewood (*Acacia shirleyii*) individuals having an average canopy height of 15 m. The canopy was open, having an average cover of 18%. Stem counts for Thozet's Box was 9 stems per transect and was 2 stems per transect for Lancewood.

The shrub stratum consisted of Prickly Pine (*Bursaria incana*), Dead Finish (*Archidendropsis basaltica*), False Sandalwood (*Eremophila mitchelli*), Quinine Tree (*Petalostigma pubescens*) and Crimson Turkey Bush (*Eremophila latrobei*). The lower shrub stratum was dominated by Currant Bush (*Carissa ovata*).

#### *Groundcover*

Vegetative species which inhabited this stratum were predominantly Ruby Saltbush (*Enchylaena tomentosa*) and Buck Spinifex (*Triodia mitchelli*). Groundcover averaged 25% bare ground, 21% leaf litter, 10% surface rock and pebble, 24% grass tussock, 5% herbs and 15% shrub and tree stems.



**Photo Plate 10** Thozet's Box Open Woodland

**Table 21** presents dominant flora found in the Thozet's Box Open Woodland community. A complete list of flora species identified can be found in **Appendix A**.

**Table 21 Dominant Flora of Thozet's Box Open Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Co-Dominant	<i>Eucalyptus thozetiana</i>	Thozet's Box
Sub canopy	Absent		
Shrub	Dominant	<i>Eremophila mitchelli</i>	False Sandalwood
	Dominant	<i>Eremophila latrobei</i>	Crimson Turkey Bush
	Associated	<i>Archidendropsis basaltica</i>	Dead Finish
	Associated	<i>Petalostigma pubescens</i>	Quinine Tree
	Associated	<i>Bursaria incana</i>	Prickly Pine
Lower Shrub	Dominant	<i>Carissa ovata</i>	Current Bush
Groundcover	Occasional	<i>Triodia mitchellii</i>	Buck Spinifex
	Occasional	<i>Enchylaena tomentosa</i>	Ruby Saltbush

The corresponding RE and conservation status for the Thozet's Box Open Woodland community is detailed below in **Table 22**. The Thozet's Box Open Woodland occurs on scarps with skeletal soils and on pediments below scarps of laterised plateaus with shallow texture contrast soils.

**Table 22 Corresponding RE's for Thozet's Box Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.7.5	<i>Eucalyptus thozetiana</i> open woodland on scarps and on pediments below scarps	Not Listed	Least Concern	Of Concern

## 6.10.2 Conservation Value

### 6.10.2.1 Species

No flora species of conservation significance were found within the Thozet's Box Open Woodland community.

No introduced species were identified within this community.



### 6.10.2.2 Community

As detailed in **Table 22**, RE 10.7.5 is listed as 'Of Concern' under DERM Biodiversity Status. Threatening processes include scalding, pasture degradation, and high salinity.

Areas within the greater region which the Thozet's Box Open Woodland is protected include Cudmore National Park, Cudmore Resource Reserve and Moorrinya National Park. The Desert Uplands Biodiversity Assessment provided by ANRA 2009 recommends protective measures including improved fire management, habitat protection within private land and research.

## 6.11 LANCEWOOD WOODLAND

The Lancewood Woodland (**Photo Plate 11**) was located on skeletal hill slopes along the eastern side of the Project site.

### 6.11.1 Community Description

#### *Woody Species*

This community consisted of a canopy of predominantly Lancewood (*Acacia shirleyi*), with occasional observations of Rough-leaved Bloodwood (*Corymbia setosa*) and Dallachy's Gum (*Corymbia dallachiana*). The average canopy cover across the community was 33% with an average height of 11 m. Emergent tree species were present and consisted of either Lancewood, or the occasional Silver leaved Ironbark (*Eucalyptus melanophloia*). Canopy stem cover was dense having an average of 66 stems per transect.

The shrub layer was relatively sparse and consisted of Prickly Pine (*Bursaria incana*), Crimson Turkey Bush (*Eremophila latrobei*) and Sicklepod (*Senna costata*). The average observed stem cover for the shrub stratum was 14 stems per transect.

#### *Groundcover*

Groundcover was sparse with few tussocks of Soft Spinifex (*Triodia pungens*) and Dark Wiregrass (*Aristida calycina*). Average composition of groundcover was 21% bare ground, 25% rock and surface pebbles, 3% forbs and herbs, 34% leaf litter, 13% grass and 4% fallen timber.



**Photo Plate 11 Lancewood Woodland**

**Table 23** presents dominant flora found in the Lancewood Woodland community. A complete list of flora species identified can be found in **Appendix A**.

**Table 23 Dominant Flora of Lancewood Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant / Emergent	<i>Acacia shirleyi</i>	Lancewood
	Emergent	<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark
	Occasional	<i>Corymbia dallachiana</i>	Dallachy's Gum
	Occasional	<i>Corymbia setosa</i>	Rough-fruited Bloodwood
Sub canopy	Absent		
Shrub	Associated	<i>Senna costata</i>	Sicklepod



Stratum	Relative Dominance	Scientific Name	Common Name
	Associated	<i>Bursaria incana</i>	Prickly Pear
	Associated	<i>Eremophila latrobei</i>	Crimson Turkey Bush
Lower Shrub	Absent		
Groundcover	Occasional	<i>Triodia pungens</i>	Soft Spinifex
	Occasional	<i>Aristida calycina</i>	Dark Wiregrass

The corresponding RE and conservation status for the Lancewood Woodland community is detailed below in **Table 24**. The Lancewood Woodland occurs on the exposed mottled zone on scarps with skeletal soils, and above scarps with red earths usually on ferricrete, at the margins of Tertiary plateaus.

**Table 24 Corresponding RE's for Lancewood Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.7.3	<i>Acacia shirleyi</i> woodland and/or <i>A. catenulata</i> low woodland and /or <i>Corymbia lamprophylla</i> and/or <i>Corymbia leichhardtii</i>	Not Listed	Least Concern	No Concern at Present

## 6.11.2 Conservation Value

### 6.11.2.1 Species

No endangered, vulnerable or near threatened flora species were found within the Lancewood Woodland.

Two listed Class 2 weeds under the LP Act have been identified during field surveys within this community type - the Common Pest Pear (*Opuntia stricta*) and Velvety Tree Pear (*Opuntia tomentosa*). Under the LP Act, it is an obligation to undertake all reasonable steps in the control of declared weed species.

### 6.11.2.2 Community

As summarised in **Table 24**, RE 10.7.3 is not listed as threatened under state or national legislation. Areas within the region which this RE is protected include White Mountains National Park, Cudmore National Park, Cudmore Resource Reserve, White Mountains Resource Reserve, Dalrymple National



Park and Moorrinya National Park. The total mapped area within Queensland of this RE in 2005 was 25,837 ha (Queensland Herbarium, 2005).

## 6.12 QUEENSLAND YELLOWJACKET LOW OPEN WOODLAND

The Queensland Yellowjacket Low Open Woodland (**Photo Plate 12**) was identified along rolling sand plains in the eastern sections of the Project site.

### 6.12.1 Community Description

#### *Woody Species*

This community consisted of a low canopy of Queensland Yellowjacket (*Eucalyptus similis*) and associated Rough-fruited Bloodwood (*Corymbia setosa*). The canopy was open, with an average cover of 11% and an average height of 8 m. Sub canopy species commonly observed included the Desert Oak (*Acacia coriacea*), Soap Tree (*Alphitonia excelsa*) and Geebung (*Persoonia falcata*). Canopy and sub canopy abundance was relatively low, with the average canopy stem count being 6 stems per transect and the average sub canopy stem count being 4 stems per transect.

#### *Groundcover*

The Queensland Yellowjacket vegetation community consisted of a mid dense grassy ground layer, with exposed patches of bare ground. Average groundcover composition was 24% bare ground, 43% grass, 29% leaf litter, 3% herbs and forbs and 1% stem cover from trees.





**Photo Plate 12 Queensland Yellowjacket Low Open Woodland**

**Table 25** presents dominant flora found in the Queensland Yellowjacket Low Open Woodland community. A complete list of flora species identified can be found in **Appendix A**.

**Table 25 Dominant Flora of Queensland Yellowjacket Low Open Woodland**

Stratum	Relative Dominance	Scientific Name	Common Name
Canopy	Dominant	<i>Eucalyptus similis</i>	Queensland Yellowjacket
	Associated	<i>Corymbia setosa</i>	Rough-fruited Bloodwood
Sub canopy	Associated	<i>Alphitonia excelsa</i>	Soap Tree
	Occasional	<i>Acacia coriacea</i>	Desert Oak
	Occasional	<i>Persoonia falcata</i>	Geebung
Shrub	Associated	<i>Petelostigma pubescens</i>	Quinine Tree
	Associated	<i>Bursaria incana</i>	Prickly pine
	Associated	<i>Terminalia aridicola</i>	Aird Peach

Stratum	Relative Dominance	Scientific Name	Common Name
	Occasional	<i>Gastrolobium grandiflorum</i>	Poison Heart Leaf
Lower Shrub	Dominant	<i>Carissa ovata</i>	Currant Bush
Groundcover	Co-dominant	<i>Triodia pungens</i>	Soft Spinifex
	Co-dominant	<i>Heteropogon contortus</i>	Black Speargrass
	Occasional	<i>Cymbopogon bombycinus</i>	Barbed Wire Grass

The corresponding RE and conservation status for the Queensland Yellowjacket Low Open Woodland community is detailed below in **Table 26**. This RE occurs along old Tertiary sand plains and plateaus, on deep red earths.

**Table 26 Corresponding RE's for Queensland Yellowjacket Low Open Woodland**

Regional Ecosystem	DERM Regional Ecosystem Description	Conservation Status		
		EPBC Act	Queensland VM Act	DERM Biodiv.
10.5.1	Largely <i>Eucalyptus similis</i> and/or <i>Corymbia brachycarpa</i> and/or <i>Corymbia setosa</i> low open-woodland to open-woodland	Not Listed	Least Concern	No Concern at Present

## 6.12.2 Conservation Value

### 6.12.2.1 Species

No flora species of conservation significance were found within the Queensland Yellowjacket Low Open Woodland community.

The Common Pest Pear (*Opuntia stricta*) was identified within this community. This species is listed under the LP Act.

### 6.12.2.2 Community

As detailed in **Table 26**, RE 10.5.1 is not listed under any national or state legislation. This RE is protected regionally within the White Mountains National Park, White Mountains Resource Reserve, Cudmore Resource Reserve and Cudmore National Park. The total regional extent of RE 10.5.1, mapped in 2005 by the Queensland Herbarium, was 885,185 ha. In December 2006, remnant extent was greater than 10,000 ha and greater than 30% of the pre-clearing area remained.





## 6.13 SUMMARY OF SPECIES AND COMMUNITIES OF CONSERVATION SIGNIFICANCE

### 6.13.1 Species

No flora species of conservation significance were found within the Project site.

### 6.13.2 Communities

A summary of the conservation significance of RE's occurring on the Project site is provided below in Table 27.

**Table 27 Summary of Conservation Significance of Regional Ecosystems**

Vegetation Community	RE or Ecological Community	EPBC Status	VMA (1999) Status	DERM Biodiversity Status
Brigalow Open Woodland	10.3.3	Not Listed	Least Concern	No Concern at Present
Silver-leaved Ironbark Open Woodland	10.3.28	Not Listed	Least Concern	No Concern at Present
	10.5.5a	Not Listed	Least Concern	No Concern at Present
Poplar Box Open Woodland	10.3.27a	Not Listed	Least Concern	Of Concern
	10.5.12	Not Listed	Least Concern	No Concern at Present
Non-remnant Grassland	Not Classed	Not Listed	Not Listed	Not Listed
Silver-leaved Ironbark / Poplar Box Mixed Woodland	10.5.5a	Not Listed	Least Concern	No Concern at Present
	10.5.12	Not Listed	Least Concern	No Concern at Present
White Cypress Pine Woodland	11.5.5b	Not Listed	Least Concern	No Concern at Present
Gidgee Open Woodland	10.3.4	Not Listed	Least Concern	Of Concern
Fringing Riparian Woodland	10.3.14	Not Listed	Least Concern	Of Concern
	11.3.2 (south eastern watercourse only)	Not Listed	Of Concern	Of Concern

Vegetation Community	RE or Ecological Community	EPBC Status	VMA (1999) Status	DERM Biodiversity Status
	11.5.3 (south eastern watercourse only)	Not Listed	Least Concern	No Concern at Present
Weeping Bottlebrush Heath	10.7.7	Not Listed	Least Concern	No Concern at Present
Thozet's Box Open Woodland	10.7.5	Not Listed	Least Concern	Of Concern
Lancewood Woodland	10.7.3	Not Listed	Least Concern	No Concern at Present
Queensland Yellowjacket Low Woodland	10.5.1	Not Listed	Least Concern	No Concern at Present

## 6.14 WETLANDS OF THE PROJECT AREA

This document adopts the agreed definition of wetlands for the purpose mapping and classification outlined in *Wetland Mapping and Classification Methodology, Overall Framework Version 1.2 (EPA, 2005)*:

*Wetlands are areas of permanent or periodic/intermittent 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 metres. To be classified as wetland, the area must have one or more of the following attributes:*

- i. At least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or*
- ii. The substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or*
- iii. The substratum is not soil and is saturated with water, or covered by water at some time.*

The EPBC Act Protected Matter Search Report identifies two Ramsar wetlands of international significance when centred on a coordinate located within the Project site with a 100 km buffer. These are Coongie Lakes and the Shoalwater and Corio Bays Area. Neither wetland will be impacted by the Project as they are located in different catchments. The Shoalwater and Corio Bays Area Ramsar wetland is approximately 50 km north of Rockhampton and 410 km north-east of the Project. The Coongie Lakes wetland is located approximately 750 km south-west in the far north-east corner of South Australia in the Cooper Creek subcatchment of the Lake Eyre Basin.

The Queensland Wetland Map Version 2.0 map sheets for Edwinstowe and Surbiton show several small lacustrine and palustrine systems within the Project boundary. The lacustrine systems are stock watering dams under significant grazing pressure as they are one of the few sources of permanent water available. The largest of these is a dammed tributary of Lagoon Creek which attracted migratory birds throughout the year. There are relatively few dammed watercourses as most stockwatering stations are turkeys nest dams where water is pumped in nearby troughs.



Palustrine and fringing riparian palustrine systems include a number of oxbow lakes associated with Lagoon Creek and floodplain wetlands within the Brigalow Woodland and adjacent non-remnant areas on clay soils between Lagoon Creek and Spring Creek. Oxbow lakes are formed when a meandering section of river is cut off to create a lake. **Photo Plate 13** and **Photo Plate 14** depict wetland habitat available on the Project site of an oxbow lake and floodplain respectively. These wetlands provided important habitat for large frog populations and attracted a number of migratory bird species. They were also home to some of the most diverse flora assemblages on the Project site.



**Photo Plate 13** Oxbow Lake Palustrine System on the Project site



**Photo Plate 14 Floodplain Wetland on the Project site**

## **6.15 WEEDS OF MANAGEMENT CONCERN**

Three weed species declared as Class 2 weeds under the LP Act were recorded on the Project site during surveys. The Class 2 classification means that the pests are established in Queensland and have, or could have adverse economic, environmental or social impacts.

The management of these species requires regional coordination and are subject to programs led by the local government, community or landowners. Under the LP Act, landowners must take reasonable steps to keep land free of Class 2 pests.

Information is provided below on each weed identified within the Project site. Fact sheets for the identified weeds are provided in **Appendix C**.

### **Common Pest Pear (*Opuntia stricta*)**

The Common Pest Pear is one of a number of cacti collectively called “Prickly Pear”. The Prickly Pear Term includes species of *Opuntia*, *Nopalea* and *Acanthocereus*. The Common Pest Pear occurs throughout most of central and southern Queensland and is spreading westwards. It is found in small to large clumps of varying density. It is a bushy spreading plant up to 1.5 m in height with stems dividing in oval, blue-green spineless pads. Flowers are bright lemon yellow and green at the base with an oval shaped, purple fruit.

The Common Pest Pear was well established on the Project site and was identified within the Brigalow Open Woodland, Silver-leaved Ironbark Open Woodland, Poplar Gum Open Woodland, Fringing Riparian Woodland, White Cypress Pine Woodland, Silver-leaved Ironbark / Poplar Box





Mixed Woodland, Non-remnant Grassland, Lancewood Woodland and Queensland Yellowjacket Low Open Woodland.

**Velvety Tree Pear (*Opuntia tomentosa*)**

The Velvety Tree Pear is one of a number of cacti collectively called "Prickly Pear". The Velvety Tree Pear is found predominantly throughout the Brigalow Belt of Queensland and is still extending its range. It is occasionally found as dense shrubs, but more usually as small clumps of trees or as trees scattered over the landscape. It is a tree-like plant that forms a central woody trunk. Stems dividing into oblong pads are velvety to touch due to the dense covering of short fine hairs. Flowers are deep orange and contains deep red, egg shaped fruit.

The Velvety Tree Pear has established within the following communities on the Project site: Brigalow Open Woodland, Poplar Open Woodland, Silver-leaved Ironbark / Poplar Box Mixed Woodland, Non-remnant Grassland and Lancewood Woodland.

**Parkinsonia (*Parkinsonia aculeata*)**

Parkinsonia can grow to 8 m in height, although smaller plants are more common. It can be single-stemmed or multi-stemmed. Its leaves are flat, with a green leaf stalk. Seed pods are straight with bulges around seeds and points on both ends and generally contain 1 – 4 seeds. Flowers consist of four yellow petals and one erect orange or orange spotted petal.

Parkinsonia is restricted to the Fringing Riparian Woodland within 3 areas along Lagoon Creek on the Project site.

## 7.0 FAUNA RESULTS AND DISCUSSION

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A total of 167 vertebrate fauna species were identified on the Project site during the surveys. This comprised 94 birds, 36 mammals (four introduced), 27 reptiles and 10 amphibians (one introduced). A complete list of all observed fauna species is provided in **Appendix A**. Each of the vertebrate groups observed on the Project site are discussed below in **Sections 7.1 to 7.5**. A summary of species of conservation significance is provided in **Section 7.5**.

### 7.1 AMPHIBIANS

#### 7.1.1 Habitat Values

Many amphibian species occurring in Australia's drier regions are burrowing species capable of spending several years underground awaiting heavy rain, after which they come to the surface to feed and breed. This behaviour is referred to as aestivation and assists in water preservation and survival during prolonged periods of drought (Withers 1995). Consequently, the vast majority of amphibians from seasonally dry regions only occur in areas where the ground is soft enough to allow digging during wet periods.

Non-burrowing frog species also inhabit drier regions where they adopt different survival strategies, such as sheltering deep in tree hollows or cool rock crevices. However, these species are still typically associated with water sources.

Due to the ephemeral nature of the creeks at the Project Site, only stock watering points and two permanent water holes within creeks were observed during the dry season surveys. Conversely the wet season provided a range of varying habitat types for amphibians, and included flowing creeks, black clay muddy floodplains and moist sandy drainage lines. Creeks on the Project Site contained a sandy substrate and were soft enough for burrowing frogs.

#### 7.1.2 Observed Species

Ten amphibian species were observed on the Project site. The most frequently captured was the Ornate Burrowing Frog (*Limnodynastes ornatus*) (see **Photo Plate 15**), with captures at some trap sites exceeding 50 individuals per night. The Green Tree Frog (*Litoria caerulea*) and Desert Tree Frog (*Litoria rubella*) were frequently seen while spotlighting during the wet season. Four additional *Litoria* species were trapped during the wet season. Other amphibian species observed during the wet season include the Spotted Marsh Frog (*Limnodynastes tasmaniensis*), Eastern Burrowing Toadlet (*Uperoleia rugosa*) and the introduced Cane Toad (*Rhinella marina*).



**Photo Plate 15** Green Tree Frog (*Litoria caerulea*) observed near the Exploration Camp

### **7.1.3 Amphibians of Conservation Significance**

No amphibians of conservation significance were observed on the Project site during the wet and dry season survey periods despite an extensive trapping effort and favourable conditions, nor have been previously recorded within the region. It is therefore considered highly unlikely that any amphibian species of conservation significance occur on the Project site.

## **7.2 BIRDS**

### **7.2.1 Habitat Values**

Avian assemblages are generally determined by factors such as food (e.g. fruit, nectar, seeds and insects) and water sources, as well as the mosaic of habitat structures such as grasses, thick understorey and canopy vegetation. Generally, the more food sources available and the more complex the structure of the vegetation, the more diverse the avifauna assemblage will be.

Food sources within the Project site included a variety of grass seeds, nectar, insects and vertebrate prey items. Soft fruiting species suitable for birds do not occur in high densities within the Project site. Habitat complexity is relatively high across the Project site and includes 13 unique vegetation communities.

### 7.2.2 Observed Species

A total of 94 bird species were recorded within the Project site during the surveys of which 24 are listed as Migratory or Marine under the EPBC Act.

The most commonly observed granivorous bird species observed were the Zebra Finch (*Taeniopygia guttata*), Double-barred Finch (*Taeniopygia bichenovii*), Peaceful Dove (*Geopelia striata*) and Galah (*Eolophus roseicapilla*). The range of granivorous birds observed on the Project site is not uncommon within the region.

Many bird species were observed using watercourses located within the Project site. Species using these dams and other bodies of standing water include the Straw-necked Ibis (*Threskiornis spinicollis*), Nankeen Night Heron (*Nycticorax caledonicus*), Great Egret (*Ardea alba*), Darter (*Anhinga melanogaster*), Brolga (*Grus rubicunda*), Australian Pelican (*Pelecanus conspicillatus*) and the White-necked Heron (*Ardea pacifica*).

Six raptor species were identified during the course of the survey. These were the Wedge-tailed Eagle (*Aquila audax*), Brown Falcon (*Falco berigora*), Whistling Kite (*Haliastur sphenurus*), Black-shouldered Kite (*Elanus axillaris*), Australian Hobby (*Falco longipennis*) and Nankeen Kestrel (*Falco cenchroides*).

The most common types of birds encountered were insectivorous, and included such species as the Australian Magpie (*Gymnorhina tibicen*), the Willy Wagtail (*Rhipidura leucophrys*), the Apostlebird (*Struthidea cinerea*), and the Superb Fairy-wren (*Malurus cyaneus*). The wide array and abundance observed in these birds is due to the readily available prey, and their ability to colonise all available habitats. An omnivorous bird commonly observed on all vegetation communities within the Project site was the Emu (*Dromaius novaehollandiae*) and is shown below in **Photo Plate 16**. A complete list of species observed on the Project site during the surveys is provided in **Appendix A**.





**Photo Plate 16** Emus observed on the Project site (*Dromaius novaehollandiae*)

### 7.2.3 Bird Species of Conservation Significance

The southern Squatter Pigeon (*Geophaps scripta scripta*) was the only bird species of conservation significance recorded during the survey, with individuals observed within non-remnant grassland habitat (**Photo Plate 17**). This species is listed as Vulnerable under both the EPBC Act and Schedule 3 of the NCWR.

The ground-dwelling Squatter Pigeon's range is in tropical, dry sclerophyll woodlands and savannahs of north-eastern Australia (Higgins & Davies 1996). Sightings are generally in the grassy understorey of eucalypt woodland, close to permanent water bodies (Garnett 1992). Nests are located on the ground, sometimes among, or sheltered by vegetation, including short, dry grass, grass tussocks, or bushes (Frith 1982).

The Squatter Pigeon forages on a wide range of seeds from grasses, legumes, herbs, trees, and shrubs, as well as insects (Higgins & Davies 1996). Drinking occurs every day, usually in the morning (Crome 1976). Breeding is greatly influenced by heavy rainfall, and a clutch of usually two eggs is incubated for a period of 15-17 days (Higgins & Davies 1996).

Threats to this species include overgrazing of habitat by domestic stock and the European Rabbit, trampling of nests by domestic stock, predation by feral cats and foxes, illegal shooting and clearing



and fragmentation of grassy woodland habitat for agriculture and development (Department of Environment and Conservation, 2009)

Extensive areas of habitat suitable for the southern Squatter Pigeon exist on the Project site, and within the local region. Although it is likely some of the available Squatter Pigeon habitat will be disturbed by mining activities, it is unlikely that there will be a significant impact on the regional population of the species due to the broad extent of habitat in the local region.



**Photo Plate 17 Squatter Pigeons (Southern Subspecies) (*Geophaps scripta scripta*)**

Species of conservation significance known from the region which were not detected during the survey are discussed in **Appendix F**.

#### **7.2.4 Migratory and Listed Marine Species**

Twenty four Migratory species listed under the EPBC Act were observed on the Project Site by AARC ecologists during all survey periods. These included the Brown Falcon (*Falco berigora*), Nankeen Kestrel (*Falco cenchroides*), Australian Hobby (*Falco longipennis*), Great Egret (*Ardea alba*), Intermediate Egret (*Ardea intermedia*), Nankeen Night Heron (*Nycticorax caledonicus*), Wedge-tailed Eagle (*Aquila audax*), Black-shouldered Kite (*Elanus axillaris*), Whistling Kite (*Haliastur sphenurus*), Australian Pelican (*Pelecanus conspicillatus*), Rainbow Bee-eater (*Meriops ornatus*), Australian Pipit (*Anthus novaeseelandiae*), Australian White Ibis (*Threskiornis molucca*), Black-faced Cuckoo-shrike (*Coracina novaehollandiae*), Dollarbird (*Eurystomus orientalis*), Forest Kingfisher (*Todiramphus macleayii*), Sacred Kingfisher (*Todiramphus sanctus*), Brolga (*Grus rubicunda*), Black-fronted Dotteral (*Elsayornis melanops*), Banded Lapwing (*Vanellus tricolor*), Masked Lapwing (*Vanellus miles*), Grey



Teal (*Anas gracilis*), Pacific Black Duck (*Anas supeccillosa*) and Australian Wood Duck (*Chenonetta jubata*). The distribution of all observed species is widespread throughout eastern Queensland, and the local populations on the Project Site are unlikely to constitute an 'ecologically significant proportion' of the total population of the species. Furthermore, the Project Site is not at the limit of these species' range, nor are these species considered to be declining within the region. Therefore, it is unlikely the Project will have a significant impact on the regional populations of these species.

Fifteen Marine species listed under the EPBC Act observed on the Project Site by AARC ecologists included the Rainbow Bee-eater, Australian Pipit, Australian Pelican, Australian White Ibis (*Threskiornis molucca*), Straw Necked Ibis (*Threskiornis spinicollis*), Nankeen Kestrel, Whistling Kite, Great Egret, Intermediate Egret, Nankeen Night Heron (*Nycticorax caledonicus*), Back-faced Cuckoo-shrike, Spotted Nightjar (*Eurostopodus argus*), Dollarbird, Forest Kingfisher (*Todiramphus macleayii*) and Sacred Kingfisher (*Todiramphus sanctus*). These species are also widespread throughout eastern Queensland and given the availability of similar habitat in the region it is unlikely the Project will have any significant impacts upon them.

## **7.3 MAMMALS**

### **7.3.1 Habitat Values**

The morphology of mammal species varies widely from small rodents to larger kangaroos and even bats. The ecology of each of these groups is equally variable and they are assessed separately in the following sections.

#### **Small Mammals**

Habitats highly suitable for small mammals include areas that provide a plentiful food source and suitable shelter. The highest density of small mammal species is usually associated with:

- Reliable rainfall which is reflected in a reliable source of food; and
- Dense ground vegetation, particularly shrubs and grasses.

The diversity of small mammals is often limited by the lack of a predictable food supply and open ground vegetation. Consequently, small mammal populations can fluctuate dramatically in response to rain which increases seed production and insect abundance. During less favourable periods, small mammal populations can be very low.

Habitats within the Project site ranged from open woodland with adequate groundcover in the form of grasses, to non-remnant grassland with dense groundcover. Other habitat available on the Project site includes riparian woodlands and human structure such as stations and the mine camp.

#### **Medium and Large Mammals**

Factors affecting the occurrence of medium-sized mammals are varied. Important factors can include land-clearing, feral animal predation and grazing pressures. Consequently, medium-sized mammals are no longer abundant in most of eastern Australia.

Habitats on the Project site do not include areas of dense native vegetation. Rather, open woodland and non-remnant grasslands are typical of the region, which is likely to be reflected in the medium-sized mammal community.



In contrast, larger mammals such as kangaroos have been much less affected by predation and land clearing activities. In fact, many species have flourished in response to increasing grasslands and their populations are now likely to be above historical levels. Habitat for this group on the Project site commonly occurs throughout the region.

### **Arboreal Mammals**

The majority of arboreal mammals that occur in Australia utilise tree hollows for nesting and shelter. Smith and Lindenmayer (1988) consider that a shortage of nest hollows is likely to limit arboreal mammal populations where the density of hollow bearing trees is less than two to eight trees per ha. Large hollow-bearing trees in the broader area generally occur along creek lines or in small pockets of remnant vegetation and are usually scattered, separated by open areas that would be difficult for arboreal mammals to cross without venturing onto the ground. It is likely that such habitat is too open for many arboreal mammals and very few are known to occur within the broader region.

### **Bats**

The density and diversity of Australian bat species is determined primarily by the availability of suitable nesting and roosting sites. Roosting sites can include locations such as thick foliage, loose exfoliating bark, rock caves or cavities, tree hollows or even fabricated structures such as old buildings and culverts (Churchill 1998).

Consequently, areas with a large number of hollow-bearing trees that occur within remnant vegetation are of high value to many bat species. As bats have a small body size, these hollows can be much smaller in size than required by arboreal mammals. Suitable hollows were present the Project site, including larger senescing trees in the woodlands, particularly in the riparian areas. Habitats such as these appear common within the region.

## **7.3.2 Observed Species**

A total of 36 mammal species were identified within the Project site, including four introduced species and one bat species of conservation significance under State and Commonwealth legislation.

The most common mammal species to occur on the Project site were the Eastern Grey Kangaroo (*Macropus giganteus*), Common Wallaroo (*Macropus robustus*), Rufous Bettong (*Aepyprymnus rufescens*), Red Kangaroo (*Macropus rufus*) and the introduced European Rabbit (*Oryctolagus cuniculus*). Less commonly observed native species were the Sugar Glider (*Petaurus breviceps*), Stripe-faced Dunnart (*Sminthopsis macroura*), Koala (*Phascolarctos cinereus*) (refer **Photo Plate 18**) and Echidna (*Tachyglossus aculeatus*). Introduced species observed included the Feral Pig (*Sus scrofa*), Feral Goat (*Capra hircus*), Dingo/Wild Dog (*Canis lupus dingo*), Feral Cat (*Felis catus*) and the House Mouse (*Mus musculus*). Four of the five introduced mammal species recorded on the Project site (Feral Pig, Dingo/Wild Dog, Feral Goat and European Rabbit) are classified as 'Class 2' pests animal under LP Act. All mammal species recorded on the Project site during the current survey are listed in **Appendix A**. Fact sheets for pest species are included in **Appendix C**.







**Photo Plate 18 Koala (*Phascolarctos cinereus*) observed on the Project site**

Nine microbat species have been positively identified from echolocation calls recorded on the Project site including the Beccari's Free-tailed Bat (*Mormopterus beccarii*), Little Pied Bat (*Chalinolobus picatus*), the White-striped Free-tailed Bat (*Tadarida australis*), Inland Forest Bat (*Vespadelus baverstocki*), Gould's Wattled Bat (*Chalinolobus gouldii*), Inland Free-tailed Bat (*Mormopterus* sp. 3), Inland Broad-nosed Bat (*Scotorepens balstoni*), the Little Broad-nosed Bat (*Scotorepens greyii*) and Inland / Eastern Cave Bat (*Vespadelus finaysoni* / *V. troughtoni*).

Three microbat species were not positively identified (where there is a probability of confusion with species that have similar calls), these were the Troughton's Sheath-tailed Bat (*Taphozous troughtoni*), Bristle-faced Free-tailed Bat (*Mormopterus eleryi*), and Chocolate Wattled Bat (*Chalinolobus morio*).

Refer to **Appendix D** for ANABAT results.

### **7.3.3 Mammal Species of Conservation Significance**

The Little Pied Bat (*Chalinolobus picatus*) (listed as Near Threatened under Schedule 5 of the NCWR) was identified within the Silver-leaved Ironbark Woodland community within the Project Site (see **Appendix D**). This species could not be positively identified due to similarities between its calls and another microbat species, *Scotoperens greyii* which was frequently recorded on the Project Site.

Threats to the Little Pied Bat include loss or modification of habitat, predation by feral cats and application of pesticides in or adjacent to foraging areas (Department of Environment and Conservation, 2009).

This species prefers to roost and breed in tree hollows, as such areas with a high density of hollow bearing trees have the potential to support high numbers of bats. Such areas are mostly restricted to larger Riparian Woodlands and to a lesser extent mature Silver-leaved Ironbark (*Eucalyptus melanophloia*) Woodlands and White Cypress Pine (*Callitris glaucophylla*) Woodlands which are found near the Project Site. The Little Pied Bat forages in a wide range of vegetation communities, from dry sclerophyll forest, woodland, to inland scrub and riparian areas (Menkhorst and Knight, 2004). The abundance of these habitat types across the project area suggests that the Little Pied Bat is unlikely to be significantly impacted by clearing works for mining operations.

## 7.4 REPTILES

### 7.4.1 Habitat Values

Australia's environments support an extremely diverse assemblage of reptile species which exploit a wide array of micro-habitats (e.g. tree hollows, soil cracks) and food sources (e.g. succulent leaves, termites, grasshoppers, birds and other reptiles) (Pianka 1969a, b). This diversity encompasses species of widely different body sizes (skinks v. goannas), and adaptive evolutionary strategies (burrowing blind snakes v. arboreal geckos).

The structural diversity of habitat types on the Project site ranged from woodlands with a dense stratum of fallen timber, to open woodlands with sandy loam soils which reptiles can easily burrow into, to non-remnant grassland with dense tussocky groundcover and little canopy. This structural diversity provides a diversity of habitat types for a variety of reptile species.

### 7.4.2 Observed Species

A total of 27 reptile species were observed on the Projects Site. Many of these are nocturnal and were observed while spotlighting or captured in pit and funnel traps. Species encountered during the day were a Sand Goanna (*Varanus gouldii*) (**Photo Plate 19**), Central Netted Dragon (*Ctenophorus nuchalis*), Black Headed Python (*Aspidites melanocephalus*), Eastern Blue-tongue (*Tiliqua scincoides*), Tommy Roundhead Dragon (*Diporiphora australis*) and Nobbi Dragon (*Amphibolurus nobbi*). Other snake species observed were a Spotted Python (*Antaresia maculosa*), Carpentaria Whip Snake (*Cryptophis boschmai*) and Pale-headed Snake (*Holocephalus bitorquatus*). Eight skink species were observed on the Project site with *Ctenotus robustus* and *Ctenotus herbetior* the most abundant. Bynoe's Gecko (*Heteronotia binoei*) and Geyhra variegata were the most frequently encountered gecko species during the surveys. Lower abundances of reptile species during the dry seasons were noted, and is likely due to the dry, cool weather. A complete list of the recorded reptiles is included in **Appendix A**.







**Photo Plate 19** Sand Goanna (*Varanus gouldii*) observed on the Project site

### **7.4.3 Reptile Species of Conservation Significance**

No reptiles of conservation significance were recorded on the Project site at the time of the surveys. Species of conservation significance known from the region but not observed at the Project site are discussed in **Section 7.5**.

## **7.5 OTHER THREATENED SPECIES FROM THE REGION**

A total of 51 species have been identified from wildlife database searches (**Appendix B**) and other scientific literature searches that are tabled in **Appendix F**. Targeted searches were carried out during field surveys to ensure that these species were searched for. **Appendix F** details habitat requirements and habitat values of the Project site. The assessment is based on the knowledge and opinion of AARC field ecologists, information obtained from site visits, scientific literature and communications with relevant experts or interest groups.

## 8.0 POTENTIAL IMPACTS AND SUGGESTED MANAGEMENT STRATEGIES

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### 8.1 ENVIRONMENTAL VALUES

Desktop assessments of the Desert Uplands Biodiversity Planning Assessment (BPA) have confirmed that the Project Site encompasses areas of high biodiversity, with the scale and range of the habitat types encompassed within the study area key contributing factors. The BPA identifies the areas shown in **Figure 9** as areas of high State or Regional significance. The 'high' level of significance is determined by a number of criteria such as the DERM's Biodiversity Status of REs, the presence of poorly conserved REs within the area, the presence of significant wetlands and areas of national importance, such as World Heritage Areas and Ramsar listed wetlands.

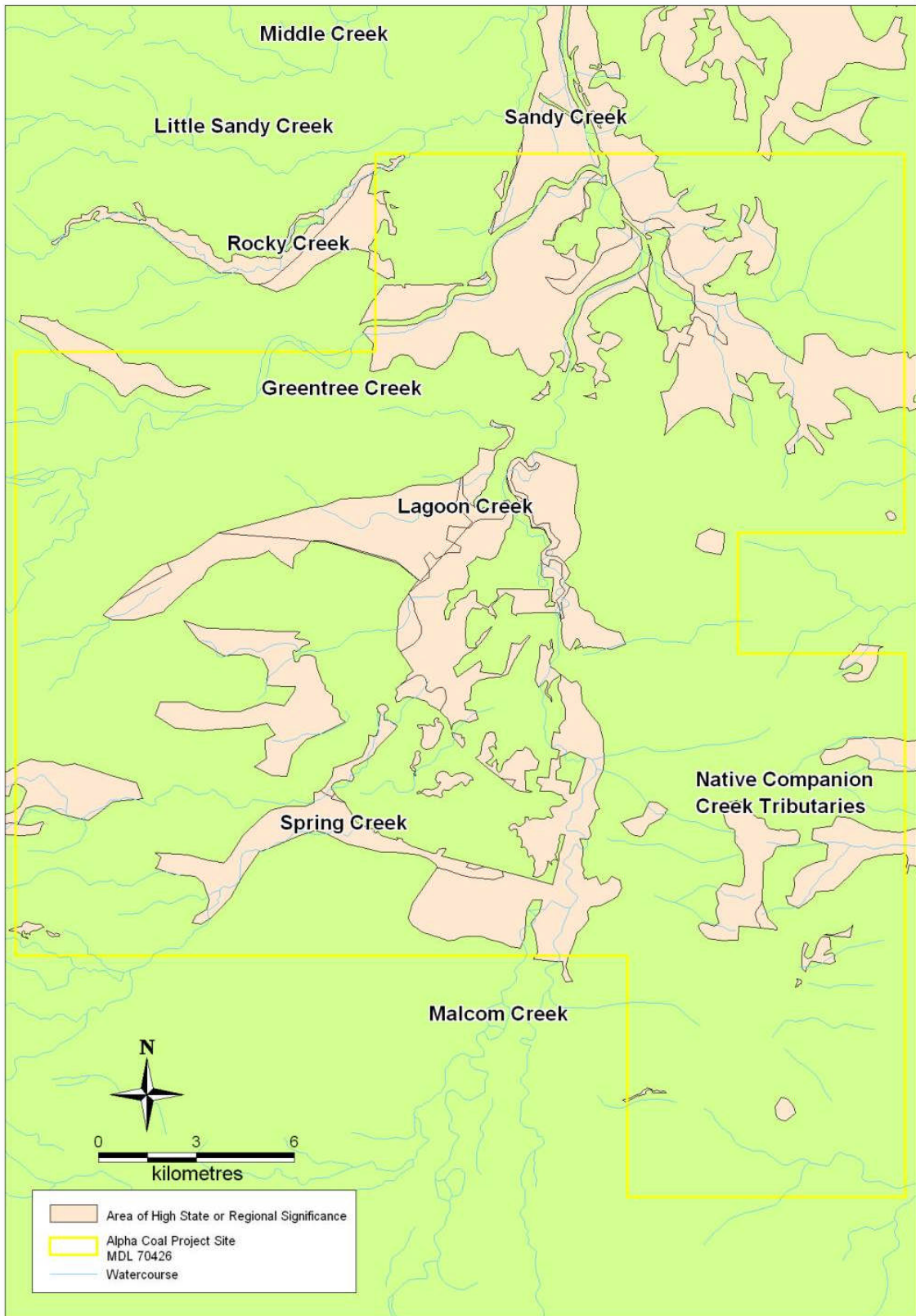
The Project lies within the upper Burdekin catchment in the Belyando-Suttor sub-catchment. Watercourses on the site flow only in response to recent, heavy local rain events and dry up quickly following the short wet season. Several waterholes, oxbow lakes and dams provide permanent water throughout the year and are generally associated with the Sandy Creek and Lagoon Creek systems flowing south-north through the Project area. Floodplain wetlands and gilgia are present on the site and are generally associated with the Brigalow Woodland community and adjacent non-remnant areas on clay soils. These areas contain significant frog populations and provide important habitat for migratory birds.

Riparian habitat is in good condition across much of the Project Site but grazing pressures have caused bank erosion and siltation in some of the more accessible areas. Most stream beds are comprised of highly permeable coarse sands; however some smaller watercourses where Brigalow or Coolabah dominate the tree layer grow on less permeable clays where deeper waterholes provide a source of water into the dry season.

Vegetation community specific values include:

- The Fringing Riparian Woodland provide refuge for fauna by providing water, shade and mature, hollow bearing tree species;
- Fallen timber within the Brigalow Open Woodland and Gidgee Open Woodland have the potential to provide a distinct microhabitat for certain fauna, including the listed Yakka Skink and Brigalow Scaly Foot; and
- The relatively intact patches of Poplar Box Open Woodland, Gidgee Open Woodland, Fringing Riparian Woodland and Thozet's Box Open Woodland are listed as 'Of Concern' under DERM's Biodiversity Status and have the potential to contribute to the overall preservation of threatened ecosystems.





**Figure 9** Areas of High State and Regional Significance Identified in Desert Uplands BPA

## 8.2 POTENTIAL IMPACTS

Impacts of the Project are expected to be restricted to the local scale. Management strategies implemented at this level would most likely prevent significant impact at the higher regional or state scale.

### 8.2.1 Flora

Maintaining stands of vegetation across the Project site is important for reasons such as maintaining high biodiversity levels, carbon sequestration, and aiding an ecosystems ability to maintain an assimilative capacity. Vegetation also assists with the management of anthropogenic activities by providing natural solutions to environmental problems such as soil and bank stabilisation, and reducing the risk of salinity and overland flow. Vegetation also provides important habitat for a range of fauna species.

Edge effects resulting from the proposed works can include the establishment of weeds, alteration to microclimatic conditions (such as greater light intensity, more wind penetration, lower humidity) and a reduction in plant health through loss of photosynthetic potential (as a result of plants being covered by dust generated from vehicle movement on unsealed tracks). In the absence of appropriate control measures, the project has the potential to cause impacts in relation to edge effects, and particularly in relation to the introduction and / or spread of weed species throughout the Project site.

The following potential impacts on flora values may result from the proposed works at the Project site:

- Land clearing and mining activities may reduce the available habitat for native flora species on the Project Site;
- A loss of habitat connectivity across the mine infrastructure and pit areas;
- Loss of vegetation communities listed as having a high biodiversity status;
- Spread and introduction of weed seeds/propagules on footwear, machinery, vehicles and materials required for mine operation and construction;
- Potential weed invasion from earthworks activities in sensitive areas, particularly along watercourses; and
- Increased incidence of fire due to inappropriate fire regimes or accidental burning. Too frequent fires, or burning at the wrong time, may disrupt the life cycle of flora species leading to unpalatable grasses for cattle and increased incidents of woody and annual weeds such as Parthenium and Parkinsonia.

**Table 28** provides a summary of vegetation communities identified on the Project site, the RE conservational status and whether proposed mine infrastructure is planned within each community. **Figure 10** below provides location of the proposed mine infrastructure and vegetation communities.



**Table 28 Vegetation Communities, Associated Conservation Status and Presence of Mine Infrastructure within community**

Vegetation Community	RE or Ecological Community	Mine Infrastructure Located in Vegetation Community	VMA (1999) Status	DERM Biodiversity Status
Brigalow Open Woodland	10.3.3	Yes	Least Concern	No Concern at Present
Silver-leaved Ironbark Open Woodland	10.3.28	Yes	Least Concern	No Concern at Present
	10.5.5a	Yes	Least Concern	No Concern at Present
Poplar Box Open Woodland	10.3.27a	Yes	Least Concern	Of Concern
	10.5.12	Yes	Least Concern	No Concern at Present
Non-remnant Grassland	Not Classed	Yes	Not Listed	Not Listed
Silver-leaved Ironbark / Poplar Box Mixed Woodland	10.5.5a	Yes	Least Concern	No Concern at Present
	10.5.12	Yes	Least Concern	No Concern at Present
White Cypress Pine Woodland	11.5.5b	Yes	Least Concern	No Concern at Present
Gidgee Open Woodland	10.3.4	Yes	Least Concern	Of Concern
Fringing Riparian Woodland	10.3.14	Yes	Least Concern	Of Concern
	11.3.2 (south eastern watercourse only)	No	Of Concern	Of Concern
	11.5.3 (south eastern watercourse only)	No	Least Concern	No Concern at Present
Weeping Bottlebrush Heath	10.7.7	Yes	Least Concern	No Concern at Present
Thozet's Box Open Woodland	10.7.5	No	Least Concern	Of Concern

Lancewood Woodland	10.7.3	Yes	Least Concern	No Concern at Present
Queensland Yellowjacket Low Woodland	10.5.1	Yes	Least Concern	No Concern at Present

One RE within the Poplar Box Open Woodland (10.3.27a) is listed as 'Of Concern' under DERM's Biodiversity Status. The overall condition of this RE on the Project site has been reduced by cattle grazing and weed invasion. Based on proposed disturbance plans for the Project and current infrastructure, clearing within this RE will be required.

The Gidgee Open Woodland (10.3.4) is listed as 'Of Concern' throughout Queensland under the DERM's Biodiversity Status due to total grazing pressures, in particular pasture degradation and significant loss of groundcover. This community is within the proposed disturbance footprint.

The Fringing Riparian Woodland (10.3.14) is listed as 'Of Concern' under DERM's Biodiversity Status throughout Queensland. Access tracks, diversion drains and dams are planned to intersect this vegetation community. Assuming erosion control and mitigation strategies are in place, the Project will not affect the health of this community at a regional scale.

The south eastern most watercourse within the Project site is comprised of two additional REs. One of these, RE 11.3.2 is listed as 'Of Concern' under both the VM Act and DERM's Biodiversity Status. No disturbance is proposed within this community.

The Thozet's Box Open Woodland (10.7.5) is listed as 'Of Concern' under DERM's Biodiversity Status. Based on proposed plans for the Project, no disturbance within this community will be required.





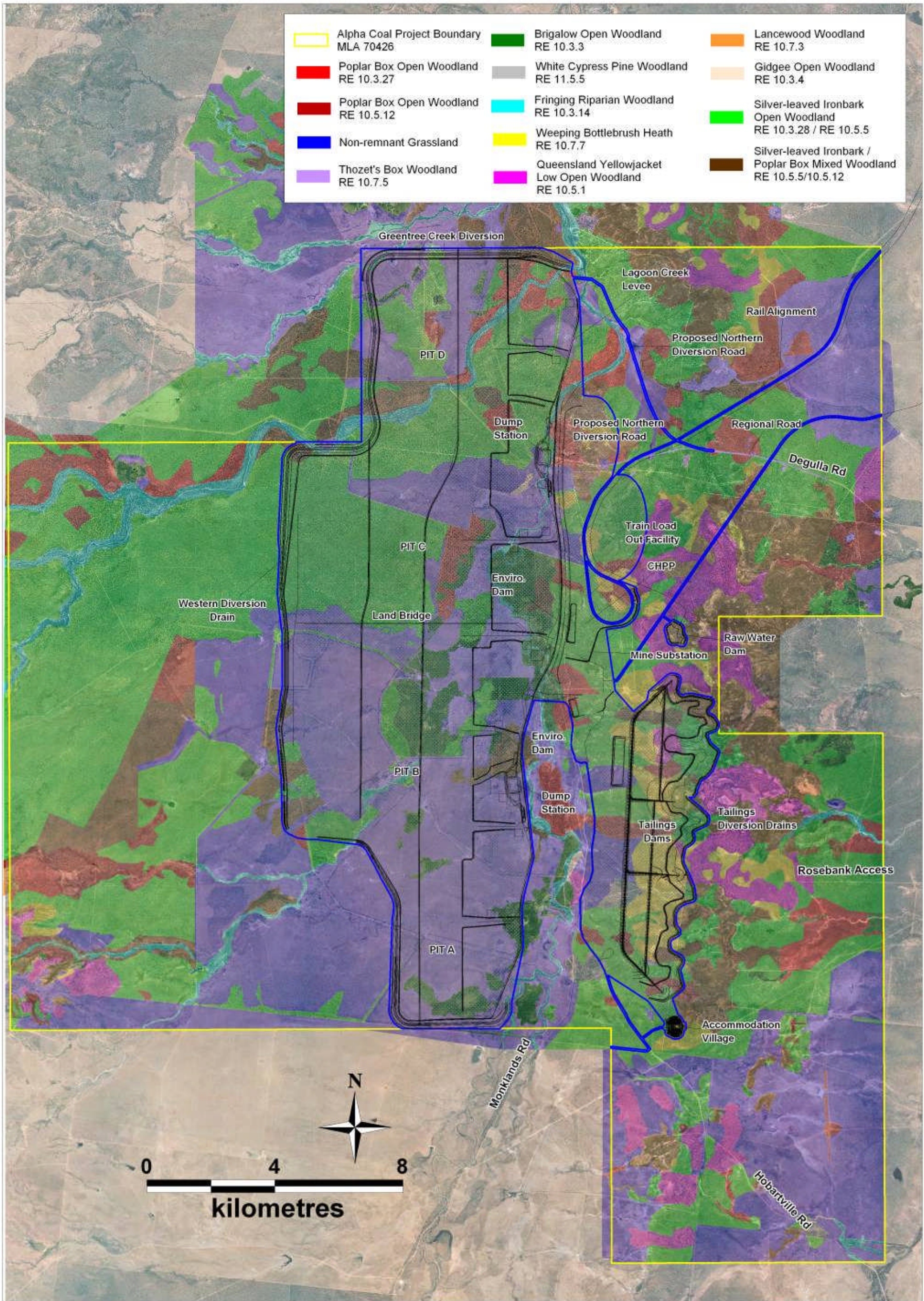


Figure 10 Project Layout and Vegetation Communities



## 8.2.2 Fauna

The construction of mine infrastructure has the potential to affect fauna populations through habitat loss, population isolation, edge and barrier effects, and an increase in mortality from mine activities and increased traffic in road use. The development of mine infrastructure will involve landscape modification procedures through vegetation clearing, a recognised threatening process that can affect different taxa in differing ways.

Barrier effects on fauna occur when a species is unable or unwilling to move between suitable habitats. This is caused by increased habitat fragmentation due to roadways and other mine infrastructure. Species most vulnerable to barrier effects are habitat specific fauna and low mobility species (where even a small reduction in movements can reduce genetic continuity within a population, hence reducing the effective population size). Species least vulnerable to barrier effects tend to be those that are highly mobile, including birds and larger mammals, although even these species can vary in their response to barriers. Low mobility species utilising the Project site have the potential to become genetically isolated. This occurs when individuals from a population within one fragment are unable to interbreed with individuals from populations in adjoining fragments.

The following potential impacts on fauna may result from the proposed works at the Project site:

- Land clearing and mining activities may reduce the available breeding and foraging habitat for fauna native species;
- Increased risk of fauna mortality resulting from vehicle strike and the destruction of tree hollows;
- Disruption of species behaviour;
- Increased habitat fragmentation and loss of connectivity across the mine infrastructure and pit areas;
- Diversion of these creeks will reduce the extent of riparian habitats and contribute to habitat fragmentation;
- An increase in noise, vibration and dust associated with the construction and operational phases of the Project may lead to the displacement of native species from their current home ranges;
- Changes in flow patterns accompanied with an increased risk of sedimentation in riparian woodlands downstream of the proposed mine site. Higher levels of erosion can lead to a loss of morphological diversity in streams adversely affecting habitat quality that may result in biodiversity loss in affected areas;
- An increase of introduced fauna species identified as utilising the Project Site may occur, including the Cane Toad, Feral Pig, European Rabbit, House Mouse and Feral Goat.
- Mine-related infrastructure, such as sediment dams, may be accessible to fauna and may be additional water sources;
- Vegetation clearing will result in a localised reduction in the amount of roost and nesting sites, microhabitats and potential foraging areas for many fauna species. This would add population

pressure (such as competition for roost sites, mates and food resources) to resident bats in these adjacent areas and may potentially lead to decreased population viability; and

- Certain species, including the Southern Squatter Pigeon, will be positively impacted by rehabilitation, providing grassland habitat which is not dominated by Buffel Grass.

### 8.2.3 Potential Impacts on Fauna of Conservational Significance

Two species of conservational significance, the Southern Squatter Pigeon and the Little Pied Bat, were identified within the Project site. The following points describe direct and indirect impacts on these two species.

#### *Direct impacts*

- Loss of roost sites due to vegetation clearing;
- Loss of foraging habitat due to vegetation clearing;
- Direct disruption of breeding and weaning behaviour associated with the timing of vegetation clearing as well as via vibrations from blasting activities;
- Direct mortality of individuals from clearing activities;
- Direct mortality of individuals from machinery and quarrying activities;
- Degradation of fauna habitat due to the spread of weeds and pests, dumping of rubbish and pollution associated with noise, vibration, dust and light.

#### *Effects of blasting, noise, dust, vibration and light*

- The effects of blasting and vibration on bat species are poorly understood. A survey of the literature revealed only one brief report study that specifically addressed the impacts of blasting and vibration on a cave dwelling bat species. Observations during various blasting activities suggested that blasting (and the associated noise and vibration) did not have any apparent impact on the colony.
- No literature on the effects of blasting on tree roosting species was found. However, it is probable that some concussive impacts would occur in nearby roost trees which may lead to short term displacement from the affected areas. This could potentially impact the Little Pied Bat through increased predation if blasting occurred when avian predators – both raptors and owls – were active.
- Any increase in lighting during mine construction and operation activities also has the potential to impact the Little Pied Bat by making bat species more visible to predators or act as a lure for insects, and in turn bats may be advantageously preyed upon. Increased lighting also has the potential to disrupt foraging and roosting behaviour as some bats actively avoid illumination, and abandon roost sites that are in close proximity to the light source. Thus lighting can increase the impact zone (edge effect) from that from that which is physically impacted via vegetation clearing.
- In addition to vibration, noise and dust emissions will increase from construction and operational activities which may discourage the Southern Squatter Pigeon and Little Pied Bat

from utilising the immediate area. These impacts may also affect insect abundance, water quality and reproductive behaviour.

#### *Secondary impacts*

- Degradation of habitat values in adjacent and remaining habitats;
- Possible restriction of fauna movements within adjacent wildlife corridors;
- Indirect impact to breeding and feeding activities through noise, dust, vibration and light disturbance; and
- Introduction of pests and predators and spread of weed infestations.

### **8.2.4 Cumulative Impacts**

The potential ecological impacts identified above are considered as a consequence of the construction and operation of the Project. The incremental effect of multiple sources of impact (past, present and future) is referred to as 'cumulative impacts' (Contant & Wiggins 1991; Council on Environmental Quality 1978). These impacts may become exacerbated over time. Consideration of cumulative impacts is necessary so impacts associated with the Project can be assessed with additional regional impacts from external sources.

Potential regional developments that may interact with the construction of the Project include:

- Other mines that may be opened in the future in the region;
- The coal transport corridor for the Project;
- The proposed water sources for the Project; and
- Low intensity stock graziers which may be affected by the Project.

All such developments are likely to contribute to a greater extent of ecological pressures on habitat and flora/fauna, such as vegetation clearing and a further fragmentation of habitat.

### **8.2.5 Residual Impacts**

Residual impacts remain after a Project's environmental management strategies, mitigation measures and rehabilitation methods have been carried out. Residual impacts for the Project include removal of vegetation and associated habitat. Where there is residual loss or degradation of vegetation, habitat or land use upon completion of mine decommissioning (or as residual impact is identified prior to decommissioning), compensation in the form of further habitat rehabilitation, compensatory habitat, land rehabilitation, contribution to research or offsets can be employed.



### **8.3 MANAGEMENT OF FLORA AND FAUNA**

Suggested strategies to minimise the impacts on native flora and fauna, and recommendations regarding rehabilitation of the Project site, are outlined below.

A general principle of environmental management is to, in order of preference:

- Avoid environmental impacts;
- Minimise the impacts;
- Mitigate for impact; and
- Where impact cannot be avoided or minimised, compensation for residual impact by mitigative means such as offsets.

#### Avoidance of Environmental Impact

Avoiding environmental impacts has been planned for where possible throughout Project planning and design phases. There will also be ongoing opportunities to further avoid impacts at a local scale through the detailed design process.

### **8.4 MANAGEMENT OF NATIVE FLORA AND FAUNA**

Suggested strategies to minimise the impacts on native flora and fauna, and recommendations regarding rehabilitation of the Project areas, are outlined below.

#### **8.4.1 General Management Strategies**

- Although the vegetation within the Project site is well-represented in the wider region, in recognition of the intrinsic value of ecological habitat, every effort should be made to keep proposed disturbance areas to a minimum;
- Clearing of vegetation in the Lagoon Creek should be minimised to maintain habitat connectivity and provide a movement corridor for small terrestrial fauna species. Whilst this community will be physically fragmented, the actual degree of habitat fragmentation is highly dependent on the mobility of the organism in question (McIntyre and Hobbs 1999) and disconnected areas may continue to be utilised by some species if kept intact. Given the abundance of this community in the wider region it is unlikely the disturbance will have a significant impact on its ecological value or habitat provision;
- Native vegetation removal should be conducted only after:
  - The areas to be cleared have been clearly delineated and identified to equipment operators and supervisors;
  - Weed control measures such as vehicle wash downs have been implemented to prevent the spread of weed species along riparian corridors;
  - Appropriate erosion and sediment-control structures are in place; and

- Clearance from environmental staff has been obtained.
- To maintain the integrity of vegetated land that is not cleared, appropriate erosion and sediment controls are recommended to prevent sediment deposition in remaining habitat. Maintenance of retained areas of existing vegetation would also provide a source of seed for mine rehabilitation works;
- It is recommended that the methodologies for the rehabilitation/re-vegetation works for the Project use the most appropriate species for the landscape elements of the site. Species chosen for revegetation should be selected from the lists provided in this report showing the dominant flora of each community. Areas such as the overburden emplacement should be assessed for species to ensure long-term stability and rehabilitation success rather than “quick fixes” that may not be successful in the long term;
- It is recommended that recreated landforms are contoured to resemble the original local topography, and be re-contoured as a flat to undulating plain. Flora species included in rehabilitation should be chosen with the aim to resemble pre-mine condition of vegetation communities;
- Infrastructure planning should avoid the creation of permanent, shallow water areas, such as septic and other tank overflows that form a permanent seep. These areas attract Cane Toads that are lethal to most snakes and other fauna species when ingested;
- Measures should be taken to minimise harm to affected fauna communities by inspecting the vegetation to be disturbed prior to clearing to ascertain whether any fauna are present. If fauna is present, it should be given the opportunity to move on naturally before clearing occurs;
- A segment of the Staff Induction Program should be allocated to informing staff of the conservation values on the Project site and surrounding areas to increase staff awareness of the species present. This could include photographs, brief descriptions and management requirements of native species; and
- A rehabilitation strategy should be developed for the Project site. This strategy should embody the concepts and recommendations presented above and include provision for monitoring of rehabilitation progress over the life of the operation.

#### **8.4.2 Management Strategies for Species of Conservational Significance**

##### *Squatter Pigeon (Southern Subspecies)*

The southern Squatter Pigeon was recorded during the surveys, with approximately 30 individuals observed in Non-remnant Grassland habitat within the Project site. This species is listed as Vulnerable under both the EPBC Act and Schedule 3 of the NCWR.

Threats to this species include overgrazing of habitat by domestic stock and the European Rabbit, trampling of nests by domestic stock, predation by feral cats and foxes, illegal shooting and clearing and fragmentation of grassy woodland habitat for agriculture and development (Department of Environment and Conservation, 2009)

Mitigation measures for this species may include:

- Care should be taken to ensure no mortality occurs due to vehicle strike. The behavioural characteristics of this pigeon tends to make it vulnerable to such accidents in that it is known to freeze in an attempt to go unnoticed instead of fleeing like the majority of other birds. This species has commonly been observed on tracks and roadways and in areas of vehicle activity. Persons operating vehicles in and adjacent to the Project site should be made aware of the presence of this threatened species and the potential for it to be encountered on vehicle tracks;
- Fauna spotters should conduct a thorough survey of the site prior to any vegetation clearing to determine the location of any squatter pigeon nests. Particular attention should be given to areas of short dry grass, grass tussocks and under bushes and fallen logs. If nests are located, translocation of the eggs/young should be conducted by qualified personnel to a suitable nearby habitat;
- Control of pest species, such as the European Rabbit and Feral Goat in areas known to be foraging habitat; and pests such as the Feral Cat in areas where the Southern Squatter Pigeon is known to flock; and
- Raise awareness of this species through a staff induction program, including photos, descriptions and preferred habitat.

*Little Pied Bat (Chalinolobus picatus)*

The Little Pied Bat is listed as Near Threatened under Schedule 5 of the Nature Conservation Wildlife Regulation 2006, was identified to inhabit the Silver-leaved Ironbark Open Woodland within the Project site. This species is known to occur in woodlands where they forage for insects among the canopy and primarily roost in tree hollows and occasionally caves. There is some evidence to suggest that this species uses dead trees (stags) as preferential roost trees. Consequently, specific attention will need to be paid to the timing and management of vegetation clearing, particularly preserving roost trees in their entirety or in part, preserving dead stag trees and if possible monitor the population prior to vegetation clearance and prior to the breeding season during any planned blasting activities.

Little Pied Bats, as well as other threatened bat species are thought to have been negatively impacted by habitat loss and habitat fragmentation. Disturbance to roost sites via vegetation clearing also has the potential to affect a range of threatened bat species. The Action Plan for Australian Bats suggests that both processes have the potential to impact upon the Little Pied Bat (Duncan et al. 1999).

A range of bat specific mitigation measures aimed at minimising the impacts to the Little Pied Bat habitat, as well as other bats species, are outlined below:

- Fauna spotters that have extensive experience with relocating bats should conduct a thorough survey of the site prior to any vegetation clearing;
- Vegetation clearing is to be staggered and follow a protocol specific to bats as recommended by Greg Richards from the Australasian Bat Society as follows:
  - Survey all trees and flag those with potential roost hollows;
  - Clear all non-hollow trees (non-flagged trees) - this disturbs any bats in colonies due to the habitat disturbance. Leave trees flagged as having hollows;

- Wait 2-3 days. From pre-dusk to an hour afterwards, fauna spotters qualified in bat relocations to detect the presence of little pied bats at remaining trees using AnaBat™ pointing towards hollows - identify colonies by the rapid bursts of calls (1-2 seconds or so apart, often in batches of up to 5 at a time – i.e., they don't all pour out in one rush in case a predator is present);
- Flag trees with little pied bats present in hollows;
- Clear trees free of bats in the following manner:
  - Use the biggest bulldozer available - it needs to take the weight of a tree - tap the trunk with the blade a few times to wake up anything inside the tree, wait a few minutes and watch for anything to come out;
  - Push the tree slowly from the side with the hollow – the hollow needs to be upwards, not crushed on the ground - with the base of the blade about one metre up to get leverage; and
  - As the tree starts to lean, lower the blade to the ground to catch the base/roots portion, and then lower the tree slowly by raising the blade.
- Salvage any good hollows for placement off site - wire them to other trees, pointing at the same compass aspect;
- Wait a further 2-3 days - all that should be left are trees with Little Pied Bats in them;
- Monitor again with AnaBat™ as above, clear remaining trees as described above; and
- Relocate branches/roost trees that housed Little Pied Bats to a non-impacted area in the immediate neighbourhood. Where relocation of whole trees is not feasible, the extent of the tree hollow can be estimated and that section can be chain sawed out and fastened to nearby trees in a non-impacted area. Artificial nest boxes can also be installed within the non-impacted area.
- To reduce the impact of lost roost sites during vegetation clearing and thus, minimise impacts on the local bat population, remaining roost sites should be supplemented by artificial roost sites such as bat boxes. Specific design guidelines (see Rhodes, 2006; Goldingay and Stevens, 2009 and references therein) have been developed including but not limited to:
  - Erecting boxes on existing trees approximately five metres about the ground;
  - Erect at least two boxes per tree and orient them at different angles to maximise temperature variations (e.g. east and west);
  - To enhance utilisation rates, install boxes in clusters (on five trees not more than 50 m apart);
  - Have boxes with a range of entrance sizes (bats appear to prefer entrances that reflect their body size);
  - Have boxes with a range of compartment sizes and compartment configurations;



- Implement an ongoing monitoring program to determine the usage and effectiveness of the artificial roost boxes.
  - Where possible, disturbance to watercourses, both permanent and ephemeral, should be avoided and mitigation measures put in place to ensure these watercourses do not become contaminated that may in turn, affect insect abundance;
  - If disturbance of watercourses and/or feeding sites cannot be avoided, consideration should be given to provision of artificial feeding sites such as ponds or small wetlands;
  - Areas should be rehabilitated (or at least stabilised) in stages as soon as possible after disturbance to minimise the risk of soil erosion. Rehabilitation should aim to restore the impacted vegetation communities and revegetate with local native species, to achieve similar pre-mined condition with the objective of reaching RE status;
- Undertake a monitoring program to assess the presence of the Little Pied Bat in areas adjacent to the proposed blasting areas;
  - A range of blasting regimes/methods should be employed that take into consideration the location of Little Pied Bat roost sites and aim to direct the blast/vibration front away from the roost location;
  - Consider undertaking blasting in intensive bursts (intensively over days or weeks rather than every day) so that prolonged impacts to the Little Pied Bat and other potentially vibration and/or noise sensitive species are minimised;
  - If blasting does need to occur on a daily basis, restrict blasting to one or two periods of short duration during the day and avoid periods when avian predators are most active (bats are likely to fly out of their roost sites and may be opportunistically attacked);
  - Where possible, consider using earthen banks and/or noise barriers to baffle blasting;
  - Ensure that regular dust suppressant measures are undertaken including watering, covering of loads and stockpiles; and
  - Where possible, consider using plant machinery (scraper, D10 bulldozer etc.) instead of blasting.

## **8.5 MANAGEMENT OF PEST FLORA AND FAUNA**

### **8.5.1 Weed Management Strategies**

Weeds pose a significant threat to Australia's natural ecosystems. Extensive invasions can change the floristic structure of vegetation and upset the ecological balance in affected communities as they compete for space and resources with native species. Controlling declared pests and protecting ecosystems from 'threatening processes' such as the invasion of noxious weeds is a legal obligation. Prevention and early detection of weed outbreaks are the most cost effective strategies for dealing with weeds as eradication of large infestations can be difficult and often requires greater resources.

Mined lands are prone to weed invasion, particularly where soils have been disturbed, along transport routes and surrounding infrastructure areas. The risks posed by weeds in mining areas include the introduction of new species, the spread of weeds to adjacent areas and increases in weed abundance in disturbed areas. Weeds can also diminish rehabilitation efforts by outcompeting species selected for revegetation and reduce overall land productivity.

The LP Act describes three classes of declared pests.

**Class 1** pests are those that are not commonly present in Queensland, and if introduced, would cause an adverse economic, environmental, or social impact. Class 1 pests established in Queensland are subject to eradication from the state.

**Class 2** pests are those that are established in Queensland and have, or could have, an adverse economic, environmental, or social impact. The management of these pests requires coordination and they are subject to programs led by local government, community or landowners. Landowners must take reasonable steps to keep land free of Class 2 pests.

**Class 3** pests are established in Queensland and have, or could have, an adverse economic, environmental or social impact. Landholders are not required to control Class 3 plants unless there is potential for them to spread into nearby environmentally significant areas such as national parks. Class 3 plants warrant listing primarily as a means of preventing their sale and spread into new areas.

A review of the Weeds Australia database reveals a total of 10 Class 1 pests, 28 Class 2 pests and 12 Class 3 pests in the Northern Brigalow Belt Bioregion. Class 1 and 2 pests are presented in **Table 29** below. Field surveys have confirmed the presence of three Class 2 pests on the Project site: Prickly Pear, Velvet Tree Pear and Parkinsonia. Parkinsonia is also listed as Weeds of National Significance.

**Table 29 Declared Plants of the Northern Brigalow Belt**

Class	Common Name	Scientific Name
1	Alligator Weed	<i>Alternanthera philoxeroides</i>
1	Kochia	<i>Bassia scoparia</i>
1	Siam Weed	<i>Chromolaena odorata</i>
1	Koster's Curse	<i>Clidemia hirta</i>
1	Senegal Tea	<i>Gymnocoronis spilanthoides</i>
1	Limnocharis	<i>Limnocharis flava</i>
1	Primrose Willow	<i>Ludwigia peruviana</i>
1	Mikania	<i>Mikania micrantha</i>

Class	Common Name	Scientific Name
1	Mimosa	<i>Mimosa pigra</i>
1	Spiked Pepper	<i>Piper aduncum</i>
2	Prickly Acacia	<i>Acacia nilotica subspecies indica</i>
2	Gamba Grass	<i>Andropogon gayanus</i>
2	Pond Apple	<i>Annona glabra</i>
2	Groundsel Bush	<i>Baccharis halimifolia</i>
2	Hybrid Mother-of-Millions	<i>Bryophyllum daigremontianum x B. delagoense cv. 'Houghtonii' = Bryophyllum daigremontianum x B. tubiflorum</i>
2	Mother-of-Millions	<i>Bryophyllum delagoense</i>
2	Cabomba	<i>Cabomba caroliniana</i>
2	Rubber Vine	<i>Cryptostegia grandiflora</i>
2	Coral cactus	<i>Cylindropuntia fulgida var. mamillata</i>
2	Water Hyacinth	<i>Eichhornia crassipes</i>
2	Tobacco Weed	<i>Elephantopus mollis</i>
2	Harrisia Cactus	<i>Harrisia martinii</i>
2	Bellyache Bush	<i>Jatropha gossypifolia</i>
2	African Boxthorn	<i>Lycium ferocissimum</i>
2	Giant Sensitive Plant	<i>Mimosa diplotricha</i>
2	Prickly Pear	<i>Opuntia stricta</i>
2	Velvet Tree Pear	<i>Opuntia tomentosa</i>
2	Parkinsonia	<i>Parkinsonia aculeata</i>

Class	Common Name	Scientific Name
2	Parthenium Weed	<i>Parthenium hysterophorus</i>
2	Water Lettuce	<i>Pistia stratiotes</i>
2	Mesquite	<i>Prosopis pallida</i>
2	Salvinia	<i>Salvinia molesta</i>
2	Fireweed	<i>Senecio madagascariensis</i>
2	Sicklepod	<i>Senna obtusifolia</i>
2	Giant Rat's Tail Grass	<i>Sporobolus pyramidalis</i>
2	Thunbergia	<i>Thunbergia grandiflora</i>
2	Chinee Apple	<i>Ziziphus mauritiana</i>
2	Annual Ragweed	<i>Ambrosia artemisiifolia</i>

The LP Act describes Class 2 pests as those that are established in Queensland and have, or could have, an adverse economic, environmental, or social impact. The management of these pests requires coordination and they are subject to programs led by local government, community or landowners. Landowners must take reasonable steps to keep land free of Class 2 pests. DEEDI pest fact sheets for all declared weed species observed on the Project site are provided in **Appendix C**.

A number of weed management strategies are recommended to minimise the potential of future weed infestations. These should be adopted for all stages of mine activity including construction, operation and rehabilitation:

- The present location of weeds should be highlighted and a comprehensive weed spraying program be implemented prior to the commencement of works. Declared weed species will be treated as per the relevant DEEDI fact sheet for each particular species;
- Monitoring in the form of annual observations by site personnel for weeds of management concern should be undertaken. These should be conducted following significant rain events in the wet season particularly in disturbed areas, roadsides, riparian zones and wash down facilities;
- Wash down facilities should be constructed at access points for vehicles arriving and departing from the Project site. These facilities should be bunded and located away from drainage lines to minimise the risk of weed spread;



- All vehicles entering the Project site and leaving properties known to contain declared weeds should be thoroughly washed down before entering clean areas; ensuring wheels, wheel arches and the undercarriage are free of mud and plant material;
- Radiators, grills and vehicle interiors should be cleaned for accumulated seed and plant material;
- All materials should be certified as weed free prior to acceptance on-site;
- Soil and fill material from weed affected areas should not be transported to clean sites. Minimising soil disturbance will limit the ability of weeds to become established;
- If weeds of management concern are identified, they should be eradicated from the site in accordance with local best management practice from the Jericho Shire Pest Management Plan and/or the DEEDI Pest Fact sheets;
- Observations of treated areas to assess the success of declared weed eradication should be undertaken;
- To promote the awareness of weed management issues, it is recommended that weed management is included in the Site Induction Program for the Project; and
- Prepare a site specific weed management plan (WMP).

### 8.5.2 Pest Fauna Management Strategies

Eight introduced pest fauna species were recorded by AARC during the field surveys:

LP Act Status	Common Name	Scientific Name
2	Feral Goat	<i>Capra hircus</i>
2	Feral Dog	<i>Canis lupus familiaris</i>
2	Dingo	<i>Canis lupus dingo</i>
2	Feral Cat	<i>Felis catus</i>
2	European Rabbit	<i>Oryctolagus cuniculus</i>
2	Feral Pig	<i>Sus scrofa</i>
Not Declared	House Mouse	<i>Mus musculus</i>
Not Declared	Cane Toad	<i>Rhinella marina</i>

### **Feral Pig (*Sus scrofa*)**

The Feral Pig is one of the most widespread and damaging pest animals in Queensland. They favour environments with permanent water bodies and have the potential to cause widespread ecological damage by spreading weeds and disease and spoiling riparian areas. They are listed as Class 2 pests under LP Act. Feral Pigs were observed by stock watering dams located in non-remnant grasslands and in watercourses on the Project site. Control methods include shooting, trapping, fencing and poisoning.

### **European Rabbit (*Oryctolagus cuniculus*)**

European Rabbits are a major agricultural and environmental pest in Australia. They compete for food with native animals, are a leading cause of soil loss and can cause the silting up of aquatic ecosystems. European Rabbits are listed as a Class 2 Pest under Queensland's LP Act. Favourable habitat conditions and food availability are likely reasons behind their prevalence throughout the Project site where they were observed in abundance.

Under the LP Act, land managers must take reasonable steps to control numbers of Class 2 Pests on their land. It is recommended that a pest management plan be developed to control pest fauna on the Project site.

### **Feral Goat (*Capra hircus*)**

Feral Goats are widespread throughout Australia with approximately 10% living in Queensland (DEEDI, 2007). They are a declared Class 2 Pest under the LP Act and landholders are required to take actions to control their numbers. Some of the environmental impacts caused by Feral Goat populations include overgrazing, increased soils erosion and land degradation. Their selective feeding can alter the floristic composition of plant communities and lead to reduced species diversity as preferred plants can be lost from communities in relatively short periods.

Fact sheets outlining the ecology and control methods of the species described above are attached in **Appendix C**.

### **House Mouse (*Mus musculus*)**

House mice are introduced pests that are now distributed throughout Australia. They are often found in areas of long grass, crops, sheds and houses. During favourable conditions their numbers can rapidly increase to plague proportions where they can cause serious damage to crops and houses. Although not declared under Queensland legislation, control of this species is recommended.

### **Cane Toad (*Rhinella marina*)**

Cane Toads were introduced into Australia in 1935 and have expanded their territory ever since. They produce highly toxic venom capable of killing most domestic and native animals if ingested. Cane Toads eat a wide variety of insects and frogs as well as small reptiles and mammals. This species is not a declared animal under Queensland legislation and there is no legal requirement to control them.

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Appendix A Flora / Fauna Species List



Flora Species Identified with and adjacent to the Project Site

Scientific Name	Common Name	Queensland Yellowjacket Low Open Woodland	Brigalow Open Woodland	Silver-leaved Ironbark Woodland	Poplar Box Woodland	Dawsons Gum Open Woodland	White Cypress Pine Woodland	IB/Poplar Woodland	Gidgee Open Woodland	Fringing Riparian Woodland	Non-remnant Grassland	Melaleuca Heathland	Lancewood Woodland	Thozets Box Woodland
<i>Abutilon fraseri</i> subsp. <i>fraseri</i>	Dwarf Lantern Flower										X			
<i>Abutilon oxycarpum</i>	Straggly Lantern-bush				X						X			
<i>Acacia acradenia</i>	Ampwey							X						
<i>Acacia bidwillii</i>	Corkwood Wattle			X										
<i>Acacia cambagei</i>	Gidgee		X		X				X	X	X			
<i>Acacia colei</i> var. <i>colei</i>	Cole's Wattle			X										
<i>Acacia conferta</i>	Crowded-leaf Wattle									X				
<i>Acacia coriacea</i> subsp. <i>sericophylla</i>	Desert Oak	X		X	X		X	X		X	X	X		
<i>Acacia excelsa</i>	Ironwood							X			X	X		
<i>Acacia farnesiana</i> *	Mimosa Bush									X				
<i>Acacia harpophylla</i>	Brigalow		X						X	X	X			X
<i>Acacia holosericea</i>	Soap Bush	X		X			X			X				
<i>Acacia lazaridis</i>	Lazarides Wattle	X		X								X		
<i>Acacia leiocalyx</i>	Black Wattle	X		X										
<i>Acacia leptostachya</i>	Townsville Wattle	X						X				X		
<i>Acacia oswaldii</i>	Milijee									X	X	X		
<i>Acacia salicina</i>	Sally Wattle		X											
<i>Acacia shirleyi</i>	Lancewood	X				X	X						X	X
<i>Acacia sp.</i>	Wattle			X							X	X		
<i>Acacia sparsiflora</i>	Currawang			X										
<i>Acacia tenuissima</i>	Narrow-leaved Wattle			X										
<i>Acanthospermum hispidum</i>	Star Burr									X				
<i>Achyranthes aspera</i>	Chaff Flower		X		X			X		X	X		X	
<i>Aeschynomene brevifolia</i>	Pea				X					X				
<i>Aeschynomene indica</i>	Budda Pea		X	X						X	X			
<i>Alectryon oleifolius</i> subsp.	Rosewood			X	X			X						

Scientific Name	Common Name	Queensland Yellowjacket Low Open Woodland	Brigalow Open Woodland	Silver-leaved Ironbark Woodland	Poplar Box Woodland	Dawsons Gum Open Woodland	White Cypress Pine Woodland	IB/Poplar Woodland	Gidgee Open Woodland	Fringing Riparian Woodland	Non-remnant Grassland	Melaleuca Heathland	Lancewood Woodland	Thozets Box Woodland
<i>elongatus</i>														
<i>Allocasuarina torulosa</i>	Rose She-oak		X											
<i>Alloteropsis semialata</i>	Cockatoo Grass									X				
<i>Alphitonia excelsa</i>	Red Ash	X		X	X			X		X		X	X	X
<i>Alstonia constricta</i>	Bitter Bark							X		X				
<i>Alternanthera angustifolia</i>	Narrow-leaved Joyweed									X				
<i>Alternanthera denticulata</i>	Lesser Joyweed		X	X			X			X	X			
<i>Alternanthera denticulata var. micrantha</i>	Lesser Joyweed			X										
<i>Alternanthera nana</i>	Hairy Joyweed									X				
<i>Alternanthera nodiflora</i>	Common Joyweed												X	
<i>Alternanthera pungens</i>	Khacki Weed										X			
<i>Ammannia multiflora</i>	Jerry-jerry									X				
<i>Amyema quandang</i>	Grey Mistletoe									X				
<i>Andropogon caricinus var. sericeus</i>	Greybeard Grass											X		
<i>Apophyllum anomalum</i>	Broom Brush		X		X		X		X	X	X			
<i>Archidendropsis basaltica</i>	Dead Finish		X	X	X			X		X	X			X
<i>Aristida bigandulosa</i>	Dark Wiregrass			X	X		X	X		X	X			
<i>Aristida calycina</i>	Dark Wiregrass	X	X	X	X			X		X	X		X	
<i>Aristida caput-medusae</i>	Many-headed Wiregrass		X										X	X
<i>Aristida holathera var. holathera</i>	Erect Kerosene Grass									X	X			
<i>Aristida inaequiglumis</i>	Feathertop Three-awn	X		X	X		X	X		X	X	X		
<i>Aristida jerichoensis</i>	Jericho Wiregrass										X			
<i>Aristida latifolia</i>	Feather Top Wiregrass	X	X	X			X	X		X	X		X	



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<i>Aristida sp.</i>	Wiregrass	X			X		X	X			X		X	X
<i>Asteraceae sp.</i>							X							
<i>Atalaya hemiglauca</i>	Whitewood		X	X	X				X	X	X		X	X
<i>Arundinella nepalensis</i>	Reedgrass			X				X		X				
<i>Basilicum polystachyon</i>	Musk-basil						X					X		
<i>Bergia trimeria</i>	Small Water-fire										X			
<i>Bertya oleifolia</i>								X						
<i>Boerhavia dominii</i>	Tar-vine		X											
<i>Boerhavia sp.</i>								X		X				
<i>Bonamia media</i>	Common Bonamia		X											
<i>Bothriochloa bladhii</i>	Forest Bluegrass										X			
<i>Bothriochloa ewartiana</i>	Desert Bluegrass									X	X			
<i>Brachyachne convergens</i>	Native Couch									X	X			
<i>Brachychiton populneus</i>	Kurrajong	X		X			X	X		X	X	X	X	
<i>Brachychiton rupestris</i>	Queensland Bottle tree			X										
<i>Brachyscome ciliaris var. lanuginosa</i>	Variable Daisy										X			
<i>Breynia oblongifolia</i>	Coffee Bush	X	X	x										
<i>Bulbostylis barbata</i>	Dainty Sedge										X			
<i>Bursaria incana</i>	Prickly Pine	X		X			X						X	X
<i>Bursaria tenuifolia</i>	Mock Orange			X										
<i>Cajanus reticulatus</i>	Furry Rattlepod									X				
<i>Callitris glaucophylla</i>	White Cypress Pine						X						X	
<i>Calogyne pilosa</i>								X		X		X	X	
<i>Calotis multicaulis</i>	Wolly-headed Burr-daisy			X				X		X	X			
<i>Calotis squamigera</i>	Burr-daisy									X				
<i>Calytrix microcoma</i>	Desert Star Flower	X					X					X		

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<i>Canthium attenuatum</i>	Australian Native Myrtle			X	X									
<i>Canavalia papuana</i>	Jack Bean			X				X						
<i>Capparis canescens</i>	Wild Orange	X	X								X			X
<i>Capparis lasiantha</i>	Wait-a-While				X			X	X	X	X			X
<i>Capparis shanesiana</i>								X						
<i>Carissa ovata</i>	Currant Bush	X	X	X	X	X	X	X	X	X	X		X	X
<i>Cassytha filiformis</i>	Dodder Laurel					X				X			X	
<i>Centipeda minima</i>	Spreading Sneezeweed				X					X				
<i>Chamaecrista absus var absus</i>	Tropical Sensitive Pea			X	X			X						
<i>Chamaesyce australis</i>	Hairy Caustic Weed										X			
<i>Chamaesyce drummondii</i>	Caustic Weed		X	x						X	X			
<i>Chamaesyce dallachyana</i>	Wedge Sandmat			X				X			X			
<i>Chamaesyce hirta</i>	Asthma Plant												X	
<i>Cheilanthes distans</i>	Rock Fern		X				X				X	X		
<i>Chenopodium carinatum</i>	Green Crumbweed				X			X		X				
<i>Chloris divaricata</i>	Slender Chloris		X	X		X		X		X	X		X	
<i>Chloris pectinata</i>	Windmill Grass		X					X						
<i>Chloris sp.</i>						X					X		X	
<i>Chloris virgata*</i>	Feathertop Rhodes Grass						X			X	X			
<i>Chrysopogon fallax</i>	Golden Beard Grass												X	
<i>Chrysocephalum apiculatum</i>	Yellow Buttons			X						X	X	X	X	
<i>Cleistochloa subjuncea</i>	Sandstone Panic												X	X
<i>Clerodendrum floribundum</i>	Lolly Bush									X				
<i>Comesperma pallidum</i>	Match Sticks			X				X				X		
<i>Corymbia brachycarpa</i>	Desert Bloodwood							X						
<i>Corymbia</i>	Dallachy's	X		X	X		X	X		X	X		X	

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<i>dallachiana</i>	Gum													
<i>Corymbia lamprophylla</i>	Shiny-leaved Bloodwood							X						
<i>Corymbia leichhardtii</i>	Rustyjacket									X				
<i>Corymbia setosa</i>	Rough-leaved Bloodwood	X										X	X	
<i>Corymbia terminalis</i>	Western Bloodwood									X				
<i>Crinum flaccidum</i>	Murray Lily										X			
<i>Crinum uniflorum</i>	One-flowered Lily											X		
<i>Crinum sp.</i>	Lily							X		X	X			
<i>Crotalaria medicaginea</i>	Trefoil Rattlepod			X							X			
<i>Crotalaria montana</i>	Rattlepod									X				
<i>Crotalaria verrucosa</i>	Blue Rattlepod									X				
<i>Cucumis anguria var. anguria*</i>	West-indian Gherkin									X			X	
<i>Cyanthillium conereum</i>	Veronica			X	X			X						
<i>Cymbidium canaliculatum</i>	Black Orchid			X				X						
<i>Cymbopogon bombycinus</i>	Silky Oil Grass			X				X		X			X	
<i>Cymbopogon refractus</i>	Barb Wire Grass	X		X	X								X	
<i>Cyperus alterniflorus</i>	Tall Sedge							X		X				
<i>Cyperus sp.</i>	Sedge				X								X	
<i>Cyperus bifax</i>	Downs Nutgrass										X			
<i>Cyperus concinnus</i>	Trim Flat-sedge				X						X			
<i>Cyperus dactylotes</i>	Sedge									X				
<i>Cyperus dietrichiae var. brevibracteatus</i>	Sedge										X			
<i>Cyperus difformis</i>	Dirty Dora									X				
<i>Cyperus exaltatus</i>	Giant Sedge									X				
<i>Cyperus fulvus</i>	Sticky Sedge		X								X			
<i>Cyperus gilesii</i>	Giles Sedge								X					
<i>Cyperus iria</i>	Variable Sedge									X				

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<i>Cyperus rigidellus</i>	Flat Sedge		X							X	X			
<i>Dactyloctenium radulans</i>	Button Grass		X		X		X			X	X			
<i>Desmodium rhytidophyllum</i>	Hairy Trefoil													
<i>Desmodium filiforme</i>	Narrow Necklace Pea				X		X							
<i>Dichanthium fecundum</i>	Curly Bluegrass										X			
<i>Dichanthium sericeum subsp sericeum</i>	Bluegrass			X	X			X						
<i>Digitaria ammophila</i>	Silky Umbrella Grass				X					X	X	X		
<i>Digitaria bicornis</i>	Hairy Finger Grass		X							X				
<i>Digitaria breviglumis</i>	Short-glumed Umbrella Grass		X	X									X	
<i>Digitaria brownii</i>	Cotton Panic Grass				X		X							
<i>Digitaria ciliaris</i>	Summer Grass									X				
<i>Digitaria diffusa</i>	Open Summer Grass	X			X			X						
<i>Digitaria longiflora</i>	Indian Crabgrass		X											
<i>Dianella longifolia</i>	Blue Lily			X				X		X				
<i>Dipteracanthus australasicus subsp. australasicus</i>	Creeping Blue Trumpet			X	X					X				
<i>Diospyros humilis</i>	Queensland Ebony	X												
<i>Dodonaea sp.</i>											X			
<i>Dodonaea filifolia</i>	Hopbush	X												
<i>Dodonaea lanceolata var. lanceolata</i>	Hopbush	X		X						X		X		
<i>Dodonaea stenophylla</i>	Narrow-leaved Hopbush	X		X								X		
<i>Dodonaea viscosa subsp. angustissima</i>	Sticky Hopbush			X				X				X		



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<i>Echinochloa colona</i> *	Awnless Barnyard Grass									X	X			
<i>Ehretia membranifolia</i>	Peach Bush			X	X			X						
<i>Einadia nutans</i>	Climbing Saltbush		X				X	X						
<i>Einadia nutans subsp. linifolia</i>	Climbing Saltbush		X		X		X							
<i>Einadia sp.</i>	Saltbush		X								X			
<i>Eleocharis philippensis</i>	Spikerush									X				
<i>Elytrophorus spicatus</i>	Spikegrass		X	X					X					
<i>Enchylaena tomentosa</i>	Ruby Saltbush		X	X						X	X			X
<i>Enneapogon intermedius</i>	Tall Bottlewasher		X				X							
<i>Enneapogon lindleyanus</i>	Conetop Nineawn						X	X			X			
<i>Enneapogon oblongus</i>	Purple-head Nineawn	X			X			X			X			X
<i>Enneapogon polyhyllus</i>	Limestone Bottlewasher	X	X	X			X	X			X			
<i>Enneapogon robustissimus</i>	Nineawn Grass	X	X	X					X					
<i>Enneapogon virens</i>	Nineawn Grass							X		X				
<i>Enteropogon acicularis</i>	Curly Windmill Grass									X				
<i>Enteropogon paucispiceus</i>	Windmill Grass									X				
<i>Enteropogon ramosus</i>	Twirly Windmill Grass		X		X		X			X	X			
<i>Eragrostis cilianensis</i> *	Stinkgrass				X									
<i>Eragrostis dielsii</i>	Mulka						X				X			
<i>Eragrostis elongata</i>	Clustered Lovegrass		X	X	X					X	X			
<i>Eragrostis lacunaria</i>	Purple Lovegrass		X		X				X	X	X		X	
<i>Eragrostis molybdea</i>	Granite Lovegrass										X			
<i>Eragrostis parviflora</i>	Weeping Lovegrass		X							X	X			
<i>Eragrostis sororia</i>	Lovegrass									X	X			

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<i>Eragrostis sp.</i>	Lovegrass		X	X			X	X					X	
<i>Eragrostis speciosa</i>	Handsome Lovegrass					X	X			X	X		X	
<i>Eremophila bignoniiflora</i>	Creek Wilga		X	X	X		X		X		X		X	
<i>Eremophila deserti</i>	Ellangowan Poison Bush		X	X	X				X		X			
<i>Eremophila latrobei</i>	Crimson Turkey Bush		X		X								X	X
<i>Eremophila longifolia</i>	Dogwood		X		X						X			
<i>Eremophila maculata</i>	Fuchsia Bush				X		X		X	X	X			
<i>Eremophila mitchellii</i>	False Sandalwood		X	X					X	X	X			X
<i>Eriachne aristidea</i>	Three-arm Wanderrie Grass													
<i>Eriachne armitii</i>	Longawn Wanderrie Grass						X							
<i>Eriachne mucronata</i>	Mountain Wanderrie Grass									X				
<i>Eriachne obtusa</i>	Northern Wanderrie Grass				X						X			
<i>Eriochloa crebra</i>	Spring Grass										X		X	
<i>Eriochloa pseudoacrotricha</i>	Early Spring Grass		X							X	X			
<i>Erythrina vespertilio</i>	Bat's Wing Coral Tree			X			X	X						
<i>Erythroxylum australe</i>	Cocaine Bush		X	X	X						X	X		
<i>Eucalyptus brownii</i>	Reid River Box				X									
<i>Eucalyptus camaldulensis</i>	River Red Gum									X				
<i>Eucalyptus camageana</i>	Dawson Gum			X		X			X	X			X	
<i>Eucalyptus coolabah</i>	Coolabah									X	X			
<i>Eucalyptus melanophloia</i>	Silver-leaved Ironbark			X		X	X	X	X	X	X	X	X	
<i>Eucalyptus populnea</i>	Poplar Box		X	X	X	X		X		X	X		X	
<i>Eucalyptus similis</i>	Queensland Yellowjacket	X												

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<i>Eucalyptus tessellaris</i>	Moreton Bay Ash		X				X	X		X				
<i>Eucalyptus thozetiana</i>	Thozet's Box					X							X	X
<i>Eulalia aurea</i>	Silky Browntop									X				
<i>Euphorbia tannensis subsp. eremophila</i>	Desert Spurge									X				
<i>Everistia vacciniifolia</i>	Small-leaved Canthium		X										X	
<i>Evolvulus alsinoides</i>	Tropical Speedwell		X	X			X	X			X	X	X	
<i>Evolvulus alsinoides var. villosicalyx</i>	Tropical Speedwell				X						X			
<i>Exocarpos cupressiformis</i>	Native Cherry							X						
<i>Exocarpus sparteus</i>	Broom Ballart	X		X								X	X	
<i>Fimbristylis dicotoma</i>	Common Finger Rush			X	X					X	X			
<i>Fimbristylis littoralis</i>	Grass-like Fimbristylis									X				
<i>Fimbristylis neilsonii</i>	Fringerush													
<i>Fimbristylis microcarya</i>	Fringerush									X				
<i>Flaveria australasica</i>	Speedy Weed		X											
<i>Flinderisa dissosperma</i>	Leopardwood		X	X	X			X						
<i>Flueggea leucopyrus</i>	Bushweed				X		X							
<i>Fuirena incrassata</i>	Sedge									X				
<i>Gastrolobium grandiflorum</i>	Poison Heartleaf Bush	X			X			X		X	X			
<i>Glinus lotoides</i>	Lotus Sweetjuice									X	X			
<i>Glycine sp.</i>	Glycine									X				
<i>Glycine tabacina</i>	Variable Glycine										X			
<i>Glycine tomentella</i>	Woolly Glycine			X				X		X		X		
<i>Gomphrena celosides</i>	Gomphrena				X					X	X			
<i>Goodenia byrnesii</i>	Goodenia									X				

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<i>Gossypium australe</i>	Rose Cottonbush									X				X
<i>Grevillea glauca</i>	Bushman's Clothes Pegs	X		X				X						
<i>Grevillea parrallela</i>	Silver Oak	X						X		X	X			
<i>Grevillea pteridiflora</i>	Golden Parrot Tree	X			X	X		X		X	X	X	X	
<i>Grevillea striata</i>	Beefwood			X	X									
<i>Grewia latifolia</i>	Dysentery Plant			X										
<i>Grewia retusifolia</i>	Emu Berry	X	X	X	X			X		X	X	X	X	
<i>Hakea chordophylla</i>	Bull Oak			X				X		X				
<i>Heliotropium indicum*</i>	Heliotrope										X			
<i>Heteropogon contortus</i>	Black Speargrass	X	X	X	X	X	X	X		X	X		X	X
<i>Heteropogon triticeus</i>	Giant Speargrass			X				X			X			
<i>Hibiscus brachysiphonius</i>	Low Hibiscus			X										
<i>Hibiscus burtonii</i>	Burton's Hibiscus			X						X	X			
<i>Hibiscus meraukensis</i>	Merauke Hibiscus									X	X			
<i>Hibiscus sp.</i>	Hibiscus			X				X		X				
<i>Hibiscus sturtii</i>	Sturt's Hibiscus		X								X			
<i>Hovea parvicalyx</i>	Bush Pea												X	
<i>Hybanthus enneaspermus</i>	Blue Spadeflower										X			
<i>Imperata cylindrica</i>	Cogongrass									X				
<i>Indigofera australis</i>	Australian Indigo										X			
<i>Indigofera colutea</i>	Sticky Indigo				X			X		X				
<i>Indigofera haplophylla</i>	Indigo						X			X				
<i>Indigofera hirsuta</i>	Hairy Indigo										X			
<i>Indigofera linifolia</i>	Round-pod Indigo			X						X				
<i>Indigofera pratensis</i>	Forest Indigo			X				X		X				
<i>Indigofera linnaei</i>	Birdsville Indigo			X										



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<i>Iphigenia indica</i>	Lily			X				X						
<i>Ipomea brownii</i>	Morning Glory			X										
<i>Ipomoea plebeia</i>	Bellvine									X				
<i>Ipomoea polymorpha</i>	Common Morning Glory													
<i>Ipomoea sp.</i>										X				
<i>Iseilema vaginiflorum</i>	Red Flinders Grass										X			
<i>Jacksonia sp.</i>					X							X		
<i>Jasminum didymum</i>	Native Jasmine									X				
<i>Jasminum didymum subsp. lineare</i>	Native Jasmine													
<i>Juncus aridicola</i>	Rush									X				
<i>Juncus usitatus</i>	Common Rush									X				
<i>Keraudrenia collina</i>		X												
<i>Leptochloa decipiens subsp. asthenes</i>	Slender Canegrass								X		X			
<i>Leptochloa digitata</i>	Umbrella Cane Grass										X		X	
<i>Leptochloa fusca</i>	Brown Beetle Grass									X				
<i>Leptosema chapmanii</i>	Dwarf Dogwood											X		
<i>Lomandra leucophala</i>	Woolly Matrush						X	X			X			
<i>Lomandra longifolia</i>	Long-leaved Matrush									X				
<i>Ludwigia octovalvis</i>	Willow Primrose		X				X							
<i>Lysiana subfalcata</i>	Mistletoe		X							X				
<i>Lysicarpus angustifolius</i>	Budgeroo			X		X		X				X	X	
<i>Lysiphillum carronii</i>	Red Bauhinia		X		X				X	X	X			
<i>Malvastrum americanum*</i>	Spiked Malvastrum									X	X			
<i>Malvastrum coromandelianum subsp. coromandelianum</i>	Prickly Malvastrum							X						

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<i>Marsdenia microlepis</i>	Northern Milkvine	X			X									
<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>	Native Pear			X										
<i>Marsdenia</i> sp.		X										X	X	
<i>Marsilea drummondii</i>	Nardoo		X					X		X	X			
<i>Maytenus cunninghamii</i>	Yellowberry Bush		X	X	X			X	X					
<i>Melaleuca chisholmii</i>	Bottlebrush									X				
<i>Melaleuca nervosa</i>	Bottlebrush	X												
<i>Melaleuca tamariscina</i>	Weeping Bottlebrush			X		X	X					X	X	
<i>Melaleuca viminalis</i>	Red Bottlebrush													
<i>Melaleuca viridiflora</i>	Broad-leaved Teatree				X									
<i>Melhania oblongifolia</i>	Velvet Hibiscus				X					X				
<i>Melinis repens</i> *	Red Natal Grass		X	X			X	X		X	X	X	X	
<i>Minuria integerrima</i>	Smooth Minuria						X				X			
<i>Mnesithea formosa</i>	Silkytop Grass											X		
<i>Monochoria cyanea</i>	Monochoria		X				X							
<i>Muehlenbeckia florulenta</i>	Lignum												X	
<i>Murdannia graminea</i>	Grass Lily				X									
<i>Najas tenuifolia</i>	Waterynymph									X				
<i>Neptunia gracilis</i>	Low Sensitive Plant			X				X		X				
<i>Neptunia</i> sp.										X				
<i>Nicotiana megalosiphon</i>	Native Tobacco										X			
<i>Nymphoides crenata</i>	Wavy Marshwort		X											
<i>Nyssanthes erecta</i>	Barbed Wire Weed		X						X	X				
<i>Oldenlandia mitrasacmoides</i> subsp. <i>trachymenoides</i>	Sweet Basil										X	X		

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<i>Olearia subspicata</i>	Spiked Daisy-bush									X				
<i>Opuntia stricta</i> *	Common Pest Pear	X	X	X	X	X	X	X		X	X		X	
<i>Opuntia tomentosa</i> *	Velvety Tree Pear		X		X	X		X	X		X		X	
<i>Owenia acidula</i>	Emu Apple				X					X				
<i>Oxalis chnoides</i>	Plains Woodsorrel													
<i>Pandorea pandorana</i>	Wonga Wonga Vine			X	X			X		X				
<i>Panicum sp</i>		X		X				X						
<i>Panicum decompsitum</i>	Native Millet		X	X			X	X		X	X			
<i>Panicum effusum</i>	Hairy Panic	X	X	X	X					X	X	X	X	
<i>Parkinsonia aculeata</i>	Parkinsonia						X			X	X			
<i>Paspalidium caespitosum</i>	Brigalow Grass		X						X	X				
<i>Paspalidium distans</i>	Spreading Panicgrass		X											
<i>Passiflora foetida</i> *	Stinking Passionflower									X				
<i>Pennisetum ciliare</i> *	Buffel Grass	X	X	X	X	X	X	X		X	X		X	X
<i>Peripleura hispidula</i>	Fuzzweed										X		X	
<i>Peripleura obovata</i>	Tall Fuzzweed								X	X				
<i>Perotis rara</i>	Comet Grass		X	X	X					X	X			
<i>Persicaria attenuata</i>	Slender Knotweed									X	X			
<i>Persicaria decipiens</i>	Slender Knotweed									X				
<i>Persoonia falcata</i>	Geebung	X			X			X				X	X	
<i>Petalostigma banksii</i>	Smooth-leaved Quinine Tree			X	X		X	X		X			X	
<i>Petalostigma pubescens</i>	Quinine Bush	X	X	X	X	X	X	X		X	X	X	X	X
<i>Phebalium glandulosum subsp. glandulosum</i>	Desert Phebalium												X	
<i>Phragmites australis</i>	Common Reed									X	X			
<i>Phyllanthus fuernrohrrii</i>	Phyllanthus		X	X	X		X	X						

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<i>Phyllanthus lacunarius</i>	Caraweena-clover									X				
<i>Phyllanthus maderaspatensis</i>	Spurge	X								X				
<i>Phyllanthus virgatus</i>	Spurge		X		X		X			X	X			
<i>Plectranthus parviflorus</i>	Cockspur Flower				X		X							
<i>Plumbago zeylanica</i>	Plumbago													
<i>Poaceae sp.</i>			X			X	X	X	X		X		X	
<i>Polycarpaea corymbosa</i>	Four-leaf Allseed						X							
<i>Polygala linariifolia</i>	Native Milkwort				X									
<i>Polygonum plebeium</i>	Small Knotweed										X			
<i>Portulaca oleraceae</i>	Pigweed		X							X	X			
<i>Portulaca pilosa*</i>	Hairy Pigweed									X	X			
<i>Potamogeton sp.</i>										X				
<i>Psoralea sp.</i>								X		X				
<i>Psyrax forsteri</i>												X	X	
<i>Psyrax oleifolia</i>	Canthium	X	X	X	X		X	X	X	X		X	X	
<i>Pterocaulon redolens</i>	Fruit Salad Plant							X		X				
<i>Pterocaulon serrulatum</i>	Ragweed				X		X			X				
<i>Pterocaulon sphacelatum</i>	Fruit Salad Plant		X							X				
<i>Pterocaulon sp.</i>				X			X			X		X		
<i>Ptilotus macrocephalus</i>	Tall Mulla Mulla			X										
<i>Ptilotus polystachyus</i>	Longtails									X				
<i>Ptilotus sp.</i>	Bottlebrush										X		X	
<i>Rutidosis leucantha</i>	Button Wrinklewort							X						
<i>Rhodanthe sp.</i>							X							
<i>Rhynchosia minima</i>	Rhynchosia			X						X	X			
<i>Rostellularia adscendens</i>	Pinktongues		X	X										
<i>Rostellularia adscendens var. clementii</i>	Pinktongues			X										



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<i>Rotala mexicana</i>	Rotala		X				X							
<i>Salsola kali</i>	Soft Roly-poly		X	X	X				X		X			X
<i>Santalum lanceolatum</i>	Sandalwood	X	X	X	X			X		X	X	X		
<i>Sarga plumosum</i>	Plume Sorghum									X				
<i>Sauropus rigens</i>	Brush Sauropus				X									
<i>Schizachyrium fragile</i>	Firegrass	X		X			X					X	X	
<i>Schoenoplectus dissachanthus</i>			X											
<i>Schoenoplectus litoralis</i>	Clubrush									X				
<i>Scleria sphacelata</i>	Razor Grass									X				
<i>Sclerolaena divaricata</i>	Tangled Copperburr		X						X					
<i>Sclerolaena lanicuspis</i>	Woolly Copperburr									X	X			
<i>Sclerolaena bicornis</i>	Goathead Burr										X			
<i>Sclerolaena convexula</i>	Tall Copperburr			X					X	X	X			
<i>Sclerolaena decurrens</i>	Copperburr										X			
<i>Sclerolaena sp.</i>						X							X	
<i>Scoparia dulcis</i> *	Licorice Weed									X				
<i>Senna artemisioides</i> subsp. <i>artemisioides</i>	Silver Senna													X
<i>Senna costata</i>	Sicklepod	X		X	X		X	X					X	
<i>Senna occidentalis</i> *	Coffee Bush									X				
<i>Senna planticola</i>	Ant Bush									X				
<i>Sesbania sp.</i>			X								X			
<i>Setaria surgens</i>	Annual Pigeon Grass			X			X			X			X	
<i>Sida atherophora</i>	Sida-retusa							X						
<i>Sida cleisocalyx</i>	Sponge Sida		X							X	X			
<i>Sida cordifolia</i>	Flannel Weed	X	X	X	X			X		X	X			
<i>Sida fibulifera</i>	Pin Sida	X		X	X						X			
<i>Sida hackettiana</i>	Spiked Sida									X	X			
<i>Sida rhombifolia</i> *	Sida-retusa						X	X		X	X			
<i>Sida rohlenae</i>	Shrub Sida							X		X	X			

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<i>Sida spinosa*</i>	Paddy's Lucrene		X							X				
<i>Sida subspicata</i>	Spiked Sida		X	X	X		X	X		X	X		x	
<i>Sida trichopoda</i>	High Sida			X										
<i>Sida sp.</i>	Sida-retusa	X											X	
<i>Solanum chippendalei</i>	Chippendale's Tomato												X	
<i>Solanum esuriale</i>	Quena				X			X			X			
<i>Solanum galbinum</i>		X					X				X			
<i>Solanum nigrum*</i>	Blackberry Nightshade			X										
<i>Solanum parvifolium</i>	Small-leaved Nightshade									X				
<i>Sorghum x almum</i>	Columbus Grass									X				
<i>Spermacoce brachystema</i>	Blue Heads									X				
<i>Sporobolus actinocladus</i>	Australian Dropseed		X							X	X	X		
<i>Sporobolus caroli</i>	Fairy Grass		X		X				X	X	X			
<i>Sporobolus disjunctus</i>	Dropweed							X	X		X			
<i>Sporobolus scabridus</i>	Rapsy Dropseed								X		X			
<i>Stackhousia intermedia</i>	Stackhousia											X		
<i>Stylosanthes hamata*</i>	Caribbean Stylo										X			
<i>Stylosanthes scabra*</i>	Shrubby Stylo	X		X	X		X	X		X	X	X	X	
<i>Terminalia aridicola ssp. aridicola</i>	Arid Peach	X												
<i>Terminalia oblongata</i>	Yellow-wood				X						X			
<i>Themeda triandra</i>	Kangaroo Grass	X	X	X	X		X	X		X	X	X	X	X
<i>Thryptomene parviflora</i>	Myrtle Turkey Bush											X		
<i>Thyridolepis xerophila</i>							X							
<i>Thysanotus banksii</i>	Mallee Fringe-lily							X				X		
<i>Tragus australianus</i>	Sock Grass									X	X			
<i>Trianthema triquetra</i>	Red Spinach			X			X			X	X		X	

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<i>Trichodesma zeylanicum</i>	Camel Bush									X				
<i>Triodia marginata</i>	Spinifex				X					X				
<i>Triodia mitchellii</i>	Buck Spinifex		X	X	X	X	X	X	X			X	X	
<i>Triodia pugens</i>	Soft Spinifex	X		X	X			X		X	X	X	X	X
<i>Triraphis mollis</i>	Purple Needlegrass										X			
<i>Urochloa gilesii</i>	Hairy Edged Armgrass										X			
<i>Urochloa mosambicensis</i>	Sabi Grass													
<i>Ventilago viminalis</i>	Vine Tree			X	X			X	X		X			
<i>Verbena incompta*</i>	Purpletop									X				
<i>Verbesina encelioides*</i>	Golden Crownbeard										X			
<i>Vigna lanceolata</i>	Maloga Bean							X		X				
<i>Vittadinia pustulata</i>	Fuzzweed				X			X						
<i>Wahlenbergia gracilis</i>	Slender Bluebell		X								X		X	
<i>Wahlenbergia stricta</i>	Tall Bluebell			X						X	X			
<i>Waltheria indica</i>	Waltheria													
<i>Xanthium strumarium</i>	Noogoora Burr									X	X			
<i>Zornia muriculata</i>	Zornia		X	X						X				
<i>Zornia muriculata subsp. angustata</i>	Upright Zornia										X			
<i>Zornia prostrata</i>	Zornia Vine				X					X	X			

## Fauna Species Observed on and adjacent to the Project Site

Family	Scientific Name	Common Name	Status
<b>Mammals</b>			
Bovidae	<i>Capra hircus*</i>	Feral Goat	LC
Canidae	<i>Canis lupus</i>	Dingo / Wild Dog	LC
Dasyuridae	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart	LC
Felidae	<i>Felis catus</i>	Feral Cat	LC
Leporidae	<i>Oryctolagus cuniculus*</i>	European Rabbit	LC
Phalangeridae	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC
Macropodidae	<i>Lagorchestes conspicillatus</i>	Spectacled Hare Wallaby	LC
Macropodidae	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	LC
Macropodidae	<i>Macropus robustus robustus</i>	Euro	LC
Macropodidae	<i>Macropus rufogriseus</i>	Red-necked Wallaby	LC
Macropodidae	<i>Macropus rufus</i>	Red Kangaroo	LC
Macropodidae	<i>Wallabia bicolor</i>	Swamp Wallaby	LC
Muridae	<i>Mus musculus*</i>	House Mouse	LC
Muridae	<i>Pseudomys delicalutus</i>	Delicate Mouse	LC
Petauridae	<i>Petaurus breviceps</i>	Sugar Glider	LC
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	LC
Potoroidae	<i>Aepyprymnus rufescens</i>	Rufous Bettong	LC
Suidae	<i>Sus scrofa*</i>	Feral Pig	LC
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	LC
Pteropodidae	<i>Pteropus scapulatus</i>	Little Red Flying Fox	LC
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tailed Bat	LC
Emballonuridae	<i>Taphozous troughtoni</i>	Troughton's Sheath-tailed Bat	LC
Molossidae	<i>Chaerephon jobensis</i>	Northern Free-tailed Bat	LC
Molossidae	<i>Mormopterus beccarii</i>	Beccari's Free-tailed Bat	LC
Molossidae	<i>Mormopterus eleryi</i>	Bristle-faced Free-tailed Bat	LC
Molossidae	<i>Mormopterus ridei / sp. 3</i>	Inland Free-tailed Bat	LC
Molossidae	<i>Austronomus australis</i>	White-striped Free-tailed Bat	LC
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC
Vespertilionidae	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC
Vespertilionidae	<i>Chalinolobus picatus</i>	Little Pied Bat	NT (NCWR)
Vespertilionidae	<i>Nyctophilus species</i>	Unknown Long-eared Bat	LC
Vespertilionidae	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	LC
Vespertilionidae	<i>Scotorepens greyii</i>	Little Broad-nosed Bat	LC
Vespertilionidae	<i>Vespadelus baverstocki</i>	Inland Forest Bat	LC
Vespertilionidae	<i>Vespadelus finlaysoni</i>	Inland Cave Bat	LC
Vespertilionidae	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	LC
<b>Amphibians</b>			
Bufonidae	<i>Rhinella marina*</i>	Cane Toad	
Hylidae	<i>Litoria alboguttata</i>	Striped Burrowing frog	LC
Hylidae	<i>Litoria caerulea</i>	Green Tree Frog	LC
Hylidae	<i>Litoria fallax</i>	Dwarf Tree Frog	LC
Hylidae	<i>Litoria inermis</i>	Floodplain Frog	LC
Hylidae	<i>Litoria latopalmeta</i>	Broad-palmed Frog	LC





Hylidae	<i>Litoria rubella</i>	Desert Tree Frog	LC
Limnodynastidae	<i>Limnodynastes ornatus</i>	Ornate Burrowing Frog	LC
Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog	LC
Myobatrachidae	<i>Uperoleia rugosa</i>	Eastern Burrowing Toadlet	LC
<b>Reptiles</b>			
Agamidae	<i>Chlamydosaurus kingii</i>	Frilled Neck Lizard	LC
Agamidae	<i>Ctenophorus nuchalis</i>	Central Netted Dragon	LC
Agamidae	<i>Pogogna barbata</i>	Common Bearded Dragon	LC
Agamidae	<i>Diporiphora australis</i>	Tommy Roundhead Dragon	LC
Agamidae	<i>Amphibolurus nobbi</i>	Nobbi Dragon	LC
Elapidae	<i>Cryptophis boschmai</i>	Carpentaria Whip Snake	LC
Elapidae	<i>Demansia psammophis</i>	Yellow-faced Whipsnake	LC
Elapidae	<i>Holocephalus bitorquatus</i>	Pale-headed Snake	LC
Elapidae	<i>Pseudonaja textilis</i>	Eastern Brown Snake	LC
Gekkonidae	<i>Diplodactylus steindachneri</i>	Box Pattern Gecko	LC
Gekkonidae	<i>Diplodactylus tessellatus</i>	Tesselated Gecko	LC
Gekkonidae	<i>Gehyra dubia</i>		LC
Gekkonidae	<i>Gehyra variegata</i>		LC
Gekkonidae	<i>Hemidactylus frenatus</i>	Asian House Gecko	LC
Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's Gecko	LC
Pygopodidae	<i>Lialis burtonis</i>	Burton's Snake-lizard	LC
Pythonidae	<i>Antaresia maculosa</i>	Spotted Python	LC
Pythonidae	<i>Aspidites melanocephalus</i>	Black-headed Python	LC
Scincidae	<i>Carlia munda</i>		LC
Scincidae	<i>Carlia pectoralis pectoralis</i>	Rainbow Skink	LC
Scincidae	<i>Cryptoblepharus sp.</i>	Skink	LC
Scincidae	<i>Ctenotus herbetior</i>		LC
Scincidae	<i>Ctenotus pantherinus</i>	Leopard Skink	LC
Scincidae	<i>Ctenotus robustus</i>		LC
Scincidae	<i>Menetia greyii</i>		LC
Scincidae	<i>Morethia taeniopleura</i>	Fire-tailed Skink	LC
Scincidae	<i>Tiliqua scincoides</i>	Eastern Blue-tongue	LC
Varanidae	<i>Varanus gouldii</i>	Sand Goanna	LC
<b>Birds</b>			
Acanthizidae	<i>Smicrornis brevirostris</i>	Weebill	LC
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle	M
Accipitridae	<i>Elanus axillaris</i>	Black Shouldered Kite	M
Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite	M/M
Alcedinidae	<i>Alcedo azurea</i>	Azure Kingfisher	LC
Anatidae	<i>Anas gracilis</i>	Grey Teal	M
Anatidae	<i>Anas supeciliosa</i>	Pacific Black Duck	M
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	M
Anhingidae	<i>Anhinga melanogaster</i>	Darter	LC
Ardeidae	<i>Ardea alba</i>	Great Egret	M/M
Ardeidae	<i>Ardea intermedia</i>	Intermediate Egret	M/M
Ardeidae	<i>Ardea novaehollandiae</i>	White-faced Heron	LC
Ardeidae	<i>Ardea pacifica</i>	White Necked Heron	LC

Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night Heron	M/M
Artamidae	<i>Artamus cinereus</i>	Black-faced Woodswallow	LC
Artamidae	<i>Artamus cyanopterus</i>	Dusky Woodswallow	LC
Artamidae	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	LC
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	LC
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird	LC
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	LC
Burhinidae	<i>Burhinus grallarius</i>	Bush Stone-curlew	LC
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	LC
Cacatuidae	<i>Calyptorhynchus banksii</i>	Red-tailed Black Cockatoo	LC
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	LC
Cacatuidae	<i>Nymphicus hollandicus</i>	Cockatiel	LC
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	M/M
Campephagidae	<i>Lalage tricolor</i>	White-winged Triller	LC
Caprimulgidae	<i>Eurostopus argus</i>	Spotted Nightjar	Marine
Casuaridae	<i>Dromaius novaehollandiae</i>	Emu	LC
Charadriidae	<i>Euseyornis melanops</i>	Black-fronted Dotteral	M
Charadriidae	<i>Vanellus tricolor</i>	Banded Lapwing	M
Charadriidae	<i>Vanellus miles</i>	Masksed Lapwing	M
Climacteridae	<i>Climacteris affinis</i>	White -browed Treecreeper	LC
Climacteridae	<i>Climacteris picumnus</i>	Brown Treecreeper	LC
Columbidae	<i>Geopelia cuneata</i>	Diamond Dove	LC
Columbidae	<i>Geopelia striata</i>	Peaceful Dove	LC
Columbidae	<i>Geophaps scripta scripta</i>	Southern Squatter Pigeon	V (NCWR, EPBC)
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	LC
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing	LC
Corcoracidae	<i>Corcorax melanorhamphos</i>	White-winged Chough	LC
Corcoracidae	<i>Struthidae cinerea</i>	Apostlebird	LC
Corcoracidae	<i>Eurystomus orientalis</i>	Dollabird	M/M
Corvidae	<i>Corvus coronoides</i>	Australian Raven	LC
Corvidae	<i>Corvus orru</i>	Toreesian Crow	LC
Cuculidae	<i>Centropus phasianinus</i>	Pheasant Coucal	LC
Estrilidae	<i>Neochmia modesta</i>	Plum-headed Finch	LC
Estrilidae	<i>Taeniopygia bichenovii</i>	Double-barred Finch	LC
Estrilidae	<i>Taeniopygia guttata</i>	Zebra Finch	LC
Falconidae	<i>Falco berigora</i>	Brown Falcon	M
Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel	M/M
Falconidae	<i>Falco longipennis</i>	Australian Hobby	M
Gruidae	<i>Grus rubicunda</i>	Brolga	M
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	LC
Halcyonidae	<i>Todiramphus macleayii</i>	Forest Kingfisher	M/M
Halcyonidae	<i>Todiramphus sanctus</i>	Sacred Kingfisher	M/M
Hirundinidae	<i>Petrochelidon nigricans</i>	Tree Martin	M
Maluridae	<i>Malurus cyaneus</i>	Superb Fairy Wren	LC
Maluridae	<i>Malurus lamberti</i>	Variagated Fairy Wren	LC
Maluridae	<i>Malurus melanocephalus</i>	Red-backed Fairy Wren	LC
Meliphagidae	<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	LC



Meliphagidae	<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater	LC
Meliphagidae	<i>Lichenostomus virescens</i>	Singing Honeyeater	LC
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	LC
Meliphagidae	<i>Melithreptus albogularis</i>	White-throated Honeyeater	LC
Meliphagidae	<i>Philemon corniculatus</i>	Noisy Friarbird	LC
Meropidae	<i>Merops ornatus</i>	Rainbow Bee Eater	M/M
Monarchidae	<i>Grallina cyanoleuca</i>	Peewee	LC
Monarchidae	<i>Myiagra rubecula</i>	Leaden Flycatcher	LC
Motacillidae	<i>Anthus novaeseelandiae</i>	Australian Pipit	M/M
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	LC
Otididae	<i>Ardeotis australis</i>	Australian Bustard	LC
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	LC
Pachycephalidae	<i>Pachycephala pectoralis</i>	Golden Whistler	LC
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote	LC
Pardalotidae	<i>Acanthiza chrysorrhea</i>	Yellow-rumped Thornbill	LC
Pelicanidae	<i>Pelecanus conspicillatus</i>	Australian Pelican	M/M
Petroicidae	<i>Melanodryas cucullata</i>	Hooded Robin	LC
Petroicidae	<i>Microeca fascinan</i>	Jacky Winter	LC
Petroicidae	<i>Petroica goodenovii</i>	Red-capped Robin	LC
Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	LC
Phasianidae	<i>Coturnix ypsilophora</i>	Brown Quail	LC
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	LC
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey Crowned Babbler	LC
Psittacidae	<i>Aprosmictus erythropterus</i>	Red-winged Parrot	LC
Psittacidae	<i>Melopsittacus undulatus</i>	Budgerigar	LC
Psittacidae	<i>Platyercus adscitus</i>	Pale-headed Rosella	LC
Psittacidae	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	LC
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	LC
Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	Spotted Bowerbird	LC
Rhipiduridae	<i>Rhipidura fuliginosa</i>	Grey Fantail	LC
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willy Wagtail	LC
Strigidae	<i>Ninox novaeseelandiae</i>	Southern Boobook	LC
Threskiornithidae	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	LC
Threskiornithidae	<i>Threskiornis molucca</i>	Australian White Ibis	M/M
Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	M/M

**Nature Conservation (Wildlife) Regulation:**  
LC = Least Concern; NT = Near Threatened;  
V = Vulnerable

**Environmental Protection and Biodiversity Conservation Act:**  
M/M = Migratory / Marine; M = Migratory; V = Vulnerable



Appendix B Database Search Results







## Protected Matters Search Tool

You are here: [Environment Home](#) > [EPBC Act](#) > [Search](#)

8 June 2010 12:20

# 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.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at <http://www.environment.gov.au/atlas> may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>

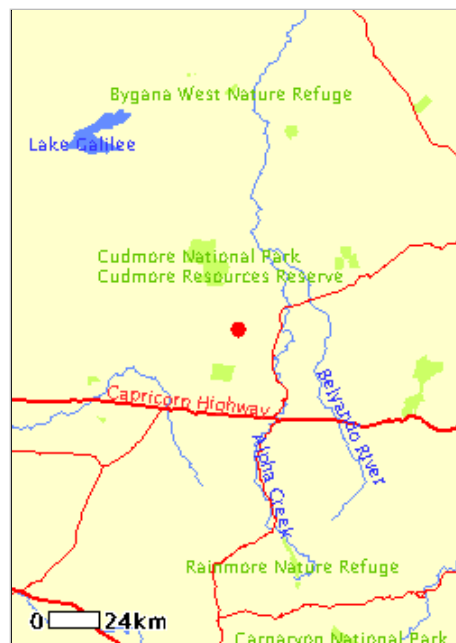
**Search Type:** Point  
**Buffer:** 100 km  
**Coordinates:** -23.24,146.46



**Report Contents:** [Summary](#)  
[Details](#)

- [Matters of NES](#)
- [Other matters protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)  
[Acknowledgments](#)



This map may contain data which are  
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 © PSMA Australia Limited

## 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 - see <http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

<b>World Heritage Properties:</b>	None
<b>National Heritage Places:</b>	None
<b><a href="#">Wetlands of International Significance:</a></b> <b>(Ramsar Sites)</b>	2
<b>Commonwealth Marine Areas:</b>	None

<a href="#">Threatened Ecological Communities:</a>	5
<a href="#">Threatened Species:</a>	17
<a href="#">Migratory Species:</a>	12

## 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. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

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. Information on EPBC Act permit requirements and application forms can be found at <http://www.environment.gov.au/epbc/permits/index.html>.

<b>Commonwealth Lands:</b>	None
<b>Commonwealth Heritage Places:</b>	None
<a href="#">Places on the RNE:</a>	2
<a href="#">Listed Marine Species:</a>	11
<b>Whales and Other Cetaceans:</b>	None
<b>Critical Habitats:</b>	None
<b>Commonwealth Reserves:</b>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	4
<b>Other Commonwealth Reserves:</b>	None
<b>Regional Forest Agreements:</b>	None

## Details

### Matters of National Environmental Significance

Wetlands of International Significance [ [Dataset Information](#) ]  
(Ramsar Sites)

[COONGIE LAKES](#)

Within same catchment as Ramsar site

[SHOALWATER AND CORIO BAYS AREA](#)

Within same catchment as Ramsar site

Threatened Ecological Communities [ [Dataset Information](#) ]

Status	Type of Presence
--------	------------------

<a href="#">Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)</a>	Endangered	Community known 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="#">The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin</a>	Endangered	Community known to occur within area
<a href="#">Weeping Myall Woodlands</a>	Endangered	Community likely to occur within area
Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b>		
<a href="#">Erythroriorchis radiatus</a> Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Geophaps scripta scripta</a> Squatter Pigeon (southern)	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Neochmia ruficauda ruficauda</a> Star Finch (eastern), Star Finch (southern)	Endangered	Species or species habitat likely to occur within area
<a href="#">Poephila cincta cincta</a> Black-throated Finch (southern)	Endangered	Species or species habitat likely to occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Dasyurus hallucatus</a> Northern Quoll	Endangered	Species or species habitat likely to occur within area
<a href="#">Lasiorhinus krefftii</a> Northern Hairy-nosed Wombat, Yaminon	Endangered	Species or species habitat likely to occur within area
<a href="#">Nyctophilus timoriensis (South-eastern form)</a> Greater Long-eared Bat, South-eastern Long-eared Bat	Vulnerable	Species or species habitat may occur within area
<a href="#">Sminthopsis douglasi</a> Julia Creek Dunnart	Endangered	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Denisonia maculata</a> Ornamental Snake	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Egernia rugosa</a> Yakka Skink	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Furina dunmalli</a> Dunmall's Snake	Vulnerable	Species or species habitat may occur within area
<a href="#">Paradelma orientalis</a> Brigalow Scaly-foot	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rheodytes leukops</a> Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle	Vulnerable	Species or species habitat may occur within area
<b>Plants</b>		
<a href="#">Acacia ramiflora</a>	Vulnerable	Species or species habitat may occur within area
<a href="#">Cadellia pentastylis</a> Ooline	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dichanthium queenslandicum</a> King Blue-grass	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Migratory Terrestrial Species</b>		
<b>Birds</b>		

[Haliaeetus leucogaster](#)  
White-bellied Sea-Eagle

Migratory Species or species habitat likely to occur within area

[Hirundapus caudacutus](#)  
White-throated Needletail

Migratory Species or species habitat may occur within area

[Merops ornatus](#)  
Rainbow Bee-eater

Migratory Species or species habitat may occur within area

[Myiagra cyanoleuca](#)  
Satin Flycatcher

Migratory Species or species habitat likely to occur within area

**Migratory Wetland Species**

**Birds**

[Ardea alba](#)  
Great Egret, White Egret

Migratory Species or species habitat may occur within area

[Ardea ibis](#)  
Cattle Egret

Migratory Species or species habitat may occur within area

[Gallinago hardwickii](#)  
Latham's Snipe, Japanese Snipe

Migratory Species or species habitat may occur within area

[Nettapus coromandelianus albipennis](#)  
Australian Cotton Pygmy-goose

Migratory Species or species habitat may occur within area

[Rostratula benghalensis s. lat.](#)  
Painted Snipe

Migratory Species or species habitat may occur within area

**Migratory Marine Birds**

[Apus pacificus](#)  
Fork-tailed Swift

Migratory Species or species habitat may occur within area

[Ardea alba](#)  
Great Egret, White Egret

Migratory Species or species habitat may occur within area

[Ardea ibis](#)  
Cattle Egret

Migratory Species or species habitat may occur within area

**Other Matters Protected by the EPBC Act**

Listed Marine Species [ [Dataset Information](#) ]

Status Type of Presence

**Birds**

[Anseranas semipalmata](#)  
Magpie Goose

Listed - overfly marine area Species or species habitat may occur within area

[Apus pacificus](#)  
Fork-tailed Swift

Listed - overfly marine area Species or species habitat may occur within area

[Ardea alba](#)  
Great Egret, White Egret

Listed - overfly marine area Species or species habitat may occur within area

[Ardea ibis](#)  
Cattle Egret

Listed - overfly marine area Species or species habitat may occur within area

[Gallinago hardwickii](#)  
Latham's Snipe, Japanese Snipe

Listed - overfly marine area Species or species habitat may occur within area

[Haliaeetus leucogaster](#)  
White-bellied Sea-Eagle

Listed Species or species habitat likely to occur within area

<a href="#">Hirundapus caudacutus</a> White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher	Listed - overfly marine area	Species or species habitat likely to occur within area
<a href="#">Nettapus coromandelianus albipennis</a> Australian Cotton Pygmy-goose	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#">Rostratula benghalensis s. lat.</a> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area

Places on the RNE [ [Dataset Information](#) ]  
Note that not all Indigenous sites may be listed.

#### Natural

[Epping Forest National Park \(1978 Boundary\) QLD](#)

[Lake Galilee Wetlands QLD](#)

### Extra Information

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

Cudmore National Park, QLD

Cudmore Resource Reserve, QLD

Epping Forest National Park (Scientific), QLD

Narrien Range National Park, QLD

### 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 [migratory](#) and [marine](#) provisions of the Act have been mapped.

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.

## Acknowledgments

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

- [New South Wales National Parks and Wildlife Service](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Water and Environment, Tasmania](#)
- [Department of Environment and Heritage, South Australia Planning SA](#)
- [Parks and Wildlife Commission of the Northern Territory](#)
- [Environmental Protection Agency, Queensland](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [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](#)
- Other groups and individuals

[ANUclIM Version 1.8, Centre for Resource and Environmental Studies, Australian National University](#) was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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Last updated: Thursday, 20-Nov-2008 14:17:56 EST



# Queensland Government

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## Environmental Protection Agency Queensland Parks and Wildlife Service

### Wildlife Online Extract

Search Criteria: Species List for a Selected Area  
Species: All  
Type: All  
Status: All  
Records: All  
Area: Central Highlands Regional Council  
Email: jbyrd@aacrc.net.au  
Date submitted: Wednesday 11 Feb 2009 16:49:55  
Date extracted: Wednesday 11 Feb 2009 16:53:02

The number of records retrieved = 3530

### **Disclaimer**

As the EPA 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	Bufo	<i>Rhinella marina</i>	cane toad	Y			167
animals	amphibians	Hylidae	<i>Litoria wilcoxii</i>	eastern stony creek frog		C		20/1
animals	amphibians	Hylidae	<i>Cyclorana cultripes</i>	grassland collared frog		C		5
animals	amphibians	Hylidae	<i>Cyclorana brevipes</i>	superb collared frog		C		33/17
animals	amphibians	Hylidae	<i>Cyclorana sp.</i>					2/1
animals	amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog		C		117/19
animals	amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog		C		35/5
animals	amphibians	Hylidae	<i>Litoria sp.</i>					1
animals	amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog		C		16/1
animals	amphibians	Hylidae	<i>Litoria peronii</i>	emerald spotted treefrog		C		30/5
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		67/18
animals	amphibians	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog		C		1
animals	amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		C		52/8
animals	amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		C		47/9
animals	amphibians	Hylidae	<i>Cyclorana verrucosa</i>	rough collared frog		R		2/2
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		63/10
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		140/9
animals	amphibians	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog		V		11
animals	amphibians	Limnodynastidae	<i>Limnodynastes peronii</i>	striped marshfrog		C		17/2
animals	amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		C		96/10
animals	amphibians	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk		C		43/2
animals	amphibians	Limnodynastidae	<i>Limnodynastes fletcheri</i>	barking frog		C		5/2
animals	amphibians	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		C		76/15
animals	amphibians	Limnodynastidae	<i>Limnodynastes salmini</i>	salmon striped frog		C		64/20
animals	amphibians	Myobatrachidae	<i>Crinia signifera</i>	clicking froglet		C		6
animals	amphibians	Myobatrachidae	<i>Crinia parinsignifera</i>	beeping froglet		C		8
animals	amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet		C		4/1
animals	amphibians	Myobatrachidae	<i>Pseudophryne major</i>	great brown broodfrog		C		33/7
animals	amphibians	Myobatrachidae	<i>Uperoleia laevigata</i>	eastern gungan		C		8
animals	amphibians	Myobatrachidae	<i>Uperoleia rugosa</i>	chubby gungan		C		12/9
animals	amphibians	Myobatrachidae	<i>Uperoleia sp.</i>					2
animals	amphibians	Myobatrachidae	<i>Pseudophryne sp.</i>					4
animals	birds	Acanthizidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill		C		210/12
animals	birds	Acanthizidae	<i>Smicronis brevirostris</i>	weebill		C		543/2
animals	birds	Acanthizidae	<i>Sericornis citreogularis</i>	yellow-throated scrubwren		C		1
animals	birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren		C		142/1
animals	birds	Acanthizidae	<i>Gerygone albobularis</i>	white-throated gerygone		C		414/1
animals	birds	Acanthizidae	<i>Gerygone palpebrosa</i>	fairy gerygone		C		1
animals	birds	Acanthizidae	<i>Gerygone sp.</i>					1
animals	birds	Acanthizidae	<i>Chthonicola sagittata</i>	speckled warbler		C		77/1
animals	birds	Acanthizidae	<i>Gerygone fusca</i>	western gerygone		C		30
animals	birds	Acanthizidae	<i>Acanthiza lineata</i>	striated thornbill		C		79/9
animals	birds	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		132
animals	birds	Acanthizidae	<i>Acanthiza apicalis</i>	inland thornbill		C		87
animals	birds	Acanthizidae	<i>Gerygone mouki</i>	brown gerygone		C		2
animals	birds	Acanthizidae	<i>Acanthiza uropygialis</i>	chestnut-rumped thornbill		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Acanthizidae	<i>Acanthiza nana</i>	yellow thornbill		C		180/3
animals	birds	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill		C		37/3
animals	birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk		C		83/6
animals	birds	Accipitridae	<i>Pandion cristatus</i>	eastern osprey		C		7
animals	birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		343/11
animals	birds	Accipitridae	<i>Hamirostra melanosternon</i>	black-breasted buzzard		C		2
animals	birds	Accipitridae	<i>Hieraaetus morphnoides</i>	little eagle		C		46/14
animals	birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite		R		46/15
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		158/1
animals	birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle		C		45
animals	birds	Accipitridae	<i>Haliastur indus</i>	brahmyny kite		C		3
animals	birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		C		77/3
animals	birds	Accipitridae	<i>Circus approximans</i>	swamp harrier		C		19
animals	birds	Accipitridae	<i>Circus assimilis</i>	spotted harrier		C		48/2
animals	birds	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk		R		12
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		139/15
animals	birds	Accipitridae	<i>Erythrotriorchis radiatus</i>	red goshawk		E	V	54/6
animals	birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite		C		205
animals	birds	Accipitridae	<i>Elanus scriptus</i>	letter-winged kite		C		2
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		409/4
animals	birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		C		28
animals	birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		220/1
animals	birds	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark		C		152
animals	birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		C		45
animals	birds	Anatidae	<i>Cygnus atratus</i>	black swan		C		146
animals	birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		262
animals	birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		467/9
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		261/1
animals	birds	Anatidae	<i>Tadorna radjah</i>	radjah shelduck		R		1
animals	birds	Anatidae	<i>Oxyura australis</i>	blue-billed duck		C		2
animals	birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		R		69
animals	birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		C		90/1
animals	birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck		C		105
animals	birds	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck		C		19
animals	birds	Anatidae	<i>Nettapus pulchellus</i>	green pygmy-goose		C		4
animals	birds	Anatidae	<i>Stictonetta naevosa</i>	freckled duck		R		4
animals	birds	Anatidae	<i>Anas castanea</i>	chestnut teal		C		7
animals	birds	Anatidae	<i>Anas rhynchos</i>	Australasian shoveler		C		22/1
animals	birds	Anatidae	<i>Aythya australis</i>	hardhead		C		173
animals	birds	Anatidae	<i>Biziura lobata</i>	musk duck		C		1
animals	birds	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter		C		226
animals	birds	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose		C		30
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		C		39
animals	birds	Apodidae	<i>Aerodramus terraereginae</i>	Australian swiftlet		R		2
animals	birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift		C		14
animals	birds	Ardeidae	<i>Egretta garzetta</i>	little egret		C		69

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		270/1
animals	birds	Ardeidae	<i>Ardea ibis</i>	cattle egret		C		11
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		331/4
animals	birds	Ardeidae	<i>Ixobrychus dubius</i>	Australian little bittern		C		2
animals	birds	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern		C		29/3
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen night-heron		C		99
animals	birds	Ardeidae	<i>Ardea modesta</i>	eastern great egret		C		212
animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		125
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		112/2
animals	birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		C		44
animals	birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird		C		672/5
animals	birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		C		59/2
animals	birds	Artamidae	<i>Artamus minor</i>	little woodswallow		C		140/12
animals	birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		1049/11
animals	birds	Artamidae	<i>Strepera graculina</i>	pieb currawong		C		564/3
animals	birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		44/1
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pieb butcherbird		C		791/5
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		211/11
animals	birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		70/4
animals	birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		C		47
animals	birds	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo		V		42/2
animals	birds	Cacatuidae	<i>Cacatua sanguinea</i>	little corella		C		9
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		766/7
animals	birds	Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo		C		70/2
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		430
animals	birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah		C		237
animals	birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller		C		109/1
animals	birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike		C		100
animals	birds	Campephagidae	<i>Coracina lineata</i>	barred cuckoo-shrike		C		1
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		569/7
animals	birds	Campephagidae	<i>Lalage leucomela</i>	varied triller		C		22
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		201/11
animals	birds	Campephagidae	<i>Coracina tenuirostris</i>	cidcabird		C		103
animals	birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar		C		1
animals	birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu		C		259
animals	birds	Charadriidae	<i>Erythrogonys cinctus</i>	red-kneed dotterel		C		14
animals	birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		C		2
animals	birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)		C		132/1
animals	birds	Charadriidae	<i>Vanellus tricolor</i>	banded lapwing		C		50
animals	birds	Charadriidae	<i>Pluvialis fulva</i>	Pacific golden plover		C		6/2
animals	birds	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		35
animals	birds	Charadriidae	<i>Vanellus miles miles</i>	masked lapwing (northern subspecies)		C		131
animals	birds	Charadriidae	<i>Charadrius veredus</i>	oriental plover		C		1
animals	birds	Charadriidae	<i>Elseyornis melanops</i>	black-fronted dotterel		C		139/2
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		R		90
animals	birds	Cisticolidae	<i>Cisticola juncidis laveryi</i>	zitting cisticola		C		1



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animals	birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		C		160
animals	birds	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated treecreeper (southern)		C		188/11
animals	birds	Climacteridae	<i>Climacteris affinis</i>	white-browed treecreeper		C		1
animals	birds	Climacteridae	<i>Climacteris erythrops</i>	red-browed treecreeper		R		1
animals	birds	Climacteridae	<i>Climacteris picumnus</i>	brown treecreeper		C		138/5
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		228/4
animals	birds	Columbidae	<i>Geopelia cuneata</i>	diamond dove		C		73/1
animals	birds	Columbidae	<i>Ducula bicolor</i>	pied imperial-pigeon		C		1
animals	birds	Columbidae	<i>Chalcophaps indica</i>	emerald dove		C		6/1
animals	birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		C		193/1
animals	birds	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove		C		1
animals	birds	Columbidae	<i>Leucosarcia picata</i>	wonga pigeon		C		51/1
animals	birds	Columbidae	<i>Ptilinopus regina</i>	rose-crowned fruit-dove		C		1
animals	birds	Columbidae	<i>Streptopelia chinensis</i>	spotted dove	Y			2
animals	birds	Columbidae	<i>Phaps histrionica</i>	flock bronzewing		C		2
animals	birds	Columbidae	<i>Geophaps scripta</i>	squatter pigeon		C		114/7
animals	birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)		V	V	34
animals	birds	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon		C		3
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		563
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		485/1
animals	birds	Columbidae	<i>Columba livia</i>	rock dove	Y			28
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		272/7
animals	birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		C		595/1
animals	birds	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough		C		154/1
animals	birds	Corvidae	<i>Corvus sp.</i>					81
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		284/5
animals	birds	Corvidae	<i>Corvus bennetti</i>	little crow		C		26
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		777/3
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		127
animals	birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		386/1
animals	birds	Cuculidae	<i>Chalcites osculans</i>	black-eared cuckoo		C		14
animals	birds	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo		C		72/3
animals	birds	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo		C		53/3
animals	birds	Cuculidae	<i>Chalcites minutillus minutillus</i>	little bronze-cuckoo		C		13/1
animals	birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		93/1
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		17/1
animals	birds	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo		C		4
animals	birds	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		C		82
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		160
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		91
animals	birds	Estrildidae	<i>Neochmia phaeton</i>	crimson finch		V		1
animals	birds	Estrildidae	<i>Neochmia phaeton phaeton</i>	crimson finch		V		2
animals	birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		C		97/5
animals	birds	Estrildidae	<i>Poephila cincta cincta</i>	black-throated finch (white-rumped subspecies)		V	E	22/14
animals	birds	Estrildidae	<i>Neochmia ruficauda</i>	star finch		C		4

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animals	birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		C		130/9
animals	birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		508/12
animals	birds	Estrildidae	<i>Stagonopleura guttata</i>	diamond firetail		C		15
animals	birds	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch		C		89/1
animals	birds	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin		C		45
animals	birds	Estrildidae	<i>Neochmia ruficauda ruficauda</i>	star finch (eastern subspecies)	E		E	1
animals	birds	Eurostopodidae	<i>Eurostopodus argus</i>	spotted nightjar		C		20/1
animals	birds	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		C		33
animals	birds	Falconidae	<i>Falco sp.</i>					1
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		78/4
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		315/13
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		447
animals	birds	Falconidae	<i>Falco subniger</i>	black falcon		C		55
animals	birds	Falconidae	<i>Falco peregrinus</i>	peregrine falcon		C		47
animals	birds	Falconidae	<i>Falco hypoleucos</i>	grey falcon		R		5
animals	birds	Glareolidae	<i>Stiltia isabella</i>	Australian pratincole		C		2
animals	birds	Gruidae	<i>Grus rubicunda</i>	brolga		C		273/1
animals	birds	Halcyonidae	<i>Todiramphus chloris</i>	collared kingfisher		C		2
animals	birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher		C		154/2
animals	birds	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher		C		72/4
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		224/7
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		809/3
animals	birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		181/12
animals	birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		144/1
animals	birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		172
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		170
animals	birds	Hirundinidae	<i>Cheramoeca leucosterna</i>	white-backed swallow		C		5
animals	birds	Jacanidae	<i>Irediparra gallinacea</i>	comb-crested jacana		C		38
animals	birds	Laridae	<i>Anous minutus</i>	black noddy		C		1
animals	birds	Laridae	<i>Gelochelidon nilotica</i>	gull-billed tern		C		10
animals	birds	Laridae	<i>Chlidonias leucopterus</i>	white-winged black tern		C		1
animals	birds	Laridae	<i>Chroicocephalus novaehollandiae</i>	silver gull		C		37
animals	birds	Laridae	<i>Hydroprogne caspia</i>	Caspian tern		C		22
animals	birds	Laridae	<i>Thalasseus bergii</i>	crested tern		C		1
animals	birds	Laridae	<i>Chlidonias hybrida</i>	whiskered tern		C		30
animals	birds	Maluridae	<i>Malurus cyaneus</i>	superb fairy-wren		C		180/2
animals	birds	Maluridae	<i>Malurus splendens melanotis</i>	splendid fairy-wren (black-backed subspecies)		C		1
animals	birds	Maluridae	<i>Amytornis striatus</i>	striated grasswren		R		1
animals	birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		C		750/8
animals	birds	Maluridae	<i>Malurus leucopterus</i>	white-winged fairy-wren		C		4
animals	birds	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren		C		302/9
animals	birds	Maluridae	<i>Malurus sp.</i>					6
animals	birds	Megaluridae	<i>Cincloramphus mathewsi</i>	rufous songlark		C		62
animals	birds	Megaluridae	<i>Cincloramphus cruralis</i>	brown songlark		C		37/1
animals	birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird		C		28

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animals	birds	Megaluridae	<i>Megalurus gramineus</i>	little grassbird		C		9/1
animals	birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey		C		90
animals	birds	Meliphagidae	<i>Acanthorhynchus tenuirostris</i>	eastern spinebill		C		37/1
animals	birds	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater		C		144/1
animals	birds	Meliphagidae	<i>Anthochaera carunculata</i>	red wattlebird		C		1/1
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		C		607/7
animals	birds	Meliphagidae	<i>Epthianura aurifrons</i>	orange chat		C		2
animals	birds	Meliphagidae	<i>Lichenostomus fasciocularis</i>	mangrove honeyeater		C		1
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		C		429/1
animals	birds	Meliphagidae	<i>Melithreptus brevirostris</i>	brown-headed honeyeater		C		19
animals	birds	Meliphagidae	<i>Lichenostomus fuscus</i>	fuscous honeyeater		C		108/10
animals	birds	Meliphagidae	<i>Lichenostomus leucotis</i>	white-eared honeyeater		C		175/1
animals	birds	Meliphagidae	<i>Lichenostomus melanops</i>	yellow-tufted honeyeater		C		90/1
animals	birds	Meliphagidae	<i>Lichenostomus penicillatus</i>	white-plumed honeyeater		C		115/1
animals	birds	Meliphagidae	<i>Lichenostomus plumulus</i>	grey-fronted honeyeater		C		7/1
animals	birds	Meliphagidae	<i>Grantiella picta</i>	painted honeyeater		R		1
animals	birds	Meliphagidae	<i>Lichenostomus chrysops</i>	yellow-faced honeyeater		C		199/4
animals	birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater		C		87
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		409/11
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		C		637/14
animals	birds	Meliphagidae	<i>Lichenostomus virescens</i>	singing honeyeater		C		203/3
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		304/4
animals	birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner		C		426
animals	birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner		C		854/5
animals	birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater		C		173/3
animals	birds	Meliphagidae	<i>Meliphaga notata</i>	yellow-spotted honeyeater		C		3
animals	birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater		C		333/3
animals	birds	Meliphagidae	<i>Ramsayornis fasciatus</i>	bar-breasted honeyeater		C		8/5
animals	birds	Meliphagidae	<i>Anthochaera phrygia</i>	regent honeyeater		E	E	1
animals	birds	Meliphagidae	<i>Purnella albifrons</i>	white-fronted honeyeater		C		1
animals	birds	Meliphagidae	<i>Phylidonyris niger</i>	white-cheeked honeyeater		C		33
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		R		22
animals	birds	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater		C		176/4
animals	birds	Meliphagidae	<i>Myzomela obscura</i>	dusky honeyeater		C		1
animals	birds	Meliphagidae	<i>Epthianura albifrons</i>	white-fronted chat		C		1
animals	birds	Meliphagidae	<i>Epthianura tricolor</i>	crimson chat		C		1
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		344/3
animals	birds	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher		C		216
animals	birds	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch		C		3
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		C		783/6
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		C		200/6
animals	birds	Monarchidae	<i>Carterornis leucotis</i>	white-eared monarch		C		1
animals	birds	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher		C		27
animals	birds	Motacillidae	<i>Motacilla flava (sensu lato)</i>	yellow wagtail		C		5/1
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		C		187
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		311

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animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		209/25
animals	birds	Oriolidae	<i>Sphecotheres vieillotii</i>	Australasian figbird		C		164
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		250/3
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		358/2
animals	birds	Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush		C		12/6
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		426/3
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		736/1
animals	birds	Pachycephalidae	<i>Falcunculus frontatus</i>	crested shrike-tit		C		5
animals	birds	Pachycephalidae	<i>Oreoica gutturalis</i>	crested bellbird		C		16/1
animals	birds	Pachycephalidae	<i>Pachycephala melanura</i>	mangrove golden whistler		C		3/2
animals	birds	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler		C		86/2
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		1114/7
animals	birds	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote		C		116/2
animals	birds	Pardalotidae	<i>Pardalotus rubricatus</i>	red-browed pardalote		C		35/8
animals	birds	Passeridae	<i>Passer domesticus</i>	house sparrow	Y			93
animals	birds	Pedionomidae	<i>Pedionomus torquatus</i>	plains-wanderer		V	V	2
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		C		184
animals	birds	Petroicidae	<i>Melanodryas cucullata</i>	hooded robin		C		16/1
animals	birds	Petroicidae	<i>Petroica rosea</i>	rose robin		C		17
animals	birds	Petroicidae	<i>Poecilodryas superciliosa</i>	white-browed robin		C		1
animals	birds	Petroicidae	<i>Petroica goodenovii</i>	red-capped robin		C		62
animals	birds	Petroicidae	<i>Microeca fascinans</i>	jacky winter		C		164/8
animals	birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin		C		140/9
animals	birds	Petroicidae	<i>Tregellasia capito</i>	pale-yellow robin		C		2
animals	birds	Phaethontidae	<i>Phaethon rubricauda</i>	red-tailed tropicbird		V		1
animals	birds	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant		C		93
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	piebald cormorant		C		95
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		171
animals	birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		242/1
animals	birds	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail		C		40
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		111/1
animals	birds	Phasianidae	<i>Pavo cristatus</i>	Indian peafowl	Y			1
animals	birds	Phasianidae	<i>Excalfactoria chinensis</i>	king quail		C		2
animals	birds	Pittidae	<i>Pitta versicolor</i>	noisy pitta		C		1
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		186
animals	birds	Podargidae	<i>Podargus ocellatus plumiferus</i>	plumed frogmouth		V		1
animals	birds	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe		C		34
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		247/1
animals	birds	Podicipedidae	<i>Poliocephalus poliocephalus</i>	hoary-headed grebe		C		30
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		C		508/18
animals	birds	Procellariidae	<i>Macronectes giganteus</i>	southern giant-petrel		E	E	1
animals	birds	Procellariidae	<i>Ardenna bulleri</i>	Buller's shearwater		C		1
animals	birds	Psittacidae	<i>Platycercus adscitus palliceps</i>	pale-headed rosella (southern form)		C		2
animals	birds	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot		C		134
animals	birds	Psittacidae	<i>Melopsittacus undulatus</i>	budgerigar		C		30
animals	birds	Psittacidae	<i>Psephotus haematonotus</i>	red-rumped parrot		C		1

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animals	birds	Psittacidae	<i>Psephotus pulcherrimus</i>	paradise parrot	PE		EX	52/4
animals	birds	Psittacidae	<i>Psephotus varius</i>	mulga parrot	C			3/3
animals	birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet	C			216/3
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	C			920/7
animals	birds	Psittacidae	<i>Northiella haematogaster</i>	blue bonnet	C			1
animals	birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella	C			815/10
animals	birds	Psittacidae	<i>Platycercus elegans</i>	crimson rosella	C			3
animals	birds	Psittacidae	<i>Platycercus eximius</i>	eastern rosella	C			5/4
animals	birds	Psittacidae	<i>Glossopsitta concinna</i>	musk lorikeet	C			1
animals	birds	Psittacidae	<i>Glossopsitta pusilla</i>	little lorikeet	C			134/13
animals	birds	Psittacidae	<i>Lathamus discolor</i>	swift parrot	E		E	3/1
animals	birds	Psittacidae	<i>Neophema pulchella</i>	turquoise parrot	R			1
animals	birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	C			459/11
animals	birds	Psophodidae	<i>Psophodes olivaceus</i>	eastern whipbird	C			11
animals	birds	Psophodidae	<i>Cinclosoma punctatum</i>	spotted quail-thrush	C			30
animals	birds	Psophodidae	<i>Psophodes cristatus</i>	chirruping wedgebill	C			1
animals	birds	Ptilonorhynchidae	<i>Sericulus chrysocephalus</i>	regent bowerbird	C			5
animals	birds	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird	C			239/4
animals	birds	Rallidae	<i>Fulica atra</i>	Eurasian coot	C			118
animals	birds	Rallidae	<i>Porphyrio porphyrio</i>	purple swamphen	C			82/7
animals	birds	Rallidae	<i>Porzana fluminea</i>	Australian spotted crane	C			3
animals	birds	Rallidae	<i>Porzana pusilla</i>	Baillon's crane	C			5/2
animals	birds	Rallidae	<i>Lewinia pectoralis</i>	Lewin's rail	R			1/1
animals	birds	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen	C			206
animals	birds	Rallidae	<i>Tribonyx ventralis</i>	black-tailed native-hen	C			20
animals	birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail	C			6/1
animals	birds	Rallidae	<i>Amaurornis moluccana</i>	pale-vented bush-hen	C			1
animals	birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	C			105
animals	birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail	C			13
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail	C			736/2
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail	C			692/1
animals	birds	Rostratulidae	<i>Rostratula australis</i>	Australian painted snipe	V		V	13/2
animals	birds	Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint	C			10/4
animals	birds	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe	C			19/3
animals	birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank	C			7
animals	birds	Scolopacidae	<i>Numenius minutus</i>	little curlew	C			1
animals	birds	Scolopacidae	<i>Tringa stagnatilis</i>	marsh sandpiper	C			8/1
animals	birds	Scolopacidae	<i>Tringa glareola</i>	wood sandpiper	C			1
animals	birds	Scolopacidae	<i>Limosa limosa</i>	black-tailed godwit	C			1
animals	birds	Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit	C			5/2
animals	birds	Scolopacidae	<i>Calidris ferruginea</i>	curlew sandpiper	C			6/4
animals	birds	Scolopacidae	<i>Arenaria interpres</i>	ruddy turnstone	C			3/1
animals	birds	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper	C			21/11
animals	birds	Stercorariidae	<i>Stercorarius pomarinus</i>	pomarine jaeger	C			2/1
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl	V			16/2
animals	birds	Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook	C			221/1



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animals	birds	Strigidae	<i>Ninox connivens</i>	barking owl		C		49/6
animals	birds	Sturnidae	<i>Sturnus vulgaris</i>	common starling	Y			6
animals	birds	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis		C		36
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		232
animals	birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		C		163
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		133
animals	birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		C		188/2
animals	birds	Timaliidae	<i>Zosterops lateralis</i>	silveryeye		C		165
animals	birds	Turdidae	<i>Zoothera heinei</i>	russet-tailed thrush		C		1
animals	birds	Turnicidae	<i>Turnix pyrrhothorax</i>	red-chested button-quail		C		17/2
animals	birds	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail		V	V	19/2
animals	birds	Turnicidae	<i>Turnix varius</i>	painted button-quail		C		23/2
animals	birds	Turnicidae	<i>Turnix velox</i>	little button-quail		C		26/1
animals	birds	Turnicidae	<i>Turnix maculosus</i>	red-backed button-quail		C		4/3
animals	birds	Tytonidae	<i>Tyto longimembris</i>	eastern grass owl		C		7
animals	birds	Tytonidae	<i>Tyto javanica</i>	eastern barn owl		C		105
animals	birds	Tytonidae	<i>Tyto novaehollandiae</i>	masked owl		C		8
animals	bony fish	Ambassidae	<i>Ambassis agassizii</i>	Agassiz's glassfish				22/2
animals	bony fish	Anguillidae	<i>Anguilla reinhardtii</i>	longfin eel				9
animals	bony fish	Apogonidae	<i>Glossamia aprion</i>	mouth almighty				1
animals	bony fish	Ariidae	<i>Arius graeffei</i>	blue catfish				7/1
animals	bony fish	Atherinidae	<i>Craterocephalus stercusmuscarum</i>	flyspecked hardyhead				20/3
animals	bony fish	Belontiidae	<i>Strongylura krefftii</i>	freshwater longtom				4/2
animals	bony fish	Clupeidae	<i>Nematalosa erebi</i>	bony bream				22
animals	bony fish	Eleotridae	<i>Philypnodon grandiceps</i>	flathead gudgeon				7
animals	bony fish	Eleotridae	<i>Hypseleotris species 1</i>	Midgley's carp gudgeon				15
animals	bony fish	Eleotridae	<i>Hypseleotris klunzingeri</i>	western carp gudgeon				11
animals	bony fish	Eleotridae	<i>Hypseleotris galii</i>	firetail gudgeon				4
animals	bony fish	Eleotridae	<i>Hypseleotris compressa</i>	empire gudgeon				5
animals	bony fish	Eleotridae	<i>Oxyeleotris lineolata</i>	sleepy cod				10
animals	bony fish	Eleotrididae	<i>Mogurnda adspersa</i>	southern purplespotted gudgeon				6
animals	bony fish	Megalopidae	<i>Megalops cyprinoides</i>	oxeye herring				1
animals	bony fish	Melanotaeniidae	<i>Melanotaenia splendida splendida</i>	eastern rainbowfish				26/3
animals	bony fish	Osteoglossidae	<i>Scleropages leichardti</i>	southern saratoga				7
animals	bony fish	Percichthyidae	<i>Macquaria ambigua</i>	golden perch				22/1
animals	bony fish	Percichthyidae	<i>Maccullochella peelii peelii</i>	Murray cod			V	2
animals	bony fish	Plotosidae	<i>Tandanus tandanus</i>	freshwater catfish				14
animals	bony fish	Plotosidae	<i>Neosilurus hyrtlII</i>	Hyrtl's catfish				13/1
animals	bony fish	Scorpaenidae	<i>Notesthes robusta</i>	bullrout				1/1
animals	bony fish	Terapontidae	<i>Scortum hillii</i>	leathery grunter				14
animals	bony fish	Terapontidae	<i>Amniataba percoides</i>	barred grunter				7
animals	bony fish	Terapontidae	<i>Bidyanus bidyanus</i>	silver perch				2
animals	bony fish	Terapontidae	<i>Leiopotherapon unicolor</i>	spangled perch				20/2
animals	insects	Hesperiidae	<i>Parnara bada</i>	grey swift				1
animals	insects	Hesperiidae	<i>Telicota ancilla ancilla</i>	green darter				1
animals	insects	Hesperiidae	<i>Hesperilla furva</i>	grey sedge-skipper				1

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animals	insects	Hesperiidae	<i>Hesperilla malindeva</i>	two-spotted sedge-skipper				1
animals	insects	Lycaenidae	<i>Hypochrysops byzos byzos</i>	yellow jewel				1
animals	insects	Lycaenidae	<i>Jalmenus eubulus</i>	pale imperial hairstreak		V		15
animals	insects	Lycaenidae	<i>Nesolycaena albosericea</i>	satin opal				45
animals	insects	Nymphalidae	<i>Euploea core corinna</i>	common crow				1
animals	insects	Nymphalidae	<i>Hypocysta adiante adiante</i>	orange ringlet				1
animals	insects	Nymphalidae	<i>Melanitis leda bankia</i>	common evening-brown				1
animals	insects	Nymphalidae	<i>Hypocysta irius</i>	orange-streaked ringlet				1
animals	insects	Nymphalidae	<i>Hypocysta metirius</i>	brown ringlet				1
animals	insects	Nymphalidae	<i>Hypocysta pseudirius</i>	grey ringlet				1
animals	insects	Nymphalidae	<i>Hypolimnas bolina nerina</i>	varied eggfly				1
animals	insects	Nymphalidae	<i>Danaus chrysippus petilia</i>	lesser wanderer				1
animals	insects	Nymphalidae	<i>Junonia villida calybe</i>	meadow argus				1
animals	insects	Nymphalidae	<i>Junonia orithya albicincta</i>	blue argus				1
animals	insects	Papilionidae	<i>Papilio demoleus sthenelus</i>	chequered swallowtail				1
animals	insects	Papilionidae	<i>Papilio anactus</i>	dingy swallowtail				1
animals	insects	Papilionidae	<i>Papilio aegaeus aegaeus</i>	orchard swallowtail (Australian subspecies)				1
animals	insects	Pieridae	<i>Cepora perimale scyllara</i>	caper gull (Australian subspecies)				2
animals	insects	Pieridae	<i>Catopsilia pomona pomona</i>	lemon migrant				1
animals	insects	Pieridae	<i>Belenois java teutonia</i>	caper white				2
animals	insects	Pieridae	<i>Catopsilia gorgophone gorgophone</i>	yellow migrant				1
animals	insects	Pieridae	<i>Eurema smilax</i>	small grass-yellow				1
animals	mammals	Acrobatidae	<i>Acrobates pygmaeus</i>	feathertail glider			C	19
animals	mammals	Bovidae	<i>Bos taurus</i>	European cattle	Y			52
animals	mammals	Bovidae	<i>Capra hircus</i>	goat	Y			2
animals	mammals	Bovidae	<i>Bos sp.</i>	cattle	Y			1
animals	mammals	Canidae	<i>Vulpes vulpes</i>	red fox	Y			24
animals	mammals	Canidae	<i>Canis sp.</i>					8
animals	mammals	Canidae	<i>Canis familiaris</i>	dog	Y			16/1
animals	mammals	Canidae	<i>Canis lupus dingo</i>	dingo				61
animals	mammals	Dasyuridae	<i>Dasyurus hallucatus</i>	northern quoll		C	E	19/1
animals	mammals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart		C		11
animals	mammals	Dasyuridae	<i>Sminthopsis macroura</i>	stripe-faced dunnart		C		38/3
animals	mammals	Dasyuridae	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)		V	E	1
animals	mammals	Dasyuridae	<i>Phascogale tapoatafa</i>	brush-tailed phascogale		C		2
animals	mammals	Dasyuridae	<i>Planigale ingrami</i>	long-tailed planigale		C		10/2
animals	mammals	Dasyuridae	<i>Planigale maculata</i>	common planigale		C		19/2
animals	mammals	Dasyuridae	<i>Dasyurus geoffroii geoffroii</i>	western quoll		PE	V	3
animals	mammals	Dasyuridae	<i>Antechinus flavipes</i>	yellow-footed antechinus		C		12
animals	mammals	Dasyuridae	<i>Antechinus sp.</i>					1
animals	mammals	Dasyuridae	<i>Planigale tenuirostris</i>	narrow-nosed planigale		C		9
animals	mammals	Dasyuridae	<i>Sminthopsis sp.</i>					1
animals	mammals	Emballonuridae	<i>Taphozous georgianus</i>	common sheath-tail bat		C		154
animals	mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat		C		52

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animals	mammals	Equidae	<i>Equus caballus</i>	horse	Y			8/1	
animals	mammals	Felidae	<i>Felis catus</i>	cat	Y			104	
animals	mammals	Hipposideridae	<i>Hipposideros ater aruensis</i>	eastern dusky leaf-nosed bat			C	4	
animals	mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	Y			105	
animals	mammals	Leporidae	<i>Lepus capensis</i>	brown hare	Y			12	
animals	mammals	Macropodidae	<i>Macropus dorsalis</i>	black-striped wallaby			C	72	
animals	mammals	Macropodidae	<i>Macropus rufus</i>	red kangaroo			C	5	
animals	mammals	Macropodidae	<i>Macropus robustus</i>	common wallaroo			C	124/8	
animals	mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby			C	97/1	
animals	mammals	Macropodidae	<i>Petrogale inornata</i>	unadorned rock-wallaby			C	6/2	
animals	mammals	Macropodidae	<i>Petrogale sp.</i>				C	1	
animals	mammals	Macropodidae	<i>Petrogale herberti</i>	Herbert's rock-wallaby			C	53/18	
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo			C	256/3	
animals	mammals	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby			C	29	
animals	mammals	Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby			C	15	
animals	mammals	Macropodidae	<i>Macropus sp.</i>					1	
animals	mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby			C	1	
animals	mammals	Macropodidae	<i>Lagorchestes conspicillatus</i>	spectacled hare-wallaby			C	98/2	
animals	mammals	Macropodidae	<i>Onychogalea fraenata</i>	bridled nailtail wallaby			E	E	60
animals	mammals	Megadermatidae	<i>Macroderma gigas</i>	ghost bat			V		2
animals	mammals	Molossidae	<i>Mormopterus eleryi</i>	bristle-faced free-tailed bat			C		1
animals	mammals	Molossidae	<i>Tadarida australis</i>	white-striped freetail bat			C		18
animals	mammals	Molossidae	<i>Mormopterus planiceps</i>	southern freetail bat			C		2
animals	mammals	Molossidae	<i>Mormopterus sp.</i>						22/2
animals	mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat			C		5/4
animals	mammals	Molossidae	<i>Mormopterus sp. 2</i>	eastern freetail bat			C		2
animals	mammals	Molossidae	<i>Mormopterus sp. 3</i>	inland freetail bat			C		3
animals	mammals	Molossidae	<i>Mormopterus beccarii</i>	Beccari's freetail bat			C		14/2
animals	mammals	Muridae	<i>Rattus sp. cf. villosissimus/sordidus</i>				C		11
animals	mammals	Muridae	<i>Melomys sp.</i>						3
animals	mammals	Muridae	<i>Pseudomys gracilicaudatus</i>	eastern chestnut mouse			C		47/3
animals	mammals	Muridae	<i>Pseudomys delicatulus</i>	delicate mouse			C		39/3
animals	mammals	Muridae	<i>Zyzomys argurus</i>	common rock-rat			C		2
animals	mammals	Muridae	<i>Rattus rattus</i>	black rat	Y				1
animals	mammals	Muridae	<i>Rattus sordidus</i>	canefield rat			C		16/13
animals	mammals	Muridae	<i>Rattus sp.</i>						4/2
animals	mammals	Muridae	<i>Rattus tunneyi</i>	pale field-rat			C		37/8
animals	mammals	Muridae	<i>Pseudomys patrius</i>	eastern pebble-mound mouse			C		15/1
animals	mammals	Muridae	<i>Pseudomys sp.</i>						1/1
animals	mammals	Muridae	<i>Rattus fuscipes</i>	bush rat			C		5/1
animals	mammals	Muridae	<i>Rattus lutreolus</i>	swamp rat			C		1
animals	mammals	Muridae	<i>Pseudomys desertor</i>	desert mouse			C		6
animals	mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys			C		24
animals	mammals	Muridae	<i>Mus musculus</i>	house mouse	Y				198/1
animals	mammals	Muridae	<i>Melomys burtoni</i>	grassland melomys			C		9/1
animals	mammals	Muridae	<i>Leggadina forresti</i>	Forrest's mouse			C		15/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		25
animals	mammals	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus		C		8
animals	mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot		C		26
animals	mammals	Peramelidae	<i>Isoodon sp.</i>					1
animals	mammals	Peramelidae	<i>Perameles nasuta</i>	long-nosed bandicoot		C		7/1
animals	mammals	Petauridae	<i>Petaurus sp.</i>					1
animals	mammals	Petauridae	<i>Petaurus breviceps</i>	sugar glider		C		60/1
animals	mammals	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider		C		24
animals	mammals	Petauridae	<i>Petaurus australis australis</i>	yellow-bellied glider (southern subspecies)		C		67
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		134/1
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		C		199/2
animals	mammals	Potoroidae	<i>Bettongia tropica</i>	northern bettong		E	E	2/1
animals	mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		C		117/2
animals	mammals	Pseudocheiridae	<i>Pseudocheirus peregrinus</i>	common ringtail possum		C		4
animals	mammals	Pseudocheiridae	<i>Petauroides volans</i>	greater glider		C		153/2
animals	mammals	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox		C		1
animals	mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox		C		58/20
animals	mammals	Pteropodidae	<i>Pteropus sp.</i>					2
animals	mammals	Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe-bat		C		12
animals	mammals	Suidae	<i>Sus scrofa</i>	pig	Y			53
animals	mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		C		86
animals	mammals	Vespertilionidae	<i>Myotis macropus</i>	large-footed myotis		C		1
animals	mammals	Vespertilionidae	<i>Kerivoula papuensis</i>	golden-tipped bat		R		1
animals	mammals	Vespertilionidae	<i>Vespadelus pumilus</i>	eastern forest bat		C		6/1
animals	mammals	Vespertilionidae	<i>Vespadelus sp.</i>					10
animals	mammals	Vespertilionidae	<i>Vespadelus troughtoni</i>	eastern cave bat		C		49/6
animals	mammals	Vespertilionidae	<i>Vespadelus vulturnus</i>	little forest bat		C		14/2
animals	mammals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		C		36/1
animals	mammals	Vespertilionidae	<i>Scotorepens sanborni</i>	northern broad-nosed bat		C		1
animals	mammals	Vespertilionidae	<i>Scotorepens sp.</i>					10
animals	mammals	Vespertilionidae	<i>Vespadelus baverstocki</i>	inland forest bat		C		8/2
animals	mammals	Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat		C		10/1
animals	mammals	Vespertilionidae	<i>Nyctophilus gouldi</i>	Gould's long-eared bat		C		32/3
animals	mammals	Vespertilionidae	<i>Nyctophilus sp.</i>					3
animals	mammals	Vespertilionidae	<i>Nyctophilus timoriensis</i>	eastern long-eared bat		V	V	2
animals	mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat		C		20
animals	mammals	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat		R		45/4
animals	mammals	Vespertilionidae	<i>Miniopterus australis</i>	little bent-wing bat		C		3
animals	mammals	Vespertilionidae	<i>Chalinolobus morio</i>	chocolate wattled bat		C		6/1
animals	mammals	Vespertilionidae	<i>Chalinolobus dwyeri</i>	large-eared pied bat		R	V	4
animals	mammals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat		C		12/1
animals	mammals	Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-wing bat		C		30/4
animals	mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		C		47/9
animals	mammals	Vespertilionidae	<i>Scotorepens sp. (Parnaby)</i>	central-eastern broad-nosed bat		C		11
animals	reptiles	Agamidae	<i>Diporiphora sp.</i>					2

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animals	reptiles	Agamidae	<i>Chlamydosaurus kingii</i>	frilled lizard		C		13/2
animals	reptiles	Agamidae	<i>Amphibolurus burnsi</i>			C		20/17
animals	reptiles	Agamidae	<i>Diporiphora lalliae</i>			C		1
animals	reptiles	Agamidae	<i>Diporiphora australis</i>			C		26/9
animals	reptiles	Agamidae	<i>Amphibolurus muricatus</i>	jacky lizard		C		2
animals	reptiles	Agamidae	<i>Amphibolurus gilberti</i>	Gilbert's dragon		C		28/7
animals	reptiles	Agamidae	<i>Amphibolurus nobbi</i>			C		34/10
animals	reptiles	Agamidae	<i>Ctenophorus pictus</i>	painted dragon		C		1
animals	reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon		C		52/15
animals	reptiles	Agamidae	<i>Tympanocryptis lineata</i>	lined earless dragon		C		9/9
animals	reptiles	Agamidae	<i>Pogona sp.</i>					1
animals	reptiles	Agamidae	<i>Pogona vitticeps</i>			C		1
animals	reptiles	Agamidae	<i>Physignathus lesueurii</i>	eastern water dragon		C		15
animals	reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python		C		29/2
animals	reptiles	Boidae	<i>Antaresia stimsoni</i>			C		1/1
animals	reptiles	Boidae	<i>Antaresia maculosa</i>			C		40/8
animals	reptiles	Boidae	<i>Morelia spilota</i>	carpet python		C		21/1
animals	reptiles	Chelidae	<i>Elseya albagula</i>	southern snapping turtle		C		7/2
animals	reptiles	Chelidae	<i>Rheodytes leukops</i>	Fitzroy River turtle		V	V	9/1
animals	reptiles	Chelidae	<i>Wollumbinia latisternum</i>	saw-shelled turtle		C		10
animals	reptiles	Chelidae	<i>Macrochelodina expansa</i>	broad-shelled river turtle		C		2
animals	reptiles	Chelidae	<i>Emydura macquarii krefftii</i>	Krefft's river turtle		C		61/13
animals	reptiles	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle		C		21/4
animals	reptiles	Chelidae	<i>Elseya sp.</i>					2
animals	reptiles	Colubridae	<i>Boiga irregularis</i>	brown tree snake		C		12/2
animals	reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake		C		15/2
animals	reptiles	Colubridae	<i>Dendrelaphis punctulata</i>	common tree snake		C		33/2
animals	reptiles	Elapidae	<i>Acanthophis antarcticus</i>	common death adder		R		6
animals	reptiles	Elapidae	<i>Rhinoplocephalus boschmai</i>	Carpentaria whip snake		C		21/10
animals	reptiles	Elapidae	<i>Rhinoplocephalus nigrescens</i>	eastern small-eyed snake		C		24/2
animals	reptiles	Elapidae	<i>Rhinoplocephalus nigrostriatus</i>	black-striped snake		C		1
animals	reptiles	Elapidae	<i>Simoselaps australis</i>	coral snake		C		8/1
animals	reptiles	Elapidae	<i>Pseudechis porphyriacus</i>	red-bellied black snake		C		2
animals	reptiles	Elapidae	<i>Notechis scutatus</i>	eastern tiger snake		C		3/2
animals	reptiles	Elapidae	<i>Pseudechis australis</i>	king brown snake		C		13/2
animals	reptiles	Elapidae	<i>Hemiaspis damelii</i>	grey snake		E		4/2
animals	reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake		C		27/11
animals	reptiles	Elapidae	<i>Suta suta</i>	myall snake		C		34/11
animals	reptiles	Elapidae	<i>Vermicella annulata</i>	bandy-bandy		C		18/7
animals	reptiles	Elapidae	<i>Pseudonaja nuchalis</i>	western brown snake		C		2
animals	reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		C		50/5
animals	reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whip snake		C		32/9
animals	reptiles	Elapidae	<i>Furina ornata</i>	orange-naped snake		C		4/2
animals	reptiles	Elapidae	<i>Furina diadema</i>	red-naped snake		C		14/8
animals	reptiles	Elapidae	<i>Denisonia maculata</i>	ornamental snake		V	V	24/8
animals	reptiles	Elapidae	<i>Furina barnardi</i>	yellow-naped snake		R		2/2



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animals	reptiles	Elapidae	<i>Demansia torquata</i>	collared whip snake		C		3/1
animals	reptiles	Elapidae	<i>Demansia vestigiata</i>	black whip snake		C		5/1
animals	reptiles	Gekkonidae	<i>Oedura monillis</i>			C		99/55
animals	reptiles	Gekkonidae	<i>Strophurus taenicauda</i>	golden-tailed gecko		R		26/6
animals	reptiles	Gekkonidae	<i>Strophurus williamsi</i>	soft-spined gecko		C		16/3
animals	reptiles	Gekkonidae	<i>Oedura sp.</i>					5/4
animals	reptiles	Gekkonidae	<i>Oedura tryoni</i>	southern spotted velvet gecko		C		32/1
animals	reptiles	Gekkonidae	<i>Saltuarius salebrosus</i>	rough-throated leaf-tailed gecko		C		20
animals	reptiles	Gekkonidae	<i>Oedura robusta</i>	robust velvet gecko		C		12
animals	reptiles	Gekkonidae	<i>Nephrurus asper</i>	spiny knob-tailed gecko		C		34/8
animals	reptiles	Gekkonidae	<i>Nephrurus levis</i>			C		1
animals	reptiles	Gekkonidae	<i>Nephrurus millii</i>			C		8/1
animals	reptiles	Gekkonidae	<i>Oedura lesueurii</i>	Lesueur's velvet gecko		C		1
animals	reptiles	Gekkonidae	<i>Oedura marmorata</i>	marbled velvet gecko		C		2/2
animals	reptiles	Gekkonidae	<i>Oedura rhombifer</i>	zig-zag gecko		C		5/1
animals	reptiles	Gekkonidae	<i>Gehyra sp.</i>					29/25
animals	reptiles	Gekkonidae	<i>Gehyra variegata</i>	tree dtella		C		16/4
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		320/84
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>			C		144/33
animals	reptiles	Gekkonidae	<i>Diplodactylus conspicillatus</i>	fat-tailed diplodactylus		C		9/3
animals	reptiles	Gekkonidae	<i>Lucasium steindachneri</i>	Steindachner's gecko		C		21/5
animals	reptiles	Gekkonidae	<i>Diplodactylus vittatus</i>	wood gecko		C		22/2
animals	reptiles	Gekkonidae	<i>Gehyra catenata</i>			C		41/9
animals	reptiles	Pygopodidae	<i>Pygopus schraderi</i>			C		2/1
animals	reptiles	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		C		29/13
animals	reptiles	Pygopodidae	<i>Delma torquata</i>	collared delma		V	V	2
animals	reptiles	Pygopodidae	<i>Delma tincta</i>			C		9/3
animals	reptiles	Pygopodidae	<i>Paradelma orientalis</i>	brigalow scaly-foot		V	V	27/9
animals	reptiles	Pygopodidae	<i>Pygopus lepidopodus</i>	common scaly-foot		C		4
animals	reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink		C		125/12
animals	reptiles	Scincidae	<i>Egernia striolata</i>	tree skink		C		28/9
animals	reptiles	Scincidae	<i>Eremiascincus fasciolatus</i>	narrow-banded sand swimmer		C		2
animals	reptiles	Scincidae	<i>Eremiascincus richardsonii</i>	broad-banded sand swimmer		C		1/1
animals	reptiles	Scincidae	<i>Eulamprus brachysoma</i>			C		19/15
animals	reptiles	Scincidae	<i>Cyclodomorphus gerrardii</i>	pink-tongued lizard		C		2
animals	reptiles	Scincidae	<i>Bellatorias frerei</i>	major skink		C		4/1
animals	reptiles	Scincidae	<i>Egernia rugosa</i>	yakka skink		V	V	12/6
animals	reptiles	Scincidae	<i>Ctenotus robustus</i>			C		73/15
animals	reptiles	Scincidae	<i>Ctenotus sp.</i>					8
animals	reptiles	Scincidae	<i>Glaphyromorphus punctulatus</i>			C		14/1
animals	reptiles	Scincidae	<i>Lampropholis adonis</i>			C		1/1
animals	reptiles	Scincidae	<i>Lampropholis amicula</i>			C		10
animals	reptiles	Scincidae	<i>Lampropholis delicata</i>			C		29/4
animals	reptiles	Scincidae	<i>Eulamprus martini</i>			C		2/1
animals	reptiles	Scincidae	<i>Eulamprus quoyii</i>	eastern water skink		C		18/4
animals	reptiles	Scincidae	<i>Eulamprus sokosoma</i>			C		4/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	<i>Eulamprus sp.</i>					11/5
animals	reptiles	Scincidae	<i>Eulamprus tenuis</i>			C		9/3
animals	reptiles	Scincidae	<i>Ctenotus ingrami</i>			C		6/2
animals	reptiles	Scincidae	<i>Ctenotus leonhardii</i>			C		1/1
animals	reptiles	Scincidae	<i>Cryptoblepharus virgatus sensu lato</i>			C		62/1
animals	reptiles	Scincidae	<i>Ctenotus allotropis</i>			C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus sp.</i>					1
animals	reptiles	Scincidae	<i>Carlia vivax</i>			C		4
animals	reptiles	Scincidae	<i>Cryptoblepharus pannosus</i>	ragged snake-eyed skink		C		68/33
animals	reptiles	Scincidae	<i>Cryptoblepharus plagiocephalus sensu lato</i>			C		2
animals	reptiles	Scincidae	<i>Carlia sp.</i>					6
animals	reptiles	Scincidae	<i>Carlia munda</i>			C		30/3
animals	reptiles	Scincidae	<i>Carlia pectoralis</i>			C		179/28
animals	reptiles	Scincidae	<i>Carlia schmeltzii</i>			C		28/3
animals	reptiles	Scincidae	<i>Anomalopus leuckartii</i>			C		3/2
animals	reptiles	Scincidae	<i>Anomalopus verreauxii</i>			C		8/3
animals	reptiles	Scincidae	<i>Anomalopus brevicollis</i>			R		27/14
animals	reptiles	Scincidae	<i>Tiliqua rugosa aspera</i>	shingle-back (eastern subspecies)		C		11/2
animals	reptiles	Scincidae	<i>Cryptoblepharus metallicus</i>	metallic snake-eyed skink		C		5/2
animals	reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	elegant snake-eyed skink		C		49/2
animals	reptiles	Scincidae	<i>Menetia timlowi</i>			C		16/2
animals	reptiles	Scincidae	<i>Morethia boulengeri</i>			C		110/51
animals	reptiles	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink		C		49/8
animals	reptiles	Scincidae	<i>Lerista sp.</i>					2
animals	reptiles	Scincidae	<i>Carlia foliorum</i>			C		90/12
animals	reptiles	Scincidae	<i>Lerista punctatovittata</i>			C		11/6
animals	reptiles	Scincidae	<i>Lampropholis sp.</i>			C		5
animals	reptiles	Scincidae	<i>Lerista allanae</i>	Allan's lerista		E	E	6/5
animals	reptiles	Scincidae	<i>Lerista fragilis</i>			C		104/19
animals	reptiles	Scincidae	<i>Tiliqua scincoides</i>	eastern blue-tongued lizard		C		41/6
animals	reptiles	Scincidae	<i>Menetia greyii</i>			C		44/3
animals	reptiles	Scincidae	<i>Menetia sp.</i>					2
animals	reptiles	Scincidae	<i>Ctenotus strauchii</i>			C		4/1
animals	reptiles	Typhlopidae	<i>Ramphotyphlops affinis</i>			C		2/2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops grypus</i>			C		1/1
animals	reptiles	Typhlopidae	<i>Ramphotyphlops unguirostris</i>			C		2/2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops sp.</i>					2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops wiedii</i>			C		3/2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops ligatus</i>			C		9/7
animals	reptiles	Typhlopidae	<i>Ramphotyphlops bituberculatus</i>			C		2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops proximus</i>			C		5/2
animals	reptiles	Typhlopidae	<i>Ramphotyphlops nigrescens</i>			C		1/1
animals	reptiles	Varanidae	<i>Varanus gouldii</i>	sand monitor		C		43/2
animals	reptiles	Varanidae	<i>Varanus varius</i>	lace monitor		C		29/4
animals	reptiles	Varanidae	<i>Varanus tristis</i>	black-tailed monitor		C		41/10
fungi	club fungi	Basidiomycota	<i>Basidiomycota</i>			C		1/1

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fungi	club fungi	Basidiomycota	<i>Polyporus</i>			C		1/1
fungi	club fungi	Basidiomycota	<i>Stereum</i>			C		1/1
fungi	club fungi	Basidiomycota	<i>Coprinus</i>			C		1/1
fungi	sac fungi	Candelariaceae	<i>Candelariella</i>			C		1/1
fungi	sac fungi	Cladiaceae	<i>Cladia aggregata</i>			C		1/1
fungi	sac fungi	Cladoniaceae	<i>Cladonia</i>			C		3/3
fungi	sac fungi	Cladoniaceae	<i>Cladonia ochrochlora</i>			C		1/1
fungi	sac fungi	Cladoniaceae	<i>Cladonia rigida var. rigida</i>			C		1/1
fungi	sac fungi	Collemaaceae	<i>Collema</i>			C		1/1
fungi	sac fungi	Heterodeaceae	<i>Heterodea muelleri</i>			C		1/1
fungi	sac fungi	Lecanoraceae	<i>Ramboldia sanguinolenta</i>			C		2/2
fungi	sac fungi	Lecanoraceae	<i>Lecidella</i>			C		1/1
fungi	sac fungi	Lecanoraceae	<i>Lecanora elatinoides</i>			C		1/1
fungi	sac fungi	Lecanoraceae	<i>Lecanora oreinoides</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmotrema reticulatum</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia neoquintaria</i>			C		3/3
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia remanens</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia immutata</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Punctelia pseudocoralloidea</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia stuartioides</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia blackdownensis</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia mexicana</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmotrema tinctorum</i>			C		2/2
fungi	sac fungi	Parmeliaceae	<i>Punctelia subflava</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Relicina limbata</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Relicina sydneyensis</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmotrema cooperi</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia amplexula</i>			C		2/2
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia antleriformis</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia australasica</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia isidiigera</i>			C		2/2
fungi	sac fungi	Parmeliaceae	<i>Flavoparmelia rutidota</i>			C		2/2
fungi	sac fungi	Parmeliaceae	<i>Flavoparmelia</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Hypotrachyna immaculata</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Pannoparmelia wilsonii</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmelia erumpens</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmelia signifera</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmotrema parahypotropum</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Parmotrema praesorediosum</i>			C		2/2
fungi	sac fungi	Parmeliaceae	<i>Parmotrema eurysacum</i>			C		1/1
fungi	sac fungi	Parmeliaceae	<i>Xanthoparmelia</i>			C		1/1
fungi	sac fungi	Pertusariaceae	<i>Pertusaria</i>			C		3/3
fungi	sac fungi	Physciaceae	<i>Rinodina williamsii</i>			C		1/1
fungi	sac fungi	Physciaceae	<i>Heterodermia obscurata</i>			C		2/2
fungi	sac fungi	Stereocaulaceae	<i>Lepraria jackii</i>			C		1/1
fungi	sac fungi	Stereocaulaceae	<i>Leprocaulon microscopicum</i>			C		1/1

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fungi	sac fungi	Teloschistaceae	<i>Caloplaca cinnabarina</i>			C		1/1
fungi	sac fungi	Teloschistaceae	<i>Caloplaca</i>			C		1/1
fungi	sac fungi	Thelotremataceae	<i>Diploschistes diploschistoides</i>			C		1/1
fungi	sac fungi	Thelotremataceae	<i>Diploschistes sticticus</i>			C		2/2
fungi	sac fungi	Thelotremataceae	<i>Diploschistes</i>			C		1/1
fungi	sac fungi	Usneaceae	<i>Eumitria baileyi</i>			C		8/8
fungi	sac fungi	Usneaceae	<i>Dolichousnea trichodeoides</i>			C		1/1
fungi	sac fungi	Usneaceae	<i>Usnea rubicunda</i>			C		2/2
fungi	sac fungi	Usneaceae	<i>Usnea scabrada subsp. elegans</i>			C		1/1
plants	club mosses	Lycopodiaceae	<i>Lycopodiella cernua</i>			C		6/4
plants	conifers	Cupressaceae	<i>Callitris glaucophylla x C.verrucosa</i>			C		1/1
plants	conifers	Cupressaceae	<i>Callitris</i>			C		10
plants	conifers	Cupressaceae	<i>Callitris rhomboidea</i>	dune cypress pine		C		3/3
plants	conifers	Cupressaceae	<i>Callitris glaucophylla</i>	white cypress pine		C		81/7
plants	conifers	Cupressaceae	<i>Callitris endlicheri</i>	black cypress pine		C		25/11
plants	conifers	Cupressaceae	<i>Callitris columellaris</i>			C		1
plants	conifers	Podocarpaceae	<i>Podocarpus spinulosus</i>	dwarf plum-pine		C		5/4
plants	cycads	Zamiaceae	<i>Macrozamia platyrhachis</i>			E	E	50/31
plants	cycads	Zamiaceae	<i>Macrozamia fearnsidei</i>			V	V	7/2
plants	cycads	Zamiaceae	<i>Macrozamia moorei</i>			C		97/34
plants	cycads	Zamiaceae	<i>Macrozamia</i>			C		3/1
plants	ferns	Adiantaceae	<i>Pellaea nana</i>			C		6/4
plants	ferns	Adiantaceae	<i>Adiantum atroviride</i>			C		13/11
plants	ferns	Adiantaceae	<i>Adiantum hispidulum</i>			C		3/1
plants	ferns	Adiantaceae	<i>Cheilanthes sieberi subsp. sieberi</i>			C		70/14
plants	ferns	Adiantaceae	<i>Cheilanthes brownii</i>			C		2
plants	ferns	Adiantaceae	<i>Adiantum hispidulum var. minus</i>			C		2/2
plants	ferns	Adiantaceae	<i>Cheilanthes nudiuscula</i>			C		3
plants	ferns	Adiantaceae	<i>Cheilanthes sieberi</i>			C		107
plants	ferns	Adiantaceae	<i>Adiantum hispidulum var. hispidulum</i>			C		7/6
plants	ferns	Adiantaceae	<i>Adiantum hispidulum var. hypoglaucum</i>			C		3/3
plants	ferns	Adiantaceae	<i>Pellaea falcata</i>			C		3/3
plants	ferns	Adiantaceae	<i>Cheilanthes tenuifolia</i>	rock fern		C		19/3
plants	ferns	Adiantaceae	<i>Pellaea</i>			C		1/1
plants	ferns	Adiantaceae	<i>Cheilanthes</i>			C		10
plants	ferns	Adiantaceae	<i>Adiantum capillus-veneris</i>			C		4/4
plants	ferns	Adiantaceae	<i>Adiantum</i>			C		1
plants	ferns	Adiantaceae	<i>Pellaea paradoxa</i>	heart fern		C		2/1
plants	ferns	Adiantaceae	<i>Adiantum formosum</i>			C		5/4
plants	ferns	Adiantaceae	<i>Paraceterach muelleri</i>			C		1/1
plants	ferns	Adiantaceae	<i>Doryopteris concolor</i>			C		2
plants	ferns	Adiantaceae	<i>Cheilanthes distans</i>	bristly cloak fern		C		36/14
plants	ferns	Adiantaceae	<i>Adiantum diaphanum</i>			C		2/2
plants	ferns	Adiantaceae	<i>Adiantum aethiopicum</i>			C		6/4
plants	ferns	Angiopteridaceae	<i>Angiopteris evecta</i>	giant fern		C		1/1
plants	ferns	Aspleniaceae	<i>Asplenium carnarvonense</i>			C		2/2

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plants	ferns	Aspleniaceae	<i>Asplenium attenuatum</i> var. <i>attenuatum</i>			C		1/1
plants	ferns	Aspleniaceae	<i>Asplenium paleaceum</i>	scaly asplenium		C		1
plants	ferns	Aspleniaceae	<i>Asplenium australasicum</i>			C		1/1
plants	ferns	Aspleniaceae	<i>Pleurosorus rutilifolius</i>	blanket fern		C		2/2
plants	ferns	Athyriaceae	<i>Diplazium assimile</i>			C		2/2
plants	ferns	Athyriaceae	<i>Deparia petersenii</i> subsp. <i>congrua</i>	Japanese lady fern		C		1/1
plants	ferns	Athyriaceae	<i>Diplazium australe</i>	austral lady fern		C		2/2
plants	ferns	Azollaceae	<i>Azolla</i>			C		1
plants	ferns	Azollaceae	<i>Azolla pinnata</i>	ferny azolla		C		2/2
plants	ferns	Blechnaceae	<i>Doodia australis</i> - <i>D.caudata</i>			C		1/1
plants	ferns	Blechnaceae	<i>Blechnum patersonii</i>			C		2/2
plants	ferns	Blechnaceae	<i>Blechnum indicum</i>	swamp water fern		C		4/2
plants	ferns	Blechnaceae	<i>Blechnum cartilagineum</i>	gristle fern		C		6/5
plants	ferns	Blechnaceae	<i>Doodia australis</i>			C		4/4
plants	ferns	Blechnaceae	<i>Doodia dissecta</i>			C		4/4
plants	ferns	Blechnaceae	<i>Blechnum ambiguum</i>			R		4/3
plants	ferns	Blechnaceae	<i>Blechnum orientale</i>			C		1/1
plants	ferns	Blechnaceae	<i>Doodia aspera</i>	prickly rasp fern		C		2/2
plants	ferns	Blechnaceae	<i>Doodia caudata</i>			C		12/10
plants	ferns	Blechnaceae	<i>Doodia media</i>			C		2/1
plants	ferns	Blechnaceae	<i>Doodia</i>			C		1/1
plants	ferns	Blechnaceae	<i>Blechnum nudum</i>	fishbone water fern		C		8/7
plants	ferns	Blechnaceae	<i>Blechnum</i>			C		1
plants	ferns	Cyatheaceae	<i>Cyathea cooperi</i>			C		7/7
plants	ferns	Cyatheaceae	<i>Cyathea australis</i>			C		6/5
plants	ferns	Davalliaceae	<i>Davallia pyxidata</i>			C		6/4
plants	ferns	Dennstaedtiaceae	<i>Histiopteris incisa</i>	bats-wing fern		C		5/4
plants	ferns	Dennstaedtiaceae	<i>Hypolepis glandulifera</i>	sticky ground fern		C		1/1
plants	ferns	Dennstaedtiaceae	<i>Pteridium esculentum</i>	common bracken		C		27/5
plants	ferns	Dicksoniaceae	<i>Calochlaena dubia</i>			C		14/10
plants	ferns	Dryopteridaceae	<i>Arachniodes aristata</i>	prickly shield fern		C		8/7
plants	ferns	Dryopteridaceae	<i>Lastreopsis tenera</i>			C		1/1
plants	ferns	Dryopteridaceae	<i>Lastreopsis</i>			C		1/1
plants	ferns	Dryopteridaceae	<i>Lastreopsis acuminata</i>	shiny shield fern		C		4/4
plants	ferns	Dryopteridaceae	<i>Lastreopsis decomposita</i>	trim shield fern		C		1/1
plants	ferns	Gleicheniaceae	<i>Dicranopteris linearis</i> var. <i>linearis</i>			C		3/2
plants	ferns	Gleicheniaceae	<i>Gleichenia rupestris</i>			C		2/1
plants	ferns	Gleicheniaceae	<i>Sticherus flabellatus</i> var. <i>flabellatus</i>			C		9/7
plants	ferns	Gleicheniaceae	<i>Gleichenia dicarpa</i>	pouched coral fern		C		9/7
plants	ferns	Hymenophyllaceae	<i>Cephalomanes brassii</i>			C		2/1
plants	ferns	Hymenophyllaceae	<i>Cephalomanes caudatum</i>			C		5/4
plants	ferns	Lindsaeaceae	<i>Lindsaea microphylla</i>	lacy wedge fern		C		12/9
plants	ferns	Marsileaceae	<i>Marsilea</i>			C		1
plants	ferns	Marsileaceae	<i>Marsilea drummondii</i>	common nardoo		C		5/1
plants	ferns	Marsileaceae	<i>Marsilea costulifera</i>	narrow-leaved nardoo		C		1/1
plants	ferns	Marsileaceae	<i>Marsilea mutica</i>	shiny nardoo		C		4/2



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plants	ferns	Marsileaceae	<i>Marsilea hirsuta</i>	hairy nardoo		C		10/1
plants	ferns	Nephrolepidaceae	<i>Nephrolepis cordifolia</i>	fishbone fern		C		4/4
plants	ferns	Ophioglossaceae	<i>Ophioglossum pendulum</i>	ribbon fern		C		3/2
plants	ferns	Ophioglossaceae	<i>Ophioglossum</i>			C		1/1
plants	ferns	Ophioglossaceae	<i>Ophioglossum reticulatum</i>			C		1/1
plants	ferns	Ophioglossaceae	<i>Ophioglossum gramineum</i>			C		1/1
plants	ferns	Osmundaceae	<i>Todea barbara</i>	king fern		C		6/4
plants	ferns	Polypodiaceae	<i>Drynaria rigidula</i>			C		5/4
plants	ferns	Polypodiaceae	<i>Pyrrosia rupestris</i>	rock felt fern		C		6/3
plants	ferns	Polypodiaceae	<i>Platycerium veitchii</i>	silver elkhorn		C		11/9
plants	ferns	Polypodiaceae	<i>Pyrrosia confluens</i>			C		1
plants	ferns	Pteridaceae	<i>Pteris vittata</i>	Chinese bracken		C		3/3
plants	ferns	Pteridaceae	<i>Pteris tremula</i>			C		2/2
plants	ferns	Salviniaceae	<i>Salvinia molesta</i>	salvinia	Y			1/1
plants	ferns	Schizaeaceae	<i>Lygodium microphyllum</i>	snake fern		C		8/5
plants	ferns	Schizaeaceae	<i>Lygodium flexuosum</i>			C		1
plants	ferns	Schizaeaceae	<i>Schizaea bifida</i>	forked comb fern		C		3/2
plants	ferns	Thelypteridaceae	<i>Cyclosorus interruptus</i>			C		2/2
plants	ferns	Thelypteridaceae	<i>Christella arida</i>			C		1/1
plants	ferns	Thelypteridaceae	<i>Macrothelypteris torresiana</i>	pale wood fern		C		6/5
plants	ferns	Thelypteridaceae	<i>Christella dentata</i>	creek fern		C		6/6
plants	ferns	Thelypteridaceae	<i>Sphaerostephanos unitus var. unitus</i>			C		1/1
plants	ferns	Thelypteridaceae	<i>Ampelopteris prolifera</i>			C		1/1
plants	ferns	Vittariaceae	<i>Vittaria elongata</i>			C		1
plants	higher dicots	Acanthaceae	<i>Ruellia tweediana</i>		Y			2/2
plants	higher dicots	Acanthaceae	<i>Acanthaceae</i>			C		8
plants	higher dicots	Acanthaceae	<i>Asystasia gangetica subsp. gangetica</i>		Y			1/1
plants	higher dicots	Acanthaceae	<i>Acanthus</i>			C		1
plants	higher dicots	Acanthaceae	<i>Brunoniella australis</i>	blue trumpet		C		122/6
plants	higher dicots	Acanthaceae	<i>Dipteracanthus australasicus subsp. australasicus</i>			C		3/1
plants	higher dicots	Acanthaceae	<i>Dipteracanthus australasicus</i>			C		2
plants	higher dicots	Acanthaceae	<i>Rostellularia</i>			C		1
plants	higher dicots	Acanthaceae	<i>Rostellularia adscendens subsp. adscendens</i>			C		4/2
plants	higher dicots	Acanthaceae	<i>Brunoniella acaulis</i>			C		4
plants	higher dicots	Acanthaceae	<i>Brunoniella acaulis subsp. ciliata</i>			C		1/1
plants	higher dicots	Acanthaceae	<i>Rostellularia adscendens var. adscendens</i>			C		6/3
plants	higher dicots	Acanthaceae	<i>Rostellularia adscendens var. clementii</i>			C		3/2
plants	higher dicots	Acanthaceae	<i>Rostellularia adscendens var. latifolia</i>			C		1/1
plants	higher dicots	Acanthaceae	<i>Rostellularia adscendens</i>			C		85/10
plants	higher dicots	Acanthaceae	<i>Pseuderanthemum tenellum</i>			C		2
plants	higher dicots	Acanthaceae	<i>Pseuderanthemum variabile</i>	pastel flower		C		48/10
plants	higher dicots	Acanthaceae	<i>Pseuderanthemum</i>			C		1
plants	higher dicots	Acanthaceae	<i>Hypoestes floribunda</i>			C		7/2
plants	higher dicots	Acanthaceae	<i>Hypoestes floribunda var. floribunda</i>			C		5/4
plants	higher dicots	Acanthaceae	<i>Dipteracanthus australasicus subsp. corynothecus</i>			C		3/3
plants	higher dicots	Aizoaceae	<i>Aizoaceae</i>			C		1

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plants	higher dicots	Aizoaceae	<i>Zaleya galericulata</i>			C		2/2
plants	higher dicots	Aizoaceae	<i>Trianthema triquetra</i>	red spinach		C		11/6
plants	higher dicots	Aizoaceae	<i>Trianthema portulacastrum</i>	black pigweed	Y			4/1
plants	higher dicots	Aizoaceae	<i>Zaleya galericulata subsp. galericulata</i>			C		13/12
plants	higher dicots	Aizoaceae	<i>Tetragonia tetragonioides</i>	New Zealand spinach		C		3/1
plants	higher dicots	Amaranthaceae	<i>Ptilotus nobilis subsp. semilanatus</i>			C		7/7
plants	higher dicots	Amaranthaceae	<i>Nyssanthes</i>			C		1
plants	higher dicots	Amaranthaceae	<i>Achyranthes aspera</i>			C		84/13
plants	higher dicots	Amaranthaceae	<i>Alternanthera micrantha</i>			C		2/2
plants	higher dicots	Amaranthaceae	<i>Alternanthera denticulata</i>	lesser joyweed		C		20/12
plants	higher dicots	Amaranthaceae	<i>Alternanthera nana</i>	hairy joyweed		C		27/10
plants	higher dicots	Amaranthaceae	<i>Amaranthaceae</i>			C		1
plants	higher dicots	Amaranthaceae	<i>Amaranthus viridis</i>	green amaranth	Y			2/2
plants	higher dicots	Amaranthaceae	<i>Alternanthera nodiflora</i>	joyweed		C		20/6
plants	higher dicots	Amaranthaceae	<i>Nyssanthes diffusa</i>	barbed-wire weed		C		6/2
plants	higher dicots	Amaranthaceae	<i>Alternanthera pungens</i>	khaki weed	Y			7/7
plants	higher dicots	Amaranthaceae	<i>Amaranthus mitchellii</i>	Boggabri weed		C		8/8
plants	higher dicots	Amaranthaceae	<i>Ptilotus macrocephalus</i>	green pussytails		C		3/2
plants	higher dicots	Amaranthaceae	<i>Ptilotus polystachyus</i>			C		3/3
plants	higher dicots	Amaranthaceae	<i>Ptilotus exaltatus</i>			C		1
plants	higher dicots	Amaranthaceae	<i>Nyssanthes erecta</i>			C		47/13
plants	higher dicots	Amaranthaceae	<i>Gomphrena celosioides</i>	gomphrena weed	Y			25/7
plants	higher dicots	Amaranthaceae	<i>Deeringia amarantoides</i>	redberry		C		12/4
plants	higher dicots	Amaranthaceae	<i>Gomphrena humilis</i>			C		1/1
plants	higher dicots	Amaranthaceae	<i>Ptilotus</i>			C		1
plants	higher dicots	Amaranthaceae	<i>Gomphrena</i>			C		1
plants	higher dicots	Amaranthaceae	<i>Alternanthera</i>			C		8/1
plants	higher dicots	Amaranthaceae	<i>Guilleminea densa</i>	small matweed	Y			2/2
plants	higher dicots	Amaranthaceae	<i>Amaranthus interruptus</i>			C		8/4
plants	higher dicots	Anacardiaceae	<i>Euroschinus falcatus</i>			C		2
plants	higher dicots	Anacardiaceae	<i>Schinus terebinthifolius</i>		Y			2/2
plants	higher dicots	Apiaceae	<i>Actinotus periculosus</i>			C		2/2
plants	higher dicots	Apiaceae	<i>Ammi majus</i>	bishop's weed	Y			1/1
plants	higher dicots	Apiaceae	<i>Cyclospermum leptophyllum</i>		Y			10/6
plants	higher dicots	Apiaceae	<i>Centella asiatica</i>			C		5/5
plants	higher dicots	Apiaceae	<i>Actinotus helianthi</i>	flannel flower		C		8/7
plants	higher dicots	Apiaceae	<i>Platysace valida</i>			C		1/1
plants	higher dicots	Apiaceae	<i>Daucus glochidiatus</i>	Australian carrot		C		5/4
plants	higher dicots	Apiaceae	<i>Eryngium plantagineum</i>	long eryngium		C		3/3
plants	higher dicots	Apiaceae	<i>Actinotus gibbonsii</i>	dwarf flannel flower		C		2/1
plants	higher dicots	Apiaceae	<i>Daucus carota</i>	wild carrot	Y			2
plants	higher dicots	Apiaceae	<i>Platysace ericoides</i>	heath platysace		C		14/10
plants	higher dicots	Apocynaceae	<i>Marsdenia brevifolia</i>			V	V	8/8
plants	higher dicots	Apocynaceae	<i>Alyxia</i>			C		1
plants	higher dicots	Apocynaceae	<i>Alyxia ruscifolia</i>			C		9/4
plants	higher dicots	Apocynaceae	<i>Catharanthus roseus</i>	pink periwinkle	Y			1/1

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plants	higher dicots	Apocynaceae	<i>Carissa lanceolata</i>			C		2/1
plants	higher dicots	Apocynaceae	<i>Secamone elliptica</i>			C		31/7
plants	higher dicots	Apocynaceae	<i>Parsonsia eucalyptophylla</i>	gargaloo		C		27/6
plants	higher dicots	Apocynaceae	<i>Parsonsia lanceolata</i>	northern silkpod		C		63/17
plants	higher dicots	Apocynaceae	<i>Parsonsia plaesiophylla</i>			C		3
plants	higher dicots	Apocynaceae	<i>Parsonsia straminea</i>	monkey rope		C		18/1
plants	higher dicots	Apocynaceae	<i>Parsonsia</i>			C		22
plants	higher dicots	Apocynaceae	<i>Hoya australis</i> subsp. <i>australis</i>			C		6/6
plants	higher dicots	Apocynaceae	<i>Gomphocarpus physocarpus</i>	balloon cottonbush	Y			3/2
plants	higher dicots	Apocynaceae	<i>Cerbera manghas</i>			C		1/1
plants	higher dicots	Apocynaceae	<i>Sarcostemma viminale</i> subsp. <i>australe</i>			C		2
plants	higher dicots	Apocynaceae	<i>Sarcostemma viminale</i> subsp. <i>brunonianum</i>			C		17/5
plants	higher dicots	Apocynaceae	<i>Cerbera dumicola</i>			R		14/13
plants	higher dicots	Apocynaceae	<i>Alstonia constricta</i>	bitterbark		C		119/11
plants	higher dicots	Apocynaceae	<i>Carissa ovata</i>	currantbush		C		260/8
plants	higher dicots	Apocynaceae	<i>Parsonsia lilacina</i>	crisped silkpod		C		1
plants	higher dicots	Apocynaceae	<i>Hoya australis</i>			C		5
plants	higher dicots	Apocynaceae	<i>Marsdenia australis</i>	doubah		C		1
plants	higher dicots	Apocynaceae	<i>Marsdenia viridiflora</i> subsp. <i>viridiflora</i>			C		15/11
plants	higher dicots	Apocynaceae	<i>Marsdenia micradenia</i>	gymnema		C		6
plants	higher dicots	Apocynaceae	<i>Marsdenia pleiadenia</i>			C		4/2
plants	higher dicots	Apocynaceae	<i>Marsdenia viridiflora</i>			C		32
plants	higher dicots	Apocynaceae	<i>Cynanchum bowmanii</i>	bowman's milkvine		C		7/1
plants	higher dicots	Apocynaceae	<i>Cynanchum floribundum</i>			C		3/2
plants	higher dicots	Apocynaceae	<i>Tylophora erecta</i>			C		1/1
plants	higher dicots	Apocynaceae	<i>Marsdenia lloydii</i>			C		1/1
plants	higher dicots	Apocynaceae	<i>Marsdenia microlepis</i>			C		20/9
plants	higher dicots	Apocynaceae	<i>Marsdenia</i>			C		7
plants	higher dicots	Apocynaceae	<i>Cryptostegia grandiflora</i>	rubber vine	Y			13/8
plants	higher dicots	Apocynaceae	<i>Cascabela thevetia</i>	yellow oleander	Y			1/1
plants	higher dicots	Apocynaceae	<i>Asclepias curassavica</i>	red-head cottonbush	Y			9/7
plants	higher dicots	Apocynaceae	<i>Alstonia</i>				C	1
plants	higher dicots	Araliaceae	<i>Astrotricha</i>				C	2/1
plants	higher dicots	Araliaceae	<i>Astrotricha longifolia</i>	star hair bush			C	2
plants	higher dicots	Araliaceae	<i>Hydrocotyle verticillata</i>	shield pennywort			C	1/1
plants	higher dicots	Araliaceae	<i>Hydrocotyle laxiflora</i>	stinking pennywort			C	1/1
plants	higher dicots	Araliaceae	<i>Trachymene procumbens</i>	creeping wild parsnip			C	4/3
plants	higher dicots	Araliaceae	<i>Astrotricha intermedia</i>				C	15/10
plants	higher dicots	Araliaceae	<i>Astrotricha biddulphiana</i>				C	2/1
plants	higher dicots	Araliaceae	<i>Trachymene incisa</i> subsp. <i>incisa</i>				C	1/1
plants	higher dicots	Araliaceae	<i>Trachymene ochracea</i>	white parsnip			C	2/2
plants	higher dicots	Araliaceae	<i>Hydrocotyle acutiloba</i>				C	12/11
plants	higher dicots	Araliaceae	<i>Hydrocotyle peduncularis</i>				C	2/2
plants	higher dicots	Araliaceae	<i>Astrotricha cordata</i>				C	25/14
plants	higher dicots	Araliaceae	<i>Polyscias elegans</i>	celery wood			C	3/2
plants	higher dicots	Asclepiadaceae	<i>Secamone</i>				C	2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Asclepiadaceae	<i>Asclepiadaceae</i>			C		4
plants	higher dicots	Asclepiadaceae	<i>Sarcostemma viminale</i>			C		3
plants	higher dicots	Asclepiadaceae	<i>Sarcostemma</i>			C		3
plants	higher dicots	Asteraceae	<i>Peripleura hispidula</i> var. <i>hispidula</i>			C		24/6
plants	higher dicots	Asteraceae	<i>Peripleura hispidula</i>			C		15
plants	higher dicots	Asteraceae	<i>Peripleura bicolor</i>			C		12/6
plants	higher dicots	Asteraceae	<i>Synedrellopsis grisebachii</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Vittadinia dissecta</i> var. <i>hirta</i>			C		9/4
plants	higher dicots	Asteraceae	<i>Verbesina encelioides</i>	crownbeard	Y			47/22
plants	higher dicots	Asteraceae	<i>Aster subulatus</i>	wild aster	Y			5/1
plants	higher dicots	Asteraceae	<i>Carthamus lanatus</i>	saffron thistle	Y			4/4
plants	higher dicots	Asteraceae	<i>Vittadinia tenuissima</i>	western New Holland daisy			C	1
plants	higher dicots	Asteraceae	<i>Tagetes minuta</i>	stinking roger	Y			8/4
plants	higher dicots	Asteraceae	<i>Isoetopsis graminifolia</i>	grass cushion			C	1
plants	higher dicots	Asteraceae	<i>Cirsium vulgare</i>	spear thistle	Y			9/2
plants	higher dicots	Asteraceae	<i>Bidens bipinnata</i>	bipinnate beggar's ticks	Y			7/5
plants	higher dicots	Asteraceae	<i>Ageratum houstonianum</i>	blue billygoat weed	Y			1
plants	higher dicots	Asteraceae	<i>Olearia canescens</i>				C	14/8
plants	higher dicots	Asteraceae	<i>Olearia microphylla</i>				C	7/6
plants	higher dicots	Asteraceae	<i>Olearia</i>				C	2
plants	higher dicots	Asteraceae	<i>Blumea lacera</i>				C	1/1
plants	higher dicots	Asteraceae	<i>Pluchea dioscoridis</i>				C	10/7
plants	higher dicots	Asteraceae	<i>Senecio</i>				C	2
plants	higher dicots	Asteraceae	<i>Parthenium hysterophorus</i>	parthenium weed	Y			77/22
plants	higher dicots	Asteraceae	<i>Olearia xerophila</i>				C	9/8
plants	higher dicots	Asteraceae	<i>Eclipta platyglossa</i>				C	1/1
plants	higher dicots	Asteraceae	<i>Brachyscome trachycarpa</i>				C	2/2
plants	higher dicots	Asteraceae	<i>Brachyscome</i>				C	3
plants	higher dicots	Asteraceae	<i>Calotis squamigera</i>				C	2/2
plants	higher dicots	Asteraceae	<i>Calyptocarpus vialis</i>	creeping cinderella weed	Y			1/1
plants	higher dicots	Asteraceae	<i>Camptacra barbata</i>				C	17/7
plants	higher dicots	Asteraceae	<i>Brachyscome ciliaris</i> var. <i>ciliaris</i>				C	2/2
plants	higher dicots	Asteraceae	<i>Brachyscome microcarpa</i>				C	3/3
plants	higher dicots	Asteraceae	<i>Brachyscome whitei</i>				C	2/1
plants	higher dicots	Asteraceae	<i>Bidens</i>				C	1/1
plants	higher dicots	Asteraceae	<i>Blumea mollis</i>				C	1/1
plants	higher dicots	Asteraceae	<i>Acanthospermum hispidum</i>	star burr	Y			3/2
plants	higher dicots	Asteraceae	<i>Acmella grandiflora</i> var. <i>brachyglossa</i>				C	10/7
plants	higher dicots	Asteraceae	<i>Olearia</i> sp. (Carnarvon NP W.Morley AQ249966)				C	2/2
plants	higher dicots	Asteraceae	<i>Calotis cuneata</i>				C	19/7
plants	higher dicots	Asteraceae	<i>Centipeda minima</i>				C	4
plants	higher dicots	Asteraceae	<i>Conyza</i>				C	15
plants	higher dicots	Asteraceae	<i>Acmella grandiflora</i>				C	1
plants	higher dicots	Asteraceae	<i>Schkuhria pinnata</i>		Y			5/5
plants	higher dicots	Asteraceae	<i>Senecio lautus</i>				C	4
plants	higher dicots	Asteraceae	<i>Coreopsis</i>				C	1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Asteraceae	<i>Peripleura</i>			C		1
plants	higher dicots	Asteraceae	<i>Sigesbeckia</i>			C		1
plants	higher dicots	Asteraceae	<i>Xanthium</i>			C		2
plants	higher dicots	Asteraceae	<i>Xanthium occidentale</i>		Y			19/7
plants	higher dicots	Asteraceae	<i>Cyanthillium cinereum</i>			C		175/24
plants	higher dicots	Asteraceae	<i>Rutidosia glandulosa</i>			R		7/7
plants	higher dicots	Asteraceae	<i>Bidens alba var. radiata</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Euchiton collinus</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Leiocarpa leptolepis</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Leiocarpa brevicompta</i>			C		8/6
plants	higher dicots	Asteraceae	<i>Xerochrysum bracteatum</i>	golden everlasting daisy		C		3/2
plants	higher dicots	Asteraceae	<i>Senecio bathurstianus</i>			C		3/2
plants	higher dicots	Asteraceae	<i>Senecio prenanthoides</i>			C		2/2
plants	higher dicots	Asteraceae	<i>Lactuca serriola forma serriola</i>		Y			6/6
plants	higher dicots	Asteraceae	<i>Coronidium glutinosum</i>			C		11/11
plants	higher dicots	Asteraceae	<i>Coronidium cymosum</i>			C		9/9
plants	higher dicots	Asteraceae	<i>Coronidium oxylepis subsp. lanatum</i>			C		5/5
plants	higher dicots	Asteraceae	<i>Euchiton sp. (Hughenden C.E.Hubbard+ 7639)</i>			C		3/3
plants	higher dicots	Asteraceae	<i>Senecio brigalowensis</i>			C		14/14
plants	higher dicots	Asteraceae	<i>Senecio pinnatifolius var. pinnatifolius</i>			C		7
plants	higher dicots	Asteraceae	<i>Pluchea dunlopia</i>			C		2/2
plants	higher dicots	Asteraceae	<i>Cymbonotus maidenii</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Coronidium</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Peripleura hispidula var. setosa</i>			C		16/8
plants	higher dicots	Asteraceae	<i>Peripleura obovata</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Picris angustifolia subsp. carolorum-henricorum</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Pycnosorus chrysanthes</i>	golden billy buttons		C		4/4
plants	higher dicots	Asteraceae	<i>Bidens pilosa</i>		Y			42/2
plants	higher dicots	Asteraceae	<i>Sigesbeckia fugax</i>			C		3/3
plants	higher dicots	Asteraceae	<i>Gynura drymophila</i>			C		2
plants	higher dicots	Asteraceae	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed		C		1
plants	higher dicots	Asteraceae	<i>Ozothamnus cassinioides</i>			C		6/5
plants	higher dicots	Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons		C		52/14
plants	higher dicots	Asteraceae	<i>Euchiton involucratus</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Euchiton sphaericus</i>			C		10/5
plants	higher dicots	Asteraceae	<i>Gamochaeta pensylvanica</i>		Y			6/3
plants	higher dicots	Asteraceae	<i>Rhodanthe anthemoides</i>	white paper daisy		C		2/2
plants	higher dicots	Asteraceae	<i>Rhodanthe polyphylla</i>			C		8/7
plants	higher dicots	Asteraceae	<i>Craspedia variabilis</i>			C		2/1
plants	higher dicots	Asteraceae	<i>Glossocardia bidens</i>	native cobbler's pegs		C		11/4
plants	higher dicots	Asteraceae	<i>Pterocaulon serrulatum</i>			C		7
plants	higher dicots	Asteraceae	<i>Helianthus debilis</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Trioncinia retroflexa</i>			E		5/5
plants	higher dicots	Asteraceae	<i>Vittadinia dissecta</i>			C		1
plants	higher dicots	Asteraceae	<i>Gynura drymophila var. glabrifolia</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Olearia rosmarinifolia</i>			C		2/2



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plants	higher dicots	Asteraceae	<i>Camptacra</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Centaurea melitensis</i>	Maltese cockspur	Y			1/1
plants	higher dicots	Asteraceae	<i>Brachyscome basaltica</i> var. <i>gracilis</i>			C		3/3
plants	higher dicots	Asteraceae	<i>Brachyscome basaltica</i> var. <i>basaltica</i>			C		3/3
plants	higher dicots	Asteraceae	<i>Brachyscome basaltica</i>			C		1
plants	higher dicots	Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	Y			1
plants	higher dicots	Asteraceae	<i>Zinnia peruviana</i>	wild zinnia	Y			10/4
plants	higher dicots	Asteraceae	<i>Sigesbeckia australiensis</i>			C		1
plants	higher dicots	Asteraceae	<i>Silybum marianum</i>	variegated thistle	Y			1/1
plants	higher dicots	Asteraceae	<i>Soliva anthemifolia</i>	dwarf jo jo weed	Y			2/2
plants	higher dicots	Asteraceae	<i>Vittadinia sulcata</i>	native daisy			C	23/8
plants	higher dicots	Asteraceae	<i>Wedelia spilanthoides</i>				C	18/7
plants	higher dicots	Asteraceae	<i>Xanthium spinosum</i>	Bathurst burr	Y			1/1
plants	higher dicots	Asteraceae	<i>Youngia japonica</i>				C	1/1
plants	higher dicots	Asteraceae	<i>Tridax procumbens</i>	tridax daisy	Y			7/5
plants	higher dicots	Asteraceae	<i>Sonchus asper</i>	rough sowthistle	Y			1
plants	higher dicots	Asteraceae	<i>Sonchus oleraceus</i>	common sowthistle	Y			19/8
plants	higher dicots	Asteraceae	<i>Senecio quadridentatus</i>	cotton fireweed			C	3
plants	higher dicots	Asteraceae	<i>Rutidosia murchisonii</i>				C	1
plants	higher dicots	Asteraceae	<i>Podolepis arachnoidea</i>	clustered copper-wire daisy			C	2/2
plants	higher dicots	Asteraceae	<i>Podolepis longipedata</i>	tall copper-wire daisy			C	13/9
plants	higher dicots	Asteraceae	<i>Pterocaulon redolens</i>				C	19/2
plants	higher dicots	Asteraceae	<i>Pterocaulon serrulatum</i> var. <i>serrulatum</i>				C	7/7
plants	higher dicots	Asteraceae	<i>Pterocaulon sphacelatum</i>	applebush			C	14/5
plants	higher dicots	Asteraceae	<i>Olearia subspicata</i>				C	2/2
plants	higher dicots	Asteraceae	<i>Olearia elliptica</i> subsp. <i>elliptica</i>	sticky daisy bush			C	1/1
plants	higher dicots	Asteraceae	<i>Olearia nernstii</i>	Ipswich daisy			C	2/1
plants	higher dicots	Asteraceae	<i>Minuria integerrima</i>	smooth minuria			C	7/4
plants	higher dicots	Asteraceae	<i>Lagenophora gracilis</i>				C	5/4
plants	higher dicots	Asteraceae	<i>Gynura drymophila</i> var. <i>drymophila</i>				C	4/3
plants	higher dicots	Asteraceae	<i>Helianthus annuus</i>		Y			2/2
plants	higher dicots	Asteraceae	<i>Helichrysum glutinosum</i>				C	5
plants	higher dicots	Asteraceae	<i>Helichrysum rupicola</i>				C	2
plants	higher dicots	Asteraceae	<i>Emilia sonchifolia</i> var. <i>sonchifolia</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Emilia sonchifolia</i>		Y			6
plants	higher dicots	Asteraceae	<i>Epaltes australis</i>	spreading nutheads			C	10/5
plants	higher dicots	Asteraceae	<i>Eclipta prostrata</i>	white eclipta			C	3/2
plants	higher dicots	Asteraceae	<i>Conyza bonariensis</i>		Y			22/5
plants	higher dicots	Asteraceae	<i>Conyza sumatrensis</i>	tall fleabane	Y			2/2
plants	higher dicots	Asteraceae	<i>Cassinia quinquefaria</i>				C	2/2
plants	higher dicots	Asteraceae	<i>Cassinia</i>				C	1
plants	higher dicots	Asteraceae	<i>Centaurea solstitialis</i>	St. Barnaby's thistle	Y			1/1
plants	higher dicots	Asteraceae	<i>Centipeda minima</i> subsp. <i>minima</i>				C	8/8
plants	higher dicots	Asteraceae	<i>Calotis cuneifolia</i>	burr daisy			C	29/10
plants	higher dicots	Asteraceae	<i>Calotis dentex</i>	white burr daisy			C	29/13
plants	higher dicots	Asteraceae	<i>Calotis hispidula</i>	bogan flea			C	4/2

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plants	higher dicots	Asteraceae	<i>Calotis lappulacea</i>	yellow burr daisy		C		12/9
plants	higher dicots	Asteraceae	<i>Calotis xanthosioidea</i>			C		2/2
plants	higher dicots	Asteraceae	<i>Vittadinia cuneata</i> var. <i>hirsuta</i>			C		2/1
plants	higher dicots	Asteraceae	<i>Vittadinia</i>			C		9
plants	higher dicots	Asteraceae	<i>Wedelia</i>			C		1
plants	higher dicots	Asteraceae	<i>Pterocaulon</i>			C		1
plants	higher dicots	Asteraceae	<i>Rutidosia leucantha</i>			C		3/3
plants	higher dicots	Asteraceae	<i>Senecio tenuiflorus</i>			C		4/4
plants	higher dicots	Asteraceae	<i>Hemisteptia lyrata</i>			C		3/2
plants	higher dicots	Asteraceae	<i>Conyza leucantha</i>			C		1
plants	higher dicots	Asteraceae	<i>Streptoglossa adscendens</i>	desert daisy		C		1/1
plants	higher dicots	Asteraceae	<i>Podolepis jaceoides</i>	showy copper-wire daisy		C		2/2
plants	higher dicots	Asteraceae	<i>Minuria leptophylla</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Gnaphalium polycaulon</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Senecio glossanthus</i>	slender groundsel		C		1/1
plants	higher dicots	Asteraceae	<i>Sigesbeckia orientalis</i>	Indian weed		C		19/12
plants	higher dicots	Asteraceae	Asteraceae			C		12
plants	higher dicots	Asteraceae	<i>Vittadinia pterochaeta</i>	rough fuzzweed		C		1/1
plants	higher dicots	Asteraceae	<i>Lagenophora stipitata</i>			C		3/2
plants	higher dicots	Asteraceae	<i>Helichrysum collinum</i>			C		10
plants	higher dicots	Asteraceae	<i>Flaveria australasica</i>	speedy weed		C		1/1
plants	higher dicots	Asteraceae	<i>Crassocephalum crepidioides</i>	thickhead	Y			3/2
plants	higher dicots	Asteraceae	<i>Conyza canadensis</i> var. <i>pusilla</i>		Y			4/2
plants	higher dicots	Asteraceae	<i>Cassinia laevis</i>			C		33/12
plants	higher dicots	Asteraceae	<i>Centipeda racemosa</i>	snuffweed		C		2/2
plants	higher dicots	Asteraceae	<i>Calotis</i>			C		4
plants	higher dicots	Asteraceae	<i>Brachyscome dentata</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Adenostemma lavenia</i>			C		2/2
plants	higher dicots	Asteraceae	<i>Vittadinia dissecta</i> var. <i>dissecta</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Vittadinia pustulata</i>			C		38/4
plants	higher dicots	Asteraceae	<i>Peripleura diffusa</i>			C		2/2
plants	higher dicots	Bignoniaceae	<i>Tecoma stans</i> var. <i>stans</i>		Y			1/1
plants	higher dicots	Bignoniaceae	<i>Dolichandrone heterophylla</i>			C		1
plants	higher dicots	Bignoniaceae	<i>Pandorea pandorana</i>	wonga vine		C		42/13
plants	higher dicots	Boraginaceae	<i>Heliotropium amplexicaule</i>	blue heliotrope	Y			7/6
plants	higher dicots	Boraginaceae	<i>Heliotropium cunninghamii</i>			C		3/3
plants	higher dicots	Boraginaceae	<i>Heliotropium geocharis</i>			C		2/2
plants	higher dicots	Boraginaceae	<i>Heliotropium tenuifolium</i>			C		1/1
plants	higher dicots	Boraginaceae	<i>Cynoglossum suaveolens</i>	sweet hound's tooth		C		1
plants	higher dicots	Boraginaceae	<i>Heliotropium moorei</i>			C		1/1
plants	higher dicots	Boraginaceae	<i>Cynoglossum australe</i>			C		1/1
plants	higher dicots	Boraginaceae	<i>Heliotropium ovalifolium</i>			C		2/2
plants	higher dicots	Boraginaceae	<i>Heliotropium brachygyne</i>			C		5/4
plants	higher dicots	Boraginaceae	<i>Ehretia</i>			C		1
plants	higher dicots	Boraginaceae	<i>Trichodesma zeylanicum</i> var. <i>latisepalum</i>			C		2/2
plants	higher dicots	Boraginaceae	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>			C		11/11

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plants	higher dicots	Boraginaceae	<i>Heliotropium</i>			C		2
plants	higher dicots	Boraginaceae	<i>Ehretia membranifolia</i>	weeping koda		C		50/2
plants	higher dicots	Boraginaceae	<i>Buglossoides arvensis</i>	corn cromwell	Y			1/1
plants	higher dicots	Boraginaceae	<i>Trichodesma zeylanicum</i>			C		6/3
plants	higher dicots	Boraginaceae	<i>Heliotropium indicum</i>		Y			6/6
plants	higher dicots	Brassicaceae	<i>Rorippa</i>			C		1/1
plants	higher dicots	Brassicaceae	<i>Lobularia</i>			C		1
plants	higher dicots	Brassicaceae	<i>Lepidium bonariense</i>	Argentine peppergrass	Y			5/2
plants	higher dicots	Brassicaceae	<i>Cardamine</i>			C		1/1
plants	higher dicots	Brassicaceae	<i>Lepidium africanum</i>	common peppergrass	Y			7/1
plants	higher dicots	Brassicaceae	<i>Rapistrum rugosum</i>		Y			1/1
plants	higher dicots	Brassicaceae	<i>Sisymbrium thellungii</i>	African turnip-weed	Y			3/2
plants	higher dicots	Brassicaceae	<i>Capsella bursapastoris</i>	shepherd's purse	Y			1/1
plants	higher dicots	Brassicaceae	<i>Lepidium hyssopifolium</i>			C	E	2
plants	higher dicots	Brassicaceae	<i>Sisymbrium irio</i>	london rocket	Y			1
plants	higher dicots	Brassicaceae	<i>Rorippa laciniata</i>			C		1/1
plants	higher dicots	Brassicaceae	<i>Rorippa eustylis</i>			C		4/4
plants	higher dicots	Brassicaceae	<i>Lepidium sagittulatum</i>			C		1/1
plants	higher dicots	Brassicaceae	<i>Lepidium</i>			C		1
plants	higher dicots	Byttneriaceae	<i>Commersonia pearnii</i>			C		3/3
plants	higher dicots	Byttneriaceae	<i>Commersonia johnsonii</i>			C		12/12
plants	higher dicots	Byttneriaceae	<i>Melochia pyramidata</i>		Y			4/3
plants	higher dicots	Byttneriaceae	<i>Waltheria indica</i>			C		12/8
plants	higher dicots	Byttneriaceae	<i>Keraudrenia hookeriana</i>			C		10/10
plants	higher dicots	Byttneriaceae	<i>Seringia corollata</i>			C		34/8
plants	higher dicots	Byttneriaceae	<i>Rulingia dasyphylla</i>	kerrawang		C		3/2
plants	higher dicots	Byttneriaceae	<i>Keraudrenia collina</i>			C		4/3
plants	higher dicots	Byttneriaceae	<i>Commersonia argentea</i>			C	V	6/5
plants	higher dicots	Byttneriaceae	<i>Rulingia</i>			C		2/2
plants	higher dicots	Byttneriaceae	<i>Keraudrenia</i>			C		1/1
plants	higher dicots	Byttneriaceae	<i>Lasiopetalum ferrugineum var. cordatum</i>			C		1/1
plants	higher dicots	Byttneriaceae	<i>Commersonia leichhardtii</i>			C		3/1
plants	higher dicots	Byttneriaceae	<i>Commersonia</i>			C		5/5
plants	higher dicots	Byttneriaceae	<i>Hannafordia shanesii</i>			C		2/1
plants	higher dicots	Byttneriaceae	<i>Keraudrenia lanceolata</i>			C		5/3
plants	higher dicots	Cactaceae	<i>Cylindropuntia imbricata</i>		Y			1/1
plants	higher dicots	Cactaceae	<i>Harrisia pomanensis</i>		Y			3/3
plants	higher dicots	Cactaceae	<i>Cereus uruguayanus</i>		Y			1/1
plants	higher dicots	Cactaceae	<i>Opuntia aurantiaca</i>	tiger pear	Y			10/1
plants	higher dicots	Cactaceae	<i>Opuntia stricta</i>		Y			68
plants	higher dicots	Cactaceae	<i>Harrisia martini</i>		Y			8/3
plants	higher dicots	Cactaceae	<i>Opuntia</i>			C		22
plants	higher dicots	Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear	Y			92/2
plants	higher dicots	Cactaceae	<i>Periocereus serpentinus</i>	snake cactus	Y			1/1
plants	higher dicots	Cactaceae	<i>Opuntia streptacantha</i>	cardona pear	Y			13
plants	higher dicots	Cactaceae	<i>Acanthocereus tetragonus</i>	sword pear	Y			2/1

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plants	higher dicots	Caesalpiniaceae	<i>Bauhinia galpinii</i>		Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista biddulphiana</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Lysiphyllum</i>			C		9
plants	higher dicots	Caesalpiniaceae	<i>Senna alata</i>		Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Cassia tomentella</i>			C		4/2
plants	higher dicots	Caesalpiniaceae	<i>Senna artemisioides</i>			C		4
plants	higher dicots	Caesalpiniaceae	<i>Senna aciphylla</i>	Australian senna		C		11/9
plants	higher dicots	Caesalpiniaceae	<i>Senna barclayana</i>			C		39/6
plants	higher dicots	Caesalpiniaceae	<i>Senna coronilloides</i>			C		19/13
plants	higher dicots	Caesalpiniaceae	<i>Senna costata</i>			C		2/2
plants	higher dicots	Caesalpiniaceae	<i>Senna planitiicola</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Petalostylis labicheoides</i>			C		10/9
plants	higher dicots	Caesalpiniaceae	<i>Lysiphyllum carronii</i>	ebony tree		C		67/10
plants	higher dicots	Caesalpiniaceae	<i>Lysiphyllum hookeri</i>	Queensland ebony		C		46/14
plants	higher dicots	Caesalpiniaceae	<i>Labichea rupestris</i>			C		9/7
plants	higher dicots	Caesalpiniaceae	<i>Labichea digitata</i>			C		7/6
plants	higher dicots	Caesalpiniaceae	<i>Parkinsonia aculeata</i>	Jerusalem thorn	Y			17/11
plants	higher dicots	Caesalpiniaceae	<i>Senna multiglandulosa</i>		Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna occidentalis</i>	coffee senna	Y			4/4
plants	higher dicots	Caesalpiniaceae	<i>Senna</i>			C		9/2
plants	higher dicots	Caesalpiniaceae	<i>Senna artemisioides subsp. coriacea</i>			C		5/3
plants	higher dicots	Caesalpiniaceae	<i>Gleditsia triacanthos</i>	honey locust	Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna artemisioides subsp. zygophylla</i>			C		12/11
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista mimosoides</i>	dwarf cassia		C		1
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista nomame var. nomame</i>			C		5/4
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista absus var. absus</i>			C		3/1
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista rotundifolia var. rotundifolia</i>		Y			4/4
plants	higher dicots	Caesalpiniaceae	<i>Senna artemisioides subsp. artemisioides</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Delonix regia</i>	poinciana	Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna artemisioides subsp. filifolia</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna pleurocarpa var. pleurocarpa</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Haematoxylum campechianum</i>	logwood tree	Y			2/2
plants	higher dicots	Caesalpiniaceae	<i>Senna sophora var. (40Mile Scrub J.R.Clarkson+ 6908)</i>			C		3/3
plants	higher dicots	Caesalpiniaceae	<i>Cassia</i>			C		2
plants	higher dicots	Caesalpiniaceae	<i>Bauhinia</i>			C		5
plants	higher dicots	Caesalpiniaceae	<i>Senna gaudichaudii</i>			C		3/2
plants	higher dicots	Caesalpiniaceae	<i>Senna circinnata</i>			C		1/1
plants	higher dicots	Caesalpiniaceae	<i>Cassia brewsteri</i>			C		76/13
plants	higher dicots	Caesalpiniaceae	<i>Petalostylis</i>			C		1
plants	higher dicots	Caesalpiniaceae	<i>Chamaecrista nomame</i>			C		1/1
plants	higher dicots	Callitrichaceae	<i>Callitriche sonderi</i>			C		2/2
plants	higher dicots	Callitrichaceae	<i>Callitriche muelleri</i>			C		1/1
plants	higher dicots	Campanulaceae	<i>Lobelia gibbosa var. browniana</i>			C		1/1
plants	higher dicots	Campanulaceae	<i>Isotoma gulliveri</i>			C		2
plants	higher dicots	Campanulaceae	<i>Isotoma axillaris</i>	australian harebell		C		8/7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Campanulaceae	<i>Wahlenbergia celata</i>			C		2/2
plants	higher dicots	Campanulaceae	<i>Lobelia andrewsii</i>			C		1/1
plants	higher dicots	Campanulaceae	<i>Lobelia trigonocaulis</i>	forest lobelia		C		6/5
plants	higher dicots	Campanulaceae	<i>Lobelia membranacea</i>			C		3/2
plants	higher dicots	Campanulaceae	<i>Wahlenbergia queenslandica</i>			C		3/2
plants	higher dicots	Campanulaceae	<i>Wahlenbergia tumidifructa</i>			C		5/3
plants	higher dicots	Campanulaceae	<i>Wahlenbergia islensis</i>			R		4/3
plants	higher dicots	Campanulaceae	<i>Wahlenbergia graniticola</i>	granite bluebell		C		6/4
plants	higher dicots	Campanulaceae	<i>Pratia concolor</i>	poison pratia		C		4/3
plants	higher dicots	Campanulaceae	<i>Lobelia</i>			C		1/1
plants	higher dicots	Campanulaceae	<i>Isotoma</i>			C		1/1
plants	higher dicots	Campanulaceae	<i>Wahlenbergia communis</i>	tufted bluebell		C		23/4
plants	higher dicots	Campanulaceae	<i>Wahlenbergia gracilis</i>	sprawling bluebell		C		14/5
plants	higher dicots	Campanulaceae	<i>Wahlenbergia</i>			C		4/1
plants	higher dicots	Campanulaceae	<i>Lobelia gibbosa</i>	native lobelia		C		1
plants	higher dicots	Campanulaceae	<i>Lobelia purpurascens</i>	white root		C		9/3
plants	higher dicots	Capparaceae	<i>Apophyllum</i>			C		1
plants	higher dicots	Capparaceae	<i>Apophyllum anomalum</i>	broom bush		C		59/5
plants	higher dicots	Capparaceae	<i>Capparis umbonata</i>			C		1/1
plants	higher dicots	Capparaceae	<i>Capparis ornans</i>			C		1/1
plants	higher dicots	Capparaceae	<i>Capparis arborea</i>	brush caper berry		C		7/1
plants	higher dicots	Capparaceae	<i>Capparis</i>			C		26
plants	higher dicots	Capparaceae	<i>Capparis loranthifolia</i>			C		31
plants	higher dicots	Capparaceae	<i>Capparis loranthifolia</i> var. <i>loranthifolia</i>			C		6/6
plants	higher dicots	Capparaceae	<i>Capparis canescens</i>			C		51/4
plants	higher dicots	Capparaceae	<i>Capparis lanceolaris</i>			C		2
plants	higher dicots	Capparaceae	<i>Capparis shanesiana</i>			C		7/4
plants	higher dicots	Capparaceae	<i>Capparis lasiantha</i>	nipan		C		111/9
plants	higher dicots	Capparaceae	<i>Capparis loranthifolia</i> var. <i>bancroftii</i>			C		13/7
plants	higher dicots	Capparaceae	<i>Capparis mitchellii</i>			C		12/3
plants	higher dicots	Carpodetaceae	<i>Cuttsia viburnea</i>	silver-leaf cuttsia		C		4/3
plants	higher dicots	Caryophyllaceae	<i>Drymaria cordata</i>		Y			1/1
plants	higher dicots	Caryophyllaceae	<i>Drymaria cordata</i> subsp. <i>cordata</i>		Y			1/1
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea spirostylis</i> subsp. <i>spirostylis</i>			C		2/2
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea spirostylis</i> subsp. <i>compacta</i>			C		3/1
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>			C		2/2
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea corymbosa</i> var. <i>minor</i>			C		5/4
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea breviflora</i>			C		2
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea corymbosa</i>			C		5/4
plants	higher dicots	Caryophyllaceae	<i>Gypsophila australis</i>			C		1/1
plants	higher dicots	Casuarinaceae	<i>Allocasuarina torulosa</i>			C		217/12
plants	higher dicots	Casuarinaceae	<i>Allocasuarina inophloia</i>			C		6/1
plants	higher dicots	Casuarinaceae	<i>Casuarina cristata</i>	belah		C		30/6
plants	higher dicots	Casuarinaceae	<i>Casuarina cunninghamiana</i>			C		54
plants	higher dicots	Casuarinaceae	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>			C		4/3
plants	higher dicots	Casuarinaceae	<i>Allocasuarina luehmannii</i>	bull oak		C		62/4



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plants	higher dicots	Casuarinaceae	<i>Allocasuarina littoralis</i>			C		7/1
plants	higher dicots	Celastraceae	<i>Apatophyllum flavovirens</i>			R		2/2
plants	higher dicots	Celastraceae	<i>Elaeodendron australe</i>			C		3
plants	higher dicots	Celastraceae	<i>Denhamia pittosporoides subsp. pittosporoides</i>			C		1/1
plants	higher dicots	Celastraceae	<i>Maytenus disperma</i>	orange boxwood		C		5/2
plants	higher dicots	Celastraceae	<i>Maytenus bilocularis</i>			C		4
plants	higher dicots	Celastraceae	<i>Maytenus</i>			C		1
plants	higher dicots	Celastraceae	<i>Denhamia sp. (June Tableland T.J.McDonald 553)</i>			C		1/1
plants	higher dicots	Celastraceae	<i>Denhamia pittosporoides</i>			C		9
plants	higher dicots	Celastraceae	<i>Siphonodon australis</i>	ivorywood		C		7/3
plants	higher dicots	Celastraceae	<i>Maytenus cunninghamii</i>	yellow berry bush		C		28/7
plants	higher dicots	Celastraceae	<i>Denhamia oleaster</i>			C		62/16
plants	higher dicots	Celastraceae	<i>Apatophyllum teretifolium</i>			R		2/2
plants	higher dicots	Celastraceae	<i>Elaeodendron australe var. integrifolium</i>			C		31/11
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena tetracuspis</i>	brigalow burr		C		16/3
plants	higher dicots	Chenopodiaceae	<i>Atriplex muelleri</i>	lagoon saltbush		C		16/10
plants	higher dicots	Chenopodiaceae	<i>Atriplex nummularia</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Atriplex semibaccata</i>	creeping saltbush		C		9/8
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena muricata</i>			C		10/1
plants	higher dicots	Chenopodiaceae	<i>Dysphania glomulifera</i>			C		5/2
plants	higher dicots	Chenopodiaceae	<i>Enchylaena</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Maireana</i>			C		11
plants	higher dicots	Chenopodiaceae	<i>Salsola kali</i>			C		6/6
plants	higher dicots	Chenopodiaceae	<i>Einadia nutans</i>			C		22
plants	higher dicots	Chenopodiaceae	<i>Atriplex eardleyae</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Rhagodia parabolica</i>			C		3/2
plants	higher dicots	Chenopodiaceae	<i>Maireana microphylla</i>			C		44/13
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena ramulosa</i>			C		3/1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena bicornis var. horrida</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena anisacanthoides</i>	yellow burr		C		5/4
plants	higher dicots	Chenopodiaceae	<i>Rhagodia spinescens</i>	thorny saltbush		C		3/2
plants	higher dicots	Chenopodiaceae	<i>Enchylaena tomentosa</i>			C		61/6
plants	higher dicots	Chenopodiaceae	<i>Einadia polygonoides</i>	knotweed goosefoot		C		6/5
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena muricata var. semiglabra</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena calcarata</i>	red burr		C		5/4
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena birchii</i>	galvanised burr		C		15/7
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena convexula</i>			C		4/1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena lanicuspis</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Maireana coronata</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Einadia nutans subsp. eremaea</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Dysphania valida</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Einadia trigonos subsp. trigonos</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Einadia trigonos subsp. stellulata</i>			C		9/7
plants	higher dicots	Chenopodiaceae	<i>Einadia</i>			C		2
plants	higher dicots	Chenopodiaceae	<i>Einadia hastata</i>			C		33/4
plants	higher dicots	Chenopodiaceae	<i>Einadia nutans subsp. linifolia</i>			C		18/12

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plants	higher dicots	Chenopodiaceae	<i>Chenopodium carinatum</i>	green crumbweed		C		28/16
plants	higher dicots	Chenopodiaceae	<i>Chenopodium desertorum</i> subsp. <i>anidiophyllum</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Chenopodium ambrosioides</i>	Mexican tea	Y			3
plants	higher dicots	Chenopodiaceae	<i>Atriplex elachophylla</i>			C		2/2
plants	higher dicots	Chenopodiaceae	<i>Salsola kali</i> subsp. <i>kali</i>	soft roly-poly		C		47
plants	higher dicots	Chenopodiaceae	<i>Dysphania glomulifera</i> subsp. <i>glomulifera</i>			C		5/4
plants	higher dicots	Chenopodiaceae	<i>Einadia nutans</i> subsp. <i>nutans</i>			C		13/3
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena muricata</i> var. <i>muricata</i>			C		11/7
plants	higher dicots	Chenopodiaceae	<i>Chenopodium</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena bicornis</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena muricata</i> var. <i>villosa</i>			C		8/6
plants	higher dicots	Chenopodiaceae	<i>Sclerolaena</i>			C		14
plants	higher dicots	Chenopodiaceae	<i>Chenopodium auricomiforme</i>			C		6/6
plants	higher dicots	Chenopodiaceae	<i>Chenopodium desertorum</i>			C		1
plants	higher dicots	Chenopodiaceae	<i>Chenopodium desertorum</i> subsp. <i>microphyllum</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Maireana enchylaenoides</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			C		2
plants	higher dicots	Chenopodiaceae	<i>Atriplex</i>			C		5
plants	higher dicots	Chenopodiaceae	<i>Chenopodium pumilio</i>	small crumbweed		C		2/1
plants	higher dicots	Cleomaceae	<i>Cleome tetrandra</i>			C		1
plants	higher dicots	Cleomaceae	<i>Cleome gynandra</i>		Y			4/4
plants	higher dicots	Cleomaceae	<i>Cleome viscosa</i>	tick-weed		C		9/7
plants	higher dicots	Clusiaceae	<i>Hypericum gramineum</i>			C		14/10
plants	higher dicots	Combretaceae	<i>Terminalia oblongata</i> subsp. <i>oblongata</i>			C		20/16
plants	higher dicots	Combretaceae	<i>Macropteranthes leichhardtii</i>	bonewood		C		51/18
plants	higher dicots	Combretaceae	<i>Terminalia oblongata</i>			C		84
plants	higher dicots	Convolvulaceae	<i>Ipomoea polpha</i> subsp. <i>weirana</i>			C		1
plants	higher dicots	Convolvulaceae	<i>Convolvulus graminetinus</i>			C		10/10
plants	higher dicots	Convolvulaceae	<i>Convolvulus arvensis</i>		Y			4/1
plants	higher dicots	Convolvulaceae	<i>Convolvulus erubescens</i>	Australian bindweed		C		6/1
plants	higher dicots	Convolvulaceae	<i>Dichondra repens</i>	kidney weed		C		5/1
plants	higher dicots	Convolvulaceae	<i>Polymeria pusilla</i>			C		12/6
plants	higher dicots	Convolvulaceae	<i>Polymeria</i>			C		1/1
plants	higher dicots	Convolvulaceae	<i>Ipomoea plebeia</i>	bellvine		C		20/10
plants	higher dicots	Convolvulaceae	<i>Ipomoea quamoclit</i>	star of Bethlehem	Y			1/1
plants	higher dicots	Convolvulaceae	<i>Ipomoea</i>			C		1
plants	higher dicots	Convolvulaceae	<i>Jacquemontia paniculata</i> var. <i>tomentosa</i>			C		1
plants	higher dicots	Convolvulaceae	<i>Jacquemontia paniculata</i>			C		8/6
plants	higher dicots	Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			C		8/6
plants	higher dicots	Convolvulaceae	<i>Evolvulus alsinoides</i>			C		85/5
plants	higher dicots	Convolvulaceae	<i>Ipomoea polymorpha</i>			C		9/7
plants	higher dicots	Convolvulaceae	<i>Operculina aequisejala</i>			C		2/2
plants	higher dicots	Convolvulaceae	<i>Ipomoea argillicola</i>			C		4/3
plants	higher dicots	Convolvulaceae	<i>Ipomoea cairica</i>		Y			1
plants	higher dicots	Convolvulaceae	<i>Ipomoea lonchophylla</i>			C		13/9
plants	higher dicots	Convolvulaceae	<i>Cuscuta campestris</i>	dodder	Y			1/1

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plants	higher dicots	Convolvulaceae	<i>Polymeria calycina</i>	pink bindweed		C		4/2
plants	higher dicots	Convolvulaceae	<i>Polymeria longifolia</i>	polymeria		C		8/8
plants	higher dicots	Convolvulaceae	<i>Polymeria marginata</i>			C		2/2
plants	higher dicots	Convolvulaceae	<i>Ipomoea calobra</i>			C		3/2
plants	higher dicots	Convolvulaceae	<i>Ipomoea brownii</i>			C		3/3
plants	higher dicots	Convolvulaceae	<i>Bonamia media</i>			C		3/1
plants	higher dicots	Convolvulaceae	<i>Cuscuta chinensis</i>			C		2/2
plants	higher dicots	Convolvulaceae	<i>Evolvulus alsinoides var. villosicalyx</i>			C		5/3
plants	higher dicots	Convolvulaceae	<i>Convolvulaceae</i>			C		2
plants	higher dicots	Convolvulaceae	<i>Bonamia media var. media</i>			C		2/2
plants	higher dicots	Crassulaceae	<i>Bryophyllum x houghtonii</i>		Y			4/4
plants	higher dicots	Crassulaceae	<i>Crassula sieberiana</i>			C		1
plants	higher dicots	Crassulaceae	<i>Crassula sieberiana subsp. sieberiana</i>			C		1/1
plants	higher dicots	Crassulaceae	<i>Crassula colorata</i>			C		1
plants	higher dicots	Crassulaceae	<i>Bryophyllum delagoense</i>		Y			25/8
plants	higher dicots	Crassulaceae	<i>Crassula tetramera</i>			C		4/4
plants	higher dicots	Cucurbitaceae	<i>Cucurbita</i>			C		1
plants	higher dicots	Cucurbitaceae	<i>Citrullus lanatus var. lanatus</i>		Y			1/1
plants	higher dicots	Cucurbitaceae	<i>Cucumis melo</i>			C		3/3
plants	higher dicots	Cucurbitaceae	<i>Mukia maderaspatana</i>			C		2/1
plants	higher dicots	Cucurbitaceae	<i>Cucurbitaceae</i>			C		1
plants	higher dicots	Cucurbitaceae	<i>Cucumis melo subsp. agrestis</i>			C		6/3
plants	higher dicots	Cucurbitaceae	<i>Cucumis anguria var. anguria</i>	West Indian gherkin	Y			2/2
plants	higher dicots	Cucurbitaceae	<i>Cucumis melo subsp. (Manfred D.Davidson 47)</i>			C		2/2
plants	higher dicots	Cucurbitaceae	<i>Diplocyclos palmatus subsp. affinis</i>			C		1/1
plants	higher dicots	Cucurbitaceae	<i>Diplocyclos</i>			C		1
plants	higher dicots	Cucurbitaceae	<i>Cucumis myriocarpus subsp. myriocarpus</i>	prickly pademelon	Y			2/1
plants	higher dicots	Cucurbitaceae	<i>Sicyos australis</i>	star cucumber		C		5/3
plants	higher dicots	Cucurbitaceae	<i>Diplocyclos palmatus subsp. palmatus</i>			C		6/1
plants	higher dicots	Cucurbitaceae	<i>Diplocyclos palmatus</i>			C		4/1
plants	higher dicots	Dilleniaceae	<i>Hibbertia aspera subsp. pilosifolia</i>			C		1/1
plants	higher dicots	Dilleniaceae	<i>Hibbertia cistoidea</i>			C		20/10
plants	higher dicots	Dilleniaceae	<i>Hibbertia sp. (Barakula V.Hando 122)</i>			C		1/1
plants	higher dicots	Dilleniaceae	<i>Hibbertia hendersonii</i>			C		6/6
plants	higher dicots	Dilleniaceae	<i>Hibbertia oligodonta</i>			C		40/24
plants	higher dicots	Dilleniaceae	<i>Hibbertia stricta</i>			C		15/4
plants	higher dicots	Dilleniaceae	<i>Hibbertia stricta var. hirtiflora</i>			C		1
plants	higher dicots	Dilleniaceae	<i>Hibbertia vestita</i>			C		1
plants	higher dicots	Dilleniaceae	<i>Hibbertia exutiacies</i>			C		6/4
plants	higher dicots	Dilleniaceae	<i>Hibbertia riparia</i>			C		4
plants	higher dicots	Dilleniaceae	<i>Hibbertia aspera</i>			C		8/1
plants	higher dicots	Dilleniaceae	<i>Hibbertia sp. (Blackdown Tableland S.G.Pearson 279)</i>			C		7/3
plants	higher dicots	Dilleniaceae	<i>Hibbertia sp. (Isla Gorge P.Sharpe 598)</i>			C		2/2
plants	higher dicots	Dilleniaceae	<i>Hibbertia diffusa</i>			C		1
plants	higher dicots	Dilleniaceae	<i>Hibbertia acicularis</i>			C		3/2
plants	higher dicots	Dilleniaceae	<i>Hibbertia stricta var. stricta</i>			C		8/8

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Dilleniaceae	<i>Hibbertia linearis</i>			C		9/7
plants	higher dicots	Dilleniaceae	<i>Hibbertia linearis</i> var. <i>obtusifolia</i>			C		22/3
plants	higher dicots	Dilleniaceae	<i>Hibbertia</i>			C		16/8
plants	higher dicots	Droseraceae	<i>Drosera binata</i>	forked sundew		C		4/3
plants	higher dicots	Droseraceae	<i>Drosera peltata</i>	pale sundew		C		6/4
plants	higher dicots	Droseraceae	<i>Drosera indica</i>			C		1
plants	higher dicots	Droseraceae	<i>Drosera burmanni</i>			C		4/4
plants	higher dicots	Droseraceae	<i>Drosera spatulata</i>			C		9/8
plants	higher dicots	Ebenaceae	<i>Diospyros humilis</i>	small-leaved ebony		C		73/19
plants	higher dicots	Ebenaceae	<i>Diospyros geminata</i>	scaly ebony		C		4/1
plants	higher dicots	Ebenaceae	<i>Diospyros</i>			C		1
plants	higher dicots	Ebenaceae	<i>Diospyros australis</i>	black plum		C		2/2
plants	higher dicots	Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	ash quandong		C		9/8
plants	higher dicots	Elatinaceae	<i>Elatine gratiolooides</i>	waterwort		C		6/4
plants	higher dicots	Elatinaceae	<i>Bergia trimera</i>			C		1/1
plants	higher dicots	Epacridaceae	<i>Epacridaceae</i>			C		1
plants	higher dicots	Ericaceae	<i>Agortia pleiosperma</i>			C		3/2
plants	higher dicots	Ericaceae	<i>Leucopogon biflorus</i>			C		15/11
plants	higher dicots	Ericaceae	<i>Lissanthe pluriloculata</i>			C		1/1
plants	higher dicots	Ericaceae	<i>Melichrus</i> sp. (Isla Gorge P.Sharpe+ 601)			C		30/7
plants	higher dicots	Ericaceae	<i>Brachyloma daphnoides</i> subsp. <i>daphnoides</i>			C		2/1
plants	higher dicots	Ericaceae	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>			C		1/1
plants	higher dicots	Ericaceae	<i>Leucopogon blakei</i>			C		1/1
plants	higher dicots	Ericaceae	<i>Leucopogon cuspidatus</i>			C	V	2/2
plants	higher dicots	Ericaceae	<i>Melichrus</i>			C		5/3
plants	higher dicots	Ericaceae	<i>Melichrus adpressus</i>			C		1/1
plants	higher dicots	Ericaceae	<i>Melichrus procumbens</i>	jam tarts		C		1
plants	higher dicots	Ericaceae	<i>Leucopogon grandiflorus</i>			R		7/7
plants	higher dicots	Ericaceae	<i>Leucopogon mitchellii</i>			C		16/12
plants	higher dicots	Ericaceae	<i>Leucopogon flexifolius</i>			C		6/6
plants	higher dicots	Ericaceae	<i>Leucopogon neoanglicus</i>	New England beard heath		C		1/1
plants	higher dicots	Ericaceae	<i>Monotoca scoparia</i>	prickly broom heath		C		9/5
plants	higher dicots	Ericaceae	<i>Melichrus urceolatus</i>	honey gorse		C		14/7
plants	higher dicots	Ericaceae	<i>Leucopogon muticus</i>			C		12/11
plants	higher dicots	Ericaceae	<i>Leucopogon</i>			C		1
plants	higher dicots	Ericaceae	<i>Epacris obtusifolia</i>	common heath		C		5/4
plants	higher dicots	Ericaceae	<i>Acrotriche aggregata</i>	red cluster heath		C		10/7
plants	higher dicots	Ericaceae	<i>Brachyloma daphnoides</i>			C		6
plants	higher dicots	Erythroxylaceae	<i>Erythroxylum</i>			C		1
plants	higher dicots	Erythroxylaceae	<i>Erythroxylum ellipticum</i>			C		1
plants	higher dicots	Erythroxylaceae	<i>Erythroxylum</i> sp. (Splityard Creek L.Pedley 5360)			C		33/4
plants	higher dicots	Erythroxylaceae	<i>Erythroxylum australe</i>	cocaine tree		C		136/23
plants	higher dicots	Euphorbiaceae	<i>Homalanthus stillingiiifolius</i>			C		1/1
plants	higher dicots	Euphorbiaceae	<i>Acalypha australis</i>		Y			1/1
plants	higher dicots	Euphorbiaceae	<i>Bertya opponens</i>			C	V	15/11
plants	higher dicots	Euphorbiaceae	<i>Homalanthus nutans</i>			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Euphorbiaceae	<i>Flueggea</i>			C		1
plants	higher dicots	Euphorbiaceae	<i>Bertya oleifolia</i>			C		15/12
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce coghlanii</i>			C		17/17
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus ledifolius</i>	scrub wedding bush		C		8/7
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus</i>			C		3/1
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce hirta</i>	asthma plant	Y			6/6
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce hyssopifolia</i>		Y			5/5
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce prostrata</i>	red caustic weed	Y			4/3
plants	higher dicots	Euphorbiaceae	<i>Ricinus communis</i>	castor oil bush	Y			6/4
plants	higher dicots	Euphorbiaceae	<i>Euphorbia planiticola</i>	plains spurge			C	1/1
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus sp. (Planet Downs A.R.Bean 14223)</i>				C	5
plants	higher dicots	Euphorbiaceae	<i>Bertya lapicola subsp. brevifolia</i>				C	7/7
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus ruminatus</i>				C	5/5
plants	higher dicots	Euphorbiaceae	<i>Adriana urticoides var. urticoides</i>				C	16/16
plants	higher dicots	Euphorbiaceae	<i>Adriana urticoides var. hookeri</i>				C	1/1
plants	higher dicots	Euphorbiaceae	<i>Shonia carinata</i>			R		8/8
plants	higher dicots	Euphorbiaceae	<i>Claoxylon tenerifolium subsp. tenerifolium</i>				C	2/2
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus linearifolius</i>				C	22/22
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce psammogeton</i>				C	8
plants	higher dicots	Euphorbiaceae	<i>Mallotus philippensis</i>	red kamala			C	8/4
plants	higher dicots	Euphorbiaceae	<i>Macaranga inamoena</i>				C	3
plants	higher dicots	Euphorbiaceae	<i>Jatropha gossypifolia</i>		Y			1/1
plants	higher dicots	Euphorbiaceae	<i>Euphorbia cyathophora</i>	dwarf poinsettia	Y			1/1
plants	higher dicots	Euphorbiaceae	<i>Euphorbia stevenii</i>	bottle tree spurge			C	3/3
plants	higher dicots	Euphorbiaceae	<i>Euphorbia tannensis subsp. eremophila</i>				C	17/11
plants	higher dicots	Euphorbiaceae	<i>Euphorbia</i>				C	12
plants	higher dicots	Euphorbiaceae	<i>Excoecaria dallachyana</i>	scrub poison tree			C	10/7
plants	higher dicots	Euphorbiaceae	<i>Croton insularis</i>	Queensland cascarilla			C	57/17
plants	higher dicots	Euphorbiaceae	<i>Croton pheballoides</i>	narrow-leaved croton			C	54/17
plants	higher dicots	Euphorbiaceae	<i>Claoxylon australe</i>	brittlewood			C	4/1
plants	higher dicots	Euphorbiaceae	<i>Claoxylon tenerifolium</i>	Queensland brittlewood			C	2
plants	higher dicots	Euphorbiaceae	<i>Alchornea ilicifolia</i>	native holly			C	2
plants	higher dicots	Euphorbiaceae	<i>Euphorbiaceae</i>				C	1
plants	higher dicots	Euphorbiaceae	<i>Acalypha eremorum</i>	soft acalypha			C	58/12
plants	higher dicots	Euphorbiaceae	<i>Acalypha</i>				C	2
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce mitchelliana</i>				C	3/2
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce sp. (Georgetown D.Hassall 7631)</i>				C	1/1
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce alsiniflora</i>				C	2/1
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce dallachyana</i>	mat spurge			C	50/11
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce drummondii</i>	caustic-weed			C	42/11
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpus sp. (Blackdown Tableland R.J.Henderson H610)</i>				C	12
plants	higher dicots	Euphorbiaceae	<i>Bertya</i>				C	2
plants	higher dicots	Euphorbiaceae	<i>Beyeria viscosa</i>				C	3/2
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce</i>				C	3/1
plants	higher dicots	Euphorbiaceae	<i>Monotaxis macrophylla</i>				C	3/3



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plants	higher dicots	Euphorbiaceae	<i>Bertya pedicellata</i>			R		10/6
plants	higher dicots	Euphorbiaceae	<i>Beyeria viscosa var. obovata</i>			C		9/7
plants	higher dicots	Euphorbiaceae	<i>Mallotus claoxyloides</i>	green kamala		C		2/2
plants	higher dicots	Euphorbiaceae	<i>Ricinocarpos bowmanii</i>	western wedding bush		C		1
plants	higher dicots	Euphorbiaceae	<i>Bridelia</i>			C		3
plants	higher dicots	Euphorbiaceae	<i>Cleistanthus</i>			C		3
plants	higher dicots	Fabaceae	<i>Desmodium rhytidophyllum</i>			C		58/5
plants	higher dicots	Fabaceae	<i>Desmodium gunnii</i>			C		7/3
plants	higher dicots	Fabaceae	<i>Desmodium filiforme</i>			C		5/4
plants	higher dicots	Fabaceae	<i>Desmodium campylocaulon</i>			C		3/2
plants	higher dicots	Fabaceae	<i>Daviesia wyattiana</i>	long-leaved bitter pea		C		19/15
plants	higher dicots	Fabaceae	<i>Daviesia ulicifolia</i>	native gorse		C		7
plants	higher dicots	Fabaceae	<i>Daviesia genistifolia</i>	broom bitter pea		C		1
plants	higher dicots	Fabaceae	<i>Daviesia discolor</i>			V	V	13/10
plants	higher dicots	Fabaceae	<i>Dillwynia retorta</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Daviesia ulicifolia subsp. stenophylla</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Dillwynia phyllicoides</i>			C		10/10
plants	higher dicots	Fabaceae	<i>Phyllodium hackeri</i>			C		1
plants	higher dicots	Fabaceae	<i>Leptosema chapmanii</i>			R		6/6
plants	higher dicots	Fabaceae	<i>Galactia tenuiflora var. macrantha</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Galactia tenuiflora var. lucida</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Galactia tenuiflora forma sericea</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Cullen australasicum</i>			C		5/5
plants	higher dicots	Fabaceae	<i>Cullen cinereum</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Cullen tenax</i>	emu-foot		C		19/14
plants	higher dicots	Fabaceae	<i>Crotalaria pallida var. obovata</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Indigofera brevidens</i>			C		3/2
plants	higher dicots	Fabaceae	<i>Alysicarpus muelleri</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Tephrosia sp. (Copperfield River P.I.Forster PIF14768)</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Jacksonia rhadinoclona</i>	Miles dogwood		C		6/4
plants	higher dicots	Fabaceae	<i>Glycine sp. (Aldinga Grace+ 228)</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Glycine sp. (Mt Moffatt K.A. Williams 86060)</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Glycine sp. (Mackay S.B.Andrews+ 43)</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Glycine sp. (Laglan Station L.S.Smith 10302)</i>			C		1
plants	higher dicots	Fabaceae	<i>Kennedia sp. (Blackdown Tableland R.J.Henderson+ H747)</i>			C		6/6
plants	higher dicots	Fabaceae	<i>Indigofera ewartiana</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Indigostrum parviflorum</i>			C		5/5
plants	higher dicots	Fabaceae	<i>Swainsona sejuncta</i>			C		5/5
plants	higher dicots	Fabaceae	<i>Glycine clandestina</i>			C		12
plants	higher dicots	Fabaceae	<i>Vicia villosa subsp. eriocarpa</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Swainsona queenslandica</i>			C		5/5
plants	higher dicots	Fabaceae	<i>Daviesia quoquoversus</i>			V		10/3
plants	higher dicots	Fabaceae	<i>Rhynchosia minima var. australis</i>			C		5/4
plants	higher dicots	Fabaceae	<i>Pultenaea millarii</i>			C		3/1

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plants	higher dicots	Fabaceae	<i>Vigna radiata</i> var. <i>sublobata</i>			C		8/6
plants	higher dicots	Fabaceae	<i>Desmodium muelleri</i>			C		1
plants	higher dicots	Fabaceae	<i>Pultenaea paleacea</i>			C		3
plants	higher dicots	Fabaceae	<i>Hovea planifolia</i>			C		39/20
plants	higher dicots	Fabaceae	<i>Daviesia ulicifolia</i> subsp. <i>stenophylla</i> x <i>D.wyattiana</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Medicago polymorpha</i>	burr medic	Y			1/1
plants	higher dicots	Fabaceae	<i>Vigna lanceolata</i> var. <i>lanceolata</i>			C		5/5
plants	higher dicots	Fabaceae	<i>Swainsona microphylla</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Vigna vexillata</i> var. <i>angustifolia</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Desmodium macrocarpum</i>			R		7/5
plants	higher dicots	Fabaceae	<i>Centrosema pascuorum</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Zornia areolata</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Tephrosia gaudium-solis</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Zornia dyctiocarpa</i> var. <i>filifolia</i>			C		4/4
plants	higher dicots	Fabaceae	<i>Swainsona brachycarpa</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Tephrosia dietrichiae</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Pultenaea</i>			C		5
plants	higher dicots	Fabaceae	<i>Indigofera brevidens</i> var. <i>uncinata</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera glandulosa</i>			C		3/1
plants	higher dicots	Fabaceae	<i>Vigna vexillata</i>			C		3
plants	higher dicots	Fabaceae	<i>Swainsona luteola</i>	dwarf darling pea		C		8/8
plants	higher dicots	Fabaceae	<i>Swainsona oroboides</i>	variable swainsona		C		1/1
plants	higher dicots	Fabaceae	<i>Jacksonia</i>			C		1
plants	higher dicots	Fabaceae	<i>Glycine latifolia</i>			C		23/16
plants	higher dicots	Fabaceae	<i>Aeschynomene micranthos</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Aotus mollis</i>			C		6/6
plants	higher dicots	Fabaceae	<i>Tephrosia brachyodon</i>			C		3
plants	higher dicots	Fabaceae	<i>Desmodium nemorosum</i>			C		2
plants	higher dicots	Fabaceae	<i>Stylosanthes scabra</i>		Y			14/9
plants	higher dicots	Fabaceae	<i>Stylosanthes hamata</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Medicago sativa</i>	lucerne	Y			1
plants	higher dicots	Fabaceae	<i>Medicago scutellata</i>	snail medic	Y			1/1
plants	higher dicots	Fabaceae	<i>Neonotonia wightii</i> var. <i>wightii</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Indigofera</i>			C		10
plants	higher dicots	Fabaceae	<i>Flemingia parviflora</i>	flemingia		C		1
plants	higher dicots	Fabaceae	<i>Tephrosia</i>			C		4
plants	higher dicots	Fabaceae	<i>Swainsona swainsonioides</i>	downy swainsona		C		1/1
plants	higher dicots	Fabaceae	<i>Desmodium brachypodum</i>	large ticktrefoil		C		39/5
plants	higher dicots	Fabaceae	<i>Aotus subglauca</i> var. <i>filiformis</i>			C		3/2
plants	higher dicots	Fabaceae	<i>Vigna vexillata</i> var. <i>youngiana</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Zornia muelleriana</i>			C		1
plants	higher dicots	Fabaceae	<i>Zornia muriculata</i>			C		7
plants	higher dicots	Fabaceae	<i>Zornia pallida</i>			R		2/2
plants	higher dicots	Fabaceae	<i>Desmodium varians</i>	slender tick trefoil		C		28/5
plants	higher dicots	Fabaceae	<i>Dillwynia retorta</i> var. <i>phylicoides</i>			C		1

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plants	higher dicots	Fabaceae	<i>Glycine tomentella</i>	woolly glycine		C		48/16
plants	higher dicots	Fabaceae	<i>Glycine tabacina</i>	glycine pea		C		46/6
plants	higher dicots	Fabaceae	<i>Glycine microphylla</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Glycine falcata</i>			C		9/9
plants	higher dicots	Fabaceae	<i>Glycine cyrtoloba</i>			C		4
plants	higher dicots	Fabaceae	<i>Glycine clandestina</i> var. <i>clandestina</i>			C		3/1
plants	higher dicots	Fabaceae	<i>Glycine clandestina</i> var. <i>sericea</i>			C		6/2
plants	higher dicots	Fabaceae	<i>Gastrolobium grandiflorum</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Galactia</i>			C		3/1
plants	higher dicots	Fabaceae	<i>Galactia tenuiflora</i>			C		49/7
plants	higher dicots	Fabaceae	<i>Erythrina vespertilio</i>			C		9/1
plants	higher dicots	Fabaceae	<i>Hovea</i>			C		9/1
plants	higher dicots	Fabaceae	<i>Hovea pannosa</i>	rusty bush pea		C		2
plants	higher dicots	Fabaceae	<i>Hovea longipes</i>	brush hovea		C		41/19
plants	higher dicots	Fabaceae	<i>Hovea longifolia</i>	purple bush pea		C		5/2
plants	higher dicots	Fabaceae	<i>Hovea linearis</i>	erect hovea		C		12/7
plants	higher dicots	Fabaceae	<i>Hovea lanceolata</i>			C		19
plants	higher dicots	Fabaceae	<i>Hardenbergia violacea</i>			C		28/6
plants	higher dicots	Fabaceae	<i>Gompholobium pinnatum</i>	poor mans gold		C		4/2
plants	higher dicots	Fabaceae	<i>Indigofera pratensis</i>			C		25/9
plants	higher dicots	Fabaceae	<i>Indigofera linnaei</i>	Birdsville indigo		C		23/5
plants	higher dicots	Fabaceae	<i>Indigofera linifolia</i>			C		22/13
plants	higher dicots	Fabaceae	<i>Indigofera hirsuta</i>	hairy indigo		C		15/7
plants	higher dicots	Fabaceae	<i>Indigofera colutea</i>	sticky indigo		C		11/9
plants	higher dicots	Fabaceae	<i>Indigofera australis</i>			C		24/7
plants	higher dicots	Fabaceae	<i>Jacksonia scoparia</i>			C		67/10
plants	higher dicots	Fabaceae	<i>Jacksonia ramosissima</i>			C		3/1
plants	higher dicots	Fabaceae	<i>Melilotus albus</i>	sweet clover	Y			1/1
plants	higher dicots	Fabaceae	<i>Macroptilium atropurpureum</i>	siratro	Y			5/4
plants	higher dicots	Fabaceae	<i>Lotus cruentus</i>	red-flowered lotus		C		2/2
plants	higher dicots	Fabaceae	<i>Lotus australis</i>	Australian trefoil		C		16/13
plants	higher dicots	Fabaceae	<i>Lespedeza juncea</i> subsp. <i>sericea</i>	perennial lespedeza		C		5/2
plants	higher dicots	Fabaceae	<i>Mirbelia speciosa</i> subsp. <i>ringrosei</i>			C		15/14
plants	higher dicots	Fabaceae	<i>Mirbelia rubiifolia</i>	heathy mirbelia		C		5/3
plants	higher dicots	Fabaceae	<i>Mirbelia pungens</i>			C		5/3
plants	higher dicots	Fabaceae	<i>Mirbelia aotoides</i>			C		6/4
plants	higher dicots	Fabaceae	<i>Phyllota phyllicoides</i>	yellow peabush		C		10/7
plants	higher dicots	Fabaceae	<i>Rhynchosia minima</i> var. <i>minima</i>			C		23/11
plants	higher dicots	Fabaceae	<i>Pultenaea spinosa</i>			C		54/19
plants	higher dicots	Fabaceae	<i>Pultenaea petiolaris</i>			C		29/17
plants	higher dicots	Fabaceae	<i>Pultenaea millarii</i> var. <i>millarii</i>			C		18/16
plants	higher dicots	Fabaceae	<i>Pultenaea dentata</i>			C		1
plants	higher dicots	Fabaceae	<i>Sesbania cannabina</i> var. <i>cannabina</i>			C		6/6
plants	higher dicots	Fabaceae	<i>Tephrosia purpurea</i> var. <i>sericea</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Tephrosia juncea</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Tephrosia filipes</i> subsp. <i>filipes</i>			C		20/6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Fabaceae	<i>Tephrosia astragaloides</i>			C		4/4
plants	higher dicots	Fabaceae	<i>Swainsona galegifolia</i>	smooth Darling pea		C		11/5
plants	higher dicots	Fabaceae	<i>Swainsona campylantha</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Stylosanthes humilis</i>	Townsville stylo	Y			1/1
plants	higher dicots	Fabaceae	<i>Trifolium glomeratum</i>	clustered clover	Y			1/1
plants	higher dicots	Fabaceae	<i>Vigna lanceolata</i>			C		2
plants	higher dicots	Fabaceae	<i>Zornia muriculata subsp. muriculata</i>			C		8/3
plants	higher dicots	Fabaceae	<i>Zornia muriculata subsp. angustata</i>			C		7/7
plants	higher dicots	Fabaceae	<i>Zornia muelleriana subsp. muelleriana</i>			C		2/1
plants	higher dicots	Fabaceae	<i>Glycine syndetika</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Zornia dyctiocarpa var. dyctiocarpa</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Cajanus acutifolius</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Crotalaria verrucosa</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Crotalaria brevis</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Crotalaria juncea</i>	sunhemp	Y			14/8
plants	higher dicots	Fabaceae	<i>Crotalaria incana</i>		Y			4
plants	higher dicots	Fabaceae	<i>Crotalaria incana subsp. incana</i>		Y			7/7
plants	higher dicots	Fabaceae	<i>Desmodium gangeticum</i>			C		2/1
plants	higher dicots	Fabaceae	<i>Hovea tholiformis</i>			C		17/4
plants	higher dicots	Fabaceae	<i>Hovea lorata</i>			C		15/13
plants	higher dicots	Fabaceae	<i>Hovea angustissima</i>			C		4/4
plants	higher dicots	Fabaceae	<i>Crotalaria medicaginea var. neglecta</i>			C		6/5
plants	higher dicots	Fabaceae	<i>Crotalaria medicaginea var. medicaginea</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Hovea planifolia x H.tholiformis</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Hovea parvicalyx x H.planifolia</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Hovea linearis x H.planifolia</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Tephrosia sp. (The Grampians L.H.Bird AQ565381)</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Canavalia papuana</i>	wild jack bean		C		2/2
plants	higher dicots	Fabaceae	<i>Mirbelia</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Sesbania cannabina</i>			C		8/1
plants	higher dicots	Fabaceae	<i>Crotalaria pallida</i>		Y			2
plants	higher dicots	Fabaceae	<i>Fabaceae</i>			C		4/1
plants	higher dicots	Fabaceae	<i>Crotalaria dissitiflora</i>			C		2
plants	higher dicots	Fabaceae	<i>Bossiaea rhombifolia</i>			C		1
plants	higher dicots	Fabaceae	<i>Aotus subglauca</i>			C		2
plants	higher dicots	Fabaceae	<i>Crotalaria mitchellii</i>			C		2
plants	higher dicots	Fabaceae	<i>Desmodium</i>			C		8/1
plants	higher dicots	Fabaceae	<i>Crotalaria medicaginea</i>	trefoil rattlepod		C		1
plants	higher dicots	Fabaceae	<i>Crotalaria mitchellii subsp. mitchellii</i>			C		6/2
plants	higher dicots	Fabaceae	<i>Crotalaria montana</i>			C		13
plants	higher dicots	Fabaceae	<i>Crotalaria</i>			C		5
plants	higher dicots	Fabaceae	<i>Clitoria ternatea</i>	butterfly pea	Y			3/3
plants	higher dicots	Fabaceae	<i>Crotalaria dissitiflora subsp. dissitiflora</i>			C		7/6
plants	higher dicots	Fabaceae	<i>Chorizema parviflorum</i>	eastern flame pea		C		1/1
plants	higher dicots	Fabaceae	<i>Cajanus confertiflorus</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Cajanus reticulatus var. reticulatus</i>			C		2/2

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plants	higher dicots	Fabaceae	<i>Bossiaea brownii</i>			C		16/6
plants	higher dicots	Fabaceae	<i>Bossiaea carinalis</i>			C		23/16
plants	higher dicots	Fabaceae	<i>Bossiaea rhombifolia subsp. concolor</i>			C		19/12
plants	higher dicots	Fabaceae	<i>Aeschynomene brevifolia</i>			C		1
plants	higher dicots	Fabaceae	<i>Aeschynomene indica</i>	budda pea		C		5/3
plants	higher dicots	Fabaceae	<i>Bossiaea</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Daviesia</i>			C		3
plants	higher dicots	Fabaceae	<i>Kennedia</i>			C		1
plants	higher dicots	Fabaceae	<i>Swainsona</i>			C		2
plants	higher dicots	Fabaceae	<i>Daviesia ulicifolia subsp. ulicifolia</i>			C		3
plants	higher dicots	Fabaceae	<i>Zornia dyctiocarpa</i>			C		3
plants	higher dicots	Fabaceae	<i>Indigofera sp. (Aramac E.J.Thompson+ JER177)</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Hovea parvicalyx</i>			C		11/10
plants	higher dicots	Fabaceae	<i>Pultenaea rariflora</i>			C		2
plants	higher dicots	Fabaceae	<i>Pultenaea borea</i>			C		7/7
plants	higher dicots	Fabaceae	<i>Tephrosia filipes var. (Mt Blackjack A.R.Bean+ 7332)</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Glycine stenophita</i>				C	1/1
plants	higher dicots	Fabaceae	<i>Tephrosia barbatala</i>				C	2/2
plants	higher dicots	Fabaceae	<i>Vigna sp. (Jimbour A.R.Bean 12534)</i>				C	2/2
plants	higher dicots	Fabaceae	<i>Vigna trilobata</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Glycine pescadrensis</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Daviesia villifera</i>	prickly daviesia		C		7/2
plants	higher dicots	Fabaceae	<i>Daviesia squarrosa</i>			C		4
plants	higher dicots	Fabaceae	<i>Daviesia filipes</i>			C		19/9
plants	higher dicots	Fabaceae	<i>Daviesia acicularis</i>			C		4/2
plants	higher dicots	Fabaceae	<i>Gompholobium foliolosum</i>	fern-leaved burtonia		C		10/2
plants	higher dicots	Fabaceae	<i>Glycine</i>			C		15/3
plants	higher dicots	Fabaceae	<i>Hardenbergia perbrevidens</i>			C		9/8
plants	higher dicots	Fabaceae	<i>Indigofera brevidens var. brevidens</i>			C		6/4
plants	higher dicots	Fabaceae	<i>Macroptilium lathyroides</i>		Y			7/5
plants	higher dicots	Fabaceae	<i>Pultenaea millarii var. angustifolia</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Rhynchosia minima</i>			C		51/4
plants	higher dicots	Fabaceae	<i>Tephrosia rufula</i>			C		8/4
plants	higher dicots	Flacourtiaceae	<i>Xylosma terrae-reginae</i>	xylosma		C		1
plants	higher dicots	Gentianaceae	<i>Schenkia australis</i>			C		5/5
plants	higher dicots	Gentianaceae	<i>Centaurium spicatum</i>	spike centauray		C		1
plants	higher dicots	Gentianaceae	<i>Centaurium erythraea</i>	common centauray	Y			1
plants	higher dicots	Geraniaceae	<i>Erodium crinitum</i>	blue crowfoot		C		2/2
plants	higher dicots	Geraniaceae	<i>Geranium solanderi var. solanderi</i>	native geranium		C		2/2
plants	higher dicots	Goodeniaceae	<i>Goodenia racemosa</i>			C		2
plants	higher dicots	Goodeniaceae	<i>Goodenia rotundifolia</i>			C		72/11
plants	higher dicots	Goodeniaceae	<i>Goodenia glabra</i>			C		21/10
plants	higher dicots	Goodeniaceae	<i>Goodenia bellidifolia subsp. argentea</i>			C		9/6
plants	higher dicots	Goodeniaceae	<i>Scaevola ramosissima</i>	purple fan flower		C		6/4
plants	higher dicots	Goodeniaceae	<i>Dampiera purpurea</i>			C		1/1



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plants	higher dicots	Goodeniaceae	<i>Goodenia rosulata</i>			C		2/2
plants	higher dicots	Goodeniaceae	<i>Goodenia sp. (Mt Castletower M.D.Crisp 2753)</i>			C		11/6
plants	higher dicots	Goodeniaceae	<i>Dampiera lanceolata var. lanceolata</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Scaevola parvifolia subsp. parvifolia</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Goodenia racemosa var. racemosa</i>			C		5/4
plants	higher dicots	Goodeniaceae	<i>Goodenia hederacea</i>			C		1
plants	higher dicots	Goodeniaceae	<i>Goodenia racemosa var. latifolia</i>			C		1
plants	higher dicots	Goodeniaceae	<i>Goodenia calcarata</i>			C		1
plants	higher dicots	Goodeniaceae	<i>Scaevola humilis</i>			C		3/3
plants	higher dicots	Goodeniaceae	<i>Scaevola</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Scaevola depauperata</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Goodenia gracilis</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Goodenia delicata</i>			C		5/3
plants	higher dicots	Goodeniaceae	<i>Velleia paradoxa</i>	spur velleia		C		2/2
plants	higher dicots	Goodeniaceae	<i>Scaevola glabrata</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Goodenia</i>			C		17/2
plants	higher dicots	Goodeniaceae	<i>Dampiera</i>			C		1
plants	higher dicots	Goodeniaceae	<i>Brunonia australis</i>	blue pincushion		C		14/1
plants	higher dicots	Goodeniaceae	<i>Goodenia paniculata</i>			C		1
plants	higher dicots	Goodeniaceae	<i>Dampiera discolor</i>			C		17/11
plants	higher dicots	Goodeniaceae	<i>Dampiera adpressa</i>			C		11/8
plants	higher dicots	Goodeniaceae	<i>Scaevola spinescens</i>	prickly fan flower		C		3/1
plants	higher dicots	Goodeniaceae	<i>Goodenia fascicularis</i>			C		3/2
plants	higher dicots	Goodeniaceae	<i>Goodenia grandiflora</i>			C		22/15
plants	higher dicots	Goodeniaceae	<i>Goodenia viridula</i>			C		1/1
plants	higher dicots	Goodeniaceae	<i>Dampiera sylvestris</i>	blue dampiera		C		1/1
plants	higher dicots	Goodeniaceae	<i>Dampiera stricta</i>			C		1
plants	higher dicots	Gyrostemonaceae	<i>Codonocarpus attenuatus</i>			C		8/7
plants	higher dicots	Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>			C		3/1
plants	higher dicots	Haloragaceae	<i>Gonocarpus tetragynus</i>			C		1/1
plants	higher dicots	Haloragaceae	<i>Myriophyllum simulans</i>			C		2/2
plants	higher dicots	Haloragaceae	<i>Myriophyllum implicatum</i>			R		1/1
plants	higher dicots	Haloragaceae	<i>Gonocarpus humilis</i>			C		1/1
plants	higher dicots	Haloragaceae	<i>Gonocarpus</i>			C		4/2
plants	higher dicots	Haloragaceae	<i>Haloragis glauca forma glauca</i>			C		2/2
plants	higher dicots	Haloragaceae	<i>Haloragis exalata subsp. velutina</i>			V	V	1/1
plants	higher dicots	Haloragaceae	<i>Gonocarpus elatus</i>			C		9/2
plants	higher dicots	Haloragaceae	<i>Myriophyllum crispatum</i>			C		1/1
plants	higher dicots	Haloragaceae	<i>Myriophyllum verrucosum</i>	water milfoil		C		5/3
plants	higher dicots	Haloragaceae	<i>Myriophyllum variifolium</i>			C		1/1
plants	higher dicots	Haloragaceae	<i>Haloragis stricta</i>			C		11/7
plants	higher dicots	Haloragaceae	<i>Haloragis glauca</i>			C		1
plants	higher dicots	Haloragaceae	<i>Gonocarpus chinensis subsp. verrucosus</i>			C		3/2
plants	higher dicots	Haloragaceae	<i>Haloragis heterophylla</i>	rough raspweed		C		8/6
plants	higher dicots	Haloragaceae	<i>Gonocarpus micranthus subsp. ramosissimus</i>			C		6/5
plants	higher dicots	Haloragaceae	<i>Haloragis aspera</i>	raspweed		C		10/5

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plants	higher dicots	Helicteraceae	<i>Helicteres semiglabra</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Teucrium sp. (Pittsworth A.R.Bean 18338)</i>			C		2/1
plants	higher dicots	Lamiaceae	<i>Teucrium micranthum</i>			C		12/11
plants	higher dicots	Lamiaceae	<i>Prostanthera sp. (Blackdown Tableland K.A.W.Williams 79071)</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Glossocarya hemiderma</i>			C		12/1
plants	higher dicots	Lamiaceae	<i>Ajuga australis</i>	Australian bugle		C		26/12
plants	higher dicots	Lamiaceae	<i>Chloanthes parviflora</i>			C		20/12
plants	higher dicots	Lamiaceae	<i>Plectranthus</i>			C		2
plants	higher dicots	Lamiaceae	<i>Plectranthus parviflorus</i>			C		36/17
plants	higher dicots	Lamiaceae	<i>Westringia cheelii</i>			C		1
plants	higher dicots	Lamiaceae	<i>Westringia eremicola</i>	slender westringia		C		3/1
plants	higher dicots	Lamiaceae	<i>Teucrium integrifolium</i>			C		17/14
plants	higher dicots	Lamiaceae	<i>Spartothamnella juncea</i>	native broom		C		35/9
plants	higher dicots	Lamiaceae	<i>Salvia plebeia</i>	common sage		C		3/3
plants	higher dicots	Lamiaceae	<i>Salvia reflexa</i>		Y			7/5
plants	higher dicots	Lamiaceae	<i>Prostanthera leichhardtii</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Prostanthera</i>			C		10/5
plants	higher dicots	Lamiaceae	<i>Plectranthus diversus</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Hemigenia biddulphiana</i>			C		3/2
plants	higher dicots	Lamiaceae	<i>Leonotis nepetifolia</i>		Y			2/2
plants	higher dicots	Lamiaceae	<i>Prostanthera collina</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Prostanthera ringens</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Mentha diemenica</i>	native mint		C		2/2
plants	higher dicots	Lamiaceae	<i>Teucrium corymbosum</i>	forest germander		C		4/4
plants	higher dicots	Lamiaceae	<i>Pityrodia salviifolia</i>	pityrodia		C		6/4
plants	higher dicots	Lamiaceae	<i>Plectranthus graveolens</i>	flea bush		C		2/2
plants	higher dicots	Lamiaceae	<i>Mentha grandiflora</i>			C		3/2
plants	higher dicots	Lamiaceae	<i>Prostanthera sp. (Moonie Highway K.A.Williams 89011)</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Teucrium argutum</i>			C		4/3
plants	higher dicots	Lamiaceae	<i>Microcorys queenslandica</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Prostanthera parvifolia</i>			C		4/4
plants	higher dicots	Lamiaceae	<i>Prostanthera suborbicularis</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Spartothamnella puberula</i>			C		2/1
plants	higher dicots	Lamiaceae	<i>Westringia</i>			C		2
plants	higher dicots	Lamiaceae	<i>Moluccella laevis</i>	molucca balm	Y			2/2
plants	higher dicots	Lamiaceae	<i>Ocimum tenuiflorum</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Prostanthera cryptandroides subsp. euphrasioides</i>			C		24/14
plants	higher dicots	Lamiaceae	<i>Teucrium sp. (Ormeau G.Leiper AQ476858)</i>			C		1
plants	higher dicots	Lamiaceae	<i>Plectranthus blakei</i>			R		13/13
plants	higher dicots	Lamiaceae	<i>Lamium amplexicaule</i>	deadnettle	Y			1/1
plants	higher dicots	Lamiaceae	<i>Basilicum polystachyon</i>			C		19/10
plants	higher dicots	Lamiaceae	<i>Anisomeles malabarica</i>			C		13/10
plants	higher dicots	Lamiaceae	<i>Clerodendrum floribundum</i>			C		25/10
plants	higher dicots	Lamiaceae	<i>Hemigenia</i>			C		1/1

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plants	higher dicots	Lamiaceae	<i>Ocimum</i>			C		1
plants	higher dicots	Lentibulariaceae	<i>Utricularia uliginosa</i>	asian bladderwort		C		4/3
plants	higher dicots	Lentibulariaceae	<i>Utricularia dichotoma</i>	fairy aprons		C		7/6
plants	higher dicots	Lentibulariaceae	<i>Utricularia lateriflora</i>	small bladderwort		C		1
plants	higher dicots	Lentibulariaceae	<i>Utricularia</i>			C		2/2
plants	higher dicots	Lentibulariaceae	<i>Utricularia bifida</i>			C		1
plants	higher dicots	Lentibulariaceae	<i>Utricularia caerulea</i>	blue bladderwort		C		1/1
plants	higher dicots	Linaceae	<i>Linum usitatissimum</i>	flax	Y			1/1
plants	higher dicots	Loganiaceae	<i>Mitrasacme oasena</i>			C		5/5
plants	higher dicots	Loganiaceae	<i>Logania albiflora</i>			C		24/18
plants	higher dicots	Loganiaceae	<i>Strychnos psilosperma</i>	strychnine tree		C		9/2
plants	higher dicots	Loganiaceae	<i>Mitrasacme pygmaea</i>			C		1/1
plants	higher dicots	Loganiaceae	<i>Logania cordifolia</i>			R		7/7
plants	higher dicots	Loganiaceae	<i>Logania diffusa</i>			V	V	11/9
plants	higher dicots	Loganiaceae	<i>Logania pusilla</i>			C		2/1
plants	higher dicots	Loganiaceae	<i>Mitrasacme alsinoides</i>			C		4/3
plants	higher dicots	Loganiaceae	<i>Mitrasacme paludosa</i>			C		10/8
plants	higher dicots	Loganiaceae	<i>Logania</i>			C		1
plants	higher dicots	Loganiaceae	<i>Mitrasacme prolifera</i>			C		1
plants	higher dicots	Loranthaceae	<i>Amyema</i>			C		2/1
plants	higher dicots	Loranthaceae	<i>Amyema quandang</i>			C		6
plants	higher dicots	Loranthaceae	<i>Amyema miquelii</i>			C		5/5
plants	higher dicots	Loranthaceae	<i>Amyema bifurcata</i>			C		2/1
plants	higher dicots	Loranthaceae	<i>Amyema conspicua subsp. conspicua</i>			C		2/2
plants	higher dicots	Loranthaceae	<i>Amyema pendula subsp. longifolia</i>			C		1
plants	higher dicots	Loranthaceae	<i>Lysiana</i>			C		1
plants	higher dicots	Loranthaceae	<i>Amyema maidenii subsp. angustifolia</i>			C		1/1
plants	higher dicots	Loranthaceae	<i>Lysiana filifolia</i>			R		7/6
plants	higher dicots	Loranthaceae	<i>Lysiana linearifolia</i>			C		2/1
plants	higher dicots	Loranthaceae	<i>Lysiana exocarpi subsp. tenuis</i>			C		1/1
plants	higher dicots	Loranthaceae	<i>Muellerina bidwillii</i>			C		2/1
plants	higher dicots	Loranthaceae	<i>Diplatia grandibractea</i>			C		1/1
plants	higher dicots	Loranthaceae	<i>Amyema maidenii</i>			C		1
plants	higher dicots	Loranthaceae	<i>Amyema quandang var. quandang</i>			C		7/6
plants	higher dicots	Loranthaceae	<i>Dendrophthoe glabrescens</i>			C		4/2
plants	higher dicots	Loranthaceae	<i>Dendrophthoe homoplastica</i>			C		3/3
plants	higher dicots	Loranthaceae	<i>Lysiana subfalcata</i>			C		15/13
plants	higher dicots	Loranthaceae	<i>Amyema cambagei</i>			C		3/2
plants	higher dicots	Loranthaceae	<i>Amyema quandang var. bancroftii</i>	broad-leaved grey mistletoe		C		10/10
plants	higher dicots	Loranthaceae	<i>Dendrophthoe vitellina</i>	long-flowered mistletoe		C		4/2
plants	higher dicots	Loranthaceae	<i>Amyema congener subsp. rotundifolia</i>			C		5/5
plants	higher dicots	Lythraceae	<i>Rotala mexicana</i>			C		1/1
plants	higher dicots	Lythraceae	<i>Lythrum paradoxum</i>			C		1/1
plants	higher dicots	Lythraceae	<i>Ammannia multiflora</i>	jerry-jerry		C		5/5
plants	higher dicots	Malvaceae	<i>Abutilon leucopetalum</i>			C		4/4
plants	higher dicots	Malvaceae	<i>Malvastrum americanum var. stellatum</i>			C		11/11

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Malvaceae	<i>Gossypium hirsutum</i>		Y			5/5
plants	higher dicots	Malvaceae	<i>Sida filiformis</i> - <i>S. macropoda</i>			C		2/2
plants	higher dicots	Malvaceae	<i>Sida aprica</i>			C		4/3
plants	higher dicots	Malvaceae	<i>Sida brachypoda</i>			C		2/2
plants	higher dicots	Malvaceae	<i>Sida cunninghamii</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Sida platycalyx</i>	lifesaver burr		C		5
plants	higher dicots	Malvaceae	<i>Sida goniocarpa</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Sida pleiantha</i>			C		10/10
plants	higher dicots	Malvaceae	<i>Malva parviflora</i>	small-flowered mallow	Y			2/2
plants	higher dicots	Malvaceae	<i>Abutilon guineense</i>			C		4/4
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>incanum</i>			C		6/6
plants	higher dicots	Malvaceae	<i>Sida trichopoda</i> var. ( <i>Palardo S.T.Blake 7600</i> )			C		5/5
plants	higher dicots	Malvaceae	<i>Sida corrugata</i> subsp. ( <i>Bollon S.L.Everist 3674</i> )			C		3/3
plants	higher dicots	Malvaceae	<i>Hibiscus</i> sp. ( <i>Emerald S.L.Everist 2124</i> )			C		9/5
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>oxycarpum</i>			C		8/8
plants	higher dicots	Malvaceae	<i>Malvastrum</i>			C		2
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum</i> forma <i>oxycarpum</i>			C		10
plants	higher dicots	Malvaceae	<i>Hibiscus sturtii</i> var. <i>sturtii</i>			C		11/11
plants	higher dicots	Malvaceae	<i>Abutilon tubulosum</i>			C		3/2
plants	higher dicots	Malvaceae	<i>Malva</i>			C		1
plants	higher dicots	Malvaceae	<i>Sida atherophora</i>			C		54/10
plants	higher dicots	Malvaceae	<i>Sida hackettiana</i>			C		12/12
plants	higher dicots	Malvaceae	<i>Abutilon fraseri</i> subsp. <i>fraseri</i>			C		6/6
plants	higher dicots	Malvaceae	<i>Malvastrum americanum</i>		Y			16
plants	higher dicots	Malvaceae	<i>Sida rohlenae</i> subsp. <i>rohlenae</i>			C		13/6
plants	higher dicots	Malvaceae	<i>Hibiscus trionum</i> var. <i>vesicarius</i>			C		11/11
plants	higher dicots	Malvaceae	<i>Malvastrum coromandelianum</i> subsp. <i>coromandelianum</i>		Y			5/5
plants	higher dicots	Malvaceae	<i>Hibiscus diversifolius</i>	swamp hibiscus		C		1
plants	higher dicots	Malvaceae	<i>Hibiscus heterophyllus</i>			C		7/3
plants	higher dicots	Malvaceae	<i>Hibiscus meraukensis</i>	Merauke hibiscus		C		6/3
plants	higher dicots	Malvaceae	<i>Hibiscus splendens</i>	pink hibiscus		C		9/7
plants	higher dicots	Malvaceae	<i>Hibiscus sturtii</i>			C		68/11
plants	higher dicots	Malvaceae	<i>Hibiscus vitifolius</i>			C		2/2
plants	higher dicots	Malvaceae	<i>Hibiscus</i>			C		14/1
plants	higher dicots	Malvaceae	<i>Gossypium australe</i>			C		4/4
plants	higher dicots	Malvaceae	<i>Abutilon auritum</i>	Chinese lantern		C		4/3
plants	higher dicots	Malvaceae	<i>Abutilon tubulosum</i> var. <i>breviflorum</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Abutilon tubulosum</i> var. <i>tubulosum</i>			C		1/1
plants	higher dicots	Malvaceae	Malvaceae			C		3/1
plants	higher dicots	Malvaceae	<i>Abutilon cunninghamii</i>			C		1
plants	higher dicots	Malvaceae	<i>Abutilon calliphyllum</i>	velvet lanternflower		C		2/1
plants	higher dicots	Malvaceae	<i>Abutilon otocarpum</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Hibiscus trionum</i> var. <i>trionum</i>		Y			4/1
plants	higher dicots	Malvaceae	<i>Abutilon nobile</i>			C		10/10
plants	higher dicots	Malvaceae	<i>Urena lobata</i>	urena weed	Y			2
plants	higher dicots	Malvaceae	<i>Sida rhombifolia</i>		Y			31/5

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plants	higher dicots	Malvaceae	<i>Sida rohlenae</i>			C		11/1
plants	higher dicots	Malvaceae	<i>Sida spinosa</i>	spiny sida	Y			33/5
plants	higher dicots	Malvaceae	<i>Sida subspicata</i>	spiked sida		C		90/1
plants	higher dicots	Malvaceae	<i>Sida trichopoda</i>			C		16/3
plants	higher dicots	Malvaceae	<i>Sida</i>			C		70/6
plants	higher dicots	Malvaceae	<i>Sida cordifolia</i>		Y			48/9
plants	higher dicots	Malvaceae	<i>Sida corrugata</i>			C		9
plants	higher dicots	Malvaceae	<i>Sida fibulifera</i>			C		22/8
plants	higher dicots	Malvaceae	<i>Sida filiformis</i>			C		49/5
plants	higher dicots	Malvaceae	<i>Malvastrum americanum var. americanum</i>		Y			129/10
plants	higher dicots	Malvaceae	<i>Malvastrum coromandelianum</i>	prickly malvastrum	Y			7
plants	higher dicots	Malvaceae	<i>Hibiscus divaricatus</i>			C		14/13
plants	higher dicots	Malvaceae	<i>Abutilon fraseri</i>	dwarf lantern flower		C		5
plants	higher dicots	Malvaceae	<i>Abutilon malvifolium</i>	bastard marshmallow		C		2/2
plants	higher dicots	Malvaceae	<i>Abutilon micropetalum</i>			C		3/1
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum forma acutatum</i>			C		49
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum var. subsagittatum</i>			C		13/1
plants	higher dicots	Malvaceae	<i>Abutilon oxycarpum</i>			C		30/6
plants	higher dicots	Malvaceae	<i>Abutilon</i>			C		28/2
plants	higher dicots	Malvaceae	<i>Abutilon asiaticum</i>			C		1
plants	higher dicots	Malvaceae	<i>Hibiscus krichauffianus</i>			C		17/6
plants	higher dicots	Malvaceae	<i>Abutilon indicum</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Hibiscus sturtii var. campylochlamys</i>			C		1
plants	higher dicots	Malvaceae	<i>Hibiscus sturtii var. grandiflorus</i>			C		2/1
plants	higher dicots	Malvaceae	<i>Gossypium sturtianum</i>			R		13/13
plants	higher dicots	Malvaceae	<i>Abelmoschus ficulneus</i>	native rosella		C		5/5
plants	higher dicots	Martyniaceae	<i>Proboscidea louisianica</i>	purple flower devil's claw	Y			1/1
plants	higher dicots	Melastomataceae	<i>Melastoma malabathricum subsp. malabathricum</i>			C		5/2
plants	higher dicots	Meliaceae	<i>Melia azedarach</i>	white cedar		C		24/7
plants	higher dicots	Meliaceae	<i>Owenia acidula</i>	emu apple		C		31/9
plants	higher dicots	Meliaceae	<i>Owenia venosa</i>	crow's apple		C		8/4
plants	higher dicots	Meliaceae	<i>Turraea pubescens</i>	native honeysuckle		C		39/7
plants	higher dicots	Menyanthaceae	<i>Nymphoides geminata</i>			C		3/1
plants	higher dicots	Menyanthaceae	<i>Nymphoides exiliflora</i>			C		1
plants	higher dicots	Menyanthaceae	<i>Nymphoides aurantiaca</i>			C		3/2
plants	higher dicots	Menyanthaceae	<i>Nymphoides crenata</i>	wavy marshwort		C		1/1
plants	higher dicots	Menyanthaceae	<i>Nymphoides</i>			C		1/1
plants	higher dicots	Menyanthaceae	<i>Nymphoides indica</i>	water snowflake		C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia semilunata</i>	crescent-leaved wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia leiocalyx subsp. leiocalyx</i>			C		46/19
plants	higher dicots	Mimosaceae	<i>Acacia omalophylla</i>			C		3/2
plants	higher dicots	Mimosaceae	<i>Acacia grandifolia</i>			C	V	6/1
plants	higher dicots	Mimosaceae	<i>Acacia nilotica subsp. indica</i>	prickly acacia	Y			2/2
plants	higher dicots	Mimosaceae	<i>Acacia victoriae subsp. victoriae</i>			C		6/6
plants	higher dicots	Mimosaceae	<i>Prosopis pallida</i>		Y			1
plants	higher dicots	Mimosaceae	<i>Mimosa pudica</i>		Y			1



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plants	higher dicots	Mimosaceae	<i>Acacia tenuinervis</i>			R		1
plants	higher dicots	Mimosaceae	<i>Albizia canescens</i>			C		4/2
plants	higher dicots	Mimosaceae	<i>Albizia lebbbeck</i>	Indian siris		C		3/3
plants	higher dicots	Mimosaceae	<i>Archidendropsis thozetiana</i>			C		21/5
plants	higher dicots	Mimosaceae	<i>Acacia holotricha</i>			C		7/7
plants	higher dicots	Mimosaceae	<i>Acacia juncifolia</i>			C		30/22
plants	higher dicots	Mimosaceae	<i>Acacia sp. (Comet L.Pedley 4091)</i>			C		15/14
plants	higher dicots	Mimosaceae	<i>Acacia julifera subsp. curvinervia</i>			C		16/12
plants	higher dicots	Mimosaceae	<i>Acacia julifera subsp. julifera</i>			C		6/4
plants	higher dicots	Mimosaceae	<i>Acacia blakei subsp. blakei</i>			C		26/25
plants	higher dicots	Mimosaceae	<i>Leucaena leucocephala subsp. glabrata</i>		Y			2/2
plants	higher dicots	Mimosaceae	<i>Acacia buxifolia</i>			C		2
plants	higher dicots	Mimosaceae	<i>Acacia deanei subsp. deanei</i>			C		6/6
plants	higher dicots	Mimosaceae	<i>Acacia crassa</i>			C		22/1
plants	higher dicots	Mimosaceae	<i>Acacia cretata - A.fodinalis</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia holosericea var. holosericea</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia cretata x A.fodinalis</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Desmanthus pernambutanus</i>		Y			1/1
plants	higher dicots	Mimosaceae	<i>Acacia victoriae subsp. fasciaria</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia hendersonii</i>			C		7/7
plants	higher dicots	Mimosaceae	<i>Acacia arbiana</i>			R		4/4
plants	higher dicots	Mimosaceae	<i>Acacia cretata - A.leiocalyx (Domin)</i>			C		3/3
plants	higher dicots	Mimosaceae	<i>Leucaena leucocephala subsp. leucocephala</i>		Y			5/5
plants	higher dicots	Mimosaceae	<i>Acacia crassa subsp. crassa</i>			C		34/6
plants	higher dicots	Mimosaceae	<i>Acacia crassa subsp. longicoma</i>			C		11/6
plants	higher dicots	Mimosaceae	<i>Acacia cretata</i>			C		47/22
plants	higher dicots	Mimosaceae	<i>Acacia decora</i>	pretty wattle		C		34/5
plants	higher dicots	Mimosaceae	<i>Acacia everistii</i>			C		28/23
plants	higher dicots	Mimosaceae	<i>Acacia excelsa</i>			C		28
plants	higher dicots	Mimosaceae	<i>Acacia falcata</i>	sickle wattle		C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia falciformis</i>	broad-leaved hickory		C		15/8
plants	higher dicots	Mimosaceae	<i>Acacia farnesiana</i>	mimosa bush	Y			24/5
plants	higher dicots	Mimosaceae	<i>Acacia cambagei x A.tephrina</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia sparsiflora</i>			C		6/2
plants	higher dicots	Mimosaceae	<i>Neptunia gracilis forma gracilis</i>			C		26/14
plants	higher dicots	Mimosaceae	<i>Neptunia dimorphantha</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia polifolia</i>			C		11/8
plants	higher dicots	Mimosaceae	<i>Acacia resinicostata</i>			C		10/4
plants	higher dicots	Mimosaceae	<i>Acacia spania</i>			R		2/2
plants	higher dicots	Mimosaceae	<i>Acacia uncifera</i>			C		9/7
plants	higher dicots	Mimosaceae	<i>Acacia penninervis</i>			C		8/2
plants	higher dicots	Mimosaceae	<i>Acacia dietrichiana</i>			C		19/12
plants	higher dicots	Mimosaceae	<i>Acacia glaucocarpa</i>	hickory wattle		C		43/10
plants	higher dicots	Mimosaceae	<i>Acacia gnidium</i>			C		10/9
plants	higher dicots	Mimosaceae	<i>Acacia hockingsii</i>			R		1/1
plants	higher dicots	Mimosaceae	<i>Acacia islana</i>			R		1/1

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plants	higher dicots	Mimosaceae	<i>Acacia ixodes</i>			C		7/6
plants	higher dicots	Mimosaceae	<i>Acacia blakei</i>			C		7
plants	higher dicots	Mimosaceae	<i>Acacia conferta</i>			C		20/10
plants	higher dicots	Mimosaceae	<i>Acacia decurrens</i>		Y			2
plants	higher dicots	Mimosaceae	<i>Acacia excelsa subsp. angusta</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia julifera</i>			C		5/3
plants	higher dicots	Mimosaceae	<i>Acacia longifolia</i>	Sydney golden wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia paradoxa</i>	kangaroo thorn		C		2/2
plants	higher dicots	Mimosaceae	<i>Acacia pendula</i>	myall		C		5/4
plants	higher dicots	Mimosaceae	<i>Archidendropsis basaltica</i>	red lancewood		C		33/2
plants	higher dicots	Mimosaceae	<i>Acacia rhodoxylon</i>	ringy rosewood		C		79/1
plants	higher dicots	Mimosaceae	<i>Acacia salicina</i>	doolan		C		76/12
plants	higher dicots	Mimosaceae	<i>Acacia semirigida</i>			C		3/2
plants	higher dicots	Mimosaceae	<i>Acacia shirleyi</i>	lancewood		C		163/10
plants	higher dicots	Mimosaceae	<i>Acacia stenophylla</i>	belalie		C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia storyi</i>			R		24/17
plants	higher dicots	Mimosaceae	<i>Acacia triptera</i>			C		4/2
plants	higher dicots	Mimosaceae	<i>Acacia ulicifolia</i>			C		11/6
plants	higher dicots	Mimosaceae	<i>Acacia venulosa</i>	veined wattle		C		12/10
plants	higher dicots	Mimosaceae	<i>Acacia</i>			C		88/3
plants	higher dicots	Mimosaceae	<i>Acacia pustula</i>			C		5/5
plants	higher dicots	Mimosaceae	<i>Acacia melanoxydon</i>	blackwood		C		9
plants	higher dicots	Mimosaceae	<i>Acacia melvillei</i>			C		16/16
plants	higher dicots	Mimosaceae	<i>Acacia neriifolia</i>	pechey wattle		C		16/9
plants	higher dicots	Mimosaceae	<i>Acacia oswaldii</i>	miljee		C		27/15
plants	higher dicots	Mimosaceae	<i>Acacia penninervis var. penninervis</i>			C		8/7
plants	higher dicots	Mimosaceae	<i>Acacia podalyriifolia</i>	Queensland silver wattle		C		22/12
plants	higher dicots	Mimosaceae	<i>Acacia pubicosta</i>			R		6/5
plants	higher dicots	Mimosaceae	<i>Acacia fasciculifera</i>	scaly bark		C		19/1
plants	higher dicots	Mimosaceae	<i>Acacia fimbriata</i>	Brisbane golden wattle		C		3/3
plants	higher dicots	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle		C		48/6
plants	higher dicots	Mimosaceae	<i>Acacia gittinsii</i>			R		48/32
plants	higher dicots	Mimosaceae	<i>Acacia harpophylla</i>	brigalow		C		196/9
plants	higher dicots	Mimosaceae	<i>Acacia holosericea</i>			C		2
plants	higher dicots	Mimosaceae	<i>Acacia implexa</i>	lightwood		C		11/3
plants	higher dicots	Mimosaceae	<i>Acacia johnsonii</i>			C		4/4
plants	higher dicots	Mimosaceae	<i>Acacia leichhardtii</i>			C		20/11
plants	higher dicots	Mimosaceae	<i>Acacia leiocalyx</i>			C		49/2
plants	higher dicots	Mimosaceae	<i>Acacia leptocarpa</i>	north coast wattle		C		5
plants	higher dicots	Mimosaceae	<i>Acacia leptostachya</i>	Townsville wattle		C		23/15
plants	higher dicots	Mimosaceae	<i>Acacia macradenia</i>	zig-zag wattle		C		34/13
plants	higher dicots	Mimosaceae	<i>Acacia maidenii</i>	Maiden's wattle		C		4
plants	higher dicots	Mimosaceae	<i>Acacia bancroftiorum x A.falciformis</i>			C		3/3
plants	higher dicots	Mimosaceae	<i>Acacia brachycarpa</i>			C		16/9
plants	higher dicots	Mimosaceae	<i>Acacia burrowii</i>			C		8/3
plants	higher dicots	Mimosaceae	<i>Acacia buxifolia subsp. pubiflora</i>			C		1/1

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plants	higher dicots	Mimosaceae	<i>Acacia caroleae</i>			C		17/6
plants	higher dicots	Mimosaceae	<i>Acacia catenulata</i>	bendee		C		22/4
plants	higher dicots	Mimosaceae	<i>Acacia complanata</i>	flatstem wattle		C		65/18
plants	higher dicots	Mimosaceae	<i>Acacia concurrens</i>			C		3
plants	higher dicots	Mimosaceae	<i>Acacia amblygona</i>	fan-leaf wattle		C		9/6
plants	higher dicots	Mimosaceae	<i>Acacia aulacocarpa</i>			C		16/1
plants	higher dicots	Mimosaceae	<i>Acacia bancroftiorum</i>			C		69/22
plants	higher dicots	Mimosaceae	<i>Acacia longispicata</i>			C		71/35
plants	higher dicots	Mimosaceae	<i>Acacia coriacea</i>			C		2
plants	higher dicots	Mimosaceae	<i>Acacia fodinalis</i>			C		18
plants	higher dicots	Mimosaceae	<i>Acacia tingoorensis</i>			V		3
plants	higher dicots	Mimosaceae	<i>Acacia disparrima subsp. disparrima</i>			C		1
plants	higher dicots	Mimosaceae	<i>Acacia bidwillii</i>			C		5/3
plants	higher dicots	Mimosaceae	<i>Acacia excelsa subsp. excelsa</i>			C		20/8
plants	higher dicots	Mimosaceae	<i>Acacia angusta</i>			C		18/16
plants	higher dicots	Mimosaceae	<i>Acacia pubifolia</i>	Wyberba wattle		V	V	1
plants	higher dicots	Molluginaceae	<i>Macarthuria ephedroides</i>			R		23/16
plants	higher dicots	Molluginaceae	<i>Glinus lotoides</i>	hairy carpet weed		C		7/7
plants	higher dicots	Molluginaceae	<i>Mollugo verticillata</i>		Y			1/1
plants	higher dicots	Molluginaceae	<i>Glinus oppositifolius</i>			C		1
plants	higher dicots	Moraceae	<i>Ficus rubiginosa forma rubiginosa</i>			C		9/9
plants	higher dicots	Moraceae	<i>Ficus</i>			C		6
plants	higher dicots	Moraceae	<i>Ficus rubiginosa forma glabrescens</i>			C		1/1
plants	higher dicots	Moraceae	<i>Ficus virens</i>			C		4/2
plants	higher dicots	Moraceae	<i>Ficus opposita</i>			C		27/10
plants	higher dicots	Moraceae	<i>Ficus fraseri</i>	white sandpaper fig		C		5
plants	higher dicots	Moraceae	<i>Ficus platypoda</i>			C		5
plants	higher dicots	Moraceae	<i>Trophis scandens</i>			C		5
plants	higher dicots	Moraceae	<i>Trophis scandens subsp. scandens</i>			C		1/1
plants	higher dicots	Moraceae	<i>Ficus racemosa var. racemosa</i>			C		1/1
plants	higher dicots	Moraceae	<i>Ficus coronata</i>	creek sandpaper fig		C		11/4
plants	higher dicots	Moraceae	<i>Ficus obliqua</i>			C		4
plants	higher dicots	Moraceae	<i>Ficus virens var. sub lanceolata</i>			C		3/3
plants	higher dicots	Myoporaceae	<i>Eremophila mitchellii</i>			C		185/15
plants	higher dicots	Myoporaceae	<i>Eremophila bignoniiflora</i>	eurah		C		3/3
plants	higher dicots	Myoporaceae	<i>Myoporum acuminatum</i>	coastal boobialla		C		24/7
plants	higher dicots	Myoporaceae	<i>Eremophila deserti</i>			C		44/11
plants	higher dicots	Myoporaceae	<i>Eremophila maculata subsp. maculata</i>			C		12/12
plants	higher dicots	Myoporaceae	<i>Eremophila debilis</i>	winter apple		C		41/7
plants	higher dicots	Myoporaceae	<i>Eremophila latrobei subsp. glabra</i>			C		2/2
plants	higher dicots	Myoporaceae	<i>Myoporum montanum</i>	boobialla		C		6/4
plants	higher dicots	Myoporaceae	<i>Eremophila</i>			C		1
plants	higher dicots	Myoporaceae	<i>Myoporum</i>			C		9
plants	higher dicots	Myoporaceae	<i>Eremophila latrobei</i>			C		10/6
plants	higher dicots	Myoporaceae	<i>Eremophila maculata</i>			C		17
plants	higher dicots	Myoporaceae	<i>Eremophila longifolia</i>	berrigan		C		15/11

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrsinaceae	<i>Myrsine porosa</i>			C		1/1
plants	higher dicots	Myrsinaceae	<i>Myrsine variabilis</i>			C		15/6
plants	higher dicots	Myrsinaceae	<i>Rapanea</i>			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia dallachiana</i>			C		38/12
plants	higher dicots	Myrtaceae	<i>Corymbia lamprophylla</i>			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia papuana</i>	ghost gum		C		1
plants	higher dicots	Myrtaceae	<i>Corymbia erythrophloia</i>	variable-barked bloodwood		C		101/21
plants	higher dicots	Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash		C		111/1
plants	higher dicots	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>carnarvonica</i>			C		4/3
plants	higher dicots	Myrtaceae	<i>Corymbia clarksoniana</i>			C		176/14
plants	higher dicots	Myrtaceae	<i>Corymbia polycarpa</i>	long-fruited bloodwood		C		1
plants	higher dicots	Myrtaceae	<i>Corymbia citriodora</i>	spotted gum		C		98
plants	higher dicots	Myrtaceae	<i>Corymbia leichhardtii</i>	rustyjacket		C		30/9
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis</i> subsp. ( <i>Consuelo Tableland M.I.Brooker B4880</i> )			C		1/1
plants	higher dicots	Myrtaceae	<i>Corymbia watsoniana</i> subsp. <i>watsoniana</i>			C		33
plants	higher dicots	Myrtaceae	<i>Eucalyptus saligna</i> subsp. <i>saligna</i>			C		8/8
plants	higher dicots	Myrtaceae	<i>Eucalyptus sideroxylon</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus suffulgens</i>			C		74/28
plants	higher dicots	Myrtaceae	<i>Eucalyptus mensalis</i>			R		28/15
plants	higher dicots	Myrtaceae	<i>Eucalyptus sphaerocarpa</i>	Blackdown stringybark		R		251/29
plants	higher dicots	Myrtaceae	<i>Eucalyptus tenuipes</i>	narrow-leaved white mahogany		C		51/13
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis</i>			C		81
plants	higher dicots	Myrtaceae	<i>Eucalyptus umbra</i>	broad-leaved white mahogany		C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus</i>			C		53/9
plants	higher dicots	Myrtaceae	<i>Syzygium australe</i>	scrub cherry		C		6/3
plants	higher dicots	Myrtaceae	<i>Micromyrtus leptocalyx</i>			C		9/7
plants	higher dicots	Myrtaceae	<i>Melaleuca acacioides</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Melaleuca bracteata</i>			C		39/8
plants	higher dicots	Myrtaceae	<i>Melaleuca densispicata</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Melaleuca leucadendra</i>	broad-leaved tea-tree		C		10/3
plants	higher dicots	Myrtaceae	<i>Melaleuca nodosa</i>			C		10/9
plants	higher dicots	Myrtaceae	<i>Melaleuca quinquenervia</i>	swamp paperbark		C		1
plants	higher dicots	Myrtaceae	<i>Melaleuca uncinata</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Kunzea</i>			C		1
plants	higher dicots	Myrtaceae	<i>Leptospermum brevipes</i>			C		2
plants	higher dicots	Myrtaceae	<i>Leptospermum neglectum</i>			C		2/1
plants	higher dicots	Myrtaceae	<i>Melaleuca decora</i>			C		2/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus bakeri</i>	Baker's mallee		C		4/4
plants	higher dicots	Myrtaceae	<i>Melaleuca nervosa</i>			C		15/2
plants	higher dicots	Myrtaceae	<i>Eucalyptus major</i>	mountain grey gum		C		6/4
plants	higher dicots	Myrtaceae	<i>Eucalyptus decorticans</i>			C		42/5
plants	higher dicots	Myrtaceae	<i>Melaleuca thymifolia</i>	thyme honeymyrtle		C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus coolabah</i> x <i>E.melanophloia</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus chlorophylla</i>			C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus rubiginosa</i>			R		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrtaceae	<i>Eucalyptus biturbinata</i>			C		4
plants	higher dicots	Myrtaceae	<i>Eucalyptus thozetiana</i>			C		27/10
plants	higher dicots	Myrtaceae	<i>Eucalyptus socialis subsp. socialis</i>	red mallee		C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus fibrosa subsp. fibrosa</i>			C		4
plants	higher dicots	Myrtaceae	<i>Eucalyptus conica</i>	fuzzy box		C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus cambageana</i>	Dawson gum		C		107/14
plants	higher dicots	Myrtaceae	<i>Eucalyptus chloroclada</i>	Baradine red gum		C		37/4
plants	higher dicots	Myrtaceae	<i>Eucalyptus cloeziana</i>	Gympie messmate		C		111/22
plants	higher dicots	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark		C		491/51
plants	higher dicots	Myrtaceae	<i>Eucalyptus crebra x E.melanophloia</i>			C		6/5
plants	higher dicots	Myrtaceae	<i>Eucalyptus drepanophylla</i>			C		2
plants	higher dicots	Myrtaceae	<i>Eucalyptus eugenioides</i>			C		3
plants	higher dicots	Myrtaceae	<i>Eucalyptus exserta</i>	Queensland peppermint		C		39/15
plants	higher dicots	Myrtaceae	<i>Eucalyptus fibrosa subsp. nubila</i>			C		44
plants	higher dicots	Myrtaceae	<i>Eucalyptus acmenoides</i>			C		117/16
plants	higher dicots	Myrtaceae	<i>Callistemon salignus var. salignus</i>			C		5
plants	higher dicots	Myrtaceae	<i>Calytrix longiflora</i>	pink fringe myrtle		C		2/2
plants	higher dicots	Myrtaceae	<i>Calytrix tetragona</i>	fringe myrtle		C		12/8
plants	higher dicots	Myrtaceae	<i>Backhousia angustifolia</i>	narrow-leaved backhousia		C		26/11
plants	higher dicots	Myrtaceae	<i>Baeckea</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Angophora floribunda</i>	rough-barked apple		C		119/6
plants	higher dicots	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum		C		144/7
plants	higher dicots	Myrtaceae	<i>Acmena smithii</i>	lillypilly satinash		C		2/2
plants	higher dicots	Myrtaceae	<i>Babingtonia densifolia</i>			C		2
plants	higher dicots	Myrtaceae	<i>Eucalyptus crebra x E.thozetiana ex R.T.Baker</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Corymbia leichhardtii x C.tessellaris</i>			C		3/3
plants	higher dicots	Myrtaceae	<i>Baeckea trapeza</i>			V		6/6
plants	higher dicots	Myrtaceae	<i>Eucalyptus grisea</i>			C		3/3
plants	higher dicots	Myrtaceae	<i>Micromyrtus gracilis</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Ochrosperma</i>			C		1
plants	higher dicots	Myrtaceae	<i>Babingtonia virgata</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Corymbia trachyphloia</i>			C		12
plants	higher dicots	Myrtaceae	<i>Melaleuca linariifolia</i>	snow-in summer		C		16/3
plants	higher dicots	Myrtaceae	<i>Corymbia watsoniana</i>			C		10/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus saligna</i>			C		4
plants	higher dicots	Myrtaceae	<i>Melaleuca tamariscina</i>			C		5/3
plants	higher dicots	Myrtaceae	<i>Asteromyrtus</i>			C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus cloeziana x E.portuensis</i>			C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus populnea x E.thozetiana ex R.T.Baker</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Ochrosperma obovatum</i>			V		5/4
plants	higher dicots	Myrtaceae	<i>Homoranthus coracinus</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Corymbia citriodora subsp. variegata</i>			C		72/1
plants	higher dicots	Myrtaceae	<i>Corymbia citriodora subsp. citriodora</i>			C		652/10
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis subsp. tereticornis</i>			C		106/18
plants	higher dicots	Myrtaceae	<i>Gossia bidwillii</i>			C		9/2
plants	higher dicots	Myrtaceae	<i>Eucalyptus erosa</i>			C		1/1



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plants	higher dicots	Myrtaceae	<i>Melaleuca pearsonii</i>			R		11/8
plants	higher dicots	Myrtaceae	<i>Melaleuca chisholmii</i>			R		2/2
plants	higher dicots	Myrtaceae	<i>Melaleuca sp. (Rainbow Falls P.I.Forster PIF13786)</i>			C		4/4
plants	higher dicots	Myrtaceae	<i>Melaleuca sp. (Blackdown Tableland S.G.Pearson 287)</i>			C		4/4
plants	higher dicots	Myrtaceae	<i>Melaleuca sp. (Ropers Peak P.I.Forster PIF7208)</i>			C		3/3
plants	higher dicots	Myrtaceae	<i>Melaleuca sp. (Carnarvon NP M.B.Thomas 115)</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Melaleuca sp. (Cudmore E.J.Thompson+ GAL174)</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Melaleuca viminalis</i>			C		20/11
plants	higher dicots	Myrtaceae	<i>Melaleuca salicina</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Sannantha brachypoda</i>			R		6/6
plants	higher dicots	Myrtaceae	<i>Harmogia densifolia</i>			C		4/4
plants	higher dicots	Myrtaceae	<i>Corymbia brachycarpa</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus tholiformis</i>			C		51/26
plants	higher dicots	Myrtaceae	<i>Eucalyptus corynodes</i>			C		4/2
plants	higher dicots	Myrtaceae	<i>Eucalyptus carnea</i>			C		1
plants	higher dicots	Myrtaceae	<i>Angophora costata</i>			C		4
plants	higher dicots	Myrtaceae	<i>Homoranthus melanostictus</i>			C		1
plants	higher dicots	Myrtaceae	<i>Homoranthus zeteticorum</i>			R		11/11
plants	higher dicots	Myrtaceae	<i>Eucalyptus pachycalyx subsp. waajensis</i>			E		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus sicilifolia</i>			R		13/12
plants	higher dicots	Myrtaceae	<i>Eucalyptus coolabah</i>	coolabah		C		110/8
plants	higher dicots	Myrtaceae	<i>Eucalyptus decolor</i>			R		1
plants	higher dicots	Myrtaceae	<i>Lophostemon grandiflorus</i>			C		5/3
plants	higher dicots	Myrtaceae	<i>Angophora</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Thryptomene</i>			C		1
plants	higher dicots	Myrtaceae	<i>Leptospermum</i>			C		11/1
plants	higher dicots	Myrtaceae	<i>Melaleuca groveana</i>			R		10/8
plants	higher dicots	Myrtaceae	<i>Melaleuca</i>			C		25/18
plants	higher dicots	Myrtaceae	<i>Micromyrtus</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Homoranthus decumbens</i>			V	V	1/1
plants	higher dicots	Myrtaceae	<i>Homoranthus decasetus</i>			R		4/2
plants	higher dicots	Myrtaceae	<i>Leptospermum polygalifolium</i>	tantoon		C		32/19
plants	higher dicots	Myrtaceae	<i>Kunzea opposita var. leichhardtii</i>			C		3/3
plants	higher dicots	Myrtaceae	<i>Kunzea opposita</i>			C		2/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus caliginosa</i>	broad-leaved stringybark		C		18
plants	higher dicots	Myrtaceae	<i>Eucalyptus melanoleuca</i>	Nanango ironbark		C		78/14
plants	higher dicots	Myrtaceae	<i>Eucalyptus raveretiana</i>	black ironbox		V	V	2/2
plants	higher dicots	Myrtaceae	<i>Eucalyptus interstans</i>			C		12/11
plants	higher dicots	Myrtaceae	<i>Thryptomene parviflora</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Lophostemon suaveolens</i>	swamp box		C		121/7
plants	higher dicots	Myrtaceae	<i>Lysicarpus angustifolius</i>	budgeroo		C		205/16
plants	higher dicots	Myrtaceae	<i>Lophostemon confertus</i>	brush box		C		13/5
plants	higher dicots	Myrtaceae	<i>Leptospermum brachyandrum</i>	weeping tea-tree		C		7/3
plants	higher dicots	Myrtaceae	<i>Leptospermum lamellatum</i>			C		113/18
plants	higher dicots	Myrtaceae	<i>Leptospermum sericatum</i>			C		24/20
plants	higher dicots	Myrtaceae	<i>Eucalyptus populnea</i>	poplar box		C		210/15

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrtaceae	<i>Eucalyptus propinqua</i>	small-fruited grey gum		C		24/8
plants	higher dicots	Myrtaceae	<i>Corymbia aureola</i>			C		4/2
plants	higher dicots	Myrtaceae	<i>Corymbia bunites</i>			C		184/29
plants	higher dicots	Myrtaceae	<i>Corymbia bloxsomei</i>			C		2
plants	higher dicots	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood		C		104/6
plants	higher dicots	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>trachyphloia</i>			C		41/10
plants	higher dicots	Myrtaceae	<i>Eucalyptus sideroxylon</i> subsp. ( <i>Waa</i> <i>N.B.Byrnes 3955</i> )			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia citriodora</i> subsp. <i>citriodora</i> <i>x C.watsoniana</i> subsp. <i>capillata</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Corymbia terminalis</i>			C		2/1
plants	higher dicots	Myrtaceae	<i>Corymbia scabrida</i>	rough-leaved yellowjacket		R		20/18
plants	higher dicots	Myrtaceae	<i>Corymbia watsoniana</i> subsp. <i>capillata</i>			C		42/20
plants	higher dicots	Myrtaceae	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>			C		26/11
plants	higher dicots	Myrtaceae	<i>Ochrosperma adpressum</i>			C		2/2
plants	higher dicots	Myrtaceae	<i>Triplarina paludosa</i>			C		26/17
plants	higher dicots	Myrtaceae	<i>Corymbia</i>			C		6
plants	higher dicots	Myrtaceae	<i>Corymbia hendersonii</i>			C		97/23
plants	higher dicots	Myrtaceae	<i>Corymbia</i> sp. ( <i>Springsure M.I.Brooker 9786</i> )			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus laevopinea</i>	silvertop stringybark		C		5/5
plants	higher dicots	Myrtaceae	<i>Eucalyptus longirostrata</i>			C		55/8
plants	higher dicots	Myrtaceae	<i>Eucalyptus melanophloia</i>			C		309/15
plants	higher dicots	Myrtaceae	<i>Eucalyptus melliodora</i>	yellow box		C		5/5
plants	higher dicots	Myrtaceae	<i>Eucalyptus microcarpa</i>	inland grey box		C		2/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus microtheca</i>	coolibah		C		4
plants	higher dicots	Myrtaceae	<i>Eucalyptus moluccana</i>	gum-topped box		C		101/9
plants	higher dicots	Myrtaceae	<i>Eucalyptus orgadophila</i>	mountain coolibah		C		78/16
plants	higher dicots	Myrtaceae	<i>Eucalyptus baileyana</i>	Bailey's stringybark		C		88/17
plants	higher dicots	Myrtaceae	<i>Eucalyptus camaldulensis</i>			C		35/9
plants	higher dicots	Myrtaceae	<i>Eucalyptus camaldulensis x E.tereticornis</i>			C		7
plants	higher dicots	Myrtaceae	<i>Eucalyptus camaldulensis</i> var. <i>camaldulensis</i>			C		1
plants	higher dicots	Myrtaceae	<i>Micromyrtus capricornia</i>			C		11/9
plants	higher dicots	Myrtaceae	<i>Melaleuca trichostachya</i>			C		17/8
plants	higher dicots	Myrtaceae	<i>Eucalyptus mediocris</i>			C		16/9
plants	higher dicots	Myrtaceae	<i>Melaleuca nervosa</i> subsp. <i>nervosa</i>			C		19/6
plants	higher dicots	Nyctaginaceae	<i>Boerhavia</i>			C		13/2
plants	higher dicots	Nyctaginaceae	<i>Boerhavia dominii</i>			C		22/7
plants	higher dicots	Nyctaginaceae	<i>Boerhavia burbridgeana</i>			C		8/3
plants	higher dicots	Nyctaginaceae	<i>Boerhavia pubescens</i>			C		5/5
plants	higher dicots	Nyctaginaceae	<i>Boerhavia</i> sp. ( <i>Bargara L.Pedley 5382</i> )			C		1/1
plants	higher dicots	Nyctaginaceae	<i>Boerhavia</i> sp. ( <i>St George A.Hill AQ399299</i> )			C		4/4
plants	higher dicots	Nyctaginaceae	<i>Boerhavia paludosa</i>			C		1
plants	higher dicots	Nyctaginaceae	<i>Boerhavia coccinea</i>			C		1
plants	higher dicots	Olacaceae	<i>Olex stricta</i>			C		8/5
plants	higher dicots	Olacaceae	<i>Ximania americana</i>			C		5/5
plants	higher dicots	Oleaceae	<i>Notelaea microcarpa</i> var. <i>microcarpa</i>			C		15/10

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Oleaceae	<i>Jasminum didymum</i> subsp. <i>didymum</i>			C		8
plants	higher dicots	Oleaceae	<i>Jasminum didymum</i> subsp. <i>lineare</i>			C		33/8
plants	higher dicots	Oleaceae	<i>Jasminum didymum</i> subsp. <i>racemosum</i>			C		28/3
plants	higher dicots	Oleaceae	<i>Jasminum didymum</i>			C		27
plants	higher dicots	Oleaceae	<i>Jasminum simplicifolium</i> subsp. <i>australiense</i>			C		28/8
plants	higher dicots	Oleaceae	<i>Jasminum</i>			C		1
plants	higher dicots	Oleaceae	<i>Jasminum suavissimum</i>	forest jasmine		C		1/1
plants	higher dicots	Oleaceae	<i>Notelaea</i> sp. (Barakula A.R.Bean 7553)			C		10/6
plants	higher dicots	Oleaceae	<i>Jasminum simplicifolium</i>			C		11/1
plants	higher dicots	Oleaceae	<i>Notelaea punctata</i>			C		14/9
plants	higher dicots	Oleaceae	<i>Notelaea</i>			C		3/1
plants	higher dicots	Oleaceae	<i>Notelaea microcarpa</i>			C		44/2
plants	higher dicots	Onagraceae	<i>Ludwigia peploides</i> subsp. <i>montevidensis</i>			C		6/6
plants	higher dicots	Onagraceae	<i>Ludwigia peploides</i>		Y			1
plants	higher dicots	Onagraceae	<i>Ludwigia</i>			C		1/1
plants	higher dicots	Onagraceae	<i>Ludwigia octovalvis</i>	willow primrose		C		5/3
plants	higher dicots	Onagraceae	<i>Oenothera triloba</i>		Y			2/2
plants	higher dicots	Onagraceae	<i>Epilobium billardierianum</i> subsp. <i>cinereum</i>			C		2/2
plants	higher dicots	Oxalidaceae	<i>Oxalis</i>			C		13/2
plants	higher dicots	Oxalidaceae	<i>Oxalis thompsoniae</i>			C		1/1
plants	higher dicots	Oxalidaceae	<i>Oxalis perennans</i>			C		12/6
plants	higher dicots	Oxalidaceae	<i>Oxalis exilis</i>			C		2/2
plants	higher dicots	Oxalidaceae	<i>Oxalis radicata</i>			C		20/7
plants	higher dicots	Oxalidaceae	<i>Oxalis chnoodes</i>			C		8/3
plants	higher dicots	Oxalidaceae	<i>Oxalis corniculata</i>		Y			52/3
plants	higher dicots	Passifloraceae	<i>Passiflora aurantia</i> var. <i>aurantia</i>			C		5/5
plants	higher dicots	Passifloraceae	<i>Passiflora aurantia</i>			C		7/1
plants	higher dicots	Passifloraceae	<i>Passiflora foetida</i>		Y			4/2
plants	higher dicots	Passifloraceae	<i>Passiflora suberosa</i>	corky passion flower	Y			3/2
plants	higher dicots	Pedaliaceae	<i>Josephinia eugeniae</i>	josephinia burr		C		4/4
plants	higher dicots	Pentapetaceae	<i>Melhania oblongifolia</i>			C		50/18
plants	higher dicots	Petiveriaceae	<i>Rivina humilis</i>		Y			1/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus collinus</i>			C		3/3
plants	higher dicots	Phyllanthaceae	<i>Flueggea leucopyrus</i>			C		27/6
plants	higher dicots	Phyllanthaceae	<i>Sauropus trachyspermus</i>			C		6/5
plants	higher dicots	Phyllanthaceae	<i>Poranthera microphylla</i>	small poranthera		C		11/5
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i> var. <i>maderaspatensis</i>			C		4/4
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus mitchellii</i>			C		45/28
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus tenellus</i>		Y			1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus virgatus</i>			C		79/14
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus</i>			C		27/6
plants	higher dicots	Phyllanthaceae	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>			C		4/4
plants	higher dicots	Phyllanthaceae	<i>Glochidion sumatranum</i>	umbrella cheese tree		C		1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>			C		18/10
plants	higher dicots	Phyllanthaceae	<i>Sauropus</i>			C		5/3
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus gunnii</i>			C		20/5

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plants	higher dicots	Phyllanthaceae	<i>Phyllanthus similis</i>			C		1/1
plants	higher dicots	Phyllanthaceae	<i>Sauropus hirtellus</i>			C		5/2
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus fuernrohrii</i>			C		20/8
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus lacunarius</i>			C		5/4
plants	higher dicots	Phyllanthaceae	<i>Cleistanthus cunninghamii</i>	omega		C		1
plants	higher dicots	Phyllanthaceae	<i>Sauropus albiflorus</i>	snowbush		C		1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus simplex</i>			C		3/3
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus lacerosus</i>			C		1/1
plants	higher dicots	Phyllanthaceae	<i>Glochidion ferdinandi</i>			C		3
plants	higher dicots	Phyllanthaceae	<i>Leptopus decaisnei</i> var. <i>decaisnei</i>			C		5/4
plants	higher dicots	Phyllanthaceae	<i>Breynia oblongifolia</i>			C		109/14
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus</i> sp. (Pentland R.J.Cumming 9742)			C		1/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus microcladus</i>			C		1/1
plants	higher dicots	Phyllanthaceae	<i>Bridelia leichhardtii</i>			C		22/4
plants	higher dicots	Phyllanthaceae	<i>Breynia</i>			C		3
plants	higher dicots	Phyllanthaceae	<i>Poranthera obovata</i>			C		7/7
plants	higher dicots	Picrodendraceae	<i>Pseudanthus pauciflorus</i> subsp. <i>arenicola</i>			R		6/5
plants	higher dicots	Picrodendraceae	<i>Petalostigma pachyphyllum</i>			C		76/22
plants	higher dicots	Picrodendraceae	<i>Pseudanthus orientalis</i>			C		2/1
plants	higher dicots	Picrodendraceae	<i>Petalostigma pubescens</i>	quinine tree		C		204/16
plants	higher dicots	Picrodendraceae	<i>Pseudanthus ballingalliae</i>			C		1/1
plants	higher dicots	Pittosporaceae	<i>Pittosporum lancifolium</i>			C		1
plants	higher dicots	Pittosporaceae	<i>Billardiera scandens</i>			C		5/2
plants	higher dicots	Pittosporaceae	<i>Bursaria incana</i>			C		41/11
plants	higher dicots	Pittosporaceae	<i>Pittosporum</i>			C		2
plants	higher dicots	Pittosporaceae	<i>Pittosporum undulatum</i>	sweet pittosporum		C		2/2
plants	higher dicots	Pittosporaceae	<i>Bursaria spinosa</i>			C		16
plants	higher dicots	Pittosporaceae	<i>Pittosporum spinescens</i>			C		89/8
plants	higher dicots	Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>			C		5/1
plants	higher dicots	Pittosporaceae	<i>Auranticarpa rhombifolia</i>			C		3/2
plants	higher dicots	Pittosporaceae	<i>Rhytidosporum procumbens</i>			C		1
plants	higher dicots	Pittosporaceae	<i>Rhytidosporum diosmoides</i>			C		3/3
plants	higher dicots	Pittosporaceae	<i>Pittosporum angustifolium</i>			C		18/6
plants	higher dicots	Pittosporaceae	<i>Pittosporum viscidum</i>	black-fruited thornbush		C		1/1
plants	higher dicots	Plantaginaceae	<i>Plantago cunninghamii</i>	sago weed		C		3/2
plants	higher dicots	Plantaginaceae	<i>Plantago debilis</i>	shade plantain		C		5/5
plants	higher dicots	Plantaginaceae	<i>Plantago gaudichaudii</i>			C		1/1
plants	higher dicots	Plumbaginaceae	<i>Plumbago zeylanica</i>	native plumbago		C		8/5
plants	higher dicots	Plumbaginaceae	<i>Limonium sinuatum</i>		Y			1/1
plants	higher dicots	Polygalaceae	<i>Comesperma sphaerocarpum</i>			C		12/5
plants	higher dicots	Polygalaceae	<i>Comesperma sylvestre</i>			C		8/6
plants	higher dicots	Polygalaceae	<i>Polygala</i>			C		1
plants	higher dicots	Polygalaceae	<i>Comesperma</i>			C		1
plants	higher dicots	Polygalaceae	<i>Polygala</i> sp. (Emerald R.W.Johnson 1322)			C		1/1
plants	higher dicots	Polygalaceae	<i>Polygala linariifolia</i>			C		22/11
plants	higher dicots	Polygalaceae	<i>Polygala japonica</i>			C		1/1

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plants	higher dicots	Polygalaceae	<i>Comesperma ericinum</i>			C		1
plants	higher dicots	Polygalaceae	<i>Comesperma retusum</i>			C		1
plants	higher dicots	Polygalaceae	<i>Comesperma patentifolium</i>			C		27/17
plants	higher dicots	Polygonaceae	<i>Muehlenbeckia</i>			C		1
plants	higher dicots	Polygonaceae	<i>Fallopia convolvulus</i>	black bindweed	Y			3/3
plants	higher dicots	Polygonaceae	<i>Persicaria attenuata</i>			C		4/4
plants	higher dicots	Polygonaceae	<i>Persicaria subsessilis</i>	hairy knotweed		C		4/1
plants	higher dicots	Polygonaceae	<i>Persicaria decipiens</i>	slender knotweed		C		6/6
plants	higher dicots	Polygonaceae	<i>Muehlenbeckia florulenta</i>	lignum		C		18/5
plants	higher dicots	Polygonaceae	<i>Rumex tenax</i>			C		1/1
plants	higher dicots	Polygonaceae	<i>Rumex</i>			C		1
plants	higher dicots	Polygonaceae	<i>Persicaria barbata</i>			C		3/3
plants	higher dicots	Polygonaceae	<i>Persicaria prostrata</i>	creeping knotweed		C		2/1
plants	higher dicots	Polygonaceae	<i>Antigonon leptopus</i>		Y			1/1
plants	higher dicots	Polygonaceae	<i>Persicaria orientalis</i>	princes feathers		C		7/5
plants	higher dicots	Polygonaceae	<i>Rumex brownii</i>	swamp dock		C		2/2
plants	higher dicots	Polygonaceae	<i>Muehlenbeckia rhyticarya</i>			C		1
plants	higher dicots	Polygonaceae	<i>Polygonum plebeium</i>	small knotweed		C		4/4
plants	higher dicots	Polygonaceae	<i>Persicaria lapathifolia</i>	pale knotweed		C		8/7
plants	higher dicots	Portulacaceae	<i>Portulaca pilosa</i>		Y			7/1
plants	higher dicots	Portulacaceae	<i>Portulaca oleracea</i>	pigweed	Y			27/2
plants	higher dicots	Portulacaceae	<i>Portulaca</i>			C		8/1
plants	higher dicots	Portulacaceae	<i>Portulaca pilosa subsp. pilosa</i>		Y			12/1
plants	higher dicots	Portulacaceae	<i>Grahamia australiana</i>			C		2/2
plants	higher dicots	Portulacaceae	<i>Portulaca sp. (Blackall G.Le Gros AQ101965)</i>			C		2/2
plants	higher dicots	Portulacaceae	<i>Portulaca bicolor</i>			C		7/4
plants	higher dicots	Portulacaceae	<i>Portulaca filifolia</i>			C		8/6
plants	higher dicots	Portulacaceae	<i>Portulaca australis</i>			C		4/3
plants	higher dicots	Portulacaceae	<i>Calandrinia pickeringii</i>			C		11/6
plants	higher dicots	Portulacaceae	<i>Calandrinia pleiopetala</i>			C		1
plants	higher dicots	Portulacaceae	<i>Calandrinia balonensis</i>	broad-leaved parakeelya		C		1/1
plants	higher dicots	Primulaceae	<i>Anagallis arvensis</i>	blue pimpernel	Y			1/1
plants	higher dicots	Proteaceae	<i>Xylomelum benthamii</i>			C		2
plants	higher dicots	Proteaceae	<i>Grevillea floribunda</i>			C		3
plants	higher dicots	Proteaceae	<i>Hakea lorea subsp. lorea</i>			C		22/12
plants	higher dicots	Proteaceae	<i>Banksia spinulosa var. collina</i>			C		3/3
plants	higher dicots	Proteaceae	<i>Banksia spinulosa var. spinulosa</i>			C		13/12
plants	higher dicots	Proteaceae	<i>Grevillea striata</i>	beefwood		C		23/1
plants	higher dicots	Proteaceae	<i>Grevillea sessilis</i>			C		27/13
plants	higher dicots	Proteaceae	<i>Grevillea parallela</i>			C		10/3
plants	higher dicots	Proteaceae	<i>Conospermum taxifolium</i>	devil's rice		C		3/2
plants	higher dicots	Proteaceae	<i>Banksia spinulosa</i>			C		6
plants	higher dicots	Proteaceae	<i>Xylomelum cunninghamianum</i>			C		28/5
plants	higher dicots	Proteaceae	<i>Xylomelum salicinum</i>			C		1
plants	higher dicots	Proteaceae	<i>Stenocarpus salignus</i>	scrub beefwood		C		13/10
plants	higher dicots	Proteaceae	<i>Persoonia falcata</i>			C		44/14



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plants	higher dicots	Proteaceae	<i>Persoonia fastigiata</i>			C		6
plants	higher dicots	Proteaceae	<i>Persoonia sericea</i>	silky geebung		C		7/5
plants	higher dicots	Proteaceae	<i>Petrophile canescens</i>			C		13/7
plants	higher dicots	Proteaceae	<i>Hakea leucoptera subsp. sericipes</i>			C		1/1
plants	higher dicots	Proteaceae	<i>Persoonia subtilis</i>			C		22/10
plants	higher dicots	Proteaceae	<i>Banksia integrifolia subsp. integrifolia</i>			C		2
plants	higher dicots	Proteaceae	<i>Persoonia terminalis subsp. recurva</i>			C		1/1
plants	higher dicots	Proteaceae	<i>Grevillea cyranostigma</i>			R		12/12
plants	higher dicots	Proteaceae	<i>Persoonia amaliae</i>			R		2/1
plants	higher dicots	Proteaceae	<i>Lomatia silaifolia</i>	crinkle bush		C		18/7
plants	higher dicots	Proteaceae	<i>Hakea eriantha</i>			C		1/1
plants	higher dicots	Proteaceae	<i>Conospermum sphacelatum</i>			C		7/7
plants	higher dicots	Proteaceae	<i>Hakea florulenta</i>	three-nerved willow hakea		C		1
plants	higher dicots	Proteaceae	<i>Hakea lorea</i>			C		11
plants	higher dicots	Proteaceae	<i>Neorites kevedianus</i>			C		1
plants	higher dicots	Proteaceae	<i>Hakea plurinervia</i>			C		15/7
plants	higher dicots	Proteaceae	<i>Hakea purpurea</i>			C		4/3
plants	higher dicots	Proteaceae	<i>Hakea</i>			C		7/5
plants	higher dicots	Proteaceae	<i>Grevillea decora subsp. decora</i>			C		8/8
plants	higher dicots	Proteaceae	<i>Grevillea floribunda subsp. floribunda</i>			C		19/13
plants	higher dicots	Proteaceae	<i>Grevillea helmsiae</i>			C		3/2
plants	higher dicots	Proteaceae	<i>Grevillea longistyla</i>			C		36/22
plants	higher dicots	Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree		C		1/1
plants	higher dicots	Proteaceae	<i>Grevillea singuliflora</i>			R		11/3
plants	higher dicots	Proteaceae	<i>Grevillea</i>			C		8
plants	higher dicots	Proteaceae	<i>Banksia oblongifolia</i>	dwarf banksia		C		14/5
plants	higher dicots	Putranjivaceae	<i>Drypetes deplanchei</i>	grey boxwood		C		9/3
plants	higher dicots	Rhamnaceae	<i>Polianthion minutiflorum</i>			V	V	2/2
plants	higher dicots	Rhamnaceae	<i>Ventilago viminalis</i>	supplejack		C		43/8
plants	higher dicots	Rhamnaceae	<i>Cryptandra</i>			C		3/3
plants	higher dicots	Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree		C		340/8
plants	higher dicots	Rhamnaceae	<i>Pomaderris</i>			C		1
plants	higher dicots	Rhamnaceae	<i>Cryptandra amara</i>			C		3/2
plants	higher dicots	Rhamnaceae	<i>Cryptandra propinqua</i>			C		1/1
plants	higher dicots	Rhamnaceae	<i>Ziziphus mauritiana</i>	Indian jujube	Y			1/1
plants	higher dicots	Rhamnaceae	<i>Pomaderris lanigera</i>			C		9/7
plants	higher dicots	Rhamnaceae	<i>Cryptandra rigida</i>			C		2/2
plants	higher dicots	Rhamnaceae	<i>Cryptandra armata</i>			C		1/1
plants	higher dicots	Rhamnaceae	<i>Pomaderris queenslandica</i>			C		5/4
plants	higher dicots	Rosaceae	<i>Rubus parvifolius</i>	pink-flowered native raspberry		C		8/2
plants	higher dicots	Rosaceae	<i>Rubus probus</i>			C		1
plants	higher dicots	Rubiaceae	<i>Psydrax saligna forma saligna</i>			C		2/2
plants	higher dicots	Rubiaceae	<i>Psydrax johnsonii</i>			C		31/9
plants	higher dicots	Rubiaceae	<i>Psydrax attenuata</i>			C		1
plants	higher dicots	Rubiaceae	<i>Psydrax forsteri</i>			C		23/16
plants	higher dicots	Rubiaceae	<i>Triflorensia ixoroides</i>			C		30/8

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plants	higher dicots	Rubiaceae	<i>Galium sp. (Cooyar A.R.Bean 16070)</i>			C		1/1
plants	higher dicots	Rubiaceae	<i>Richardia brasiliensis</i>	white eye	Y			16/7
plants	higher dicots	Rubiaceae	<i>Psychotria daphnoides var. angustifolia</i>			C		1/1
plants	higher dicots	Rubiaceae	<i>Psychotria daphnoides</i>			C		12/6
plants	higher dicots	Rubiaceae	<i>Psychotria</i>			C		1
plants	higher dicots	Rubiaceae	<i>Pomax umbellata</i>			C		22/9
plants	higher dicots	Rubiaceae	<i>Opercularia diphylla</i>			C		19/4
plants	higher dicots	Rubiaceae	<i>Opercularia hispida</i>	hairy stinkweed		C		3/3
plants	higher dicots	Rubiaceae	<i>Morinda jasminoides</i>	morinda		C		9/8
plants	higher dicots	Rubiaceae	<i>Asperula conferta</i>			C		7/5
plants	higher dicots	Rubiaceae	<i>Pavetta australiensis</i>			C		1
plants	higher dicots	Rubiaceae	<i>Larsenaikia ochreatea</i>			C		8/4
plants	higher dicots	Rubiaceae	<i>Synaptantha tillaeacea var. tillaeacea</i>			C		1/1
plants	higher dicots	Rubiaceae	<i>Oldenlandia mitrasacmoides</i>			C		1
plants	higher dicots	Rubiaceae	<i>Oldenlandia coerulescens</i>			C		8/8
plants	higher dicots	Rubiaceae	<i>Oldenlandia mitrasacmoides subsp. trachymenoides</i>			C		5/4
plants	higher dicots	Rubiaceae	<i>Oldenlandia galioides</i>			C		3/3
plants	higher dicots	Rubiaceae	<i>Oldenlandia corymbosa var. corymbosa</i>		Y			1/1
plants	higher dicots	Rubiaceae	<i>Pogonolobus reticulatus</i>			C		43/9
plants	higher dicots	Rubiaceae	<i>Psydrax odorata</i>			C		47/8
plants	higher dicots	Rubiaceae	<i>Antirhea putaminosa</i>			C		3/2
plants	higher dicots	Rubiaceae	<i>Spermacoce baileyana</i>			C		1/1
plants	higher dicots	Rubiaceae	<i>Canthium</i>			C		25
plants	higher dicots	Rubiaceae	<i>Spermacoce stenophylla</i>			C		2
plants	higher dicots	Rubiaceae	<i>Psychotria daphnoides var. pubescens</i>			C		3/3
plants	higher dicots	Rubiaceae	<i>Dentella repens</i>	dentella		C		1/1
plants	higher dicots	Rubiaceae	<i>Spermacoce brachystema</i>			C		30/14
plants	higher dicots	Rubiaceae	<i>Spermacoce multicaulis</i>			C		26/8
plants	higher dicots	Rubiaceae	<i>Spermacoce</i>			C		12
plants	higher dicots	Rubiaceae	<i>Everistia vacciniifolia forma vacciniifolia</i>			C		8/8
plants	higher dicots	Rubiaceae	<i>Everistia vacciniifolia var. nervosa</i>			C		3
plants	higher dicots	Rubiaceae	<i>Everistia vacciniifolia</i>			C		33
plants	higher dicots	Rubiaceae	<i>Cyclophyllum coprosmoides</i>			C		2
plants	higher dicots	Rubiaceae	<i>Cyclophyllum coprosmoides var. coprosmoides</i>			C		3/3
plants	higher dicots	Rubiaceae	<i>Spermacoce sp. (Dislyn A.R.Bean 14098)</i>			C		3/3
plants	higher dicots	Rubiaceae	<i>Psydrax</i>			C		2/2
plants	higher dicots	Rubiaceae	<i>Psydrax oleifolia</i>			C		43/12
plants	higher dicots	Rubiaceae	<i>Psydrax odorata forma buxifolia</i>			C		11/2
plants	higher dicots	Rubiaceae	<i>Psydrax odorata forma subnitida</i>			C		2/2
plants	higher dicots	Rutaceae	<i>Zieria aspalathoides subsp. aspalathoides</i>			C		17/14
plants	higher dicots	Rutaceae	<i>Zieria minutiflora subsp. trichocarpa</i>			C		1/1
plants	higher dicots	Rutaceae	<i>Boronia occidentalis</i>			C		9/9
plants	higher dicots	Rutaceae	<i>Philothea difformis subsp. smithiana</i>			C		1
plants	higher dicots	Rutaceae	<i>Philothea difformis</i>			C		1
plants	higher dicots	Rutaceae	<i>Boronia odorata</i>			C		16/16
plants	higher dicots	Rutaceae	<i>Zieria fraseri</i>			C		5/4

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plants	higher dicots	Rutaceae	<i>Flindersia australis</i>	crow's ash		C		14/3
plants	higher dicots	Rutaceae	<i>Geijera salicifolia</i>	brush wilga		C		14/4
plants	higher dicots	Rutaceae	<i>Zieria cytisoides</i>	downy Zieria		C		6/6
plants	higher dicots	Rutaceae	<i>Murraya paniculata</i>			C		2
plants	higher dicots	Rutaceae	<i>Philotheca ciliata</i>			C		11/8
plants	higher dicots	Rutaceae	<i>Asterolasia correifolia</i>			C		4/4
plants	higher dicots	Rutaceae	<i>Boronia eriantha</i>			R		10/10
plants	higher dicots	Rutaceae	<i>Flindersia collina</i>	broad-leaved leopard tree		C		9/4
plants	higher dicots	Rutaceae	<i>Phebalium squamulosum subsp. gracile</i>			C		3/2
plants	higher dicots	Rutaceae	<i>Boronia obovata</i>			C		56/37
plants	higher dicots	Rutaceae	<i>Boronia polygalifolia</i>	dwarf boronia		C		2/1
plants	higher dicots	Rutaceae	<i>Boronia rosmarinifolia</i>	forest boronia		C		2
plants	higher dicots	Rutaceae	<i>Boronia</i>			C		9/1
plants	higher dicots	Rutaceae	<i>Rutaceae</i>			C		2
plants	higher dicots	Rutaceae	<i>Citrus x limon</i>		Y			2/1
plants	higher dicots	Rutaceae	<i>Citrus glauca</i>			C		40/12
plants	higher dicots	Rutaceae	<i>Dinosperma erythrococcum</i>			C		4/2
plants	higher dicots	Rutaceae	<i>Boronia splendida</i>			C		1/1
plants	higher dicots	Rutaceae	<i>Zieria minutiflora subsp. minutiflora</i>			C		1/1
plants	higher dicots	Rutaceae	<i>Zieria minutiflora</i>			C		1
plants	higher dicots	Rutaceae	<i>Phebalium nottii</i>	pink phebalium		C		25/17
plants	higher dicots	Rutaceae	<i>Boronia bipinnata</i>	rock boronia		C		20/8
plants	higher dicots	Rutaceae	<i>Acronychia laevis</i>	glossy acronychia		C		3
plants	higher dicots	Rutaceae	<i>Acronychia pauciflora</i>	soft acronychia		C		3/3
plants	higher dicots	Rutaceae	<i>Zanthoxylum brachyacanthum</i>			C		2
plants	higher dicots	Rutaceae	<i>Zieria compacta</i>			C		3/3
plants	higher dicots	Rutaceae	<i>Zieria smithii</i>			C		9/8
plants	higher dicots	Rutaceae	<i>Phebalium glandulosum subsp. glandulosum</i>			C		5/4
plants	higher dicots	Rutaceae	<i>Phebalium woombye</i>	wallum phebalium		C		1/1
plants	higher dicots	Rutaceae	<i>Murraya ovatifoliolata</i>			C		2/1
plants	higher dicots	Rutaceae	<i>Geijera parviflora</i>	wilga		C		199/22
plants	higher dicots	Rutaceae	<i>Flindersia dissosperma</i>			C		50/19
plants	higher dicots	Rutaceae	<i>Flindersia maculosa</i>	leopardwood		C		1
plants	higher dicots	Rutaceae	<i>Melicope micrococca</i>	white evodia		C		1/1
plants	higher dicots	Rutaceae	<i>Boronia glabra</i>			C		1
plants	higher dicots	Rutaceae	<i>Boronia duiganiae</i>			C		22/17
plants	higher dicots	Rutaceae	<i>Philotheca difformis subsp. difformis</i>			C		18/14
plants	higher dicots	Rutaceae	<i>Boronia forsteri</i>			C		6/5
plants	higher dicots	Rutaceae	<i>Zieria fraseri subsp. robusta</i>			C		13/13
plants	higher dicots	Rutaceae	<i>Zieria aspalathoides subsp. brachyphylla</i>			C		3/3
plants	higher dicots	Sambucaceae	<i>Sambucus gaudichaudiana</i>	white elder		C		1/1
plants	higher dicots	Samolaceae	<i>Samolus valerandi</i>	brookweed		C		2/2
plants	higher dicots	Santalaceae	<i>Thesium australe</i>	toadflax		V	V	1/1
plants	higher dicots	Santalaceae	<i>Santalum lanceolatum</i>			C		45/14
plants	higher dicots	Santalaceae	<i>Exocarpos cupressiformis</i>	native cherry		C		14/3
plants	higher dicots	Santalaceae	<i>Exocarpos latifolius</i>			C		17/5

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plants	higher dicots	Santalaceae	<i>Anthobolus leptomerioides</i>			C		2/2
plants	higher dicots	Santalaceae	<i>Santalum acuminatum</i>	sweet quandong		C		2
plants	higher dicots	Sapindaceae	<i>Alectryon diversifolius</i>	scrub boonaree		C		121/6
plants	higher dicots	Sapindaceae	<i>Arytera</i>			C		1
plants	higher dicots	Sapindaceae	<i>Atalaya salicifolia</i>			C		6/1
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa subsp. burmanniana</i>			C		4/3
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa subsp. mucronata</i>			C		2/2
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa subsp. spatulata</i>			C		24/9
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa subsp. viscosa</i>			C		1
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa</i>			C		26
plants	higher dicots	Sapindaceae	<i>Dodonaea boroniifolia</i>			C		2/1
plants	higher dicots	Sapindaceae	<i>Cupaniopsis anacardioides</i>	tuckeroo		C		6/2
plants	higher dicots	Sapindaceae	<i>Cardiospermum grandiflorum</i>	heart seed vine	Y			1/1
plants	higher dicots	Sapindaceae	<i>Atalaya hemiglauca</i>			C		80/4
plants	higher dicots	Sapindaceae	<i>Dodonaea macrossanii</i>			C		1
plants	higher dicots	Sapindaceae	<i>Alectryon pubescens</i>			C		6/1
plants	higher dicots	Sapindaceae	<i>Atalaya</i>			C		1
plants	higher dicots	Sapindaceae	<i>Dodonaea heteromorpha</i>			C		2/2
plants	higher dicots	Sapindaceae	<i>Dodonaea</i>			C		13
plants	higher dicots	Sapindaceae	<i>Cardiospermum halicacabum var. halicacabum</i>		Y			5/3
plants	higher dicots	Sapindaceae	<i>Alectryon oleifolius subsp. elongatus</i>			C		7/6
plants	higher dicots	Sapindaceae	<i>Alectryon oleifolius</i>			C		18
plants	higher dicots	Sapindaceae	<i>Elattostachys xylocarpa</i>	white tamarind		C		8/4
plants	higher dicots	Sapindaceae	<i>Dodonaea filifolia</i>			C		24/13
plants	higher dicots	Sapindaceae	<i>Dodonaea lanceolata var. lanceolata</i>			C		1/1
plants	higher dicots	Sapindaceae	<i>Dodonaea lanceolata var. subsessilifolia</i>			C		10/8
plants	higher dicots	Sapindaceae	<i>Dodonaea peduncularis</i>			C		32/13
plants	higher dicots	Sapindaceae	<i>Dodonaea stenophylla</i>			C		14/7
plants	higher dicots	Sapindaceae	<i>Dodonaea triangularis</i>			C		28/8
plants	higher dicots	Sapindaceae	<i>Dodonaea vestita</i>			C		48/24
plants	higher dicots	Sapindaceae	<i>Dodonaea viscosa subsp. angustissima</i>			C		1
plants	higher dicots	Sapindaceae	<i>Cardiospermum halicacabum</i>		Y			1
plants	higher dicots	Sapindaceae	<i>Alectryon subdentatus</i>			C		10/1
plants	higher dicots	Sapindaceae	<i>Dodonaea lanceolata</i>			C		4
plants	higher dicots	Sapindaceae	<i>Dodonaea tenuifolia</i>			C		9/7
plants	higher dicots	Sapindaceae	<i>Arytera bifoliolata</i>			C		1
plants	higher dicots	Sapindaceae	<i>Alectryon connatus</i>	grey birds-eye		C		31/12
plants	higher dicots	Sapotaceae	<i>Planchonella pubescens</i>			C		6/6
plants	higher dicots	Sapotaceae	<i>Pouteria cotinifolia var. pubescens</i>			C		31
plants	higher dicots	Sapotaceae	<i>Pouteria cotinifolia</i>			C		13
plants	higher dicots	Sapotaceae	<i>Planchonella cotinifolia</i>			C		3/3
plants	higher dicots	Sapotaceae	<i>Planchonella myrsinifolia</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Glossostigma cleistanthum</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Stemodia florulenta</i>			C		2/1
plants	higher dicots	Scrophulariaceae	<i>Stemodia</i>			C		2/2
plants	higher dicots	Scrophulariaceae	<i>Glossostigma diandrum</i>			C		4/3

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plants	higher dicots	Scrophulariaceae	<i>Mimulus gracilis</i>	slender monkey flower		C		1/1
plants	higher dicots	Scrophulariaceae	<i>Peplidium foecundum</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Verbascum virgatum</i>	twiggy mullein	Y			1/1
plants	higher dicots	Scrophulariaceae	<i>Stemodia pubescens</i>			C		2/2
plants	higher dicots	Scrophulariaceae	<i>Peplidium maritimum</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Striga parviflora</i>			C		2
plants	higher dicots	Scrophulariaceae	<i>Lindernia</i>			C		1
plants	higher dicots	Scrophulariaceae	<i>Lindernia alsinoides</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Veronica plebeia</i>	trailing speedwell		C		6/3
plants	higher dicots	Scrophulariaceae	<i>Scoparia dulcis</i>	Scoparia	Y			18/8
plants	higher dicots	Scrophulariaceae	<i>Gratiola pedunculata</i>			C		3/2
plants	higher dicots	Scrophulariaceae	<i>Buchnera urticifolia</i>			C		2/1
plants	higher dicots	Scrophulariaceae	<i>Buchnera gracilis</i>			C		2/1
plants	higher dicots	Scrophulariaceae	<i>Buchnera linearis</i>			C		1
plants	higher dicots	Simaroubaceae	<i>Quassia sp. (Dam Creek T.S.Ryan 1006)</i>			C		1/1
plants	higher dicots	Simaroubaceae	<i>Quassia sp. (Tozer Range L.J.Brass 19393)</i>			C		1
plants	higher dicots	Solanaceae	<i>Solanum seafortianum</i>	Brazilian nightshade	Y			12/2
plants	higher dicots	Solanaceae	<i>Nicotiana amplexicaulis</i>			C		5/4
plants	higher dicots	Solanaceae	<i>Solanum nemophilum</i>			C		17/4
plants	higher dicots	Solanaceae	<i>Datura leichhardtii</i>	native thornapple	Y			5/5
plants	higher dicots	Solanaceae	<i>Physalis angulata</i>		Y			2/2
plants	higher dicots	Solanaceae	<i>Solanum elachophyllum</i>			C		7/5
plants	higher dicots	Solanaceae	<i>Solanum brownii</i>	violet nightshade		C		2/1
plants	higher dicots	Solanaceae	<i>Solanum semiarmatum</i>	prickly nightshade		C		11/1
plants	higher dicots	Solanaceae	<i>Solanum stelligerum</i>	devil's needles		C		5
plants	higher dicots	Solanaceae	<i>Solanum</i>			C		44/2
plants	higher dicots	Solanaceae	<i>Solanum adenophorum</i>			E		3/3
plants	higher dicots	Solanaceae	<i>Solanum americanum</i>		Y			7/4
plants	higher dicots	Solanaceae	<i>Solanum elaeagnifolium</i>		Y			6
plants	higher dicots	Solanaceae	<i>Solanum ellipticum</i>	potato bush		C		85/25
plants	higher dicots	Solanaceae	<i>Solanum esuriale</i>	quena		C		16/12
plants	higher dicots	Solanaceae	<i>Solanum furfuraceum</i>			C		1/1
plants	higher dicots	Solanaceae	<i>Solanum nigrum subsp. nigrum</i>		Y			2/2
plants	higher dicots	Solanaceae	<i>Solanum opacum</i>	green berry nightshade		C		1
plants	higher dicots	Solanaceae	<i>Solanum parvifolium</i>			C		34
plants	higher dicots	Solanaceae	<i>Physalis ixocarpa</i>	annual ground cherry	Y			1/1
plants	higher dicots	Solanaceae	<i>Physalis lanceifolia</i>		Y			4/4
plants	higher dicots	Solanaceae	<i>Nicotiana megalosiphon</i>			C		4/2
plants	higher dicots	Solanaceae	<i>Nicotiana</i>			C		1/1
plants	higher dicots	Solanaceae	<i>Duboisia leichhardtii</i>			C		3/3
plants	higher dicots	Solanaceae	<i>Datura ferox</i>	fierce thornapple	Y			3/3
plants	higher dicots	Solanaceae	<i>Cestrum parqui</i>	green cestrum	Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum mitchellianum</i>			C		16/16
plants	higher dicots	Solanaceae	<i>Solanum latens A.R.Bean x S.nemophilum</i>			C		1/1
plants	higher dicots	Solanaceae	<i>Solanum pusillum</i>			C		2/2
plants	higher dicots	Solanaceae	<i>Solanum latens</i>			C		1/1



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plants	higher dicots	Solanaceae	<i>Solanum parvifolium</i> subsp. <i>parvifolium</i>			C		9/9
plants	higher dicots	Solanaceae	<i>Solanum cocosoides</i>			C		5/5
plants	higher dicots	Solanaceae	<i>Solanum dumicola</i>			C		1/1
plants	higher dicots	Solanaceae	<i>Solanum jucundum</i>			C		3/2
plants	higher dicots	Solanaceae	<i>Solanum gympiense</i>			C		2
plants	higher dicots	Solanaceae	<i>Nicotiana forsteri</i>			C		3/3
plants	higher dicots	Solanaceae	<i>Solanum americanum</i> subsp. <i>nodiflorum</i>		Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum ferocissimum</i>			C		8/3
plants	higher dicots	Solanaceae	<i>Solanum erianthum</i>	potato tree	Y			1
plants	higher dicots	Solanaceae	<i>Physalis peruviana</i>		Y			1
plants	higher dicots	Solanaceae	<i>Capsicum annuum</i> var. <i>glabriusculum</i>		Y			2/2
plants	higher dicots	Solanaceae	<i>Nicandra physalodes</i>	apple of Peru	Y			1/1
plants	higher dicots	Sparrmanniaceae	<i>Grewia scabrella</i>				C	10/8
plants	higher dicots	Sparrmanniaceae	<i>Corchorus reynoldsiae</i>				C	3/3
plants	higher dicots	Sparrmanniaceae	<i>Corchorus tomentellus</i>				C	10/9
plants	higher dicots	Sparrmanniaceae	<i>Grewia latifolia</i>	dysentery plant			C	143/17
plants	higher dicots	Sparrmanniaceae	<i>Grewia retusifolia</i>				C	11/5
plants	higher dicots	Sparrmanniaceae	<i>Grewia</i>				C	1
plants	higher dicots	Sparrmanniaceae	<i>Corchorus trilocularis</i>				C	14/12
plants	higher dicots	Stackhousiaceae	<i>Stackhousia viminea</i>	slender stackhousia			C	9/6
plants	higher dicots	Stackhousiaceae	<i>Stackhousia muricata</i>				C	3/2
plants	higher dicots	Stackhousiaceae	<i>Stackhousia</i>				C	1/1
plants	higher dicots	Sterculiaceae	<i>Brachychiton populneus</i>				C	20
plants	higher dicots	Sterculiaceae	<i>Brachychiton x turgidulus</i>				C	1/1
plants	higher dicots	Sterculiaceae	<i>Brachychiton bidwillii</i>	little kurrajong			C	11/6
plants	higher dicots	Sterculiaceae	<i>Brachychiton australis</i>	broad-leaved bottle tree			C	29/3
plants	higher dicots	Sterculiaceae	<i>Sterculia quadrifida</i>	peanut tree			C	1
plants	higher dicots	Sterculiaceae	<i>Brachychiton populneus</i> subsp. <i>trilobus</i>				C	6/6
plants	higher dicots	Sterculiaceae	<i>Brachychiton acerifolius</i>	flame tree			C	1
plants	higher dicots	Sterculiaceae	<i>Brachychiton populneus</i> subsp. <i>populneus</i>				C	5/2
plants	higher dicots	Sterculiaceae	<i>Brachychiton rupestris</i>				C	68/6
plants	higher dicots	Stylidiaceae	<i>Stylidium tenerum</i>				C	1/1
plants	higher dicots	Stylidiaceae	<i>Stylidium eglanulosum</i>				C	9/7
plants	higher dicots	Stylidiaceae	<i>Stylidium eriorhizum</i>				C	13/6
plants	higher dicots	Stylidiaceae	<i>Stylidium debile</i>	frail trigger plant			C	9/7
plants	higher dicots	Stylidiaceae	<i>Stylidium graminifolium</i>	grassy-leaved trigger-flower			C	14/5
plants	higher dicots	Stylidiaceae	<i>Stylidium laricifolium</i>	tree trigger plant			C	8/4
plants	higher dicots	Surianaceae	<i>Cadellia pentastylis</i>	ooline		V	V	8/4
plants	higher dicots	Tamaricaceae	<i>Tamarix aphylla</i>	athel tree	Y			1/1
plants	higher dicots	Thymelaeaceae	<i>Pimelea haematostachya</i>				C	18/13
plants	higher dicots	Thymelaeaceae	<i>Pimelea</i> sp. (Hughenden D.A.Halford Q242)				C	2/2
plants	higher dicots	Thymelaeaceae	<i>Pimelea</i>				C	5
plants	higher dicots	Thymelaeaceae	<i>Pimelea strigosa</i>				C	2/2
plants	higher dicots	Thymelaeaceae	<i>Pimelea latifolia</i> subsp. <i>latifolia</i>				C	2/2
plants	higher dicots	Thymelaeaceae	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>				C	4/4
plants	higher dicots	Thymelaeaceae	<i>Pimelea linifolia</i>				C	8/5

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plants	higher dicots	Thymelaeaceae	<i>Pimelea decora</i>			C		2
plants	higher dicots	Thymelaeaceae	<i>Pimelea neoanglica</i>	poison pimelea		C		2/1
plants	higher dicots	Thymelaeaceae	<i>Pimelea glauca</i>	smooth riceflower		C		2/2
plants	higher dicots	Thymelaeaceae	<i>Pimelea microcephala subsp. microcephala</i>			C		3/3
plants	higher dicots	Ulmaceae	<i>Trema tomentosa var. aspera</i>			C		4/4
plants	higher dicots	Ulmaceae	<i>Celtis paniculata</i>	native celtis		C		2/1
plants	higher dicots	Ulmaceae	<i>Celtis sinensis</i>	Chinese elm	Y			3
plants	higher dicots	Ulmaceae	<i>Trema tomentosa</i>			C		11/4
plants	higher dicots	Urticaceae	<i>Pipturus argenteus</i>	white nettle		C		2/1
plants	higher dicots	Urticaceae	<i>Dendrocnide photinophylla</i>	shiny-leaved stinging tree		C		3/1
plants	higher dicots	Verbenaceae	<i>Verbena rigida</i>		Y			1/1
plants	higher dicots	Verbenaceae	<i>Verbena gaudichaudii</i>			C		2/2
plants	higher dicots	Verbenaceae	<i>Verbena halei</i>		Y			1
plants	higher dicots	Verbenaceae	<i>Verbena africana</i>			C		13/13
plants	higher dicots	Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Y			5/2
plants	higher dicots	Verbenaceae	<i>Verbena bonariensis</i>	purpletop	Y			5
plants	higher dicots	Verbenaceae	<i>Lantana montevidensis</i>	creeping lantana	Y			5/2
plants	higher dicots	Verbenaceae	<i>Verbena macrostachya</i>			C		9/8
plants	higher dicots	Verbenaceae	<i>Verbena aristigera</i>	Mayne's pest	Y			16/11
plants	higher dicots	Verbenaceae	<i>Verbena incompta</i>		Y			2/2
plants	higher dicots	Verbenaceae	<i>Lippia alba var. alba</i>		Y			6/6
plants	higher dicots	Verbenaceae	<i>Phyla canescens</i>		Y			1/1
plants	higher dicots	Verbenaceae	<i>Verbena</i>			C		9
plants	higher dicots	Verbenaceae	<i>Verbena litoralis</i>	verbena	Y			13
plants	higher dicots	Verbenaceae	<i>Verbena officinalis</i>			C		25/1
plants	higher dicots	Verbenaceae	<i>Lantana camara</i>		Y			2/2
plants	higher dicots	Violaceae	<i>Viola</i>			C		1
plants	higher dicots	Violaceae	<i>Viola betonicifolia</i>			C		1
plants	higher dicots	Violaceae	<i>Viola hederacea</i>			C		1
plants	higher dicots	Violaceae	<i>Viola hederacea subsp. perreniformis</i>			C		3/3
plants	higher dicots	Violaceae	<i>Hybanthus monopetalus</i>			C		12/8
plants	higher dicots	Violaceae	<i>Hybanthus stellarioides</i>			C		20/3
plants	higher dicots	Violaceae	<i>Hybanthus enneaspermus</i>			C		17/7
plants	higher dicots	Violaceae	<i>Viola betonicifolia subsp. betonicifolia</i>			C		5/5
plants	higher dicots	Viscaceae	<i>Viscum articulatum</i>	flat mistletoe		C		3/3
plants	higher dicots	Viscaceae	<i>Notothixos incanus</i>			C		4/4
plants	higher dicots	Viscaceae	<i>Notothixos cornifolius</i>	kurrajong mistletoe		C		1
plants	higher dicots	Vitaceae	<i>Clematicissus opaca</i>			C		6/6
plants	higher dicots	Vitaceae	<i>Cayratia clematidea</i>	slender grape		C		8/2
plants	higher dicots	Vitaceae	<i>Cissus oblonga</i>			C		10/7
plants	higher dicots	Vitaceae	<i>Cissus antarctica</i>			C		2/1
plants	higher dicots	Vitaceae	<i>Cissus reniformis</i>			C		1
plants	higher dicots	Vitaceae	<i>Cissus hypoglauca</i>			C		5/2
plants	higher dicots	Vitaceae	<i>Cissus opaca</i>			C		93
plants	higher dicots	Zygophyllaceae	<i>Roepera</i>			C		1/1
plants	higher dicots	Zygophyllaceae	<i>Roepera apiculata</i>			C		7/4

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plants	higher dicots	Zygophyllaceae	<i>Tribulus minutus</i>			C		1/1
plants	higher dicots	Zygophyllaceae	<i>Tribulus terrestris</i>	caltrop		C		9/5
plants	higher dicots	Zygophyllaceae	<i>Tribulus micrococcus</i>	yellow vine		C		14/13
plants	liverworts	Aytoniaceae	<i>Plagiochasma rupestre</i>			C		2/2
plants	liverworts	Liverwort	<i>Liverwort</i>			C		1/1
plants	liverworts	Ricciaceae	<i>Ricciocarpus natans</i>			C		1/1
plants	lower dicots	Annonaceae	<i>Melodorum leichhardtii</i>			C		8/5
plants	lower dicots	Aristolochiaceae	<i>Aristolochia meridionalis subsp. centralis</i>			C		4/4
plants	lower dicots	Lauraceae	<i>Cassytha pubescens</i>	downy devil's twine		C		6
plants	lower dicots	Lauraceae	<i>Cassytha glabella forma glabella</i>			C		4/3
plants	lower dicots	Lauraceae	<i>Cassytha filiformis</i>	dodder laurel		C		6/3
plants	lower dicots	Lauraceae	<i>Cassytha rufa</i>			C		1/1
plants	lower dicots	Menispermaceae	<i>Stephania japonica var. discolor</i>			C		2/1
plants	lower dicots	Menispermaceae	<i>Pleogyne australis</i>	wiry grape		C		1/1
plants	lower dicots	Menispermaceae	<i>Stephania japonica</i>			C		8
plants	lower dicots	Menispermaceae	<i>Tinospora smilacina</i>	snakevine		C		16/1
plants	lower dicots	Papaveraceae	<i>Argemone ochroleuca</i>		Y			1
plants	lower dicots	Papaveraceae	<i>Argemone ochroleuca subsp. ochroleuca</i>	mexican poppy	Y			9/5
plants	lower dicots	Papaveraceae	<i>Papaver aculeatum</i>	bristle poppy	Y			3/3
plants	lower dicots	Papaveraceae	<i>Argemone mexicana</i>	prickly poppy	Y			1/1
plants	lower dicots	Piperaceae	<i>Peperomia blanda var. floribunda</i>			C		4/3
plants	lower dicots	Ranunculaceae	<i>Ranunculus pentandrus var. platycarpus</i>			C		1/1
plants	lower dicots	Ranunculaceae	<i>Clematis decipiens</i>			C		3/3
plants	lower dicots	Ranunculaceae	<i>Ranunculus sessiliflorus var. sessiliflorus</i>			C		4/4
plants	lower dicots	Ranunculaceae	<i>Ranunculus lappaceus</i>	common buttercup		C		2/2
plants	lower dicots	Ranunculaceae	<i>Clematis glycinoides</i>			C		14/5
plants	lower dicots	Ranunculaceae	<i>Clematis pickeringii</i>			C		1/1
plants	lower dicots	Ranunculaceae	<i>Ranunculus sceleratus</i>		Y			1
plants	lower dicots	Ranunculaceae	<i>Ranunculus meristus</i>			C		7/7
plants	monocots	Agavaceae	<i>Agave vivipara var. vivipara</i>		Y			2/2
plants	monocots	Alismataceae	<i>Caldesia oligococca</i>			C		4/2
plants	monocots	Alismataceae	<i>Damasonium minus</i>	starfruit		C		1/1
plants	monocots	Amaryllidaceae	<i>Crinum</i>			C		2
plants	monocots	Amaryllidaceae	<i>Crinum pedunculatum</i>	river lily		C		1
plants	monocots	Amaryllidaceae	<i>Calostemma luteum</i>			C		1/1
plants	monocots	Amaryllidaceae	<i>Crinum flaccidum</i>	Murray lily		C		5/2
plants	monocots	Amaryllidaceae	<i>Proiphys cunninghamii</i>	Moreton Bay lily		C		1/1
plants	monocots	Aponogetonaceae	<i>Aponogeton queenslandicus</i>			R		1/1
plants	monocots	Araceae	<i>Gymnostachys anceps</i>	settler's flax		C		3/3
plants	monocots	Arecaceae	<i>Livistona</i>			C		10
plants	monocots	Arecaceae	<i>Livistona fulva</i>			R		23/12
plants	monocots	Arecaceae	<i>Livistona nitida</i>			R		7/3
plants	monocots	Arecaceae	<i>Livistona australis</i>	cabbage tree palm		C		2
plants	monocots	Asphodelaceae	<i>Bulbine bulbosa</i>	golden lily		C		3/3
plants	monocots	Asphodelaceae	<i>Asphodelus fistulosus</i>	asphodel	Y			1/1
plants	monocots	Burmanniaceae	<i>Burmannia disticha</i>			C		3/2

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plants	monocots	Cannaceae	<i>Canna x orchoides</i>		Y			1/1
plants	monocots	Centrolepidaceae	<i>Centrolepis strigosa</i>			C		1/1
plants	monocots	Colchicaceae	<i>Iphigenia indica</i>			C		2/2
plants	monocots	Commelinaceae	<i>Aneilema acuminatum</i>			C		1
plants	monocots	Commelinaceae	<i>Commelina lanceolata</i>			C		5/4
plants	monocots	Commelinaceae	<i>Murdannia</i>			C		1
plants	monocots	Commelinaceae	<i>Commelina diffusa</i>	wandering jew		C		18/3
plants	monocots	Commelinaceae	<i>Commelina ensifolia</i>	scurvy grass		C		8/6
plants	monocots	Commelinaceae	<i>Murdannia graminea</i>	murdannia		C		36/7
plants	monocots	Commelinaceae	<i>Commelina</i>			C		3
plants	monocots	Cyperaceae	<i>Schoenus sparteus</i>			C		8/7
plants	monocots	Cyperaceae	<i>Cyperus bowmannii</i>			C		14/3
plants	monocots	Cyperaceae	<i>Cyperaceae</i>			C		3
plants	monocots	Cyperaceae	<i>Schoenoplectus erectus</i>		Y			1/1
plants	monocots	Cyperaceae	<i>Cyperus uniolooides</i>			C		3/3
plants	monocots	Cyperaceae	<i>Eleocharis</i>			C		2
plants	monocots	Cyperaceae	<i>Gahnia</i>			C		3/1
plants	monocots	Cyperaceae	<i>Carex gaudichaudiana</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus distans</i>			C		1
plants	monocots	Cyperaceae	<i>Cyperus pygmaeus</i>	dwarf sedge		C		3/3
plants	monocots	Cyperaceae	<i>Caustis flexuosa</i>			C		8/5
plants	monocots	Cyperaceae	<i>Cyperus polystachyos</i>			C		5/3
plants	monocots	Cyperaceae	<i>Caustis recurvata</i>			C		5/1
plants	monocots	Cyperaceae	<i>Carex appressa</i>			C		5/5
plants	monocots	Cyperaceae	<i>Caustis pentandra</i>	thick twistrush		C		15/11
plants	monocots	Cyperaceae	<i>Bulbostylis barbata</i>			C		11/7
plants	monocots	Cyperaceae	<i>Baumea rubiginosa</i>	soft twigrush		C		7/6
plants	monocots	Cyperaceae	<i>Schoenus apogon</i>			C		1
plants	monocots	Cyperaceae	<i>Cyperus castaneus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus gunnii</i>			C		1
plants	monocots	Cyperaceae	<i>Bulbostylis turbinata</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus tetraphyllus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus trinervis</i>			C		4/2
plants	monocots	Cyperaceae	<i>Cyperus aquatilis</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus bifax</i>	western nutgrass		C		18/12
plants	monocots	Cyperaceae	<i>Cyperus brevifolius</i>	Mullumbimby couch	Y			5/5
plants	monocots	Cyperaceae	<i>Cyperus conicus var. conicus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus difformis</i>	rice sedge		C		13/8
plants	monocots	Cyperaceae	<i>Cyperus enervis</i>			C		3
plants	monocots	Cyperaceae	<i>Cyperus esculentus</i>	yellow nutgrass	Y			1
plants	monocots	Cyperaceae	<i>Fuirena incrassata</i>			C		1/1
plants	monocots	Cyperaceae	<i>Fuirena umbellata</i>			C		1/1
plants	monocots	Cyperaceae	<i>Gahnia aspera</i>			C		29/7
plants	monocots	Cyperaceae	<i>Gahnia sieberiana</i>	sword grass		C		6/4
plants	monocots	Cyperaceae	<i>Fimbristylis depauperata</i>			C		3/1
plants	monocots	Cyperaceae	<i>Fimbristylis dichotoma</i>	common fringe-rush		C		85/15

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plants	monocots	Cyperaceae	<i>Fimbristylis nutans</i>			C		1/1
plants	monocots	Cyperaceae	<i>Fimbristylis</i>			C		9
plants	monocots	Cyperaceae	<i>Fuirena ciliaris</i>			C		4/3
plants	monocots	Cyperaceae	<i>Scleria mackaviensis</i>			C		44/9
plants	monocots	Cyperaceae	<i>Rhynchospora brownii</i>	beak rush		C		4/4
plants	monocots	Cyperaceae	<i>Fimbristylis microcarya</i>			C		3/3
plants	monocots	Cyperaceae	<i>Eleocharis dulcis</i>			C		5/2
plants	monocots	Cyperaceae	<i>Eleocharis atricha</i>	tuber spikerush		C		2/2
plants	monocots	Cyperaceae	<i>Eleocharis equisetina</i>			C		1
plants	monocots	Cyperaceae	<i>Cyperus exaltatus</i>	tall flatsedge		C		10/3
plants	monocots	Cyperaceae	<i>Cyperus involucreatus</i>		Y			1/1
plants	monocots	Cyperaceae	<i>Cyperus cyperoides</i>			C		1
plants	monocots	Cyperaceae	<i>Cyperus flavidus</i>			C		6/5
plants	monocots	Cyperaceae	<i>Cyperus lucidus</i>			C		5/4
plants	monocots	Cyperaceae	<i>Cyperus victoriensis</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus</i>			C		39
plants	monocots	Cyperaceae	<i>Carex inversa</i>	knob sedge		C		8/5
plants	monocots	Cyperaceae	<i>Carex polyantha</i>			C		1/1
plants	monocots	Cyperaceae	<i>Bolboschoenus fluviatilis</i>			C		1/1
plants	monocots	Cyperaceae	<i>Arthrostylis aphylla</i>			C		1/1
plants	monocots	Cyperaceae	<i>Schoenoplectus mucronatus</i>			C		8/6
plants	monocots	Cyperaceae	<i>Schoenoplectus validus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Schoenus apogon var. apogon</i>			C		3/3
plants	monocots	Cyperaceae	<i>Schoenus melanostachys</i>			C		4/3
plants	monocots	Cyperaceae	<i>Schoenus villosus</i>			C		4/3
plants	monocots	Cyperaceae	<i>Scleria brownii</i>			C		5/2
plants	monocots	Cyperaceae	<i>Scleria levis</i>			C		1/1
plants	monocots	Cyperaceae	<i>Scleria sphacelata</i>			C		87/20
plants	monocots	Cyperaceae	<i>Scleria</i>			C		3
plants	monocots	Cyperaceae	<i>Lipocarpa microcephala</i>			C		6/5
plants	monocots	Cyperaceae	<i>Lepidosperma laterale var. laterale</i>			C		10/6
plants	monocots	Cyperaceae	<i>Isolepis inundata</i>	swamp club rush		C		2/1
plants	monocots	Cyperaceae	<i>Eleocharis cylindrostachys</i>			C		4/3
plants	monocots	Cyperaceae	<i>Eleocharis pallens</i>	pale spikerush		C		1/1
plants	monocots	Cyperaceae	<i>Eleocharis sphacelata</i>	tall spikerush		C		6/4
plants	monocots	Cyperaceae	<i>Cyperus polystachyos var. polystachyos</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus procerus</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus rotundus</i>	nutgrass	Y			10/2
plants	monocots	Cyperaceae	<i>Cyperus sphaeroideus</i>			C		3/3
plants	monocots	Cyperaceae	<i>Cyperus squarrosus</i>	bearded flatsedge		C		4/3
plants	monocots	Cyperaceae	<i>Cyperus fulvus</i>			C		41/17
plants	monocots	Cyperaceae	<i>Cyperus gilesii</i>			C		8/6
plants	monocots	Cyperaceae	<i>Cyperus gracilis</i>			C		126/18
plants	monocots	Cyperaceae	<i>Cyperus haspan subsp. haspan</i>			C		3/3
plants	monocots	Cyperaceae	<i>Cyperus iria</i>			C		4/4
plants	monocots	Cyperaceae	<i>Cyperus javanicus</i>			C		9/5

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plants	monocots	Cyperaceae	<i>Cyperus laevis</i>			C		5/3
plants	monocots	Cyperaceae	<i>Cyperus leiocaulon</i>			C		2/2
plants	monocots	Cyperaceae	<i>Caustis</i>			C		9
plants	monocots	Cyperaceae	<i>Carex fascicularis</i>	tassel sedge		C		1/1
plants	monocots	Cyperaceae	<i>Cyperus cuspidatus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus isabellinus</i>			C		9/8
plants	monocots	Cyperaceae	<i>Fimbristylis bisumbellata</i>			C		3/1
plants	monocots	Cyperaceae	<i>Fimbristylis corynocarya</i>			C		2
plants	monocots	Cyperaceae	<i>Eleocharis tetraquetra</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus curvistyliis</i>			C		5/2
plants	monocots	Cyperaceae	<i>Cyperus nutans var. eleusinoides</i>	flatsedge		C		3/3
plants	monocots	Cyperaceae	<i>Cyperus dietrichiae</i>			C		2/1
plants	monocots	Cyperaceae	<i>Fimbristylis aestivalis</i>			C		2/2
plants	monocots	Cyperaceae	<i>Lepidosperma laterale</i>			C		11/2
plants	monocots	Cyperaceae	<i>Cyperus haspan</i>			C		3/2
plants	monocots	Cyperaceae	<i>Abildgaardia ovata</i>			C		8/5
plants	monocots	Cyperaceae	<i>Cyperus betchei subsp. betchei</i>			C		4/4
plants	monocots	Cyperaceae	<i>Cyperus dietrichiae var. dietrichiae</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus clarus</i>			V		5/5
plants	monocots	Cyperaceae	<i>Eleocharis acuta</i>			C		1
plants	monocots	Cyperaceae	<i>Cyperus mirus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus concinnus</i>			C		10/7
plants	monocots	Cyperaceae	<i>Cyperus alterniflorus</i>			C		5/4
plants	monocots	Cyperaceae	<i>Eleocharis philippinensis</i>			C		2/2
plants	monocots	Cyperaceae	<i>Eleocharis plana</i>	ribbed spikerush		C		4/3
plants	monocots	Cyperaceae	<i>Cyperus dactylotes</i>			C		2/2
plants	monocots	Cyperaceae	<i>Cyperus dietrichiae var. brevibracteatus</i>			C		4/2
plants	monocots	Cyperaceae	<i>Eleocharis blakeana</i>			R		4/2
plants	monocots	Cyperaceae	<i>Cyperus tuberosus</i>		Y			1
plants	monocots	Cyperaceae	<i>Carex brunnea</i>			C		2/2
plants	monocots	Cyperaceae	<i>Fimbristylis sieberiana</i>			C		3/3
plants	monocots	Cyperaceae	<i>Carex declinata</i>			C		1/1
plants	monocots	Cyperaceae	<i>Schoenus kennyi</i>			C		14/7
plants	monocots	Cyperaceae	<i>Schoenus</i>			C		2
plants	monocots	Cyperaceae	<i>Tetragia capillaris</i>			C		2/1
plants	monocots	Cyperaceae	<i>Cyperus aggregatus</i>		Y			1/1
plants	monocots	Cyperaceae	<i>Caustis sp. (Robinson Gorge P.I.Forster+ PIF11256)</i>			C		20/11
plants	monocots	Cyperaceae	<i>Baumea planifolia</i>			C		8/7
plants	monocots	Cyperaceae	<i>Cyperus gunnii subsp. novae-hollandiae</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus flaccidus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus sanguinolentus</i>			C		3/3
plants	monocots	Cyperaceae	<i>Cyperus nervulosus</i>			C		2
plants	monocots	Cyperaceae	<i>Cyperus microcephalus subsp. microcephalus</i>			C		1/1
plants	monocots	Dioscoreaceae	<i>Dioscorea transversa</i>	native yam		C		8/4
plants	monocots	Eriocaulaceae	<i>Eriocaulon scariosum</i>			C		7/5
plants	monocots	Eriocaulaceae	<i>Eriocaulon nanum</i>			C		2/2



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plants	monocots	Haemodoraceae	<i>Haemodorum austroqueenslandicum</i>			C		5/2
plants	monocots	Hemerocallidaceae	<i>Dianella nervosa</i>			C		8/6
plants	monocots	Hemerocallidaceae	<i>Dianella caerulea var. protensa</i>			C		3/3
plants	monocots	Hemerocallidaceae	<i>Dianella revoluta</i>			C		45/2
plants	monocots	Hemerocallidaceae	<i>Dianella fruticans</i>			R		7/6
plants	monocots	Hemerocallidaceae	<i>Dianella caerulea var. petasmatodes</i>			C		1/1
plants	monocots	Hemerocallidaceae	<i>Dianella longifolia</i>			C		37/3
plants	monocots	Hemerocallidaceae	<i>Dianella longifolia var. stenophylla</i>			C		2/1
plants	monocots	Hemerocallidaceae	<i>Dianella revoluta var. tenuis</i>			C		3/3
plants	monocots	Hemerocallidaceae	<i>Dianella</i>			C		20/1
plants	monocots	Hemerocallidaceae	<i>Dianella rara</i>			C		4/2
plants	monocots	Hemerocallidaceae	<i>Dianella longifolia var. stupata</i>			C		2/2
plants	monocots	Hemerocallidaceae	<i>Dianella brevipedunculata</i>			C		4
plants	monocots	Hemerocallidaceae	<i>Dianella revoluta var. revoluta</i>			C		4/2
plants	monocots	Hemerocallidaceae	<i>Geitonoplesium cymosum</i>	scrambling lily		C		10
plants	monocots	Hemerocallidaceae	<i>Dianella caerulea var. vannata</i>			C		7/6
plants	monocots	Hemerocallidaceae	<i>Dianella longifolia var. longifolia</i>			C		2/2
plants	monocots	Hemerocallidaceae	<i>Dianella caerulea</i>			C		26/4
plants	monocots	Hydrocharitaceae	<i>Ottelia ovalifolia</i>	swamp lily		C		5/4
plants	monocots	Hydrocharitaceae	<i>Blyxa aubertii</i>			C		1/1
plants	monocots	Hypoxidaceae	<i>Hypoxis arillacea</i>			C		6/5
plants	monocots	Hypoxidaceae	<i>Hypoxis hygrometrica var. villosisepala</i>			C		1
plants	monocots	Hypoxidaceae	<i>Hypoxis pratensis var. pratensis</i>			C		3/3
plants	monocots	Hypoxidaceae	<i>Hypoxis pratensis</i>			C		2/2
plants	monocots	Iridaceae	<i>Patersonia sericea</i>			C		3
plants	monocots	Iridaceae	<i>Iridaceae</i>			C		1
plants	monocots	Iridaceae	<i>Patersonia</i>			C		1
plants	monocots	Iridaceae	<i>Patersonia glabrata</i>			C		7/6
plants	monocots	Iridaceae	<i>Patersonia sericea var. sericea</i>			C		9/7
plants	monocots	Johnsoniaceae	<i>Caesia parviflora var. parviflora</i>			C		7/5
plants	monocots	Johnsoniaceae	<i>Tricoryne muricata</i>			C		8/2
plants	monocots	Johnsoniaceae	<i>Caesia chlorantha</i>			C		2/1
plants	monocots	Johnsoniaceae	<i>Caesia parviflora</i>			C		1
plants	monocots	Johnsoniaceae	<i>Tricoryne anceps</i>			C		1
plants	monocots	Johnsoniaceae	<i>Tricoryne anceps subsp. anceps</i>			C		2/2
plants	monocots	Johnsoniaceae	<i>Tricoryne elatior</i>	yellow autumn lily		C		25/3
plants	monocots	Juncaceae	<i>Juncus usitatus</i>			C		11/6
plants	monocots	Juncaceae	<i>Juncus</i>			C		2
plants	monocots	Juncaceae	<i>Juncus flavidus</i>			C		3/1
plants	monocots	Juncaceae	<i>Juncus polyanthemus</i>			C		4/3
plants	monocots	Juncaceae	<i>Juncus aridicola</i>	tussock rush		C		2/2
plants	monocots	Juncaceae	<i>Juncus prismatocarpus</i>	branching rush		C		4/3
plants	monocots	Juncaceae	<i>Juncus planifolius</i>			C		4/3
plants	monocots	Juncaceae	<i>Juncus continuus</i>			C		9/7
plants	monocots	Juncaginaceae	<i>Triglochin striatum</i>	streaked arrowgrass		C		1
plants	monocots	Juncaginaceae	<i>Triglochin procerum</i>			C		3/2

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plants	monocots	Juncaginaceae	<i>Maundia triglochinosides</i>			V		2
plants	monocots	Laxmanniaceae	<i>Lomandra multiflora</i>			C		18
plants	monocots	Laxmanniaceae	<i>Lomandra obliqua</i>			C		28/15
plants	monocots	Laxmanniaceae	<i>Lomandra longifolia</i>			C		68/6
plants	monocots	Laxmanniaceae	<i>Lomandra laxa</i>	broad-leaved matrush		C		4/3
plants	monocots	Laxmanniaceae	<i>Lomandra filiformis subsp. filiformis</i>			C		17/3
plants	monocots	Laxmanniaceae	<i>Laxmannia compacta</i>			C		7/6
plants	monocots	Laxmanniaceae	<i>Lomandra glauca</i>	pale matrush		C		1/1
plants	monocots	Laxmanniaceae	<i>Lomandra leucocephala</i>			C		9
plants	monocots	Laxmanniaceae	<i>Lomandra patens</i>			C		1/1
plants	monocots	Laxmanniaceae	<i>Lomandra</i>			C		27/1
plants	monocots	Laxmanniaceae	<i>Arthropodium</i>			C		1
plants	monocots	Laxmanniaceae	<i>Lomandra confertifolia</i>			C		6
plants	monocots	Laxmanniaceae	<i>Lomandra filiformis subsp. coriacea</i>			C		1
plants	monocots	Laxmanniaceae	<i>Lomandra elongata</i>			C		2
plants	monocots	Laxmanniaceae	<i>Lomandra confertifolia subsp. pallida</i>			C		81/12
plants	monocots	Laxmanniaceae	<i>Arthropodium strictum</i>			C		2/2
plants	monocots	Laxmanniaceae	<i>Lomandra teres</i>			R		2/2
plants	monocots	Laxmanniaceae	<i>Laxmannia</i>			C		1/1
plants	monocots	Laxmanniaceae	<i>Thysanotus tuberosus subsp. tuberosus</i>			C		2/2
plants	monocots	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry		C		74/9
plants	monocots	Laxmanniaceae	<i>Lomandra filiformis</i>			C		38
plants	monocots	Laxmanniaceae	<i>Lomandra leucocephala subsp. leucocephala</i>			C		4/3
plants	monocots	Laxmanniaceae	<i>Lomandra multiflora subsp. multiflora</i>			C		58/9
plants	monocots	Laxmanniaceae	<i>Laxmannia gracilis</i>	slender wire lily		C		43/8
plants	monocots	Laxmanniaceae	<i>Arthropodium milleflorum</i>	vanilla lily		C		1/1
plants	monocots	Laxmanniaceae	<i>Thysanotus tuberosus</i>			C		2
plants	monocots	Liliaceae	<i>Liliaceae</i>			C		1
plants	monocots	Orchidaceae	<i>Diuris luteola</i>	northern yellow donkeys tails		C		11/11
plants	monocots	Orchidaceae	<i>Chiloglottis diphylla</i>			C		3/3
plants	monocots	Orchidaceae	<i>Gastrodia</i>			C		1/1
plants	monocots	Orchidaceae	<i>Dockrillia cucumerina</i>			C		3/2
plants	monocots	Orchidaceae	<i>Gastrodia crebriflora</i>			R		1/1
plants	monocots	Orchidaceae	<i>Genoplesium pedersonii</i>			R		2/2
plants	monocots	Orchidaceae	<i>Sarcochilus minutiflos</i>	white bells		C		1/1
plants	monocots	Orchidaceae	<i>Chiloglottis trullata</i>			C		2/2
plants	monocots	Orchidaceae	<i>Caleana minor</i>	small duck orchid		C		1/1
plants	monocots	Orchidaceae	<i>Caladenia fuscata</i>			C		1/1
plants	monocots	Orchidaceae	<i>Genoplesium</i>			C		1/1
plants	monocots	Orchidaceae	<i>Calochilus gracillimus</i>	slender beard orchid		C		2/1
plants	monocots	Orchidaceae	<i>Pterostylis longicurva</i>			R		1
plants	monocots	Orchidaceae	<i>Pterostylis woollsii</i>	long-tailed greenhood		R		4/4
plants	monocots	Orchidaceae	<i>Sarcochilus ceciliae</i>	fairy bells		C		4/3
plants	monocots	Orchidaceae	<i>Corybas barbarae</i>	helmet orchid		C		1/1
plants	monocots	Orchidaceae	<i>Dipodium variegatum</i>			C		1/1
plants	monocots	Orchidaceae	<i>Caladenia picta</i>			C		3/3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Orchidaceae	<i>Pterostylis nutans</i>			C		12/11
plants	monocots	Orchidaceae	<i>Pterostylis ophioglossa</i>			C		4/4
plants	monocots	Orchidaceae	<i>Calochilus</i>			C		2/1
plants	monocots	Orchidaceae	<i>Bulbophyllum schillerianum</i>	red rope orchid		C		2/1
plants	monocots	Orchidaceae	<i>Diuris parvipetala</i>			R		1/1
plants	monocots	Orchidaceae	<i>Sarcochilus hillii</i>			C		6
plants	monocots	Orchidaceae	<i>Sarcochilus dilatatus</i>	brown sarcochilus		C		2/2
plants	monocots	Orchidaceae	<i>Sarcochilus olivaceus</i>			C		1
plants	monocots	Orchidaceae	<i>Spiranthes sinensis</i>	austral ladies tresses		C		2/1
plants	monocots	Orchidaceae	<i>Thelymitra pauciflora</i>	slender sun orchid		C		3/3
plants	monocots	Orchidaceae	<i>Genoplesium archeri</i>	variable midge orchid		C		1
plants	monocots	Orchidaceae	<i>Genoplesium filliforme</i>			C		1/1
plants	monocots	Orchidaceae	<i>Prasophyllum</i>			C		4/3
plants	monocots	Orchidaceae	<i>Pterostylis curta</i>	blunt greenhood		C		2/2
plants	monocots	Orchidaceae	<i>Pterostylis</i>			C		2/2
plants	monocots	Orchidaceae	<i>Sarcochilus australis</i>	butterfly orchid		C		1
plants	monocots	Orchidaceae	<i>Phaius australis</i>			E	E	2/1
plants	monocots	Orchidaceae	<i>Lyperanthus suaveolens</i>	brown beaks		C		3/2
plants	monocots	Orchidaceae	<i>Diuris abbreviata</i>	lemon doubletail		C		1/1
plants	monocots	Orchidaceae	<i>Diuris</i>			C		2/2
plants	monocots	Orchidaceae	<i>Gastrodia sesamoides</i>	cinnamon bells		C		1
plants	monocots	Orchidaceae	<i>Dendrobium speciosum subsp. hillii</i>			C		1/1
plants	monocots	Orchidaceae	<i>Dendrobium tetragonum</i>	tree spider orchid		C		1
plants	monocots	Orchidaceae	<i>Thelymitra</i>			C		3/3
plants	monocots	Orchidaceae	<i>Cryptostylis erecta</i>	bonnet orchid		C		1
plants	monocots	Orchidaceae	<i>Cymbidium</i>			C		4
plants	monocots	Orchidaceae	<i>Calochilus paludosus</i>	red beard orchid		C		1/1
plants	monocots	Orchidaceae	<i>Caladenia</i>			C		1/1
plants	monocots	Orchidaceae	<i>Caladenia carnea</i>			C		1
plants	monocots	Orchidaceae	<i>Caladenia catenata var. catenata</i>			C		3/3
plants	monocots	Orchidaceae	<i>Pterostylis revoluta</i>	autumn greenhood		C		2/2
plants	monocots	Orchidaceae	<i>Microtis parviflora</i>	slender onion orchid		C		3/2
plants	monocots	Orchidaceae	<i>Erythrorchis cassythoides</i>	climbing orchid		C		5/4
plants	monocots	Orchidaceae	<i>Diuris aurea</i>			C		2/2
plants	monocots	Orchidaceae	<i>Cymbidium canaliculatum</i>			C		36/4
plants	monocots	Orchidaceae	<i>Chiloglottis reflexa</i>	autumn bird orchid		C		1
plants	monocots	Orchidaceae	<i>Bulbophyllum minutissimum</i>	grain-of-wheat orchid		C		2/1
plants	monocots	Orchidaceae	<i>Caladenia catenata</i>			C		1
plants	monocots	Orchidaceae	<i>Orchidaceae</i>			C		1
plants	monocots	Orchidaceae	<i>Dendrobium x delicatum</i>			C		1/1
plants	monocots	Orchidaceae	<i>Caleana major</i>	flying duck orchid		C		3/2
plants	monocots	Orchidaceae	<i>Acianthus exsertus</i>			C		5/4
plants	monocots	Orchidaceae	<i>Acianthus fornicatus</i>	pixie caps		C		1
plants	monocots	Orchidaceae	<i>Calochilus campestris</i>	copper beard orchid		C		4/3
plants	monocots	Orchidaceae	<i>Thelymitra ixiooides var. ixiooides</i>			C		1
plants	monocots	Orchidaceae	<i>Pterostylis longifolia</i>			C		1

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plants	monocots	Orchidaceae	<i>Pterostylis mutica</i>	midget greenhood		C		2/2
plants	monocots	Orchidaceae	<i>Dipodium punctatum</i>			C		1
plants	monocots	Orchidaceae	<i>Dipodium hamiltonianum</i>	yellow hyacinth orchid		C		1
plants	monocots	Orchidaceae	<i>Diuris sulphurea</i>	tiger orchid		C		3/2
plants	monocots	Orchidaceae	<i>Dendrobium speciosum</i>			C		8/7
plants	monocots	Orchidaceae	<i>Dendrobium kingianum</i> subsp. <i>kingianum</i>			C		3/3
plants	monocots	Orchidaceae	<i>Corybas aconitiflorus</i>			C		2/1
plants	monocots	Orchidaceae	<i>Caladenia carnea</i> var. <i>carnea</i>			C		2/2
plants	monocots	Orchidaceae	<i>Calochilus robertsonii</i>	purplish beard orchid		C		1
plants	monocots	Orchidaceae	<i>Pterostylis parviflora</i>	tiny greenhood		C		5/4
plants	monocots	Orchidaceae	<i>Caleana</i>			C		2/2
plants	monocots	Orchidaceae	<i>Pterostylis</i> sp. (Mt Moffatt NP R.Crane 2037)			C		2/2
plants	monocots	Orchidaceae	<i>Dendrobium kingianum</i> subsp. <i>carnarvonense</i>			C		1/1
plants	monocots	Orchidaceae	<i>Thelymitra malvina</i>			C		1/1
plants	monocots	Orchidaceae	<i>Thelymitra angustifolia</i>			C		2/2
plants	monocots	Orchidaceae	<i>Genoplesium validum</i>			R		2/2
plants	monocots	Orchidaceae	<i>Diuris exitela</i>			C		1/1
plants	monocots	Philydraceae	<i>Philydrum lanuginosum</i>	frogsmouth		C		6/2
plants	monocots	Poaceae	<i>Austrostipa verticillata</i>	slender bamboo grass		C		9/7
plants	monocots	Poaceae	<i>Austrostipa rudis</i> subsp. <i>rudis</i>			C		1/1
plants	monocots	Poaceae	<i>Austrostipa pubescens</i>	tall speargrass		C		1/1
plants	monocots	Poaceae	<i>Digitaria orbata</i>			C		5/5
plants	monocots	Poaceae	<i>Planichloa</i> sp. (Salvator Rosa M.Cox 183)			C		1/1
plants	monocots	Poaceae	<i>Austrostipa blakei</i>			C		1/1
plants	monocots	Poaceae	<i>Austrostipa ramosissima</i>	bamboo grass		C		7/2
plants	monocots	Poaceae	<i>Eragrostis lanicaulis</i>			C		1
plants	monocots	Poaceae	<i>Eriachne pallescens</i> var. <i>pallescens</i>			C		12/8
plants	monocots	Poaceae	<i>Eriachne stipacea</i>			C		1
plants	monocots	Poaceae	<i>Aristida lazaridis</i>			C		7/5
plants	monocots	Poaceae	<i>Triraphis mollis</i>	purple plumegrass		C		7/6
plants	monocots	Poaceae	<i>Urochloa panicoides</i> var. <i>panicoides</i>		Y			5/5
plants	monocots	Poaceae	<i>Vulpia myuros</i> forma <i>myuros</i>		Y			1/1
plants	monocots	Poaceae	<i>Paspalidium globoideum</i>	sago grass		C		31/14
plants	monocots	Poaceae	<i>Paspalum distichum</i>	water couch		C		3/1
plants	monocots	Poaceae	<i>Setaria palmifolia</i>	palm grass	Y			1
plants	monocots	Poaceae	<i>Neurachne queenslandica</i>			C		1/1
plants	monocots	Poaceae	<i>Panicum decompositum</i> var. <i>tenuius</i>			C		7/5
plants	monocots	Poaceae	<i>Panicum buncei</i>			C		26/5
plants	monocots	Poaceae	<i>Panicum paludosum</i>	swamp panic		C		1/1
plants	monocots	Poaceae	<i>Panicum</i>			C		22
plants	monocots	Poaceae	<i>Eriochloa</i>			C		3
plants	monocots	Poaceae	<i>Enteropogon minutus</i>			C		1/1
plants	monocots	Poaceae	<i>Eragrostis longipedicellata</i>			C		4/3
plants	monocots	Poaceae	<i>Eriachne mucronata</i>			C		33/5
plants	monocots	Poaceae	<i>Enteropogon acicularis</i>	curly windmill grass		C		55/3
plants	monocots	Poaceae	<i>Enteropogon paucispiceus</i>			C		4/2

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plants	monocots	Poaceae	<i>Eragrostis superba</i>		Y			2/2
plants	monocots	Poaceae	<i>Leptochloa</i>			C		3
plants	monocots	Poaceae	<i>Digitaria baileyi</i>			C		1/1
plants	monocots	Poaceae	<i>Digitaria hystrichoides</i>	umbrella grass		C		1
plants	monocots	Poaceae	<i>Digitaria</i>			C		24
plants	monocots	Poaceae	<i>Dinebra retroflexa</i>		Y			1/1
plants	monocots	Poaceae	<i>Echinopogon nutans var. nutans</i>			C		1/1
plants	monocots	Poaceae	<i>Setaria verticillata</i>	whorled pigeon grass	Y			1
plants	monocots	Poaceae	<i>Setaria paspalidioides</i>			C		7/6
plants	monocots	Poaceae	<i>Sorghum arundinaceum</i>	Rhodesian Sudan grass	Y			3/3
plants	monocots	Poaceae	<i>Pennisetum alopecuroides</i>	swamp foxtail	Y			3/1
plants	monocots	Poaceae	<i>Pennisetum</i>			C		1
plants	monocots	Poaceae	<i>Holcolemma dispar</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida schultzei</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida spuria</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida pernicioso</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida ramosa</i>	purple wiregrass		C		62/5
plants	monocots	Poaceae	<i>Paspalidium spartellum</i>			C		2
plants	monocots	Poaceae	<i>Bothriochloa erianthoides</i>	satintop grass		C		21/9
plants	monocots	Poaceae	<i>Brachyachne ciliaris</i>	hairy native couch		C		5
plants	monocots	Poaceae	<i>Brachyachne tenella</i>			C		5/4
plants	monocots	Poaceae	<i>Aristida leichhardtiana</i>			C		1/1
plants	monocots	Poaceae	<i>Arthraxon hispidus</i>			V	V	2/2
plants	monocots	Poaceae	<i>Astrebla</i>			C		2
plants	monocots	Poaceae	<i>Axonopus compressus</i>		Y			1/1
plants	monocots	Poaceae	<i>Sporobolus disjunctus</i>			C		3/3
plants	monocots	Poaceae	<i>Bothriochloa decipiens</i>			C		18
plants	monocots	Poaceae	<i>Aristida echinata</i>			C		2/1
plants	monocots	Poaceae	<i>Aristida personata</i>			C		86/18
plants	monocots	Poaceae	<i>Melinis repens</i>	red natal grass	Y			140/11
plants	monocots	Poaceae	<i>Setaria sphacelata</i>		Y			2
plants	monocots	Poaceae	<i>Tragus</i>			C		3
plants	monocots	Poaceae	<i>Aristida queenslandica</i>			C		22/1
plants	monocots	Poaceae	<i>Echinopogon caespitosus var. caespitosus</i>	hedgehog grass		C		2/2
plants	monocots	Poaceae	<i>Chloris virgata</i>	feathertop rhodes grass	Y			18/6
plants	monocots	Poaceae	<i>Chrysopogon fallax</i>			C		58/6
plants	monocots	Poaceae	<i>Cenchrus echinatus</i>	Mossman River grass	Y			6/4
plants	monocots	Poaceae	<i>Chloris divaricata var. divaricata</i>	slender chloris		C		60/15
plants	monocots	Poaceae	<i>Chloris gayana</i>	rhodes grass	Y			5/3
plants	monocots	Poaceae	<i>Chloris inflata</i>	purpletop chloris	Y			2/1
plants	monocots	Poaceae	<i>Calyptochloa gracillima</i>			C		61/10
plants	monocots	Poaceae	<i>Brachyachne convergens</i>	common native couch		C		6/5
plants	monocots	Poaceae	<i>Bothriochloa bladhii subsp. bladhii</i>			C		26/10
plants	monocots	Poaceae	<i>Bothriochloa ewartiana</i>	desert bluegrass		C		49/10
plants	monocots	Poaceae	<i>Bothriochloa pertusa</i>		Y			11/10
plants	monocots	Poaceae	<i>Astrebla squarrosa</i>	bull mitchell grass		C		20/11

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plants	monocots	Poaceae	<i>Avena sterilis subsp. ludoviciana</i>	ludo wild oats	Y			1/1
plants	monocots	Poaceae	<i>Arundinella nepalensis</i>	reedgrass		C		71/6
plants	monocots	Poaceae	<i>Astrebla elymoides</i>	hoop mitchell grass		C		8/8
plants	monocots	Poaceae	<i>Astrebla lappacea</i>	curly mitchell grass		C		21/17
plants	monocots	Poaceae	<i>Astrebla pectinata</i>	barley mitchell grass		C		1/1
plants	monocots	Poaceae	<i>Aristida benthamii var. benthamii</i>			C		19/10
plants	monocots	Poaceae	<i>Aristida calycina var. calycina</i>			C		36/15
plants	monocots	Poaceae	<i>Aristida caput-medusae</i>			C		103/6
plants	monocots	Poaceae	<i>Aristida holathera var. holathera</i>			C		15/4
plants	monocots	Poaceae	<i>Aristida jerichoensis var. jerichoensis</i>			C		44/6
plants	monocots	Poaceae	<i>Aristida leptopoda</i>	white speargrass		C		38/12
plants	monocots	Poaceae	<i>Aristida vagans</i>			C		10/1
plants	monocots	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass		C		26/5
plants	monocots	Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass		C		67/15
plants	monocots	Poaceae	<i>Poaceae</i>			C		32
plants	monocots	Poaceae	<i>Leptochloa fusca subsp. fusca</i>			C		4/4
plants	monocots	Poaceae	<i>Leptochloa fusca</i>	brown beetle grass		C		1
plants	monocots	Poaceae	<i>Leptochloa decipiens subsp. asthenes</i>			C		21/18
plants	monocots	Poaceae	<i>Leptochloa decipiens subsp. decipiens</i>			C		11/8
plants	monocots	Poaceae	<i>Leptochloa panicea subsp. brachiata</i>		Y			1/1
plants	monocots	Poaceae	<i>Urochloa subquadripara</i>		Y			6/3
plants	monocots	Poaceae	<i>Echinochloa</i>			C		2
plants	monocots	Poaceae	<i>Triodia brizoides</i>			C		2
plants	monocots	Poaceae	<i>Aristida holathera</i>			C		4
plants	monocots	Poaceae	<i>Urochloa panicoides</i>		Y			1
plants	monocots	Poaceae	<i>Leptochloa decipiens subsp. peacockii</i>			C		7/5
plants	monocots	Poaceae	<i>Hordeum glaucum</i>		Y			1
plants	monocots	Poaceae	<i>Panicum simile</i>			C		13/5
plants	monocots	Poaceae	<i>Amphipogon caricinus</i>			C		1
plants	monocots	Poaceae	<i>Aristida gracilipes</i>			C		29/7
plants	monocots	Poaceae	<i>Aristida queenslandica var. queenslandica</i>			C		39/5
plants	monocots	Poaceae	<i>Aristida queenslandica var. dissimilis</i>			C		52/6
plants	monocots	Poaceae	<i>Aristida muricata</i>			C		3/1
plants	monocots	Poaceae	<i>Aristida contorta</i>	bunched kerosene grass		C		4
plants	monocots	Poaceae	<i>Aristida ingrata</i>			C		6/6
plants	monocots	Poaceae	<i>Aristida longicollis</i>			C		12/2
plants	monocots	Poaceae	<i>Acrachne racemosa</i>			C		1/1
plants	monocots	Poaceae	<i>Sporobolus mitchellii</i>	rat's tail couch		C		12/4
plants	monocots	Poaceae	<i>Sporobolus actinocladus</i>	katoora grass		C		13/7
plants	monocots	Poaceae	<i>Tragus australianus</i>	small burr grass		C		45/11
plants	monocots	Poaceae	<i>Paspalidium constrictum</i>			C		21/13
plants	monocots	Poaceae	<i>Paspalidium jubiflorum</i>	warrego grass		C		13/5
plants	monocots	Poaceae	<i>Aristida jerichoensis var. subspinulifera</i>			C		36/17
plants	monocots	Poaceae	<i>Aristida latifolia</i>	feathertop wiregrass		C		52/14
plants	monocots	Poaceae	<i>Paspalidium</i>			C		52
plants	monocots	Poaceae	<i>Paspalidium criniforme</i>			C		37/11



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plants	monocots	Poaceae	<i>Panicum effusum</i>			C		207/11
plants	monocots	Poaceae	<i>Aristida calycina</i>			C		50
plants	monocots	Poaceae	<i>Paspalum longifolium</i>			C		1/1
plants	monocots	Poaceae	<i>Bothriochloa bladonii</i>			C		20/1
plants	monocots	Poaceae	<i>Thellungia advena</i>	coolibah grass		C		24/15
plants	monocots	Poaceae	<i>Themeda avenacea</i>			C		16/7
plants	monocots	Poaceae	<i>Sporobolus elongatus</i>			C		23/5
plants	monocots	Poaceae	<i>Sporobolus scabridus</i>			C		18/12
plants	monocots	Poaceae	<i>Setaria italica</i>	foxtail millet	Y			1/1
plants	monocots	Poaceae	<i>Setaria oplismenoides</i>			C		4/4
plants	monocots	Poaceae	<i>Sorghum nitidum</i>			C		3
plants	monocots	Poaceae	<i>Sporobolus contiguus</i>			C		6/2
plants	monocots	Poaceae	<i>Sporobolus diandrus</i>			C		1
plants	monocots	Poaceae	<i>Pseudoraphis spinescens</i>	spiny mudgrass		C		1
plants	monocots	Poaceae	<i>Panicum laevinode</i>	pepper grass		C		8/4
plants	monocots	Poaceae	<i>Paspalidium distans</i>	shotgrass		C		27/3
plants	monocots	Poaceae	<i>Paspalidium albobillosum</i>			C		21/8
plants	monocots	Poaceae	<i>Leersia hexandra</i>	swamp rice grass		C		3/2
plants	monocots	Poaceae	<i>Leptochloa ligulata</i>			C		2/2
plants	monocots	Poaceae	<i>Echinochloa colona</i>	awnless barnyard grass	Y			23/6
plants	monocots	Poaceae	<i>Echinopogon ovatus</i> var. <i>ovatus</i>			C		2/1
plants	monocots	Poaceae	<i>Eragrostis kennedyae</i>	small-flowered lovegrass		C		1/1
plants	monocots	Poaceae	<i>Eriachne insularis</i>			C		2
plants	monocots	Poaceae	<i>Dichelachne micrantha</i>	shorthair plumegrass		C		7/4
plants	monocots	Poaceae	<i>Digitaria leucostachya</i>			C		5/1
plants	monocots	Poaceae	<i>Digitaria porrecta</i>			R	E	8/8
plants	monocots	Poaceae	<i>Cenchrus caliculatus</i>	hillside burrgrass		C		2/2
plants	monocots	Poaceae	<i>Chloris truncata</i>			C		3/1
plants	monocots	Poaceae	<i>Capillipedium parviflorum</i>	scented top		C		2/2
plants	monocots	Poaceae	<i>Capillipedium spicigerum</i>	spicytop		C		11/4
plants	monocots	Poaceae	<i>Bothriochloa decipiens</i> var. <i>cloncurrrens</i>			C		6/4
plants	monocots	Poaceae	<i>Aristida benthamii</i> var. <i>spinulifera</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida lignosa</i>			C		30/14
plants	monocots	Poaceae	<i>Aristida</i>			C		147/2
plants	monocots	Poaceae	<i>Alloteropsis cimicina</i>			C		17/11
plants	monocots	Poaceae	<i>Themeda quadrivalvis</i>	grader grass	Y			2/1
plants	monocots	Poaceae	<i>Themeda triandra</i>	kangaroo grass		C		238/13
plants	monocots	Poaceae	<i>Thyridolepis mitchelliana</i>	mulga mitchell grass		C		7/4
plants	monocots	Poaceae	<i>Thyridolepis xerophila</i>			C		20/8
plants	monocots	Poaceae	<i>Tripogon loliiformis</i>	five minute grass		C		14/8
plants	monocots	Poaceae	<i>Urochloa mosambicensis</i>	sabi grass	Y			16/10
plants	monocots	Poaceae	<i>Sporobolus coromandelianus</i>		Y			1
plants	monocots	Poaceae	<i>Sporobolus creber</i>			C		62/7
plants	monocots	Poaceae	<i>Sporobolus virginicus</i>	sand couch		C		1
plants	monocots	Poaceae	<i>Sporobolus</i>			C		15
plants	monocots	Poaceae	<i>Setaria apiculata</i>			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	<i>Setaria australiensis</i>	scrub pigeon grass		C		5/5
plants	monocots	Poaceae	<i>Setaria pumila subsp. pumila</i>		Y			1/1
plants	monocots	Poaceae	<i>Setaria surgens</i>			C		53/13
plants	monocots	Poaceae	<i>Setaria</i>			C		1
plants	monocots	Poaceae	<i>Sorghum x alnum</i>		Y			10/8
plants	monocots	Poaceae	<i>Sorghum bicolor</i>	forage sorghum	Y			5/4
plants	monocots	Poaceae	<i>Sorghum halepense</i>	Johnson grass	Y			5/1
plants	monocots	Poaceae	<i>Sorghum</i>			C		3
plants	monocots	Poaceae	<i>Sporobolus australasicus</i>			C		3/1
plants	monocots	Poaceae	<i>Sporobolus caroli</i>	fairy grass		C		71/8
plants	monocots	Poaceae	<i>Eragrostis falcata</i>	sickle lovegrass		C		1/1
plants	monocots	Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass		C		116/8
plants	monocots	Poaceae	<i>Eragrostis leptocarpa</i>	drooping lovegrass		C		7/1
plants	monocots	Poaceae	<i>Eragrostis leptostachya</i>			C		30/7
plants	monocots	Poaceae	<i>Eragrostis megalosperma</i>			C		21/10
plants	monocots	Poaceae	<i>Eragrostis minor</i>	smaller stinkgrass	Y			5/4
plants	monocots	Poaceae	<i>Eragrostis parviflora</i>	weeping lovegrass		C		12/11
plants	monocots	Poaceae	<i>Eragrostis setifolia</i>			C		4/1
plants	monocots	Poaceae	<i>Eragrostis sororia</i>			C		98/15
plants	monocots	Poaceae	<i>Eragrostis spartinoides</i>			C		9/2
plants	monocots	Poaceae	<i>Eragrostis speciosa</i>			C		11/5
plants	monocots	Poaceae	<i>Eragrostis sterilis</i>			C		2/2
plants	monocots	Poaceae	<i>Eragrostis tenellula</i>	delicate lovegrass		C		6/1
plants	monocots	Poaceae	<i>Eremochloa bimaclata</i>	poverty grass		C		52/4
plants	monocots	Poaceae	<i>Eriachne aristidea</i>			C		1/1
plants	monocots	Poaceae	<i>Eriachne glabrata</i>			C		2/1
plants	monocots	Poaceae	<i>Eriachne obtusa</i>			C		7/5
plants	monocots	Poaceae	<i>Eriachne pallescens</i>			C		2/1
plants	monocots	Poaceae	<i>Eragrostis brownii</i>	Brown's lovegrass		C		45/2
plants	monocots	Poaceae	<i>Eragrostis cilianensis</i>		Y			13/6
plants	monocots	Poaceae	<i>Eleusine indica</i>	crowsfoot grass	Y			3/1
plants	monocots	Poaceae	<i>Elionurus citreus</i>	lemon-scented grass		C		3
plants	monocots	Poaceae	<i>Enneapogon gracilis</i>	slender nineawn		C		41/11
plants	monocots	Poaceae	<i>Enneapogon intermedius</i>			C		8/8
plants	monocots	Poaceae	<i>Enneapogon lindleyanus</i>			C		109/20
plants	monocots	Poaceae	<i>Enneapogon polyphyllus</i>	leafy nineawn		C		32/12
plants	monocots	Poaceae	<i>Enneapogon truncatus</i>			C		19/14
plants	monocots	Poaceae	<i>Enteropogon ramosus</i>			C		30/13
plants	monocots	Poaceae	<i>Enteropogon unispiceus</i>			C		20/4
plants	monocots	Poaceae	<i>Entolasia marginata</i>	bordered panic		C		8/6
plants	monocots	Poaceae	<i>Entolasia stricta</i>	wiry panic		C		68/4
plants	monocots	Poaceae	<i>Entolasia whiteana</i>			C		9/3
plants	monocots	Poaceae	<i>Dichanthium tenue</i>	small bluegrass		C		10/7
plants	monocots	Poaceae	<i>Dichanthium</i>			C		5
plants	monocots	Poaceae	<i>Digitaria bicornis</i>			C		9/7
plants	monocots	Poaceae	<i>Digitaria breviglumis</i>			C		59/1

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plants	monocots	Poaceae	<i>Digitaria brownii</i>			C		32/14
plants	monocots	Poaceae	<i>Digitaria ciliaris</i>	summer grass	Y			13/5
plants	monocots	Poaceae	<i>Digitaria coenicola</i>			C		9/9
plants	monocots	Poaceae	<i>Digitaria diffusa</i>			C		20/4
plants	monocots	Poaceae	<i>Digitaria divaricatissima</i>	spreading umbrella grass		C		18/13
plants	monocots	Poaceae	<i>Digitaria longiflora</i>			C		5/5
plants	monocots	Poaceae	<i>Digitaria parviflora</i>			C		35/1
plants	monocots	Poaceae	<i>Digitaria ramularis</i>			C		20/6
plants	monocots	Poaceae	<i>Dichanthium annulatum</i>	sheda grass	Y			9/8
plants	monocots	Poaceae	<i>Dichanthium aristatum</i>	angleton grass	Y			6/5
plants	monocots	Poaceae	<i>Dichanthium fecundum</i>	curly bluegrass			C	13/12
plants	monocots	Poaceae	<i>Dichanthium sericeum subsp. sericeum</i>				C	73/52
plants	monocots	Poaceae	<i>Cymbopogon ambiguus</i>	lemon grass			C	5/3
plants	monocots	Poaceae	<i>Cymbopogon bombycinus</i>	silky oilgrass			C	38/14
plants	monocots	Poaceae	<i>Cymbopogon queenslandicus</i>				C	21/6
plants	monocots	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass			C	182/6
plants	monocots	Poaceae	<i>Cynodon dactylon</i>		Y			6
plants	monocots	Poaceae	<i>Dactyloctenium aegyptium</i>	coast button grass	Y			2/1
plants	monocots	Poaceae	<i>Dactyloctenium radulans</i>	button grass			C	14/7
plants	monocots	Poaceae	<i>Cleistochloa rigida</i>				C	15/13
plants	monocots	Poaceae	<i>Cleistochloa subjuncea</i>				C	56/11
plants	monocots	Poaceae	<i>Chloris pectinata</i>	comb chloris			C	4/3
plants	monocots	Poaceae	<i>Chloris ventricosa</i>	tall chloris			C	84/17
plants	monocots	Poaceae	<i>Leptochloa digitata</i>				C	19/9
plants	monocots	Poaceae	<i>Panicum queenslandicum var. queenslandicum</i>				C	18/12
plants	monocots	Poaceae	<i>Eragrostis pilosa</i>	soft lovegrass	Y			6/6
plants	monocots	Poaceae	<i>Hemarthria uncinata var. uncinata</i>				C	2/2
plants	monocots	Poaceae	<i>Cymbopogon obtectus</i>				C	26/6
plants	monocots	Poaceae	<i>Sporobolus laxis</i>				C	2/2
plants	monocots	Poaceae	<i>Dichanthium queenslandicum</i>				V	25/24
plants	monocots	Poaceae	<i>Digitaria violascens</i>	bastard summergrass	Y			1/1
plants	monocots	Poaceae	<i>Digitaria didactyla</i>	Queensland blue couch	Y			2
plants	monocots	Poaceae	<i>Elymus scaber var. plurinervis</i>				C	4/2
plants	monocots	Poaceae	<i>Eriachne rara</i>				C	5/1
plants	monocots	Poaceae	<i>Chrysopogon sylvaticus</i>				C	4/1
plants	monocots	Poaceae	<i>Aristida acuta</i>				C	3
plants	monocots	Poaceae	<i>Aristida calycina var. praealta</i>				C	2/2
plants	monocots	Poaceae	<i>Enneapogon caerulescens</i>				C	1/1
plants	monocots	Poaceae	<i>Austroanthonia racemosa var. racemosa</i>				C	1/1
plants	monocots	Poaceae	<i>Digitaria eriantha cv. Pangola</i>		Y			1/1
plants	monocots	Poaceae	<i>Panicum queenslandicum</i>				C	37
plants	monocots	Poaceae	<i>Aristida benthamii</i>				C	5/1
plants	monocots	Poaceae	<i>Eragrostiella bifaria</i>				C	1
plants	monocots	Poaceae	<i>Ancistrachne</i>				C	3
plants	monocots	Poaceae	<i>Arundinella</i>				C	1
plants	monocots	Poaceae	<i>Capillipedium</i>				C	1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	<i>Cenchrus</i>			C		1
plants	monocots	Poaceae	<i>Chloris</i>			C		23
plants	monocots	Poaceae	<i>Cymbopogon</i>			C		5
plants	monocots	Poaceae	<i>Entolasia</i>			C		5
plants	monocots	Poaceae	<i>Eragrostiella</i>			C		1
plants	monocots	Poaceae	<i>Eulalia</i>			C		4
plants	monocots	Poaceae	<i>Oplismenus</i>			C		9
plants	monocots	Poaceae	<i>Paspalum</i>			C		5
plants	monocots	Poaceae	<i>Rottboellia</i>			C		1
plants	monocots	Poaceae	<i>Themeda</i>			C		1
plants	monocots	Poaceae	<i>Urochloa</i>			C		2
plants	monocots	Poaceae	<i>Sporobolus africanus</i>	Parramatta grass	Y			1
plants	monocots	Poaceae	<i>Chrysopogon filipes</i>			C		14/6
plants	monocots	Poaceae	<i>Neurachne tenuifolia</i>			C		1/1
plants	monocots	Poaceae	<i>Dimeria sp. (Salvator Rosa R.J.Fensham RJF3643)</i>			C		1/1
plants	monocots	Poaceae	<i>Chloris divaricata var. cynodontoides</i>			C		1/1
plants	monocots	Poaceae	<i>Lachnagrostis filiformis</i>			C		3/3
plants	monocots	Poaceae	<i>Walwhalleya subxerophila</i>			C		4/3
plants	monocots	Poaceae	<i>Sarga plumosum</i>			C		7/5
plants	monocots	Poaceae	<i>Sarga leiocladum</i>			C		19/6
plants	monocots	Poaceae	<i>Megathyrsus maximus var. pubiglumis</i>		Y			14/6
plants	monocots	Poaceae	<i>Megathyrsus maximus var. coloratus</i>		Y			1/1
plants	monocots	Poaceae	<i>Megathyrsus maximus var. maximus</i>		Y			1/1
plants	monocots	Poaceae	<i>Megathyrsus maximus</i>		Y			27
plants	monocots	Poaceae	<i>Urochloa piligera</i>			C		14/11
plants	monocots	Poaceae	<i>Urochloa gilesii</i>			C		9/6
plants	monocots	Poaceae	<i>Urochloa reptans</i>			C		1/1
plants	monocots	Poaceae	<i>Urochloa foliosa</i>			C		29/11
plants	monocots	Poaceae	<i>Moorochloa eruciformis</i>		Y			8/8
plants	monocots	Poaceae	<i>Eriochloa fatmensis</i>			C		6/1
plants	monocots	Poaceae	<i>Chloris divaricata</i>			C		3/3
plants	monocots	Poaceae	<i>Paspalidium breviflorum</i>			C		1/1
plants	monocots	Poaceae	<i>Urochloa fusca</i>		Y			1/1
plants	monocots	Poaceae	<i>Digitaria fumida</i>			C		1/1
plants	monocots	Poaceae	<i>Paspalum dilatatum</i>	paspalum	Y			8/5
plants	monocots	Poaceae	<i>Paspalum scrobiculatum</i>	ditch millet		C		7/3
plants	monocots	Poaceae	<i>Pennisetum purpureum</i>	elephant grass	Y			2/1
plants	monocots	Poaceae	<i>Perotis rara</i>	comet grass		C		31/8
plants	monocots	Poaceae	<i>Phragmites australis</i>	common reed		C		1/1
plants	monocots	Poaceae	<i>Oplismenus aemulus</i>	creeping shade grass		C		20/9
plants	monocots	Poaceae	<i>Oxychloris scariosa</i>	winged chloris		C		1/1
plants	monocots	Poaceae	<i>Panicum antidotale</i>	giant panic	Y			2/2
plants	monocots	Poaceae	<i>Panicum decompositum var. decompositum</i>			C		16/10
plants	monocots	Poaceae	<i>Panicum larcomianum</i>			C		23/4
plants	monocots	Poaceae	<i>Panicum trichoides</i>			C		1
plants	monocots	Poaceae	<i>Paspalidium caespitosum</i>	brigalow grass		C		104/13

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	<i>Paspalidium disjunctum</i>			C		2/2
plants	monocots	Poaceae	<i>Paspalidium gausum</i>			C		4/2
plants	monocots	Poaceae	<i>Paspalidium gracile</i>	slender panic		C		79/29
plants	monocots	Poaceae	<i>Paspalidium rarum</i>			C		3/1
plants	monocots	Poaceae	<i>Melinis minutiflora</i>	molasses grass	Y			1
plants	monocots	Poaceae	<i>Ischaemum australe var. australe</i>			C		2/2
plants	monocots	Poaceae	<i>Iseilema membranaceum</i>	small flinders grass		C		7/7
plants	monocots	Poaceae	<i>Iseilema vaginiflorum</i>	red flinders grass		C		34/15
plants	monocots	Poaceae	<i>Leptochloa neesii</i>			C		1
plants	monocots	Poaceae	<i>Imperata cylindrica</i>	blady grass		C		33/3
plants	monocots	Poaceae	<i>Hemarthria uncinata var. spathacea</i>			C		1/1
plants	monocots	Poaceae	<i>Heteropogon contortus</i>	black speargrass		C		217/12
plants	monocots	Poaceae	<i>Eriochloa crebra</i>	spring grass		C		33/11
plants	monocots	Poaceae	<i>Eriochloa procera</i>	slender cupgrass		C		21/11
plants	monocots	Poaceae	<i>Eriochloa pseudoacrotricha</i>			C		33/17
plants	monocots	Poaceae	<i>Eulalia aurea</i>	silky browntop		C		46/6
plants	monocots	Poaceae	<i>Eragrostis dielsii</i>	mallee lovegrass		C		1
plants	monocots	Poaceae	<i>Eragrostis elongata</i>			C		28/10
plants	monocots	Poaceae	<i>Schizachyrium fragile</i>	firegrass		C		12/3
plants	monocots	Poaceae	<i>Schizachyrium</i>			C		1
plants	monocots	Poaceae	<i>Sehima nervosum</i>			C		2/2
plants	monocots	Poaceae	<i>Sacciolepis indica</i>	Indian cupscale grass		C		4/3
plants	monocots	Poaceae	<i>Sorghum x drummondii</i>		Y			1/1
plants	monocots	Poaceae	<i>Eriachne mucronata forma (Alpha C.E.Hubbard 7882)</i>			C		17/11
plants	monocots	Poaceae	<i>Digitaria sp. (Mt Mulligan J.R.Clarkson 5821)</i>			C		1
plants	monocots	Poaceae	<i>Cynodon dactylon var. dactylon</i>		Y			11/9
plants	monocots	Poaceae	<i>Ischaemum australe</i>			C		1/1
plants	monocots	Poaceae	<i>Triodia mitchellii</i>	buck spinifex		C		74/35
plants	monocots	Poaceae	<i>Aristida jerichoensis</i>			C		7
plants	monocots	Poaceae	<i>Thyridolepis</i>			C		1
plants	monocots	Poaceae	<i>Microlaena stipoides var. stipoides</i>			C		4/2
plants	monocots	Poaceae	<i>Panicum decompositum</i>			C		46
plants	monocots	Poaceae	<i>Dichanthium sericeum</i>			C		66/1
plants	monocots	Poaceae	<i>Bothriochloa</i>			C		20
plants	monocots	Poaceae	<i>Bothriochloa bladhii subsp. glabra</i>		Y			4
plants	monocots	Poaceae	<i>Panicum queenslandicum var. acuminatum</i>			C		1/1
plants	monocots	Poaceae	<i>Aristida annua</i>			V	V	6/6
plants	monocots	Poaceae	<i>Triodia pungens</i>			C		3/2
plants	monocots	Poaceae	<i>Sporobolus pyramidalis</i>		Y			3/3
plants	monocots	Poaceae	<i>Sporobolus natalensis</i>		Y			1
plants	monocots	Poaceae	<i>Setaria dielsii</i>			C		31
plants	monocots	Poaceae	<i>Setaria incrassata</i>		Y			3/3
plants	monocots	Poaceae	<i>Bothriochloa decipiens var. decipiens</i>			C		46/7
plants	monocots	Poaceae	<i>Enneapogon pallidus</i>	conetop nineawn		C		4/4
plants	monocots	Poaceae	<i>Enneapogon purpurascens</i>			C		5
plants	monocots	Poaceae	<i>Enneapogon virens</i>			C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	<i>Enneapogon nigricans</i>	niggerheads		C		8/1
plants	monocots	Poaceae	<i>Enneapogon cylindricus</i>	jointed nineawn		C		4
plants	monocots	Poaceae	<i>Enneapogon robustissimus</i>			C		4/3
plants	monocots	Poaceae	<i>Enneapogon</i>			C		38
plants	monocots	Poaceae	<i>Dactyloctenium australe</i>	sweet smother grass	Y			2/1
plants	monocots	Poaceae	<i>Dichanthium sericeum subsp. humilius</i>			C		2/1
plants	monocots	Poaceae	<i>Dichanthium setosum</i>			R	V	7/6
plants	monocots	Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass		C		7/1
plants	monocots	Poaceae	<i>Chionachne cyathopoda</i>	river grass		C		8/3
plants	monocots	Poaceae	<i>Cymbopogon gratus</i>			C		1/1
plants	monocots	Poaceae	<i>Eragrostis</i>			C		61
plants	monocots	Poaceae	<i>Hyparrhenia rufa</i>		Y			3/3
plants	monocots	Poaceae	<i>Iseilema macratherum</i>			C		2/1
plants	monocots	Poaceae	<i>Leptochloa decipiens</i>			C		62
plants	monocots	Poaceae	<i>Leptochloa divaricatissima</i>			C		2/1
plants	monocots	Poaceae	<i>Eragrostis alveiformis</i>			C		7/4
plants	monocots	Poaceae	<i>Urochloa pubigera</i>			C		6/2
plants	monocots	Poaceae	<i>Urochloa praetervisa</i>			C		2/2
plants	monocots	Poaceae	<i>Digitaria diminuta</i>			C		8/8
plants	monocots	Poaceae	<i>Pennisetum ciliare</i>		Y			163/8
plants	monocots	Pontederiaceae	<i>Monochoria cyanea</i>			C		4/4
plants	monocots	Potamogetonaceae	<i>Potamogeton octandrus</i>			C		1/1
plants	monocots	Potamogetonaceae	<i>Potamogeton crispus</i>	curly pondweed		C		3/1
plants	monocots	Potamogetonaceae	<i>Potamogeton tricarinatus</i>	floating pondweed		C		5/3
plants	monocots	Restionaceae	<i>Baloskion pallens</i>			C		10/9
plants	monocots	Restionaceae	<i>Restio</i>			C		1
plants	monocots	Smilacaceae	<i>Smilax australis</i>	barbed-wire vine		C		10/3
plants	monocots	Typhaceae	<i>Typha orientalis</i>	broad-leaved cumbungi		C		1
plants	monocots	Typhaceae	<i>Sparganium subglobosum</i>	floating bur-reed		C		1/1
plants	monocots	Typhaceae	<i>Typha domingensis</i>			C		2/2
plants	monocots	Xanthorrhoeaceae	<i>Xanthorrhoea</i>			C		14
plants	monocots	Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>			C		56/15
plants	monocots	Xyridaceae	<i>Xyris complanata</i>	yellow-eye		C		8/7
plants	mosses	Bryaceae	<i>Rosulabryum queenslandicum</i>			C		1/1
plants	mosses	Bryaceae	<i>Bryum</i>			C		1/1
plants	mosses	Bryophyte	<i>Bryophyte</i>			C		1/1
plants	mosses	Dicranaceae	<i>Campylopus introflexus</i>			C		1/1
plants	mosses	Meteoriaceae	<i>Papillaria flexicaulis</i>			C		1/1
plants	mosses	Orthotrichaceae	<i>Macromitrium hemitrichodes</i>			C		1/1
plants	mosses	Orthotrichaceae	<i>Macromitrium aurescens</i>			C		1/1
plants	mosses	Pilotrichaceae	<i>Cyclodictyon blumeanum</i>			C		1/1
plants	mosses	Polytrichaceae	<i>Dawsonia</i>			C		1/1
plants	mosses	Pottiaceae	<i>Trichostomum brachydontium</i>			C		1/1
plants	mosses	Sphagnaceae	<i>Sphagnum</i>			C		2/2
plants	whisk ferns	Psilotaceae	<i>Psilotum nudum</i>	skeleton fork fern		C		9/7
plants	whisk ferns	Tmesipteridaceae	<i>Tmesipteris ovata</i>			C		1/1



Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
protists	blue-green algae	Cyanophyceae	<i>Aphanocapsa incerta</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Anabaena subcylindrica</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Cylindrospermum punctatum</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Hapalosiphon fontinalis</i>			C		3/3
protists	blue-green algae	Cyanophyceae	<i>Aphanothece stagnina</i>			C		3/3
protists	blue-green algae	Cyanophyceae	<i>Scytonema hofman-bangii</i>			C		5/5
protists	blue-green algae	Cyanophyceae	<i>Stigonema ocellatum</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Stigonema hormoides</i>			C		2/2
protists	blue-green algae	Cyanophyceae	<i>Stigonema</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Schizothrix calcicola</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Schizothrix friesii</i>			C		3/3
protists	blue-green algae	Cyanophyceae	<i>Capsosira brebissonii</i>			C		2/2
protists	blue-green algae	Cyanophyceae	<i>Anacystis montana</i>			C		3/3
protists	blue-green algae	Cyanophyceae	<i>Stigonema multipartitum</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Blennothrix lyngbyacea</i>			C		1/1
protists	blue-green algae	Cyanophyceae	<i>Anacystis montana forma montana</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Ankistrodesmus spiralis</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Chara fibrosa</i>			C		2/2
protists	green algae	Chlorophyceae	<i>Trentepohlia bossei var. brevicellulis</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Mougeotia</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Chaetosphaeridium globosum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Coleochaete pulvinata var. baileyi</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Cosmarium reniforme var. compressum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Coleochaete irregularis</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Bulbochaete</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Oedogonium</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Dictyosphaerium pulchellum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Spirogyra tenuissima</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Gloeocystis polydermatica</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Bulbochaete polyandria</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Bulbochaete kwangtungensis</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Nitella cristata</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Mougeotia parvula</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Microspora tumidula</i>			C		2/2
protists	green algae	Chlorophyceae	<i>Klebsormidium flaccidum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Nitella tasmanica</i>			C		2/2
protists	green algae	Chlorophyceae	<i>Palmogloea protuberans</i>			C		2/2
protists	green algae	Chlorophyceae	<i>Oedogonium tapeinosporum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Trentepohlia bossei var. samoensis</i>			C		2/2
protists	green algae	Chlorophyceae	<i>Trentepohlia arborum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Uronema confervicolum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Zygogonium ericetorum</i>			C		4/4
protists	green algae	Chlorophyceae	<i>Zygnema oveidanum</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Zoochlorella parasitica</i>			C		1/1
protists	green algae	Chlorophyceae	<i>Oedogonium itzigsohnii</i>			C		1/1
protists	red algae	Rhodophyceae	<i>Batrachospermum</i>			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
protists	red algae	Rhodophyceae	<i>Cyanidium caldarium</i>			C		1/1
protists	red algae	Rhodophyceae	<i>Erythrocladia</i>			C		1
protists	red algae	Rhodophyceae	<i>Hypnea pannosa</i>			C		1/1
protists	yellow-green algae	Xanthophyceae	<i>Phyllosiphon</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 Presumed Extinct (PE), Endangered (E), Vulnerable (V), Rare (R), Common (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).

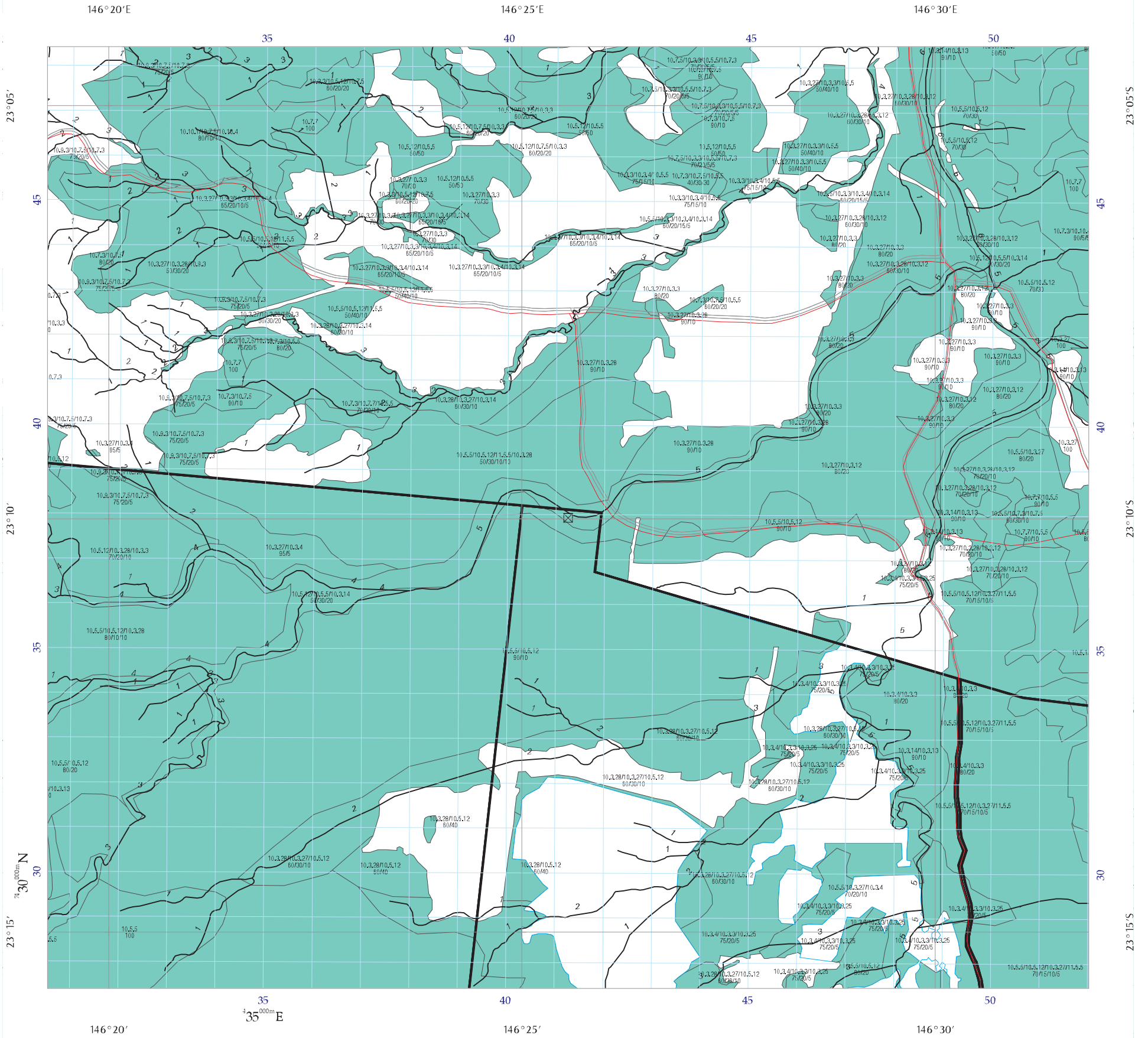
Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

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.

Scientific Name	Common Name	Conservation Status	
		EPBC Act	NC Act
<i>Acanthophis antarcticus</i>	Common Death Adder	Not Listed	Near Threatened
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Migratory	Near Threatened
<i>Adelotus brevis</i>	Tusked Frog	Not Listed	Vulnerable
<i>Aerodramus terraereginae</i>	Australian Swiftlet	Not Listed	Near Threatened
<i>Amytornis striatus</i>	Striated Grasswren	Not Listed	Near Threatened
<i>Anthochaera phrygia</i>	Regent Honeyeater	Endangered	Endangered
<i>Bettongia tropica</i>	Northern Bettong	Endangered	Endangered
<i>Calyptorhynchus lathami</i>	Glossy Black-cockatoo	Not Listed	Vulnerable
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Vulnerable
<i>Chalinolobus picatus</i>	Little Pied Bat	Not Listed	Near Threatened
<i>Climacteris erythropros</i>	Red-browed Treecreeper	Not Listed	Near Threatened
<i>Ctenotus capricorni</i>	Skink	Not Listed	Near Threatened
<i>Cyclorana verrucosa</i>	Rough Collared Frog	Not Listed	Near Threatened
<i>Dasyurus geoffroii geoffroii</i>	Western Quoll	Vulnerable	Extinct in the Wild
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	Common
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll (southern subspecies)	Endangered	Vulnerable
<i>Delma torquata</i>	Collared Delma	Vulnerable	Vulnerable
<i>Denisonia maculata</i>	Ornamental Snake	Vulnerable	Vulnerable
<i>Egernia rugosa</i>	Yakka Skink	Vulnerable	Vulnerable
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Not Listed	Near Threatened
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable/Migratory	Endangered
<i>Falco hypoleucos</i>	Grey Falcon	Migratory	Near Threatened
<i>Furina barnardi</i>	Yellow-naped Snake	Not Listed	Near Threatened
<i>Furina dunmali</i>	Dunmall's Snake	Vulnerable	Vulnerable
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern form)	Vulnerable	Vulnerable
<i>Grantiella picta</i>	Painted Honeyeater	Not Listed	Vulnerable
<i>Kerivoula papuensis</i>	Gold-tipped Bat	Not Listed	Near Threatened
<i>Lathamus discolor</i>	Swift Parrot	Endangered / Migratory	Endangered
<i>Lerista allanae</i>	Allan's Lerista	Endangered	Endangered
<i>Lewinia pectoralis</i>	Lewin's Rail	Not Listed	Near Threatened
<i>Lophoictinia isura</i>	Square-tailed Kite	Migratory	Near Threatened
<i>Macroderma gigas</i>	Ghost Bat	Not Listed	Vulnerable
<i>Macronectes giganteus</i>	Southern Giant-petrel	Endangered	Endangered
<i>Melithreptus gularis</i>	Black-chinned Honeyeater	Not Listed	Near Threatened

Scientific Name	Common Name	Conservation Status	
		EPBC Act	NC Act
<i>Neochmia ruficauda ruficauda</i>	Star Finch	Endangered (Eastern and Southern)	Endangered (Eastern)
<i>Neophema pulchella</i>	Turquoise Parrot	Not Listed	Near Threatened
<i>Nettapus coromandelianus</i>	Cotton Pygmy-goose	Migratory	Near Threatened
<i>Ninox strenua</i>	Powerful Owl	Not Listed	Vulnerable
<i>Nyctophilus timoriensis</i>	Eastern Long-eared Bat	Vulnerable	Vulnerable
<i>Onychogalea fraenata</i>	Bridled Nailtail Wallaby	Endangered	Endangered
<i>Paradelma orientalis</i>	Brigalow Scaly-foot	Vulnerable	Vulnerable
<i>Pedionomus torquatus</i>	Plains-wanderer	Vulnerable	Vulnerable
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	Not Listed	Vulnerable
<i>Podargus ocellatus plumiferus</i>	Marbled Frogmouth	Not Listed	Vulnerable
<i>Poephila cincta cincta</i>	Black-throated Finch (Southern subspecies)	Endangered	Vulnerable
<i>Psephotus pulcherrimus</i>	Paradise Parrot	Extinct in Wild / Migratory	Extinct in the Wild
<i>Rheodytes leukops</i>	Fitzroy River Turtle	Vulnerable	Vulnerable
<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable / Migratory / Marine	Vulnerable
<i>Stictonetta naevosa</i>	Freckled Duck	Not Listed	Near Threatened
<i>Strophurus taenicauda</i>	Golden-tailed Gecko	Not Listed	Near Threatened
<i>Tadorna radjah</i>	Radjah Shelduck	Migratory / Marine	Near Threatened
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable	Vulnerable



## Vegetation Management Act Regional Ecosystem and Remnant Map-Version 6

Remnant vegetation containing endangered regional ecosystems

Based on 2006 Landsat TM imagery

Requested By: JBYRD@AARC.NET.AU  
Date: 09 Nov 09 Time: 15.18.14

A remnant map covers areas not covered by a regional ecosystem map.

Defined map areas are labelled with the regional ecosystem (RE) code along with the percentage breakdown if more than one RE occurs within the area. Detailed definitions of regional ecosystems are available from [www.derm.qld.gov.au/REDD](http://www.derm.qld.gov.au/REDD). Defined map areas smaller than 5ha may not be labelled.

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. The extent of remnant regional ecosystems as of 2006, depicted on this map is based on rectified 2006 Landsat TM imagery (supplied by the Statewide Landcover and Trees Study (SLATS), Department of Environment and Resource Management (DERM)).

Some watercourse lines are derived from GeoScience Australia 1:250 000 mapping.

**Disclaimer:**  
While every care is taken to ensure the accuracy of this product, the Department of Environment and Resource Management and MapInfo Australia Pty Ltd, makes no representations or warranties about its accuracy, reliability, completeness or suitability for 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.

All datasets are updated as they become available to provide the most current information as of the date shown on this map.

Additional information is 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.derm.qld.gov.au/vegetation](http://www.derm.qld.gov.au/vegetation) or contact the Department of Environment and Resource Management.

Digital regional ecosystem data is available in shapefile format, for Lot on Plans from [www.derm.qld.gov.au/REDATA](http://www.derm.qld.gov.au/REDATA) or from DERM for larger areas.

Dominant

Sub-dominant

Remnant vegetation containing of concern regional ecosystems

Dominant

Sub-dominant

Remnant vegetation that is a least concern regional ecosystem

Remnant vegetation under Section 20AH of the VMA

Non-remnant

Plantation Forest

Dam or Reservoir

Remnant Vegetation

PMAV Category X area

Great Barrier Reef Wetlands

Vegetation Management Act Essential Habitat  
For further information on VMA Essential Habitat, please see the attached VMA Essential Habitat map.

Subject Lot

Watercourse (Stream order shown as black number against stream where available)

Bioregion boundary

Roads © MapInfo Australia Pty Ltd 2009

National Park, Conservation Area State Forest and other reserves

Cadastral line

The maximum spatial error of parcels extracted for this map from the Digital Cadastral Data Base (DCDB) range from: 14m to 251m at a 95% confidence level. Property boundaries shown are provided as a locational aid only.

Towns

Coordinate entered

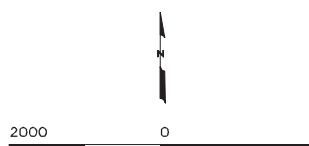
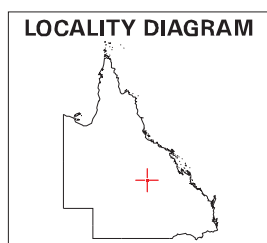
Centered on point position:

Latitude: -23.1664 Longitude: 146.426 (decimal degrees)

Bioregion: Desert Uplands



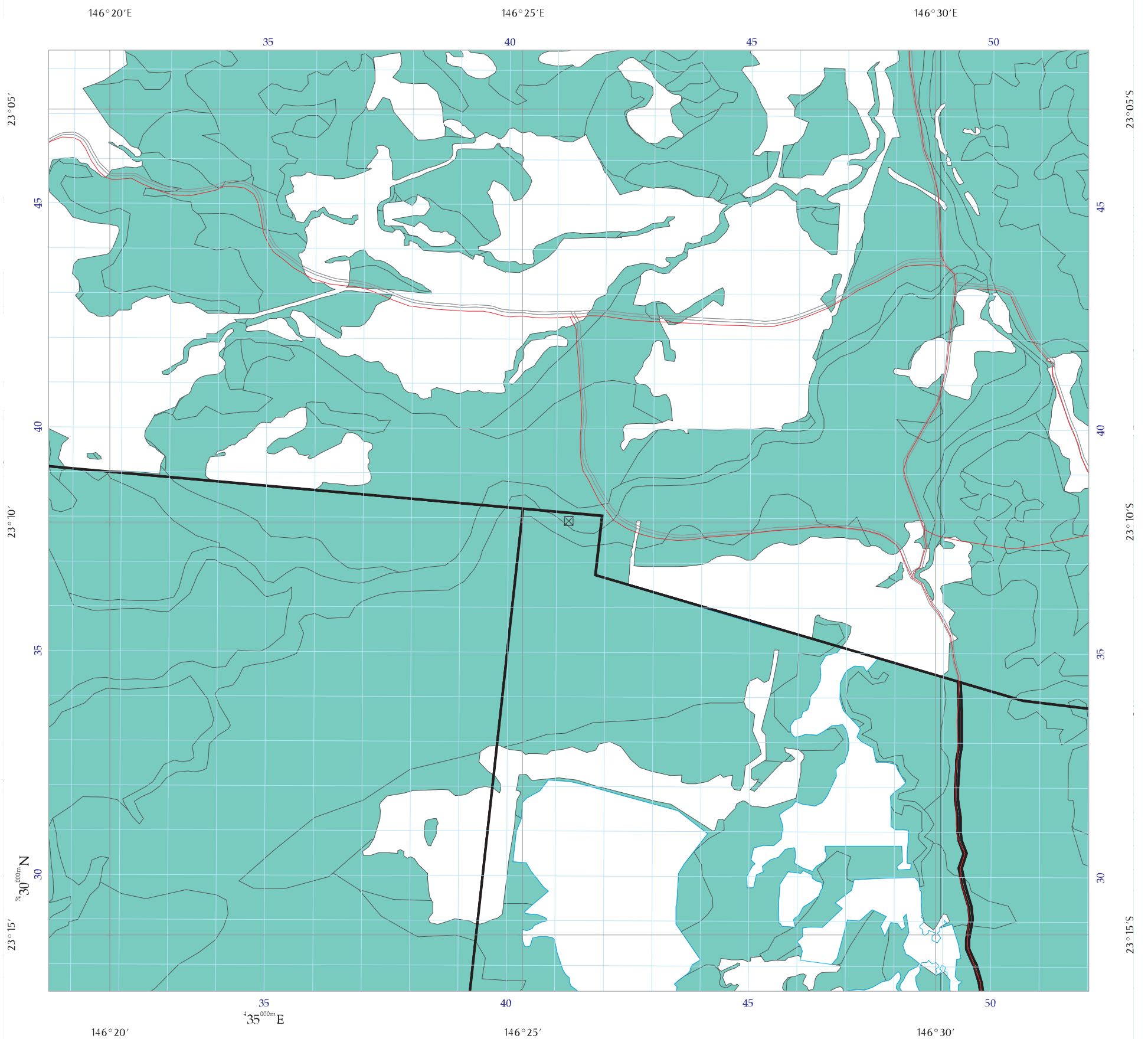
Queensland Government



Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)

© The State of Queensland, 2009



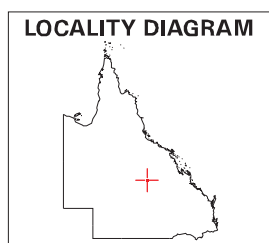


### Vegetation Management Act Essential Habitat Map Version 3.0

- Remnant vegetation containing endangered regional ecosystems
- Dominant
- Sub-dominant
- Remnant vegetation containing of concern regional ecosystems
- Dominant
- Sub-dominant
- Remnant vegetation that is a least concern regional ecosystem
- Remnant vegetation under Section 20AH of the VMA
- Non-remnant
- Plantation Forest
- Dam or Reservoir
- Remnant Vegetation
- PMAV Category X area
- Vegetation Management Act Essential Habitat
- Vegetation Management Act Essential Habitat Species Records
- Subject Lot
- Roads © MapInfo Australia Pty Ltd 2009
- National Park, Conservation Area State Forest and other reserves
- Cadastral line  
The maximum spatial error of parcels extracted for this map from the Digital Cadastral Data Base(DCDB) range from: 14m to 251m at a 95% confidence level. Property boundaries shown are provided as a locational aid only.
- Towns
- Coordinate entered

Requested By: JBYRD@AARC.NET.AU  
Date: 09 Nov 09 Time: 15.18.17

Centered on point position:  
Latitude: -23.1664 Longitude: 146.426 (decimal degrees)



2000 0 2000 m

Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)

Labels for the Vegetation Management Act Essential Habitat are centred on the subject lot (1.1km surrounding and including a Lot on Plan). Labels correlate to the label field in the attached essential habitat database.

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. The extent of remnant regional ecosystems as of 2006, depicted on this map is based on rectified 2006 Landsat TM imagery (supplied by SLATS, Department of Environment and Resource Management).

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All datasets are updated as they become available to provide the most current information as of the date shown on this map.

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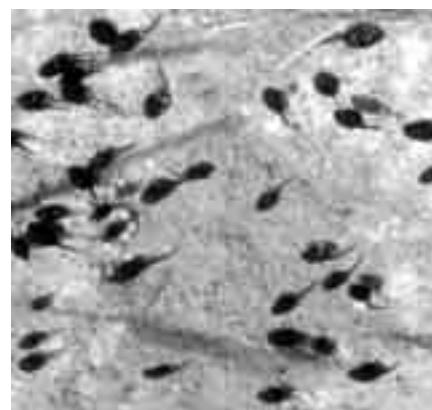


Appendix C DEEDI Pest Species Fact Sheets



## The cane toad

*Bufo marinus*



The cane toad (*Bufo marinus*) is not a declared pest in Queensland so there is no legal requirement to control them.

Their original introduction in 1935 was to control agricultural pests, but they proved ineffective.

For the past 60 years, cane toads have been expanding their territory in Australia, and are capable of colonising at least four of the mainland Australian states.

As the toad's geographical range continues to expand, concern has increased about their detrimental environmental effects, particularly on the wetlands of the Northern Territory.

Studies into the feasibility of biological control have commenced.

## History of introduction and dispersal

The cane toad or giant toad (*Bufo marinus*) is an amphibian, native to Central and South America. They have been introduced throughout the world as a biological control for insect pests of agriculture, most notably sugar cane.

A consignment of cane toads from Hawaii was released into Queensland cane fields in 1935. The introduction was surrounded by controversy as to the potential costs and benefits to Australia.

It was hoped that the toad would control Frenchi and Greyback beetles, pests of economic importance to the sugar cane industry.

By 1941, however, it had become evident that the cane toad was exerting only limited control over its intended prey.

This was because:

- Greyback beetles are only rarely in contact with the ground and Frenchi beetles invade cane fields at a time when the toads are absent due to the lack of protective cover.
- The cane toad has a wide-ranging and indiscriminate diet, and it was not solely dependant upon its intended prey.

The unlimited food source, suitable environment and low rates of predation allowed dynamic reproduction and spread. Toads were recorded in Brisbane only 10 years after release. The toad continues to thrive and has now invaded the Northern Territory and New South Wales ... see distribution map.

**FIGURE 1 – CURRENT DISTRIBUTION OF THE CANE TOAD**



The cane toad's advance is only limited by environmental factors, such as the availability of water for breeding, tolerable temperatures, suitable shelter, and an abundance of food

Toads at the frontier of their range of expansion may be larger than those in established populations. This is most probably due to greater food supply, combined with a lower incidence of disease.

## Description

### Adult

In comparison with native frog and toad species, adult cane toads have a distinctive head and face, and are large and heavily built creatures (Adults may grow to 20 cm).

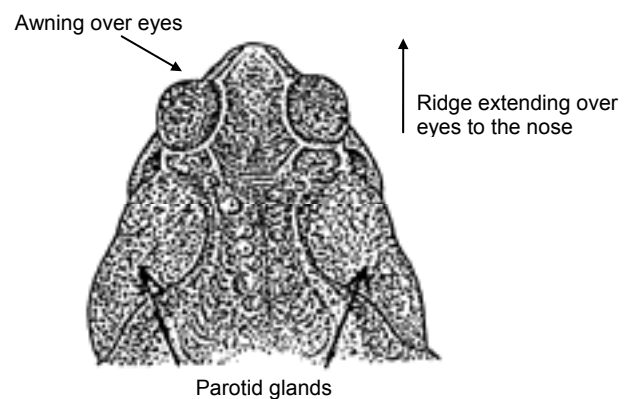
Following their aquatic larval stages (eggs and tadpoles), cane toads are generally encountered at night near any source of light. Cane toads are ground-dwelling, being poor climbers and unable to jump very high.

### Description

A definite visor or awning extends over each eye and a high angular bony ridge extends from the eyes to the nose.

The parotid glands (see figure 2) are perhaps the most characteristic feature of the adult cane toad. These glands are large, protuberant, and are situated on the head, behind each ear. These glands carry a toxin.

**FIGURE 2 – DISTINGUISHING FEATURES OF THE CANE TOAD**



The hands and feet are relatively small and lack discs at the tips of the digits. Webbing is absent between the fingers but is distinct and leathery between the toes.

Colouring on the dorsal (upper) surface may be brown, olive-brown or reddish-brown. The ventral (underneath) surface varies from white to yellow and is usually mottled with brown.

Warts are present on all cane toads, however males possess more than females. Warts are dark brown at the caps.

### Mating

Mating can occur at any time of the year and is only dependant on available food and permanent water. The mating call is a continuous purring trill that sounds like a running motor.

In situations where females are scarce or absent, male cane toads may have the ability to undergo a sex change to become fertile females, however this has not been proved.

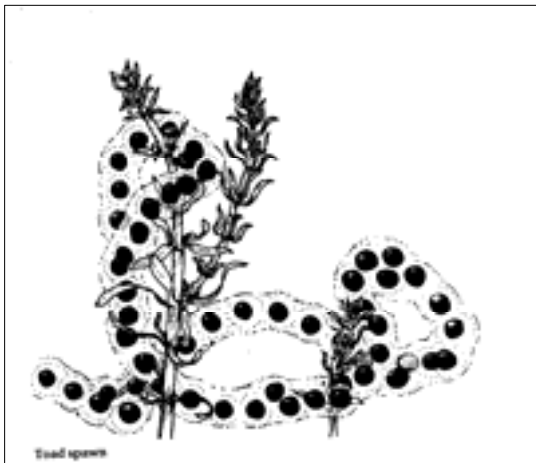
## Identification of toad immature stage eggs

Both cane toads and native frogs spawn in slow moving or still water, but their eggs can be easily distinguished.

Cane toad eggs are laid in long, gelatinous "strings" with the developing tadpoles appearing as a row of small black dots along the length. The strings are unique to cane toads with native frogs eggs laid in clusters, generally appearing as blobs of jelly attached to water plants or debris. Native frogs generally produce egg clusters as mounds of foam floating on the water surface.

By comparison with native species, cane toad egg production is dynamic and a single clutch can contain up to 35 000 eggs. Any cane toads eggs found should be removed from the water and allowed to dry out.

**FIGURE 3 – DRAWING OF TOAD SPAWN FROM 'WILDLIFE OF GREATER BRISBANE' PAGE166.**



### Tadpoles

The cane toad is the only species in Australia that has a pure black tadpole. Native frogs have lighter-coloured undersides with a great range of colours and markings. (Cane toad tadpoles may turn paler colours to almost transparent at night).

The cane toad tadpoles are small and usually congregate in vast slow-moving shoals. This "shoaling" behaviour is uncharacteristic of most native species.

Further, unlike cane toad tadpoles native species develop lungs at an early stage and periodically rise to the surface in order to exchange their lung gasses. Thus large groupings of tadpoles which do not break the water surface for air indicate cane toads.

### Young toads

Following emergence from the water, the young toadlets usually congregate around the moist perimeter of the water body for about a week before they eventually disperse.

Young toads are very difficult to distinguish from the native *Uperoleia species*, which also have parotid

glands, but all *Uperoleia* species have bright red patches in the groin area.

Under ideal conditions toadlets may reach adult size within a year.

## The problem

### Toxicity

*Bufo marinus* produce venom in glands occurring in most of the skin on their upper surface. The venom is concentrated in the parotid glands as a creamy-white solution, which is released when the animal experiences extreme provocation or direct localised pressure, e.g. grasped by the mouth of a predator.

The parotid solution is highly toxic and when ingested it produces drastic acceleration of the heartbeat, shortness of breath, salivation and prostration. It is extremely painful if accidentally rubbed into the eye.

Ingestion of toads by domestic and most native animals can result in death. In some recorded cases death has occurred within fifteen minutes.

Field observations suggest that some predatory Australian species have learnt how to feed safely on cane toads.

Birds have been observed flipping toads over before feeding to avoid toad's parotid glands. Predatory reptiles may have more trouble adapting, being unable to remove a toad from their mouth once they start feeding.

### Effects on wildlife

All stages of the cane toad as poisonous and most native frog larvae and many aquatic invertebrates are dramatically affected by their presence.

Cane toads are voracious feeders that consume a wide variety of insects, frogs, small reptiles, mammals and even birds. Perhaps the only limiting factor to the prey taken is the width of the cane toad's mouth.

It has been suggested that cane toad competition for food and breeding grounds has been responsible for reducing the populations of some native frogs. However many native frogs are arboreal (tree dwelling), and so occupy different niches. Neither do cane toads have the native frogs' ability to "shut down" during dry seasons when resources are limited.

Pressure from cane toads may displace native animals (frogs and other species) where they already suffer due to manipulation of their habitat by man and his grazing animals. Animals that use waterholes as retreat sites during the dry season are especially vulnerable, as toads will also congregate here in large numbers.

### Public health

Cane toads readily eat animal and human faecal material and, in areas of poor hygiene, they have been known to transmit disease such as salmonella.

## Control

Control of the cane toad has never been enforced and has remained at the discretion of the individual. Recently the Brisbane City Council established the cane Toad Eradication Committee that urges residents to exercise greater control of the pest.

Freezing is also a humane form of treatment. As a reaction to cold the animal initiates dormancy, and eventually dies in its sleep.

Fencing is recommended to keep toads out of ponds intended for native fish and frogs; a height of 50cm is sufficient. (Birdwire with 1cm hole may keep toads out of an area)

CSIRO are investigating organisms for biological control. However, exhaustive testing would be necessary to ensure that viral or bacterial agents are cane toad specific and not harmful to native species.

### Injured or 'lost' frogs

Brisbane Forest Park            07 3300 4855

Wildlife Preservation Society of Queensland

07 3221 0194

Queensland Museum            07 3840 7555

WILVO's Wildlife Volunteer's Organistaion (look up local phone directory to see if a group operates in your area).

## Further information

Is available from animal control/environmental staff at your local government, or if your council does not have animal control staff, from your local Department of Primary Industries and Fisheries Land Protection Officer: contact details available through 13 25 23.

## Wild dog control

### DECLARED CLASS 2



Wild dogs are declared animals under the *Land Protection (Pest and Stock Route Management) Act 2002* and as such all land owners in Queensland are required to reduce the number of wild dogs on their properties.

The term wild dog refers collectively to purebred dingoes, dingo hybrids and domestic dogs that have escaped or been deliberately released.

Early management strategies focused on eradication of wild dogs. The effectiveness of control campaigns was usually based on circumstantial evidence.

The development of radio-tracking technology provided the opportunity to study wild dog movement and allowed better assessment of the effectiveness of control operations.

Wild dog control methods include trapping, shooting, fencing, poisoning and the use of guard dogs to protect valuable stock. A planned strategy using a combination of these methods that also considers wild dog behaviour will enable effective management of the population.



## Shooting

Shooting is an opportunistic method, mostly used for control of small populations or individual problem animals.

## Trapping

Trapping is time-consuming and labour-intensive. The success of trapping (using leg hold traps and snares) depends on the skill of the operator.

Trapping is predominantly used in areas with low populations and to control 'problem' wild dogs.

Trapping by inexperienced operators may prove detrimental if a wild dog is exposed to a carelessly prepared and presented trap and subsequently escapes. Such animals may become 'trap shy', or maimed to such a degree that they can prey only on more easily caught domestic stock.

For humane reasons and to prevent escape, poisoning traps with strychnine is recommended to quickly kill captured animals.

A mixture of dog faeces and urine has been very popular with trappers. Commercially made lures are available from Wildpro in Victoria <[www.wildpro.com.au](http://www.wildpro.com.au)> or Wildlife and Animal Capture in Warwick, 4661 7066. Attractiveness of lures varies with seasons and locations. No single lure has yet been found that is consistently attractive to wild dogs.

Traps are best placed on the wild dog boundary pad. Here the wild dog is most likely to find and investigate the decoy/odour.

Wild dog scent posts can be found by walking with a domestic dog on a lead along a known pad. Trap placement in relation to the scent post can be optimised by observing the dog's behaviour as it approaches. Factors to consider are:

- where on the bush it smells
- placement of feet while urinating/defecating
- how it approaches and where it scratches in relation to the pad and scent post.

Traps are not target-specific and should therefore be set in situations that are less likely to catch other animals. Avoid setting traps close to waterholes.

Padded jaw traps such as Soft-Catch® and the new Lanes Dingo Trap are recommended because these are more humane than steel leg hold traps.

## Fencing

Fencing suitable to exclude wild dogs is expensive to build and requires continual maintenance to repair damage caused by fallen timber, floods and animals. However, a properly maintained fence can restrict movement back into an area where wild dogs have been controlled.

Electric fences suitable for wild dogs have been developed. Electrifying a fence creates a fear of the fence itself and deters wild dogs from approaching.

For fencing to be successful, it must be possible to eliminate wild dogs from within the fence. The fence

must be maintained in good order and occasional mopping-up measures employed to remove intruding animals.

## Livestock guardian dogs

Livestock guardian dogs have been used to protect livestock from predators in Europe, Asia and America. Some producers in Queensland's south-east have decreased predation on sheep and goats using this method. However, it is less successful on larger holdings where stock are more widely scattered. The use of trapping and poisoning in conjunction with guardian dogs is not recommended.

## Poisoning

1080 poison baits are the most economic, efficient, humane and effective method of controlling wild dogs, especially in inaccessible or extensive areas. Baits can be laid quickly in large numbers by hand, from vehicles and from aircraft.

Currently there are two poisons legally available for wild dog control. These are 1080 (sodium monofluoroacetate) and strychnine.

A Health Department permit is necessary to purchase strychnine. 1080 can be obtained only through licensed Department of Natural Resources, and Water Officers and Local Government operators.

The use of poison baits will achieve control of the majority of wild dogs. Problem animals that avoid baits can then be trapped, shot or fenced out to provide additional control.

Baits may be selectively positioned to avoid killing non-target species, as the wild dog keen sense of smell enables them to find baits intentionally buried in sand or otherwise hidden. Baits may also be tied to prevent their loss to non-target species.

These bait placement techniques help to:

- reduce the risk of poisoning non-target species
- minimise bait removal by non-target scavengers
- keep the bait moist (longer palatability)
- deter ants (ant-covered baits are believed to be less attractive to dingoes).

A month should be allowed for the major effects of baiting to be realised. Heavy rain within two weeks of baiting can leach 1080 from the bait.

## Management considerations

It is generally accepted that wild dogs are in fewer numbers statewide due to the use of 1080 over the past three decades.

To increase baiting effectiveness and the duration of low wild dog numbers, it is essential that baiting programs be coordinated among adjoining properties. Baiting individual properties may result in reduced wild dog numbers in the short term but the benefits of this will be short lived due to rapid reinvasion.

Research has shown that recolonising wild dog populations are more prone to attack livestock than uncontrolled wild dog populations. Thus, livestock producers should aim to create a wild dog-free buffer of 10–15 km around grazing areas by regular baiting.

The principal source of recolonising populations comes from immigration, not increased birth rate of remaining wild dogs.

The timing of control should consider seasonal variations in the availability of water (where water is restricted) and then target watering points. The phase of the biological cycle could also influence the likelihood of wild dogs coming into contact with baits and should be considered. Many graziers bait twice a year to target adults during peaks in activity associated with breeding (April/May) and then again in August/September to target pups and juveniles.

A suggested practice is to lay baits in the cooler months when birds and goannas are less active and wild dogs more active.

## **Further information**

Further information is available from animal control/environmental staff at your local government, or, if your council does not have animal control staff, from your local Department of Primary Industries and Fisheries Land Protection Officer: contact details available through 13 25 23.

Invasive plants and animals

## Feral cat ecology and control

**DECLARED CLASS 2**



A descendant of the African wild cat (*Felis silvestris lybica*), the common 'house' cat (*Felis catus*) has now been domesticated for about 4 000 years. Although the domestic cat has a long history of association with man, it retains a strong hunting instinct and can easily revert to a wild (feral) state when abandoned or having strayed from a domestic situation.

Semi-feral cats live around dump sites, alleys or abandoned buildings, relying on humans by scavenging rubbish scraps and sheltering in abandoned structures. The true feral cat does not rely on humans at all, obtaining its food and shelter from the natural environment.

### Declaration details

The feral cat is declared as a Class 2 species under the *Land Protection (Pest and Stock Route Management) Act 2002*. Declared species represent a threat to primary industries and natural resources, and have a social impact on other human activities.

Legislation describes a feral cat as one that is not fed and kept by someone. The word 'kept' specifically means that the cat is housed in a domestic situation.

## Description

The feral cat differs little in appearance from its domestic counterpart; however, when in good condition, the feral cat displays increased overall muscle development, which is especially noticeable around the head, neck and shoulders, thus giving the animal a more robust appearance. The average body weight of male feral cats is from 3 kg to 6 kg, while that of females varies from 2 kg to 4 kg. Body weights vary with condition, with some extremely large specimens having been documented.

Australian feral cats are predominantly short-haired, with coat colours that range between ginger, tabby, tortoiseshell, grey and black. White markings may be present on the feet, belly, chest and throat; completely white feral cats are extremely rare. In established populations coat colours are the result of a natural, genetically selective process. Terrain, predators and the ability to capture prey limit coat colours to those that provide the most suitable camouflage and cause a predominance of these colours in subsequent offspring. Ginger cats are more likely to be found in the semi-arid and desert areas, while grey and black specimens generally predominate in scrub and more heavily timbered habitats.

The feral cat is most active at night, with peak hunting activity occurring soon after sunset and in the early hours before sunrise. At night the cat displays a distinctive green eyeshine under spotlight, making it easily distinguishable from other animals. During the day it will rest in any number of den sites, which may include hollow logs, dense clumps of grass, piles of debris, rabbit burrows, and even the hollow limbs of standing trees.

The most obvious and characteristic field signs of feral cats are their scats (droppings). Unlike the domestic cat, the feral cat does not bury its scats, but leaves them exposed at prominent sites to warn other cats of its territorial boundary.

## History of introduction and dispersal

There is some evidence to suggest that the cat was present in Australia long before European settlement. This may have occurred as a result of Dutch shipwrecks and regular visits to northern Australia by early South-East Asian vessels as long as 500 years ago.

Post-settlement dispersal resulted from cats straying from areas of early colonisation. In the late 19th and early 20th centuries, large numbers of cats were purposely released in many rural areas to combat plague numbers of rabbits.

Unwanted cats continue to be released into urban and rural areas by irresponsible pet owners.

The feral cat is now present Australia-wide, thriving under all climatic extremes and in vastly different types of terrain.

## Population dynamics

Male cats attain sexual maturity at about 12 months of age, whereas females are capable of reproduction at approximately 7 months. Annually, and under ideal conditions, an adult female can produce up to three litters—each of usually four kittens, but varying from two to seven.

As the breeding instinct is triggered by the increasing length of daylight, litters are less frequent in winter. Most reproduction occurs during the spring and summer months, and is generally limited to two litters per year. Birth follows a gestation period of 65 days, and kittens may be reared in a single den site or may be frequently shifted to other sites within the female's home range. Family and litter bonding begin to break down when the kittens are approximately seven-months old. The female's ability to bear litters does not decrease with age, so reproduction continues for the course of her life.

## Social organisation and behaviour

Feral cats maintain stable home ranges, the sizes of which depend upon the relative abundance of food and the availability of suitable den sites. Dominant male cats may have territories of up to 8 square kilometres, while the territories of females are smaller and may even be halved when kittens are being reared. Scent glands are present on the chin, at the corners of the mouth, and in the anal region. Territorial boundaries are maintained by scent marking with the cheek glands, pole-clawing, urinating and exposed faecal deposits.

Although feral cats are often thought of as being solitary animals, studies have revealed that such behaviour is generally limited to hunting activities. At other times feral cats display a degree of social interaction that peaks during the breeding season. Group behaviour has been observed in semi-feral populations, and it has been suggested that such behaviour is exhibited also in feral populations. Groups usually comprise several related adult females, their young of both sexes, and an adult male—whose range may include other groups of females. Young females usually remain in a group, while young males either leave or are driven from the group as they reach sexual maturity.

## Effects on wildlife

The energy expended by an adult male cat requires it to consume 5% to 8% of its body weight in prey per day, while females raising kittens require 20%. Based on these figures, one study concluded that 375 feral cats on Macquarie Island would consume 56 000 rabbits and 58 000 sea-birds per year. Where present on the mainland, rabbits may comprise up to 40% of the diet of feral cats. Cats are successful as a control mechanism only when rabbit densities are low. At other times cat predation does little to halt the build-up or spread of rabbit

populations; rabbits merely help to support a larger number of cats. When seasonal shortages of rabbits occur there is a corresponding rise in the number of native animals taken by cats.

The feral cat is an opportunistic predator, and dietary studies have shown that small mammals, birds, reptiles, amphibians, insects and even fish can be taken as prey. Cat predation is particularly harmful in island situations, and a number of species have become extinct due to the introduction of cats by early sealers and lighthouse keepers. On the mainland, native animals—which already suffer due to the destruction of their habitats by man and other introduced animals—may be endangered further by cat predation. Actual competition for prey can cause a decline in the numbers of native predatory species such as quolls, eagles, hawks and reptiles.

Not only do native animals bear the brunt of predation, but they also suffer the effects of a parasite which reproduces only in the intestine of the cat. This disease (toxoplasmosis) is particularly harmful to marsupials, which may develop blindness, respiratory disorders, paralysis, and suffer the loss of offspring through abortion and stillbirths.

## Exotic disease—rabies

Due to their widespread distribution, feral cats may prove to be a major vector for this fatal viral disease should it ever enter Australia. Overseas studies have revealed that wounds inflicted by rabid cats are more dangerous than those caused by rabid dogs. While the bites of rabid dog bites are generally inflicted on the arms and legs, the cat attacks the head of its victim, biting and clawing viciously. These head and facial bites reduce the time taken for the virus to enter the central nervous system, lessening the chance of success from subsequent remedial treatment.

## Methods of control

### Exclusion

Fencing is the only feasible method of control when special areas need protection from cats. Feral cats have been successfully prevented from climbing over netted fences by the use of an electrified wire mounted 15 cm from the top and 10 cm outward from the fence. Non-electrified fencing should incorporate a netted ceiling, or a curved overhang, which prevents the cat from climbing straight up and over the fence.

### Shooting

Night shooting is assisted by the cat's distinctive, green eyeshine. Cats have been successfully attracted by the use of a fox whistle.

## Poisoning

Registration of the vertebrate pesticide sodium fluoroacetate (1080) is currently being sought for the control of feral cats where conditions for its use are suitable.

Audible recorded lures for feral cats and other predators are available through a number of sources. These recordings mimic the distress call of a small animal and can be used to draw a predator to a bait or trap site.

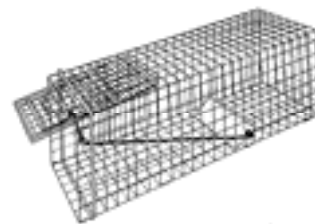
## Trapping

Rubber-jawed, leg-hold traps (see below) can be laid in the same manner as they are laid for dingoes and foxes. Leg-hold traps can work well with true feral cats, which would normally avoid the live-capture box traps. Ideal sites are those where territorial markers, such as faecal deposits and pole-clawing, are noticed. Tuna fish oil has shown some success as an attractant; however, feral cats seem more readily attracted to a site by some visual stimulus such as a bunch of bird feathers hung from a bush or stick.

Cats are easily trapped in wire 'treadle-type' box traps (see diagram). This method is most practical for semi-feral urban cats. Attractants/lures may be of meat or fish and should be placed so that they cannot be reached through the wire and be retrieved by clawing.



Rubber-jawed leg-hold trap



Treadle box trap

A number of local governments lend cat traps for the purpose of removing stray and feral cats in urban situations.

## Further information

Further information is available from animal control/environmental staff at your local government or, if your council does not have animal control staff, from your local Department of Primary Industries and Fisheries land protection officer. Contact details are available through 13 25 23.

Invasive plants and animals

## Feral goat

*Capra hircus*

**DECLARED CLASS 2**



The feral goat is a declared Class 2 animal under the *Land Protection (Pest and Stock Route Management) Act 2002* and landholders are required to control its numbers on their land.

Managing feral goats is important to protect our agricultural industries and for wildlife conservation. Feral goats contribute to overgrazing which can result in soil erosion and other forms of land degradation.

Feral goats compete with native and domestic animals for food and resources. Feral goats are seen by Queensland landholders as either a pest or a resource, or sometimes both, depending on the price being offered at the time.



## History

Goats were domesticated by 7500 BC and were valued for an ability to exploit land of low productivity and areas that could not be used by humans. Another advantage is that goats are easily controlled with little labor. Meat, milk products, and fibre are useful products.

Goats arrived in Australia with the First Fleet and introduced to inland areas by early settlers, miners and railway construction gangs as a source of meat and milk. Herds were allowed to run free and many reverted to the wild.

Angora and Cashmere goats were introduced in 1861 for a speciality wool trade. The venture failed because of competition and increased production from merino sheep and because of difficulties handling goat fibres.

Consequently, many pastoralists abandoned their goats and the genetic diversity of wild populations increased. Cashmere is produced by about 80% of Australia's feral goats with each yielding an average of 90 grams per clip.

Goats that survived after release or escaped from domestic herds are known as feral goats.

## Distribution

Today, feral goats are present over much of Australia, with greatest numbers being concentrated in the semi-arid pastoral areas of Western Australia, western New South Wales, southern South Australia, and central and south-western Queensland. Australia has at least 2.3 million feral goats with estimates of up to 240 000 feral goats in Queensland.

Feral goats are commonly found in rugged terrain that provides safety from pursuing predators such as wild dogs and humans. Other environments are colonised, but the isolation and comparative safety of ranges and semi-arid rangelands are preferred. Feral goats survive and breed in most habitats except rainforest, extensive wetland and desert areas.

Habitat selection is influenced by:

- availability of shelter (rock overhangs, caves, thickets of trees or dense scrub)
- adequacy of surface water supply
- abundance of preferred food species.

Predation by wild dogs clearly influences feral goat distribution.

## Commercial use

Feral goats are in demand for local and international markets. Meat and hides are valued. Some are exported live to countries in Asia and the Middle East. Feral goats are used to genetically upgrade commercial meat-production flocks and can be used for the control of weeds in some limited circumstances. Approximately 150 000 feral goats are harvested each year from central and

south-western Queensland and killed at abattoirs. Feral goats are also field shot, as are feral pigs and kangaroos. These are processed through 'chiller boxes' located throughout Queensland.

## Social behaviour and reproduction

In arid areas there appears to be no defined breeding season. In temperate areas mating tends to occur from January to June with a peak in February. The gestation period is 150 days.

Twins are common, and young are suckled for up to 60 days. Given favourable conditions, breeding may occur twice in one year. A female is capable of conception at 6 months provided body weight is more than 15 kg. Adult goats weigh about 45 kg for females and up to 60kg for males.

Related females and their young form long-term associations within large herds – a matriarchal social organisation. Adult males form herds that associate with female herds during the breeding season.

Feral goats occupy a home range usually centred around a water supply. In arid areas, this range can be up to 379 km<sup>2</sup>. In drier periods when water is scarce, home-ranges become small as animals remain close to permanent water.

## Impact

Goats are generalist herbivores, meaning a wide variety of plant foods are eaten. The highest quality food available is often selected.

As a selective browser, the feral goat can have a profound effect on a plant community over a relatively short period. In areas where the soil is of moderate to high fertility, changes in the balance of plant species in forests begins with the thinning-out of preferred understorey plants leaving only low-preference species untouched.

Through selective feeding, feral goats can reduce the diversity of plant species. Regeneration of some trees and shrubs may be prevented. Plants resistant to browsing and unpalatable species replace original forest.

The amount of vegetative cover may be severely depleted because of overuse and trampling by feral goats, leading to soil erosion. Feral goats compete with native fauna for food, shelter and water particularly in semi-arid areas

Feral goats are regarded as pests by some pastoralists because of competition with domestic livestock for resources. Overgrazing is a major contributing factor to land degradation in the Mulga Lands of Queensland. Feral goats, along with native and domestic herbivores, must be managed as one component of total grazing pressure. The cost of feral goats is unknown. At least \$17 million is lost to the Australian sheep industry through competition between feral goats and domestic sheep.

## Disease

Feral goats are susceptible to devastating exotic livestock diseases including foot-and-mouth disease, scrapie, rinderpest, rift valley fever, rabies and blue tongue. Unchecked, wild herds could play a major role in the spread of infection and act as a reservoir if these diseases are introduced to Australia.

Feral goats are prone to a number of diseases currently in Australia including Q Fever, tetanus, leptospirosis, brucella melitensis, hydatids, pulpy kidney, blackleg, and various parasitic worms of the gastro-intestinal tract.

## Control

A population of goats is capable of doubling in size every 1.6 years in the absence of death caused by human control activities. To prevent populations from increasing, approximately 35 percent of the population must be removed each year.

For commercial goat harvesting operations to be viable, capture methods must be economical. More expensive methods may be justified in the control of exotic diseases or for environmental protection.

Feral goat control or management is dependent on market influences. In times of good prices feral goats are harvested. When prices or feral goat densities are low, little control is undertaken. Effective management of feral goats for agricultural or conservation benefit must be ongoing and cannot rely on market forces.

Feral goat management is more effective when combinations or techniques are used and control is carried out over large areas.

## Mustering

Mustering by motorcycle or horse with the aid of dogs may achieve good results, especially if employed by local residents who opportunistically take advantage of the tendency for feral goats to aggregate into larger herds. It is important to muster only that number of goats that can be confidently handled. Escapees can become cunning, and retreat from the herd or go to ground at the next muster.

## Shooting

Ground shooting is labour intensive but can produce good results if control programs are well planned and the effort is maintained. Helicopter shooting is extremely effective and can result in a rapid and substantial reduction in goat numbers when there is no extensive cover in the form of dense scrub, caves, or rock piles.

However, helicopter shooting is expensive and is used only when the need for a reduction in feral goat numbers is great and when cheaper alternatives are not available.

## Trapping

Goats may be trapped at water if alternative watering points are not available. Traps consist of a goat-proof fence surrounding a water point that is entered through one-way gates or ramps. There are a variety of designs for these gates or ramps, which permit the goats to enter, but not to exit. These traps can also be used for domestic stock management. It may be possible to close off troughs and dams and thereby direct goats to a central watering point.

Trapping using food as an attractant has been found to be unsuccessful.

## Judas goat

It is difficult to find goats in areas where moderate to dense vegetation and hilly terrain impedes visibility. To overcome this problem the 'Judas Goat' technique can be used. Feral goats are fitted with radio transmitters and then can be located with directional receiving equipment. Goats are social animals and when a goat carrying a radio transmitter is released in an area known to contain feral goats, it will join up with the herd.

The radio collared "Judas" goat is then tracked and local feral goats are shot. The Judas goat can be allowed to escape and the process repeated.

Information in this DPI&F Pest Fact is from:

Mahood I.T. (1983) Feral goat (*Capra hircus*). In *The Australian Museum Complete book of Australian Mammals*. (Ed. R. Strahan) Angus and Robertson, Sydney p.516.2

Parkes, J.P., Henzel, R.P. and Pickles, G.S. (1994) *Managing Vertebrate Pests: Feral Goats*. Australian Government Publishing Service, Canberra.

Thompson, J., Riethmuller, J., Kelly, D., Boyd-Law, S. and Miller, E. (1999) Feral goat management in South-West Queensland – Final Report to the Bureau of Rural Sciences. Queensland Department of Natural Resources and Mines, Brisbane.

Wilson, G. Dexter, N., O'Brien P. and Bomford, M. (1992) *Pest Animals in Australia. A survey of introduced wild mammals*. Kangaroo Press.

## Further information

Further information is available from animal control/environmental staff at your local government, or if your council does not have animal control staff, from your local Department of Primary Industries and Fisheries Land Protection Officer: contact details available through 13 25 23.

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Fact sheets are available from DPI&F service centres and the DPI&F Information Centre phone (13 25 23). Check our web site <[www.dpi.qld.gov.au](http://www.dpi.qld.gov.au)> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact should be used in accordance with the restrictions (federal and state legislation and local government laws) directly or indirectly related to each control method. These restrictions may prevent the utilisation of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the Department of Primary Industries and Fisheries does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.

Invasive plants and animals

# Feral pigs in Queensland

## - distribution, ecology and impact

### DECLARED CLASS 2



Domestic pigs (*Sus scrofa*) were introduced to Australia by early settlers. Subsequent accidental and deliberate releases resulted in the wild (feral) population establishing throughout Australia. Feral pigs damage crops, stock and property, spread weeds and transmit diseases such as Leptospirosis and Foot and Mouth. They also cause environmental damage, digging up large areas of native vegetation and spreading weeds.

Feral pigs are declared Class 2 pests under *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pest on the land under their control. A local government may serve a notice upon a landholder requiring control of declared pests.

For information on Control of feral pigs see DPI&F Pest Fact PA7. For specific information of Feral Pig management in the wet tropics, see DPI&F Pest Fact PA8.

### Description

Australian feral pigs have more in common with their Eurasian cousins than with domestic pigs. They are smaller, leaner and more muscular than domestic pigs, with well-developed shoulders and necks and smaller, shorter hindquarters. Their hair is sparse and longer and coarser than domestic pigs. Feral pigs also have longer, larger snouts and tusks, straight tails, smaller mostly pricked ears and much narrower backs.

Colouring is predominantly black, buff-coloured or spotted black and white. Some are agouti-patterned (dark hair with a lighter tip). Juveniles may be striped. Colours vary between and within areas.

Growth potential is similar to domestic pigs, though harsh environmental conditions tend to stunt development. The weight of an average adult female feral pig is roughly 50 to 60 kg, with the males usually weighing 80 to 100 kg. Exceptional animals have reached 260 kg.

Older boars (razorbacks) have massive heads and shoulders and a raised and prominent back bone which slopes steeply down to small hams and short hind legs. A keratinous plaque or shield up to three centimetres thick usually develops on their shoulders and flanks. This provides some protection from serious injury during fights with other boars.

Some boars develop a crest or mane of stiff bristles extending from their neck down the middle of their back, which stands straight on end when the animal is enraged.

## Distribution

Feral pigs inhabit about 40% of Australia from subalpine grasslands to monsoonal floodplains and are found in all habitat types in Queensland – see figure 1.

Areas need supply only the basics of food, water and cover.

Estimations of numbers range up to 24 million. The greatest concentrations of feral pigs are on the larger drainage basins and swamp areas of the coast and inland.

## Biology and behaviour

Feral pigs are capable of migrating considerable distances but they tend to stay in home ranges, with watering points the focus of activity, particularly during hot weather. Pigs have few sweat glands, so high temperatures require them to drink more often and wallow in water or mud to cool off. Dense cover is the preferred habitat, providing protection from the sun and their main predator, man.

Female and juvenile pigs usually live in small family groups with a home range of 2–20 km<sup>2</sup>. Adult males are typically solitary, with a home range of 8–50 km<sup>2</sup>. Range size varies with season, habitat, food availability and disturbance. Herds of 400 pigs have been recorded in Cape York.

Most pigs remain in their home ranges, even when subject to some disturbance such as infrequent hunting by people and dogs. Regular disturbance will drive them on.

Feral pigs are generally nocturnal, spending daylight hours sheltering in dense cover. They are shy animals and will avoid humans, making it easy to miss their presence or to drastically underestimate their numbers.

Pigs are omnivorous, eating plants and animal flesh. They are extremely opportunistic feeders, exploiting

any temporarily abundant food. They prefer green feed and will eat grains, sugar cane and other crops, fruits and vegetables. They root extensively for tubers, worms and soil invertebrates. Small animals are preyed upon. Stock losses occur primarily with lambs but occasionally with newborn calves. Carrion (dead and rotting flesh) is also consumed.

Feral pigs have relatively high energy and protein requirements, particularly during pregnancy and lactation. These requirements are not available for all the year in all areas, so pigs often have to move to other parts of their home range during pregnancy.

This seasonal need for either more food, or high energy or protein-rich food, is often the reason for their impact on agricultural crops. It is also the weakness in their ecology that can be exploited for management purposes.

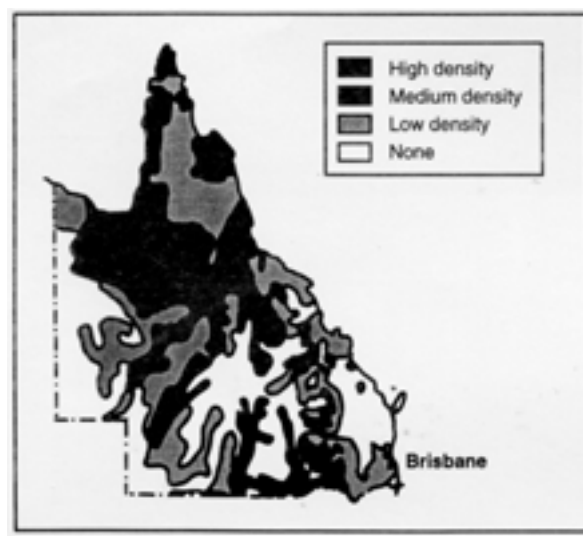


FIGURE 1 – DISTRIBUTION OF FERAL PIGS IN QUEENSLAND

## Life cycle

The reproductive potential of feral pigs is more similar to rabbits than other large mammals in Australia. In good conditions feral pig populations may increase fivefold in a 12 month period.

Under favourable conditions breeding occurs all year. Adult females have a 21-day oestrus cycle, with a gestation period of about 113 days, producing a litter of four to 10 piglets, depending on the sow's age, weight and food supply.

Sows can make nests of available vegetation just before farrowing. Nests can be 3 m long by 1.5 m wide and up to 1 m high, with a domed roof.

They are usually less than 2 km from available water. Piglets normally spend the first 1–5 days of life inside the nest, with the sow inside or close by.

The next fertile mating can occur after 2–3 months of farrowing, allowing sows to produce two litters per year if good seasonal conditions prevail.

Weaning occurs after 2 to 3 months. Sexual maturity is reached when sows weigh about 25 kg, usually around 6 months of age.

Mortality of juveniles is high if the mother's dietary protein intake is low (up to 100% mortality in dry seasons). Adult mortality does not vary as much with seasonal conditions, but few animals live more than 5 years.

## Estimating populations

Sightings are the least reliable guide to feral pig presence. Careful observation of the signs of pig activity will allow an experienced observer to estimate population densities. A beginner, however, may see nothing.

The following is a list of common pig signs that may be used to establish relative numbers and sizes:

- fresh digging or rooting of ground (causing a ploughed appearance) indicates recent pig activity, but area affected gives little indication of numbers as large areas can be dug by a small number of pigs
- tracks and faeces on and off pads. Faeces size, shape and consistency vary with age and diet, but is typically 3–6 cm wide, 7–22 cm long and well formed. Close inspection can enable diet to be established – plant matter and seeds, egg shell and bone fragments, wool and marsupial hair
- mud or hair at holes in fences where pigs have pushed through
- wallows – distinctive oval depressions in mud
- tusk marking and mud rubs on trees and fence posts give an indication of pig size
- nests in vegetation made by sows before farrowing should only be approached with caution
- spotlighting, aerial survey, and use of dogs can be used for actual pig counts.

## Impact on man and the environment

Feral pigs wide habitat range, omnivorous diet and potential for rapid population growth in good seasons mean few agricultural pursuits are unaffected. Damage is estimated at \$80 million annually.

Economic impact is of three types:

1. value of the direct losses to agricultural production
2. value of the continuing expenditure on pig control

3. value of lost opportunities to take profit from alternative investment of this expenditure.

Examples of direct agricultural losses:

### Crops

Pigs can damage almost all crops from sowing to harvest, starting with uprooting seed and seedlings to feeding on or trampling mature crop.

They feed on seed and grain crops (except safflower), fruit (especially banana, mango, papaw, macadamia and lychee) and vegetable crops.

Most damage to sugar cane occurs during the dry season. Older cane with a high sugar content is preferred. Pigs can “camp” in a paddock for several weeks, causing substantial damage as sufficient moisture can be obtained from the cane.

### Livestock

Predation on livestock is basically limited to the taking of lambs. Research has shown feral pigs can take as many as 40% of lambs. This not only reduces income from the sale of lambs but also reduces the opportunity for herd improvement by limiting selection for optimum wool traits.

### Pasture

Pastures are damaged by grazing and rooting. Pigs can also transport weeds and their diggings provide ideal conditions for weed establishment.

### Fences and watering points

Wallowing pigs damage and foul the water in tanks and bore drains and silt up troughs. Rooting can weaken dam walls. Being large, powerful animals, pigs can breach fences, allowing passage of other pest animals.

### Environmental concerns

Pig activity has a **dramatic** affect on creeks and lakes. In many areas concentrated rooting “ploughs” up to 20 m around the waterline.

Such disturbance of the natural vegetation affects not only water quality but the habitat for small animals of the land and water. It also creates erosion and allows the establishment of exotic weeds.

Predation of native fauna does occur as examination of faeces has shown remains of marsupials, reptiles and insects, ground-nesting birds and their eggs, and native flora.

## Diseases and parasites

Feral pigs can carry many infectious diseases and internal and external parasites. Some are endemic (already present) while others are still exotic to Australia.

Many of the diseases can not only spread to domestic pigs but to other livestock and humans. Diseases naturally transmitted from animal to man are called zoonoses.

Zoonoses currently in feral pigs in Australia:

- **Tuberculosis (TB)** – a serious disease of the lungs. Once common but now rare, contracted by eating inadequately cooked flesh of infected animals.
- **Brucellosis, Porcine and Bovine** – a bacterial disease causing severe long-term illness, undulant fever and possible infertility, both strains are contracted by handling raw meat. Porcine Brucellosis is rare in Queensland.

Feral pigs were blamed for the spread of TB and Bovine Brucellosis amongst cattle but both diseases have been eradicated from Queensland without directly targeting feral pigs.

- **Sparganosis** – a parasite that can infest the muscles of humans, forming encyst lumps, is common in pigs from swampy areas; contracted by ingesting raw meat.
- **Melioidosis** – a serious bacterial disease which causes abscesses.
- **Leptospirosis** – a serious bacterial disease; in humans called Weil's disease, causing very high temperatures, kidney trouble and jaundice; can be fatal. It is found in up to 20% of feral pigs in Queensland.
- **Q Fever** – this disease occurs in all animals and is well known by meat workers. It can cause very high temperature and result in heart problems; can be fatal.

Leptospirosis and Q Fever infection can occur through contact with blood, meat and urine through broken shin, intake of urine-contaminated food or water, and inhalation of infectious airborne organisms.

Brucellosis, Leptospirosis and Q Fever cause flu-like symptoms similar to Ross River Fever and Lepto and Q Fever can be fatal.

Owing to these diseases it is advisable to avoid handling feral pigs unless they are slaughtered at a licensed premises where there is a full-time meat inspector on duty to ensure that animals are free of the above diseases.

If you must handle feral pig meat use suitable protective clothing (mask, goggles, strong rubber gloves and plastic apron and boots) to minimise contamination with blood, urine and faeces.

Normal thorough cooking destroys all of the pathogens described above, so infection by eating infected meat is not as big a risk as when butchering the animal.

## Exotic livestock diseases

A major concern with feral pigs are their potential to harbour or spread exotic diseases. The cost to the Australian community if Foot and Mouth Disease were introduced to Australia is estimated at \$3 billion in lost export trade, even if the outbreak were eradicated immediately.

This would result in major social upheaval in rural Australia.

Other exotic diseases of concern:

- **Swine vesicular disease** – viral disease affecting only pigs
- **Aujeszky's disease** – highly contagious herpes viral disease affecting several animal species, killing up to 100% of affected piglets.
- **African swine fever** – highly contagious viral disease affecting only pigs, mortality rate high.
- **Classical swine fever (CSF)** or hog cholera, highly contagious viral disease of pigs, in acute form killing up to 90% of infected animals.

For more information on animal diseases contact your local DPI veterinarian.

## Exotic zoonotic diseases and parasites

- **Japanese encephalitis** – a virus spread from pigs to humans by mosquitoes, causing acute severe problems of the nervous system – pain, sleepiness, and coma.
- **Rabies** – a serious disease affecting the brain can be fatal.
- **Screw-worm fly** – a fly whose maggots can attack healthy flesh and if untreated can cause massive wounds to animals and humans.
- **Trichinosis** – is a helminth (roundworm). All mammals are susceptible, with humans infected by eating improperly cooked meat.

North Queensland's popularity as a tourist destination is increasing. Many international visitors have travelled through countries infected with exotic diseases before entering Australia. Feral pigs are known to frequent rubbish tips around tourist lodges and to scavenge human waste.

There is a real danger that an exotic disease could enter Australia via this contact and remain undetected for some time. Such a time lapse could allow the disease to become widespread, making eradication difficult or even impossible.

NRW gratefully acknowledges the contribution from *Managing Vertebrate Pests: Feral Pigs* Parkes, J., Henzell, R. and Rickles, G.; Bureau of Resource Sciences (1996) AGPS, Canberra. Commonwealth of Australia copyright reproduced by permission.

## Further information

Further information is available from animal control/environmental staff at your local government or, if your council does not have animal control staff, from your local Department Primary Industries and Fisheries Land Protection Officer: contact details available through 13 25 23.

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## The rabbit

*Oryctolagus cuniculus*

**DECLARED CLASS 2**



### The problem

The rabbit is a declared Class 2 animal under the *Land Protection (Pest and Stock Route Management Act) 2002*.

Rabbits are one of Australia's major agricultural and environmental animal pests costing between \$600 million and \$1 billion annually. They compete with native animals, destroy the landscape and are a primary cause of soil erosion by preventing regeneration of native vegetation.

Rabbits have played a role in the reduced numbers and extinction of many native animals by competing for food and burrow space. In drought times rabbits climb trees to forage on the foliage and often ringbark trees in their search for moisture.

Rabbits affect the quantity and quality of pasture available for other animals. Nutritious plants are selectively grazed, and in times of drought rabbits can consume the majority of the vegetation available. It is documented that the grazing ability of seven to ten rabbits is equivalent to one sheep.

Rabbit grazing and burrowing reduces vegetation and leads to soil erosion. The exposed bare soil is washed or blown away making areas less productive. Soil which is washed away then builds up and causes increased silting of aquatic ecosystems.

## Pet rabbits

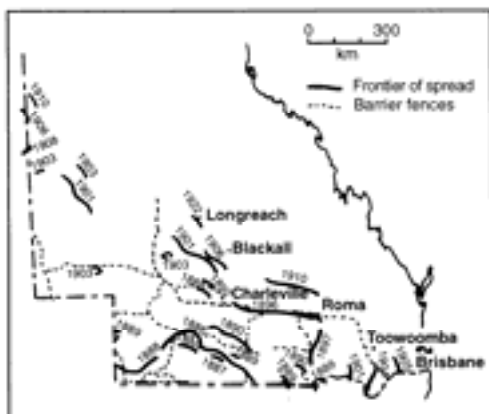
The introduction to Queensland and selling of rabbits is not permitted (maximum penalty \$30 000). Limited numbers of permits for domestic rabbits are only available for research purposes, public display, magic acts or circuses from the Department of Primary Industries and Fisheries. Before a permit is granted a number of guidelines need to be fulfilled. Information on permits is available by ringing (07) 34055526.

## Spread

Domestic rabbits were first brought to Australia with the first fleet. The first feral populations reported were in southern Tasmania in 1827. Twenty-four wild rabbits were released on the mainland by Thomas Austin of 'Barwon Park' Victoria, in 1859. Rabbits spread rapidly from 'Barwon Park' and another release centre near Adelaide (Kapunda) at rates of up to 100 kilometres a year.

Rabbits were first reported in south-western Queensland in the 1880's and their spread was assisted by humans as much as by natural migration. Queensland reacted to the advancing wave of rabbits by introducing the Rabbit Nuisance Bill of 1878 and Act in 1880. Unfortunately tenders for the construction of a rabbit proof border fence were not passed until 1886, by which time rabbits were scattered from Wompah in the west, to Mungindi in the east.

**FIGURE 1 – SPREAD OF THE RABBIT IN SOUTHERN QUEENSLAND**



Rabbits have now spread to most areas throughout Queensland. Although numbers have contracted since the release of Rabbit Haemorrhagic Disease (formerly known as Rabbit Calicivirus Disease), high populations still exist in the granite belt and isolated regions throughout southern Queensland.

## Breeding

Rabbits in mild environments are territorial throughout the year, but increase their social aggression during the breeding season. During the breeding season rabbits live in communities with well-defined social hierarchies or 'pecking orders'. Community boundaries are marked with faeces or by exudate from glands located under the chin.

The dominant buck (male) mates with most does (females) within his territory but dominant does can prevent breeding in subordinate does. In drier areas, the harsh conditions make finding food more important and reduce the strict territorial behaviour of rabbits.

The rabbit pregnancy period is 28–30 days, with the doe able to mate within hours of giving birth. The average litter is 3–4 kittens but varies from two in a young doe, up to eight or more in a mature doe, depending on the amount and quality of food available. Young does can breed at four months of age if conditions are suitable.

Five to six litters are possible in a good season. This equates to 100 young per doe per year. The litters produced are associated with the length of time young grass is present. In summer rainfall areas with high temperatures, fewer young are a result of less fertile males and poor pasture quality.

## Habitat

Rabbits live in a number of situations such as:

- fallen timber
- tussock grass and
- warrens if the soils are easy to dig.

## Control methods

An integrated control approach should be adopted, incorporating appropriate strategies from those listed below. It is important landholders understand that biological control agents such as Myxomatosis and Rabbit Haemorrhagic Disease (RHD) are not the sole answer to the rabbit problem. It is essential they are incorporated into a management strategy with other control techniques.

Rabbit Haemorrhagic Disease offers landholders a major opportunity to reduce rabbit numbers. Failure to combine RHD with other control strategies could cause rabbit immunity to develop as occurred with myxomatosis. Destroying a rabbit's home (e.g. warren) is the most effective method for long-term control. Department of Primary Industries and Fisheries has conducted warren ripping trials in Queensland and rabbits fail to re-establish in areas where warrens were ripped properly.

Conventional control methods such as baiting, fumigating and ripping warrens are essential for the continued long-term reduction of rabbit numbers.

Rabbit control techniques include:

- Myxomatosis
- Baiting with 1080
- Rabbit Calicivirus Disease
- Fumigation
- Baiting with pindone
- Shooting
- Rabbit proof fencing
- Trapping
- Clearing surface cover
- Warren destruction

## Further information

Further information is available from animal control/environmental staff at your local government, or if your council does not have animal control staff, from your local Department of Primary Industries and Fisheries Land Protection Officer: contact details available through 13 25 23.

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Invasive plants and animals



## Parkinsonia

Jerusalem thorn or jelly bean tree

*Parkinsonia aculeate*

**DECLARED CLASS 2**



### Description

A hairless shrub or small tree, rarely to 10 m high. Slender green photosynthetic zig-zag branches armed with sharp spines. Leaves with a short, spine-tipped stalk, leaf branches 20-40 cm long, flattened with small, oblong leaflets along each edge. Flowers

yellow, fragrant, five petalled, each on a long, slender drooping stalk. Seeds oval, hard, about 15 mm long, borne in pencil-like pods 5-10 cm long, constricted between the seeds.



## The problem

Parkinsonia can form dense, and often impenetrable, thorny thickets along watercourses and bore drains. This restricts access of stock to drinking water and can make mustering virtually impossible. The ability of seeds to float means flooded country is particularly susceptible to invasion by parkinsonia. Some infestations in the Gulf of Carpentaria Region and Fitzroy catchment are now up to several kilometres across. Such infestations provide a harbour for feral pigs, which can predate on livestock, damage crops, and seriously degrade the environment.

Parkinsonia has been recognized as a Weed of National Significance.

## Life cycle

Parkinsonia is fast growing and may flower in early summer of its second or third year of growth. Once established, flowering can occur opportunistically to exploit variable seasonal conditions. Pods mature in late summer, float on water and are hence readily dispersed by flood waters. Seeds have a thick and extremely hard coat and so remain viable for many years to allow germination under favourable conditions. Seeds require wet soil conditions for several days to induce germination.

## Habitat and distribution

Parkinsonia is thought to be native to tropical America but has spread throughout the world as an ornamental and shade tree.

As parkinsonia is adapted to an extremely wide range of soil types, there is little doubt that it will continue to spread through watercourses and adjoining areas throughout the sub-humid and semi-arid environments of Queensland. The most vulnerable areas would appear to be the Gulf Region, Channel Country and downstream into the Lake Eyre catchment.

## Declaration details

Parkinsonia weed is a declared plant under *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pests on the land and waters under their control. A Local Government may serve a notice upon a landholder requiring control of declared pests.

FIGURE 1 – DECLARATION MAP SHOWING SHIRE AND CATCHMENT BOUNDARIES



## Control

### Biological control

Three species of insects have been introduced into Australia as biological control agents against parkinsonia. These are:

#### **Parkinsonia seed beetles *Pentobruachus germani* and *Mimosetes ulkei*.**

Both *Pentobruachus germani* and *Mimosetes ulkei* are seed beetles which attack only parkinsonia and whose larvae destroy mature parkinsonia seeds.

*Pentobruachus* females lay eggs singly on the outside surfaces of pods and can lay up to 350 eggs each. Female *Mimosetes* beetles lay clusters of eggs in cracks and holes in the pods. Larvae of both species tunnel into seeds after hatching. After entering a seed, each larva spends its entire development period in the same seed and pupates in the seed. Usually only one larva survives in each seed. By the time a larva pupates before changing to a beetle, it has eaten all the living contents of the seed and the seed will not germinate. Each new *Pentobruachus* beetle emerges through a hole in one end of the seed and a hole in the side of the pod. Each new *Mimosetes* beetle emerges through a hole in the side of the seed and a hole in the side of the pod. Individual beetles of both species can live for up to 2 months but more typically they live for about 5 weeks. The life cycles of both species range from about 5 weeks in the hot months of the year to about 12 weeks in the winter.

*Penthobruchus germaini* is a small (about 5 mm 6 mm long) brown beetle from Argentina. It was first released in 1995 and has established much more readily than *Mimosestes*. It has established readily at all release sites and spreads rapidly.

*Penthobruchus* exerts heavy pressure on parkinsonia seed banks and research has demonstrated up to 95% of seed destroyed at some sites. *Penthobruchus* may become a very important tool in the integrated management of this weed. In the field its presence is indicated by white eggs against the darker background of the pods. Round holes in the pods indicate that beetles have emerged.

*Mimosestes ulkei* is a small (about 5 mm long) two-tone grey beetle. It was imported from the USA and was first released in 1993. While it is established at several sites, it does not establish as readily as *Penthobruchus*. It promises to contribute to the destruction of parkinsonia seeds. In the field, round emergence holes are the only external indication of its presence.

#### **Parkinsonia leaf bug *Rhinacloa callicrates***

*Rhinacloa callicrates* is a small green bug (about 3 mm long). It was imported from the USA and was first released in 1989. It feeds on leaves and shoots of parkinsonia. This results in tiny round white spots where it destroys photosynthetic tissue. It is well established in Queensland but it has no significant impact on parkinsonia.

#### **Mechanical control**

Initial clearing by stick raking, blade ploughing or ripping is effective, however:

- it is restricted to reasonably level areas away from watercourses;
- clearing will hasten seed germination, necessitating follow up control either mechanically or chemically.

Establishing improved pasture will aid in managing parkinsonia by competition.

#### **Fire**

Fire will destroy seedlings if sufficient fuel load is present, but mature plants will usually survive.

#### **Herbicide control**

Herbicides registered for the control of parkinsonia are listed in Table 1.

#### **Aerial application**

Aerial application is undertaken by purpose built applications by helicopter. Useful for dense, strategic infestations although it may be cost prohibitive on a broad scale.

#### **Foliar (overall) spray**

This is a very effective control method for control of seedlings up to 1.5 m tall. Spray leaf and stems to point of runoff. A wetting agent must be used.

#### **Basal bark spray**

For stems up to 15 cm diameter, carefully spray completely around base of plant to a height of 30 cm above ground level. Larger trees may be controlled by spraying to a greater height, up to 100 cm above ground level.

Plants should be actively growing and preferably flowering. Field experience has shown that good soil moisture is essential for effective control.

Because parkinsonia infested areas are often subject to flooding, care is needed to ensure mud and flood debris does not prevent spray penetration to the bark. The trunk may need to be cleared before spraying. Addition of petrol or A-1 jet fuel will aid penetration.

#### **Cut stump treatment**

May be performed at any time of year. Cut stems off horizontally as close to the ground as possible.

Immediately (within 15 seconds) swab or spray the cut surface and associated stem with herbicide mixture.

#### **Soil application**

Use one dose of herbicide per metre of tree height. Place doses close to tree trunk, either with spot gun on clear bare ground, or underground with ground injector. Rain or sufficient soil moisture is required before herbicide is taken up by plant.

Do not use near watercourses or within a distance equal to at least twice the height of desirable trees.

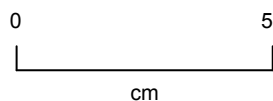
### **Further information**

Further information is available from the vegetation management/weed control/environmental staff at your local government.

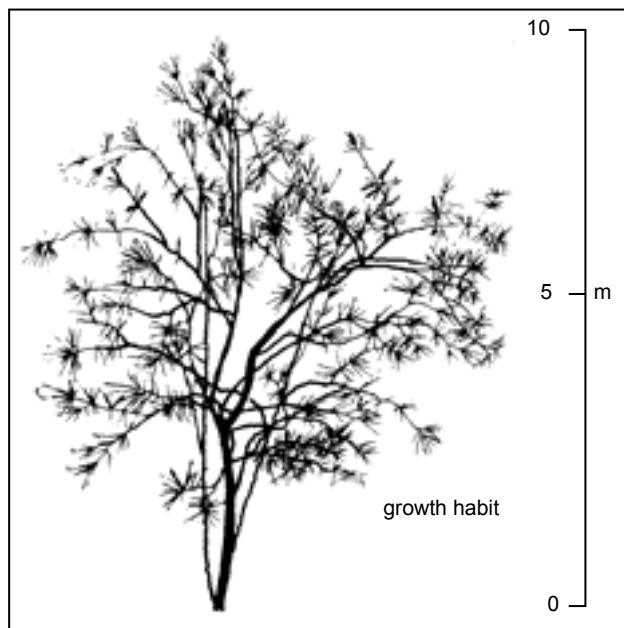


**TABLE 1 – HERBICIDES REGISTERED FOR THE CONTROL OF PARKINSONIA**

Situation	Herbicide	Rate	Optimum stage and time	Comments
Aerial application	Grazon DS®/picloram and triclopyr	3 L/ha	Seedlings 1–2 m tall, or 12–24 months old	Application by helicopter only. Addition of 1 L/ha of Uptake® wetting agent
	Reclaim®/hexazinone	1 kg/ha	Trees up to 3 m tall	Apply early in wet season, after initial rains but before inundation
Foliar (overall spray)	Grazon DS®/picloram and triclopyr	0.35 L/100 L water	Seedlings less than 2 m tall and actively growing	Wet plant thoroughly. Use wetting agent
Basal bark spray	Access®/triclopyr and picloram	1 L/60 L diesel	As above. Stems up to 5 cm diameter	Do not treat wet stems
Cut stump	Access®/triclopyr and picloram	1 L/60 L diesel	Any time of year	Cut close to ground level and treat <b>immediately</b>
Soil application	Velpar L®/hexazinone (via spotgun)	4 ml per spot – 1 spot for each shrub/tree	Any time, but needs moisture to activate chemical	Shrubs/trees up to 5 m tall
	Graslan®/tebuthiuron	1 to 1.5 g/m <sup>2</sup>	Any time, but needs moisture to activate chemical	Refer to label for critical comments



branch, leaves, spikes and flowers



growth habit

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## Prickly pear identification and their control

**DECLARED CLASS 2**



The introduction and spread of prickly pears into Queensland and New South Wales is one of the greatest environment invasions of modern times. Prickly pears were introduced into pastoral districts in the 1840's. By 1900, over 4 million hectares in Queensland and New South Wales was infested by prickly pear and by 1925, the pest had invaded over 24 million hectares. Control costs were prohibitive and the only effective herbicide at the time was hazardous. This resulted in the abandonment of a great deal of land by landholders.

Research for biological control agents commenced in 1912 and in 1914 cochineal insects were released to control one of the minor prickly pear species. Control of this minor prickly pear species by these introduced insects occurred within a few years. The success of the cochineal insects led to renewed efforts against other types of prickly pear in the 1920's. These efforts resulted in the control of the major pest prickly pear by the moth, *Cactoblastis cactorum* and by the mid-1930's, prickly pear was no longer a major problem. Several prickly pear species have since remained as minor weeds.

## Description

Prickly pear is a general term used to describe some plants of the Cactaceae family. The term includes species of *Opuntia*, *Nopalea*, and *Acanthocereus*. All of these plants originate in the Americas. The term "prickly pear" relates to the fruit that is often spiny and pear-shaped. Plants are normally leafless succulent shrubs. Stems are divided into segments (pads or joints) that are flat and often incorrectly called leaves.

Young shoots have true leaves resembling small fleshy scales that fall off as the shoot matures.

Flowers are large, normally seen during spring and can be yellow, orange, red, pink, purple or white depending on the species. Prickly pear fruits vary between species and are either red, purple, orange, yellow or green.

Areoles (spots with clusters of spines) are found on both the pads (joints, segments) and fruit. In addition to spines, areoles often have clusters of sharp bristles called glochids and tufts of fibre called "wool". Each areole contains a growing point that can produce roots or shoots.

## Pest attributes

Prickly pears have several features that enable them to compete and become pests.

Prickly pears are drought resistant because of their succulent nature, their lack of leaves and their thick tough skins. These features result in plants that use the majority of their internal tissues for water storage and their outer parts to reduce water loss and damage by grazing and browsing animals. They can remain vigorous in hot dry conditions that cause most other plants to lose vigour or even die. Some species develop underground bulbs that enable the plant to resist fire and mechanical damage.

Prickly pears reproduce both sexually and asexually. Birds and other animals readily eat the many seeded fruits and deposit seeds in their droppings. Seeds have hard seed coats that allow them to survive heat and lack of water. Asexual reproduction (cloning) of prickly pears occurs when pads (joints, segments) or fruits located on the ground take root and produce shoots. Animals and floods move broken pads long distances. These pads can survive long periods of drought before weather conditions allow them to set roots.

Prickly pears considered pests in Queensland are:

- Common pest pear *Opuntia stricta* var. *stricta* (= *Opuntia inermis*)
- Spiny pest pear *Opuntia stricta* var. *dillenii* (= *Opuntia stricta*)
- Tiger pear *Opuntia aurantiaca*
- Drooping tree pear *Opuntia vulgaris* (= *O. monacantha*)
- Velvety tree pear *Opuntia tomentosa*
- Westwood pear *Opuntia streptacantha*
- Devil's rope pear *Opuntia imbricata*
- Coral cactus *Opuntia cylindrica*
- Snake cactus *Opuntia fulgida*  
X *O. imbricate*

- Sword pear *Acanthocereus pentagonus*

### Common pest pear (*Opuntia stricta* var. *stricta*)

A bushy spreading plant up to 1.5 m in height that forms large clumps. The stems are divided into oval, blue-green spineless pads 20 cm long and 10 cm wide. Areoles are in diagonal lines along the pads 2.5 cm to 5 cm apart and have a cushion of brown wool containing bristles but usually no spines. When spines occur they are stout, yellow and up to 4 cm long.

Common pest pear produces flowers that are 7.5 cm wide, bright lemon yellow and green at the base. The fruit is oval shaped, has a deep cavity on one end and tapers at the other. It is purple in colour 6 cm long and 3 cm wide with carmine coloured seeds and a fleshy pulp.

Common pest pear is found as small to large clumps of varying density. The clumps are usually broken up by the action of *Cactoblastis cactorum*. Common pest pear occurs throughout most of central and southern Queensland and is still spreading westwards. It is often found along beaches and on offshore islands.

### Spiny pest pear (*Opuntia stricta* var. *dillenii*)

A succulent shrub that grows between 1 and 2 metres in height. The stems are hairless and bluish-green or dull green in colour. The stems are divided into pads up to 30 cm long, 15 cm wide and 1 cm to 2 cm thick. The areoles have tufts of short and finely barbed bristles accompanied by one or two yellow spines between 2 cm and 4 cm in length. Small scale-like leaves are found on areoles of immature pads.

Spiny pest pear produces 6 cm to 8 cm wide flowers that are lemon yellow in colour with green or pink markings on the back. The fruit is pear shaped and about 4 cm to 6 cm long with a red-purple skin. The areoles located on fruits have fine barbed bristles. The red flesh of fruits contains rounded seeds that are yellow or pale brown in colour.

While this prickly pear once formed large-scale dense infestations, it is now found as small clumps or as scattered plants. These clumps are usually broken by the action of *Cactoblastis cactorum*. It is found in eastern central Queensland, the Burnett district, the Darling Downs and south east Queensland.

### Tiger pear (*Opuntia aurantiaca*)

A succulent low shrub with underground tubers that usually grows between 30 cm and 60 cm high. The stems are divided into very spiny, slightly flattened pads that are 1 to 30 cm long and 1 to 5 cm wide. The stems are dark green to purple and red in colour. The areoles have between three to seven brown barbed spines up to 4 cm long surrounded by tufts of short fine bristles. The pads detach easily and are transported on the skins of animals. Small and scale-like leaves are found on areoles of immature pads.

Tiger pear produces 6 cm wide yellow flowers. The rarely formed fruits are pear shaped and about 2.5 cm long, mainly red colour with purple markings when ripe.

Dense tiger pear forms an impenetrable spiny ground-cover and is prevalent in southern Queensland but extends into central Queensland.

#### **Drooping tree pear (*Opuntia vulgaris*)**

An erect succulent shrub with fibrous roots that grows up to 5 m high but is usually 2 m to 3 m high. The branches are divided into glossy light green pads up to 45 cm long, 15 cm wide and 1.5 cm thick. The dark grey trunk is up to 25 cm in diameter. Drooping tree pear gets its name because the upper segments tend to droop. The areoles on the older pads have 1 to 5 sharp spines about 5 cm long.

Small scale-like leaves are found on areoles of very young pads that are quickly shed as the pad grows. Drooping tree pear produces yellow flowers that are 6 cm wide and have red markings on the back. The fruit is pear shaped and 4 cm to 7 cm long with a green skin. The flesh of the fruit is red, pulpy and contains round seeds that are yellow or pale brown in colour. The fruits have areoles with tufts of fine barbed bristles.

Dense thickets result when drooping tree pear is allowed to grow freely. Small scattered infestations occur in the south east corner of Queensland and in coastal north Queensland.

#### **Velvety tree pear (*Opuntia tomentosa*)**

A tree like plant that forms a central woody trunk over 40 cm wide and grows to 5 m in height. The stems are divided into oblong pads that are dull green and velvety to touch due to the dense covering of short fine hairs. The pads are 15 cm to 35 cm long, 8 cm to 12 cm wide and 1.5 cm to 2 cm thick. Young plants have two to four white or pale yellow spines located in the areoles with one spine reaching a length of 2.5 cm. The areoles usually become spineless as the plant matures. A more spiny variety does exist and has more than 50 spines in each areole on the trunk.

The flowers are a deep orange. The fruit is egg shaped, about 5 cm long and 3 cm wide, and dull red in colour. The top of the fruit is saucer shaped with circular lines that meet in the centre and give the fruit a shrivelled appearance. The fruit produces many seeds within a reddish pulp.

Velvety tree pear is found predominantly throughout the brigalow belt of Queensland and is still extending its range. It is occasionally found as dense shrubs, but more usually as small clumps of trees or as trees scattered over the landscape.

#### **Westwood pear, Cardona (*Opuntia streptacantha*)**

Westwood pears are shrub or tree-like plants that form clumps by branching from the base. They are usually 2 m to 4 m high. The stems are divided into almost circular dull green pads 25 cm to 30 cm long and 15 cm to 20 cm wide. The areoles have white spines that vary in number and size when the plant matures. Young pads have 2–5 white spines 1–2 cm long accompanied by 2 hair like spines 0.5 cm long in the lower part of the areole. Spines increase in number (up to 20) and size (5 cm long) in areoles along the trunk of the plant.

The flowers are yellow and fruits are barrel shaped, 6 cm long and 5 cm wide with a flat top. The fruit has a purple skin and a rind that is 1 cm thick. Fruits contain red seeds buried in a dark red (carmine) pulp.

Westwood pear is found in eastern central Queensland as small clumps or as plants scattered over the landscape.

#### **Devil's rope pear (*Opuntia imbricata*)**

An open branching shrub that grows from 1.5 to 3 m high. The stems are divided into hairless, dull green cylindrical pads that vary up to 37 cm in length and from 3.5 cm to 5 cm in thickness. The pads have a series of short raised ridges that give them a twined rope-like appearance. The areoles are found on these ridges and produce 3 to 11 pale yellow or white spines with the longest being 2.5 cm long. Papery sheaths cover these spines.

The flowers are a dull red-purple colour and found at the ends of pads. The yellow fruit resembles a small 5 cm wide custard apple and has a spineless areole at the top.

Devil's rope pear occurs in Queensland as a small infestation at Gladfield.

#### **Coral cactus (*Opuntia cylindrica*)**

Coral cactus grows as branching shrub from 1 to 1.5 metres in height. The stems of Coral cactus are divided into green cylinder like pads that are fist like and obtuse at their apex. Mature coral cactus pads widen, become distorted and wavy and resemble a piece of coral. Areoles along the pads have a number of short white spines.

Coral cactus produces small (1–2 mm wide) scarlet flowers. The fruit is yellow-green in colour and 2–5 cm wide.

Coral cactus has been located near Mt Isa, Longreach, Wyandra, Eulo and Hungerford but its potential spread includes all of far western Queensland.

#### **Snake cactus (*Opuntia fulgida* X *Opuntia imbricata*)**

An open branching shrub that grows from 1 to 2 m high. The stems are divided into hairless, dull green cylindrical pads that vary up to 20 cm in length and from 3.5 cm to 5 cm in thickness. The pads have a series of short raised ridges that give them a twined rope-like appearance. The areoles are found on the bottom of these ridges and produce 5 to 10 pale yellow to brown spines with the longest being 3 cm long.

The flowers are light red to dark rose commonly 5–7 cm wide. Snake cactus produces fruit that is yellow in colour and 2 to 5 cm wide.

Snake cactus has been located near Longreach but its potential spread includes all of north west Queensland.

### **Sword pear (*Acanthocereus pentagonus*)**

An elongated branching shrub that grows in clumps up to 4 m high. The stems are erect, up to 1.5 m long, 3 to 8 cm wide and divided into many joints. Sword pear stems are three, four or five angled and resemble star picket posts. The areoles are found on the edges of the joints and produce many white spines 1 to 4 cm in length.

The flowers are white, funnel shaped and 14 to 20 cm long. The flowers open at night between spring and summer. Sword Pear produces bright red sphere shaped fruits that are 5 cm in diameter. The fruit has a red pulp and black seeds.

Sword pear occurs in the Gogango area west of Rockhampton.

## **Biological control**

Investigations into biological control agents against prickly pears began in 1912. Over 150 insect species were studied throughout the world, with fifty-two species selected for transport to Queensland. Following intensive host specificity testing, eighteen insects and one mite were released in Queensland. Nine insects and the mite remain established in Queensland. These species are:

- *Cactoblastis cactorum*, a stem-boring moth
- *Dactylopius ceylonicus*, a cochineal mealybug
- *Dactylopius opuntiae*, a cochineal mealybug
- *Dactylopius confusus*, a cochineal mealybug
- *Dactylopius tomentosus*, a cochineal mealybug
- *Dactylopius austrinus*, a cochineal mealybug
- *Chelinidea tabulata*, a cell-sucking bug
- *Tucumania tapiacola*, a stem-boring moth
- *Archlagocheirus funestus*, a stem-boring beetle
- *Tetranychus opuntiae*, prickly pear red spider mite

These biological control agents continue to keep several prickly pears under control. It is important to remember not all the agents attack all prickly pears.

The most successful of these species were the moth *Cactoblastis cactorum* and five cochineal mealybugs, *Dactylopius ceylonicus*, *D. opuntiae*, *D. confusus*, *D. tomentosus* and *D. austrinus*. The other agents are still around but not in sufficient numbers to provide control.

### ***Cactoblastis cactorum* (cactoblastis moth)**

Larvae of this moth were introduced from Argentina in 1925. *Cactoblastis* proved to be the most effective agent against the common and spiny pest pears, destroying massive infestations of these prickly pears in Australia. It keeps these two pest pears controlled to an acceptable level most of the time although it is less effective in some coastal and far western areas.

The larvae collectively eat out the contents of the pads leaving empty pad skins and piles of mushy droppings. The orange and black larvae are occasionally observed on the outsides of pads. *Cactoblastis* also attacks most types of prickly pear but is not effective against them.

### ***Dactylopius* spp. (cochineal insects)**

All female cochineal insects are small sessile mealy bugs that spend their adult lives permanently attached to their host plants sucking plant juices. They are covered by a fine white waxy secretion and when crushed yield a carmine colouring. The adult males are small free-flying insects that do not feed.

### ***Dactylopius ceylonicus* (monacantha cochineal, Argentine cochineal)**

This South American mealy bug was released in 1914 and 1915 to control drooping tree pear. It destroyed the dense infestations existing at that time. It is specific to drooping tree pear and today remains the only effective biological control agent for drooping tree pear. This insect needs to be distributed manually.

### ***Dactylopius opuntiae* (prickly pear cochineal)**

This mealy bug was introduced from Mexico and southern USA between 1920 and 1922. It is effective against common pest pear, spiny pest pear, velvety tree pear and Westwood pear and remains the main biological control agent against velvety tree pear and Westwood pear. This insect spreads slowly in nature and can be assisted manually.

### ***Dactylopius confusus* (prickly pear cochineal)**

This mealy bug was introduced from Florida and released in 1933 against spiny pest pear. It remains effective against spiny pest pear in central Queensland but spreads slowly. This insect can be spread manually.

### ***Dactylopius tomentosus* (devil's rope pear cochineal)**

This mealy bug was introduced from southern USA in 1925 and 1926. It is effective against devil's rope pear but works slowly.

### ***Dactylopius austrinus* (tiger pear cochineal)**

This mealy bug was introduced from Argentina in 1932. It is specific to and effective against tiger pear. It rapidly reduces tiger pear populations but dies out in a paddock after the destruction of tiger pear. It needs to be reintroduced after tiger pear regrows.

### ***Chelinidea tabulata* (prickly pear bug)**

This plant sucking bug was introduced from Texas in 1921. It was effective against dense common pest pear before *Cactoblastis cactorum* was but is now relatively ineffective. This insect also attacks most other prickly pears. The adult is a pale brown bug up to 20 mm long that leaves characteristic round bleached spots on the surface of the cactus.

### ***Tucumania tapiacola* (prickly pear moth-borer)**

This moth was introduced from Argentina in 1934 against tiger pear. Its solitary larvae feed internally and eat out tiger pear pads with limited effect. It has been observed attacking common pest pear and *Harrisia* cactus.

### ***Archagocheirus funestus* (tree pear beetle)**

This stem boring beetle was introduced from Mexico in 1935. It was effective against velvety tree pear and Westwood pear but has become rare since the dense stands of these prickly pears have gone.

### ***Tetranychus opuntiae* (prickly pear spider mite)**

This mite was introduced from southern USA and Mexico in 1922. It was effective against common pest pear but is now rare and difficult to find. It causes distinctive scar tissue formation around areoles.

## **Distributing prickly pear biological control agents**

### **Cactoblastis**

Cactoblastis can be spread manually by distributing eggs or larvae. Cactoblastis moths lay chains of eggs called eggsticks on prickly pear pads between the periods of January-February and September-November. The eggsticks are distinguished from spines by their curved appearance.

1. Collect the fragile eggsticks carefully.
2. Glue single eggsticks to small pieces of paper using a starch based adhesive.
3. Pin the egg papers to prickly pear pads. (Eggs take up to 1 month to hatch.)
4. Collect pads or plants in which it is obvious that larvae are still active.
5. At a release site place all the collected plant material in a small part of the infestation.
6. Subsequent generations of moths will disperse through the infestation.
7. Follow up the biological control with either herbicide or mechanical treatment.

### **Cochineals**

Seeing there are several cochineal insects that affect some prickly pears and not others, it is essential to know what prickly pear you wish to control.

1. Identify your prickly pear type.
2. Find the same prickly pear type which is being attacked by a cochineal.
3. Collect pads of the prickly pear with the insects.
4. Place affected pads against unaffected prickly pears at the release site.
5. Follow up the biological control with either herbicide or mechanical treatment.

### **Tiger pear cochineal**

Tiger pear cochineal is easy to multiply quickly after collection.

1. Carefully collect a reasonable quantity of unaffected tiger pear in a container (box or bucket).
2. Place a few pieces of cochineal affected tiger pear into the same container.
3. Cover the container with a cloth and store under cover for a few weeks.
4. Check the cactus occasionally.
5. When most of the tiger pear in the container has cochineal, it is ready to distribute.

6. At the release site place affected pads against unaffected prickly pears.
7. Follow up the biological control with either herbicide or mechanical treatment.

**(N.B. It is best to multiply tiger pear cochineal before release).**

## **Mechanical control**

Mechanical control using machinery is difficult because prickly pear pads can easily re-establish. A hot fire is an effective control method for dense prickly pear infestations. Before burning consult your Queensland Department of Primary Industries, Extension Agronomist if this practice is suitable for your pasture and land management practices.

## **Herbicide control**

Herbicide options available for the control of prickly pears in Queensland are shown in Table 1.

**Landholders and contractors should check if the property is in a hazardous area as defined in the Agricultural Chemicals Distribution Act 1966 prior to spraying.**

## **Further information**

Further information is available from the vegetation management/weed control/environmental staff at your local government.

**TABLE 1 – HERBICIDES REGISTERED FOR THE CONTROL OF PRICKLY PEARS**

Herbicide	Situation	Rate	Method	Comments
Triclopyr	Forest-timber production; land – commercial/industrial, non-agricultural, pastures, rights of way	.8L/60L diesel	Overall spray	For use against Common Prickly Pear, Drooping Prickly Pear, Tiger Pear
Triclopyr	Forest-timber production, land – commercial/industrial, non-agriculture, pastures, rights of way	3L/100L water	Overall spray	For use against Common Prickly Pear, Drooping Prickly Pear and Tiger Pear
Picloram + Triclopyr	Agricultural land – non-crop; forest – timber production; land – commercial and industrial, pastures, rights of way.	1L/60L diesel	Basal bark/cut stump	For use against Velvet Tree Pear, Tree Pears, Tiger Pear, Common Prickly Pear, Snake Cactus
Amitrole	Land – around buildings, commercial/industrial, non-agricultural, rights of way	1mL/3cm	Inject	
		1L/25L	Overall spray	Small plants or regrowth

Fact sheets are available from DPI&F service centres and the DPI&F Information Centre phone (13 25 23). Check our web site <[www.dpi.qld.gov.au](http://www.dpi.qld.gov.au)> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact should be used in accordance with the restrictions (federal and state legislation and local government laws) directly or indirectly related to each control method. These restrictions may prevent the utilisation of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the Department of Primary Industries and Fisheries does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.



Appendix D AnaBat™ Analysis Summary



**Data received**

Data contained 347 Anabat sequence files.

Cover note received with CD indicates survey undertaken at six sites near Alpha, central Queensland, between 25<sup>th</sup> and 30<sup>th</sup> June 2008.

However, date/time information contained within sequence file names does not concur with these dates. Date labels are for May-June 2000 and times are out of sync with the night-day cycle (i.e. many files that contain bat calls have a time label for daylight hours!). This apparent error was presumably due to incorrect clock settings in the Anabat/CF-ZCAIM unit.

Despite this, data were retrieved for six consecutive days/nights, presumably matching the site recording sessions outlined in the cover note:

Date	Site	No. sequence files	No. files with calls
25/6/08	brigalow patch	8	1
26/6/08	riparian site	59	56
27/6/08	near driller's camp	2	0
28/6/08	white cypress woodland	8	2
29/6/08	creek	250	243
30/6/08	silver-leaf ironbark woodland	20	16

**Call identification standard**

No keys or descriptions have been published for bat calls of central Queensland, and access to reliable locally recorded reference calls is limited. However, most of the species likely to be present are covered in keys and descriptions published for southern Queensland (Reinhold *et al.* 2001).

The extent of geographic variation in call characteristics is poorly known, but available evidence suggests that calls of most species do not vary significantly between regions. Therefore, it is deemed sufficient to refer to the above-named keys and reference calls collected from central- and south-western Queensland in determining the identity of calls recorded in the present survey.

**Results**

Data quality was good for most sessions, with a high degree of identification reliability for most calls. Table 1 shows the species recorded for each session/site.

Six microbat species were positively identified from these Anabat surveys (Table 1). Up to three additional species may also have been recorded, but reliability of identification was low due to poor call quality and similarities between calls of a number of species.

Species identification and likelihood of occurrence are discussed in "Species Notes", following Table 1.

In the following species summary (Table 1), species presence is coded according to highest level of confidence achieved in call identification. Reliability of identification is coded as follows:

- A Definite     absolutely no doubt about identification of bat making call
- B Probable     most likely the species named but low probability of confusion with species with similar calls
- C Possible     call is comparable with the listed species, but moderate to high probability of confusion with species with similar calls

**Table 1. Bats recorded at Alpha sites, 25-30 June 2008.**

Species	Common name	25/6	26/6	27/6	28/6	29/6	30/6	
<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tailed bat		C			C	C	
<i>Chaerephon jobensis</i>	northern free-tailed bat		B				B	
<i>Mormopterus beccarii</i>	Beccari's free-tailed bat		B	NO CALLS RECORDED			A	
<i>Tadarida australis</i>	white-striped free-tailed bat		A				B	
<i>Chalinolobus gouldii</i>	Gould's wattled bat		A			B	A	A
<i>Chalinolobus picatus</i>	little pied bat	C					C	
<i>Scotorepens balstoni</i>	inland broad-nosed bat		A				A	
<i>Scotorepens greyii</i>	little broad-nosed bat	C					A	A
<i>Vespadelus finlaysoni</i> / <i>V. troughtoni</i>	inland / eastern cave bat		B				A	

## Species notes

### *Saccolaimus flaviventris*

Can be confused with *Chaerephon jobensis* and *Mormopterus beccarii* in poorer quality calls, but all three are readily distinguished on pulse shape differences in good quality recordings.

Calls attributed as 'possible' *S. flaviventris* were recorded at three sites, but all sequences were of poor quality and could have been from *C. jobensis*.

### *Chaerephon jobensis*

This species' calls overlap in frequency with those of *S. flaviventris*, but it is readily differentiated on pulse shape and erratic changes in frequency between successive pulses. It was not positively identified for this survey, but was most likely responsible for several poorer quality calls on each of 26<sup>th</sup> and 30<sup>th</sup> June.

### *Mormopterus beccarii*

*Mormopterus beccarii* calls are sometimes similar to those of *S. flaviventris*, but are readily differentiated in good quality calls that include search-phase and attack-phase pulses. This species was definitely present on the 30<sup>th</sup> June, and very likely also present on 26<sup>th</sup> June.

### *Tadarida australis*

This species uses low frequency calls that are not mistakable for any other species likely to occur in the area. It was definitely present on 26<sup>th</sup> June and probably also on 30<sup>th</sup>, but the latter site yielded only a few very brief calls with poor quality pulses.

### *Chalinolobus gouldii*

These species use calls that are not mistakable for any other species likely to occur in the survey area. Numerous good quality calls were recorded on most nights.

***Chalinolobus picatus***

Calls are distinctive if good quality sequences are recorded, but can sometimes be confused with *Scotorepens greyii*. Most calls of this type from the Alpha survey were attributable to *S. greyii*, but a few calls on two nights may have been from *C. picatus* because they were at slightly higher frequency than all other calls of this type.

***Scotorepens balstoni***

This species' calls are easily distinguished in recordings from the survey region. It was definitely present on two nights – 26<sup>th</sup> and 29<sup>th</sup> June.

***Scotorepens greyii***

Calls are usually distinctive, but can occasionally be confused with *C. picatus*. Numerous good quality calls positively attributable to *S. greyii* for the final two nights of survey. The single call recorded on the first night could have been from either species.

***Vespadelus finlaysoni* / *V. troughtoni***

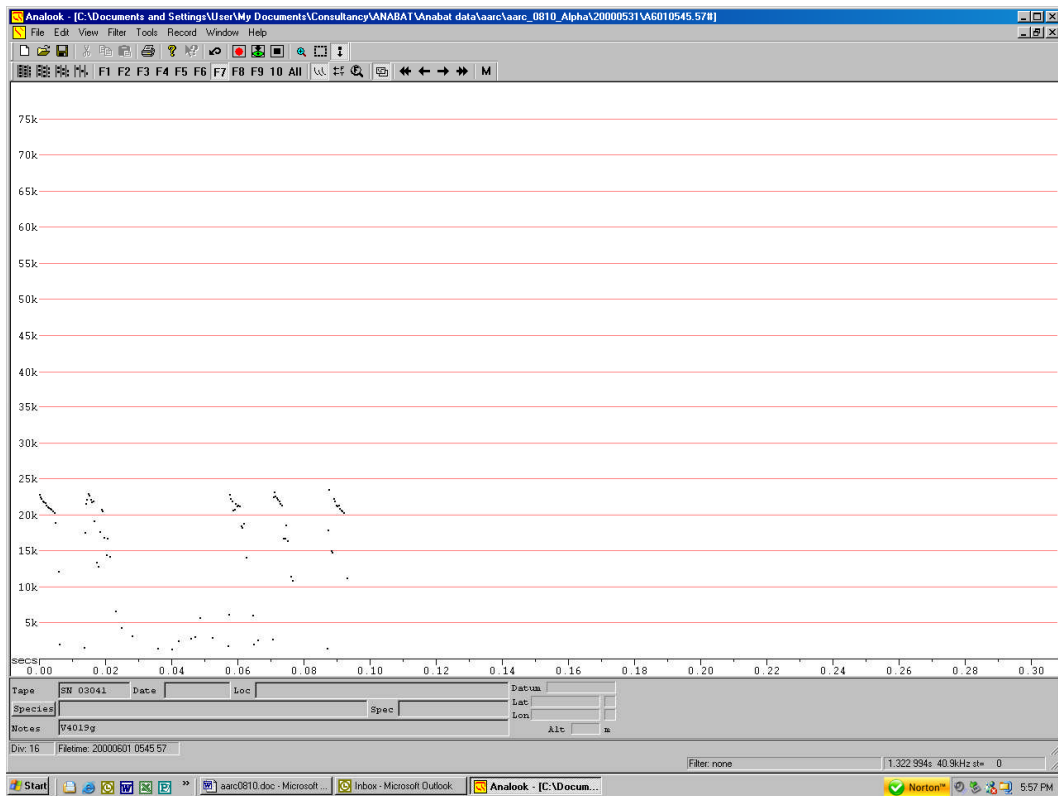
These two species call at higher frequency than any other species likely to occur in the survey area; however their calls are quite similar and difficult to differentiate. Both may occur in the Alpha region (van Dyck & Strahan 2008). A single call on 26<sup>th</sup> June most likely from one of these species, but very brief sequence. One or both species definitely present on 29<sup>th</sup> June.

**References**

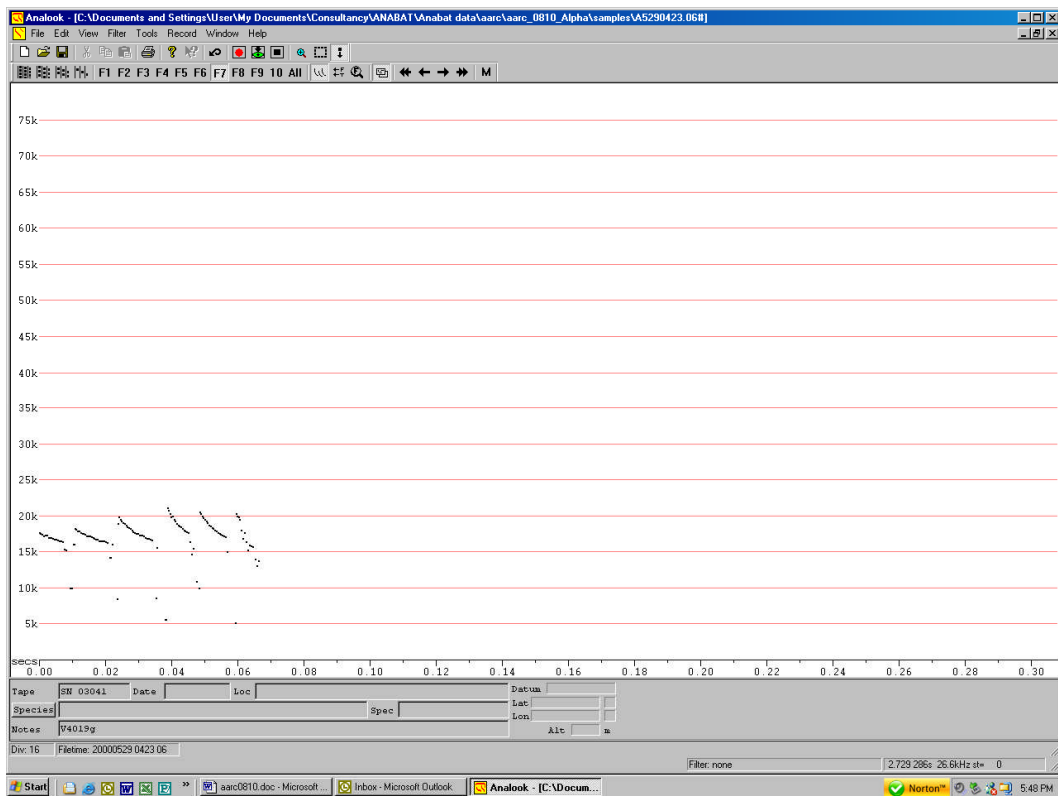
Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.

Van Dyck, S. and Strahan, R. (Ed.) (2008). *The Mammals of Australia*. New Holland; Sydney.

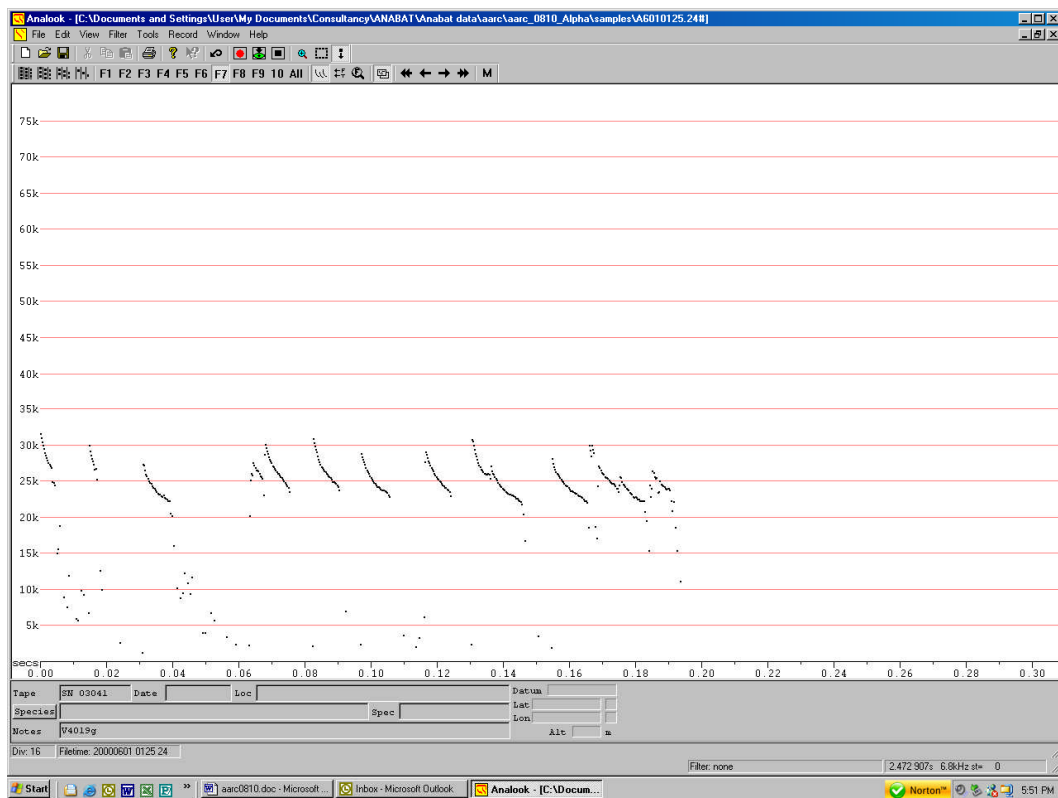
Appendix 1. Bat call traces recorded at Alpha 25<sup>th</sup> – 30<sup>th</sup> June 2008



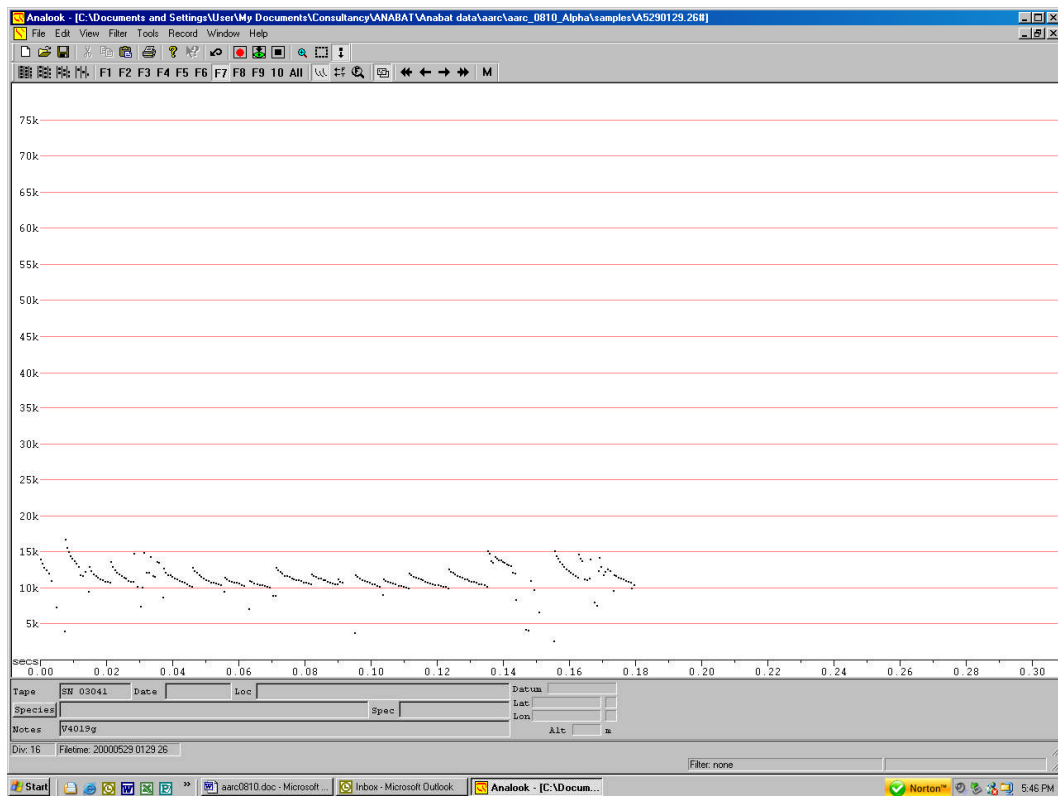
Possibly *Saccolaimus* species



Probably *Chaerephon jobensis*

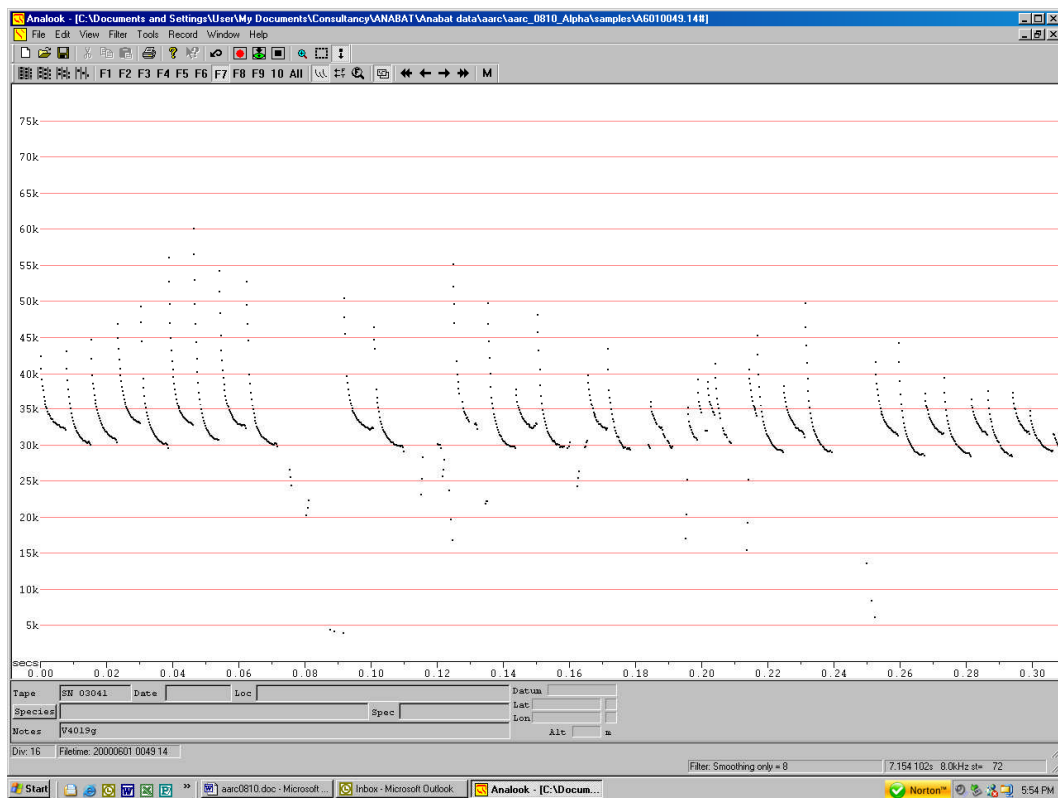


*Mormopterus beccarii*

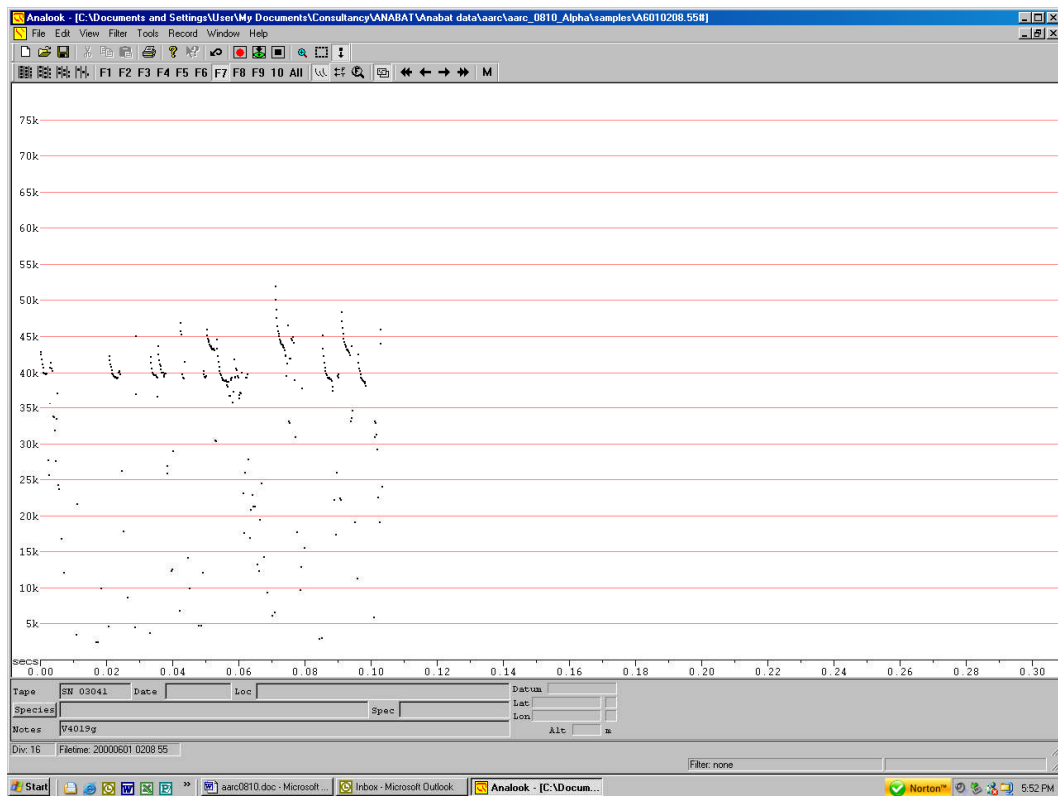


*Tadarida australis*

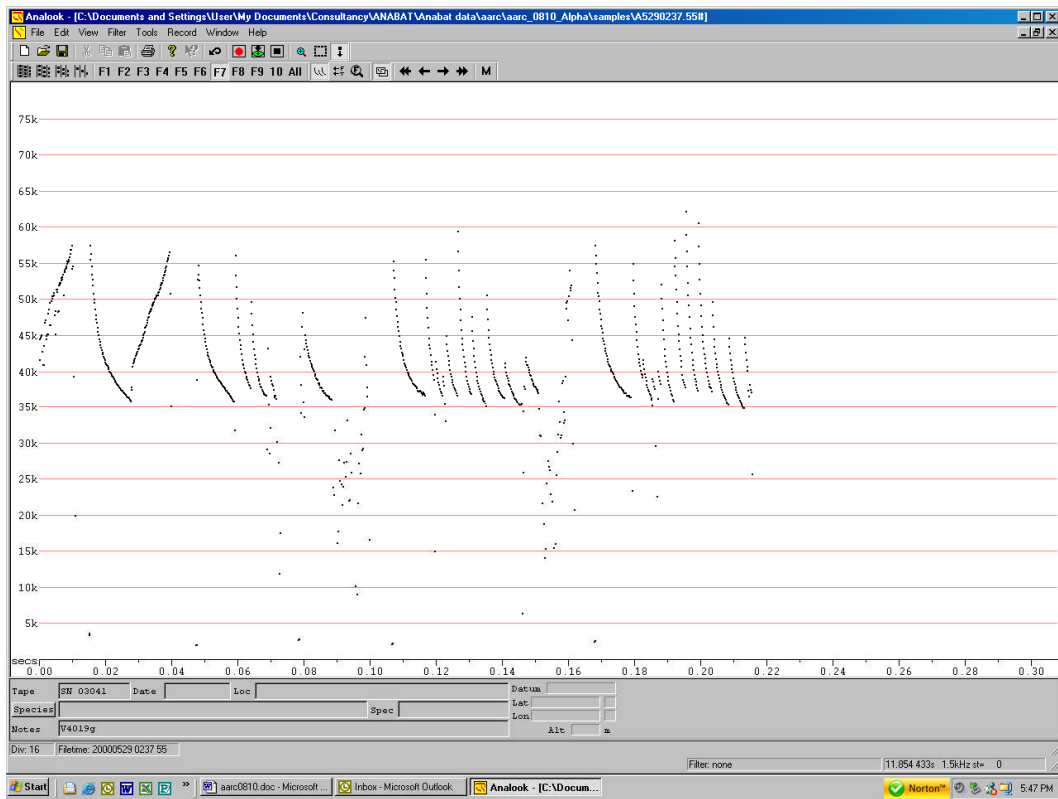




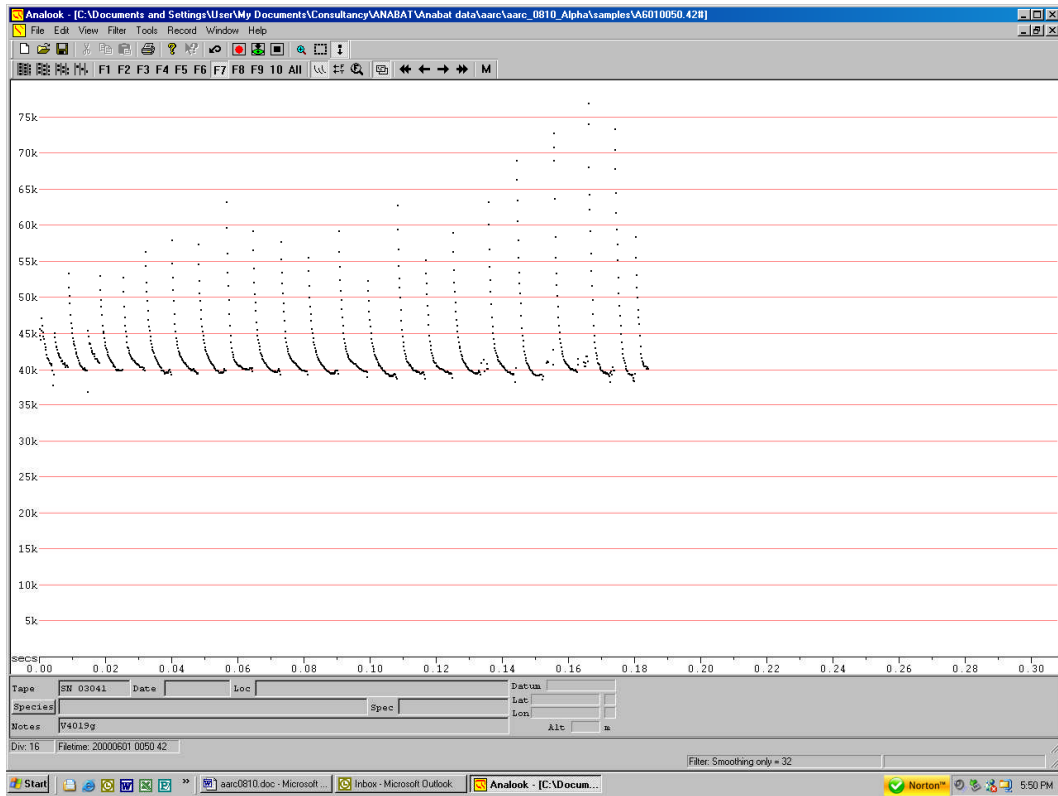
*Chalinolobus gouldii*



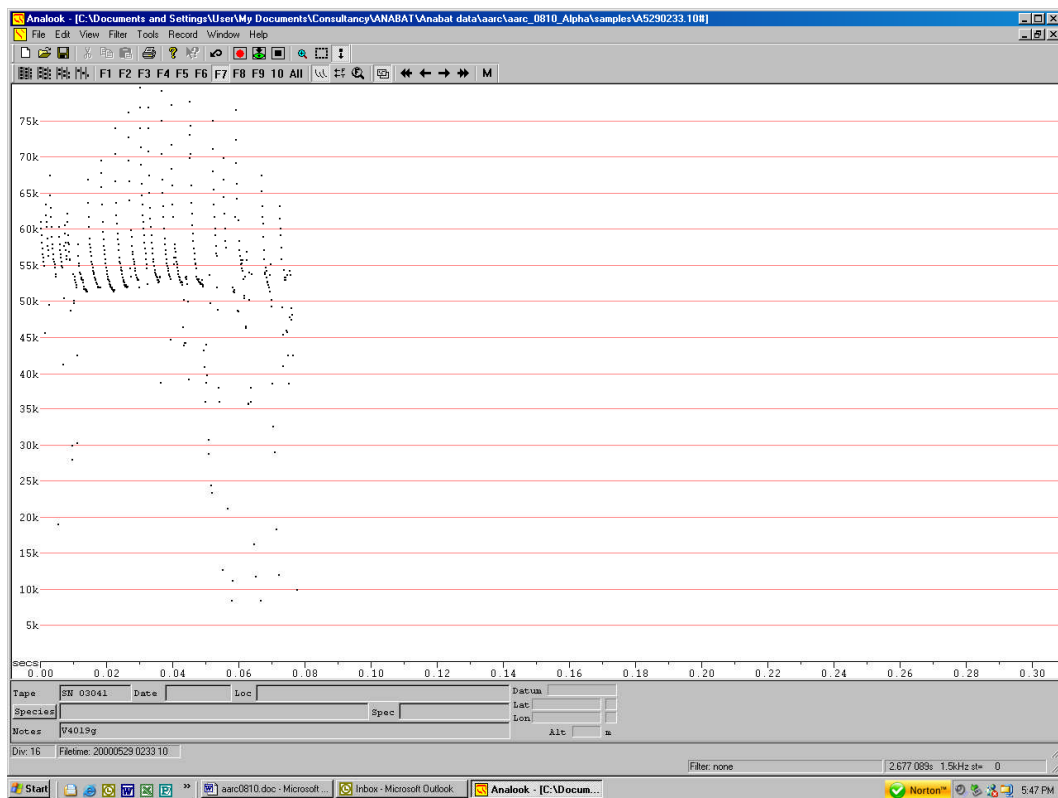
Possibly *Chalinolobus picatus*



*Scotorepens balstoni*



*Scotorepens greyii*



*Vespadelus finlaysoni* or *V. troughtoni*

**Data received**

Data received on CD included more than 8,700 Anabat sequence files recorded in an area approximately 62 km NNE of Alpha in central Queensland, on six nights between 4<sup>th</sup> and 9<sup>th</sup> March 2009.

**Call identification standard**

No keys or descriptions have been published for bat calls of central Queensland, and access to reliable locally recorded reference calls is limited. However, many of the species likely to be present are covered by keys and descriptions published for southern Queensland (Reinhold *et al.* 2001), New South Wales (Pennay *et al.* 2004) and the Northern Territory (Milne 2002).

The extent of geographic variation in call characteristics is poorly known, but available evidence suggests that calls of most species do not vary significantly between regions. Therefore, it is deemed sufficient to refer to the above-named keys, as well as reference calls collected from central, western and southern Queensland in determining the identity of calls recorded in the present survey.

**Results**

More than three-quarters of the sequence files from this survey contained a high level of background noise and either no bat calls or poor quality calls that could not be easily discerned from the background noise. It is assumed that the noise was due to high “sensitivity” setting on the detector and/or proximity of detector to insects (e.g. katydids) or some other noise source.

Of the bat calls that were discernible from the background noise, many were only brief or weak signals and these factors, along with the interference precluded reliable identification. It is estimated that as few as ten percent of the calls recorded were of sufficient quality to obtain reliable species identification.

At least nine and possibly as many as fifteen microbat species were recorded during this survey (Table 1). Only eight species, however, could be positively identified, due largely to noise interference reducing call clarity and thereby making identification difficult. A number of species likely to occur in the area share similar call characteristics and can be difficult to differentiate even with good quality data. In some cases the low data quality meant that individual calls could be from any one of up to three species.

The “Species Notes” section, following Table 2, provides a discussion on call identification reliability for all listed species and an indication of the likelihood of occurrence for those species not positively identified.

Sample call traces for each species recorded during the Alpha survey are presented in Appendix 1.

**Table 2. Bats recorded near Alpha, 4-9 March 2009.**

Species presence is coded according to the highest level of confidence achieved in call identification. Reliability of identification is coded as follows:

A	Definite	absolutely no doubt about identification of bat making call
B	Probable	most likely the species named but low probability of confusion with species that have similar calls
C	Possible	call is comparable with the listed species, but moderate to high probability of confusion with species that have similar calls

Species	Common name	4/3	5/3	6/3	7/3	8/3	9/3
<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tailed bat	B	A	A	B	A	B
<i>Taphozous troughtoni</i>	Troughton's sheath-tailed bat		B				
<i>Austronomus australis</i>	white-striped free-tailed bat	B	A			A	
<i>Chaerephon jobensis</i>	northern free-tailed bat	A	A	A		A	B
<i>Mormopterus beccarii</i>	Beccari's free-tailed bat		B	B		A	A
<i>Mormopterus eleryi</i>	bristle-faced free-tailed bat			C	C		C
<i>Mormopterus</i> sp. 3	inland free-tailed bat		C				
<i>Chalinolobus gouldii</i>	Gould's wattled bat	A	A	A	B	A	A
<i>Chalinolobus morio</i>	chocolate wattled bat			C			C
<i>Chalinolobus picatus</i>	little pied bat		B				C
<i>Nyctophilus</i> species	unknown long-eared bat			A			
<i>Scotorepens balstoni</i>	inland broad-nosed bat		A	A	B	A	B
<i>Scotorepens greyii</i>	little broad-nosed bat		A	A	B	B	B
<i>Vespadelus baverstocki</i>	inland forest bat		B	B	B	B	B
<i>Vespadelus finlaysoni</i> / <i>V. troughtoni</i>	inland / eastern cave bat		B	B	C		B

## Species notes

### *Saccolaimus flaviventris*; *Taphozous troughtoni*; *Chaerephon jobensis*; *Mormopterus beccarii*

These species' calls overlap in frequency, and can be difficult to discriminate, particularly in poorer quality recordings. Differentiation for this data set was based on: *S. flaviventris* and *T. troughtoni* calls with uniform shallow-curved pulses at 18-22 kHz and 22-24 kHz, respectively; *C. jobensis* calls with flat, uniform pulses at 14-16 kHz or erratic changes in shape and frequency varying through 16-23 kHz; and *M. beccarii* calls with more-or-less flat-pulses at *c.* 19-21 kHz ranging up to curved pulses at 24-26 kHz.

*S. flaviventris* was almost certainly present throughout the survey, but positively identified on only three nights. A couple of brief calls on 5<sup>th</sup> March looked similar to those attributed to *S. flaviventris*, but were at a slightly higher frequency and so thought to perhaps be from *T. troughtoni*. Note that recent taxonomic research (Reardon and Thomson 2002) has shown that *T. troughtoni* is widespread in Queensland and refers to all bats formerly recognised as *T. georgianus* (common sheath-tailed bat) in central and eastern parts of

the state (see Churchill 2008, pp 220-221). The species is likely, therefore, to have its threatened (in Qld) conservation status removed in forthcoming reviews.

Numerous calls were definitely attributable to *C. jobensis* for most nights. *M. beccarii* was only positively identified for the last two nights of survey, and a number of calls on two other nights could not be reliably differentiated between *M. beccarii* and *S. flaviventris*.

### ***Austronomus australis***

Calls are highly distinctive, generally being lower in frequency than most other species; some frequency overlap with *C. jobensis* at low end of that species' range (c. 14-15 kHz), but *A. australis* call pulses at those frequencies are more steeply curved than those of *C. jobensis*. *A. australis* was definitely present on 5<sup>th</sup> and 8<sup>th</sup> March and probably also on 4<sup>th</sup>, but calls on later night could have been from *C. jobensis*.

### ***Mormopterus eleryi***

Also known as *Mormopterus* species 6 (Churchill 2008), this recently described (Reardon *et al.* 2008) and scarcely recorded species has a wide distribution through central Queensland. Its echolocation call is very similar to that produced by *Scotorepens greyii* (Reardon *et al.* 2008) and cannot yet be reliably identified from call data.

A number of weak calls from some sites could not be definitively attributed to *S. greyii* and it is possible that *M. eleryi* was responsible for some of those calls.

### ***Mormopterus* sp. 3**

Calls are generally easy to distinguish from other species in the same frequency range (*C. gouldii* & *S. balstoni*) due to predominantly flat pulse shape in *Mormopterus*. Sometimes produces curved pulses that can be hard to differentiate from some *C. gouldii* calls. *Mormopterus* sp. 3 was not positively identified for this survey, but a number of weak/noisy calls from 5<sup>th</sup> March may have been from this species.

### ***Chalinolobus gouldii*; *Scotorepens balstoni***

These species' calls are similar in shape and overlap in frequency; however, differentiation can be achieved in long-duration, clear signals due to uniform pulse frequency in *S. balstoni* and alternating frequency in *C. gouldii*. Some *C. gouldii* calls can also be similar to some curved-pulse calls produced by *Mormopterus* sp. 3 (see above). Calls from *C. gouldii* and/or *S. balstoni* represented a high proportion of recognisable calls from most nights on this survey. Both species were positively identified, with *C. gouldii* calls being more numerous and present on more nights.

### ***Chalinolobus morio***

Calls overlap with several other species, most notably *Vespadelus finlaysoni* and *V. troughtoni* (see below); however, pulse shape is diagnostic in better quality calls. Several very brief calls on each of the 6<sup>th</sup> and 9<sup>th</sup> of March were probably from this species. These calls appeared to have pulses with characteristic down-turned tail (*cf.* upturned in *Vespadelus*; see below), but the calls were too brief to be certain of identity.

### ***Chalinolobus picatus***

This species' calls are similar to those *Scotorepens greyii* (see below), but are often slightly higher in frequency and usually exhibit alternating pulse frequency. The species was not positively identified for the survey, but a few calls on the 5<sup>th</sup> and 9<sup>th</sup> March may have been from *C. picatus* rather than *S. greyii*.

### ***Nyctophilus* species**

*Nyctophilus* calls are usually quite distinct from other bats likely to occur in the survey area; however, the species within the genus cannot be differentiated from each other. Two species may occur in the survey area (Churchill 2008): *N. geoffroyi* (lesser long-eared bat); and *N. gouldi* (Gould's long-eared bat). One or both of these species were definitely present on the night of March 6<sup>th</sup>.



***Scotorepens greyii***

Calls of *S. greyii* are usually easy to distinguish from other species due to characteristic pulse shape and frequency; however, some calls may be confused with those of *C. picatus* or *M. eleryi* (see above). The species was almost certainly present on most survey nights, but was only positively identified for two nights. A few poor calls were possibly attributable to *S. greyii* on two other nights, but some of these could equally have been from *M. eleryi* or *C. picatus*.

***Vespadelus baverstocki***

This species produces calls in the range 39-46 kHz (Pennay *et al.* 2004), which can be very difficult to distinguish from *S. greyii* and *C. picatus* where their calls overlap (around 39-42 kHz), except when *C. picatus* calls exhibit alternating pulse frequency. Numerous calls were recorded on most nights at around 41.5-42 kHz that looked more like *V. baverstocki* calls than those of either of the other aforementioned species. Churchill (2008) shows *V. baverstocki* distributional range to include the survey area.

***Vespadelus finlaysoni* and/or *V. troughtoni***

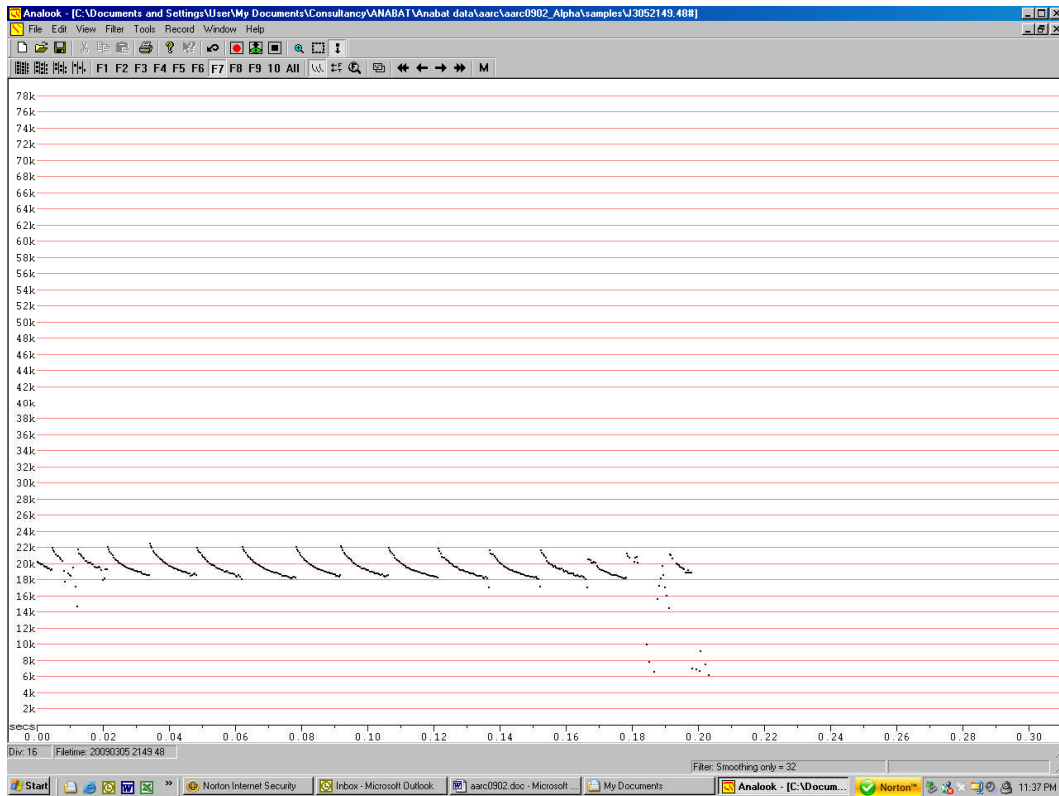
Both species are known to produce calls above 50 kHz with typical *Vespadelus* pulse shape (backwards 'J'); these are at similar frequency to *C. morio* (see above) but that species is usually distinguished by having pulses with down-turned tail rather than upturned tail.

A number of low quality calls were recorded on several nights in the vicinity of 52 kHz; some of these had discernible up-turned tails and were possibly from *Vespadelus* sp. It is conceivable that both species occur in the survey area, although *V. finlaysoni* would be at the extreme eastern limit of its range (Churchill 2008).

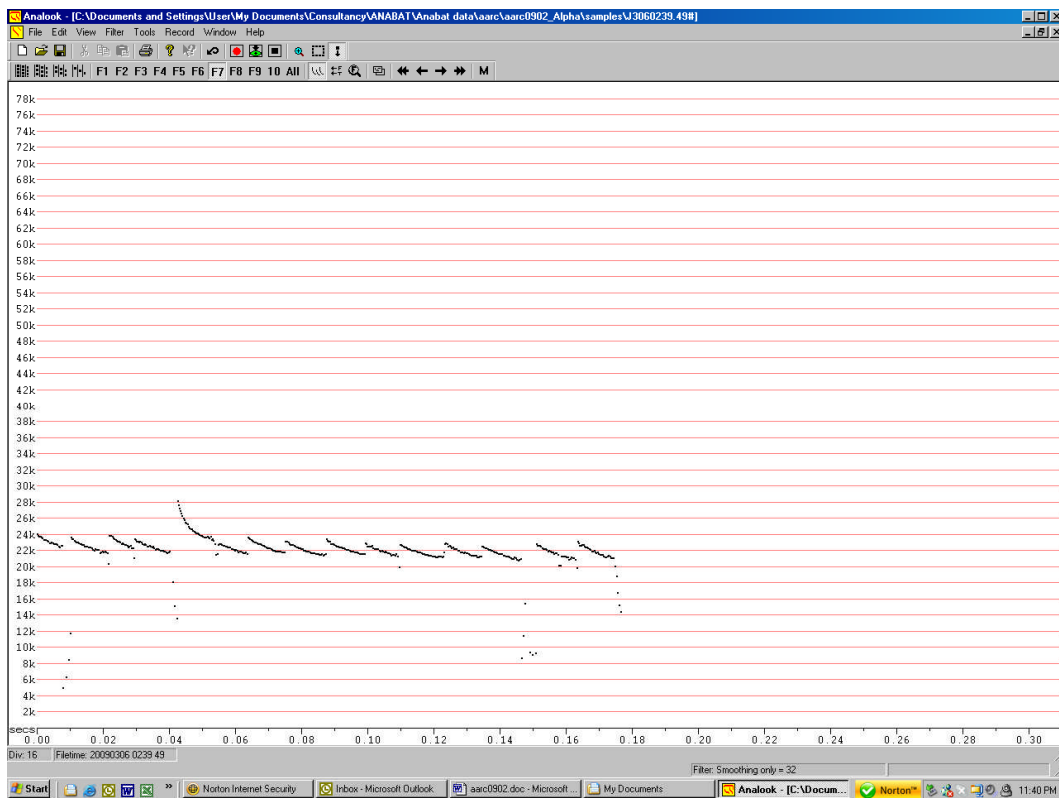
**References**

- Churchill, S. (2008). *Australian Bats*. Allen & Unwin; Sydney.
- Milne, D.J. (2002). *Key to the Bat Calls of the Top End of the Northern Territory*. Technical Report No. 71, Parks and Wildlife Commission of the Northern Territory, Darwin.
- Pennay, M., Law, B. and Reinhold, L. (2004). *Bat Calls of New South Wales*. Department of Environment and Conservation, Hurstville.
- Reardon, T., Adams, M., McKenzie, N. and Jenkins, P. (2008). A new species of Australian freetail bat *Mormopterus eleryi* sp. nov. (Chiroptera: Molossidae) and a taxonomic reappraisal of *M. norfolkensis* (Gray). *Zootaxa* **1875**: 1-31.
- Reardon, T. and Thomson, B. (2002). Taxonomic and conservation status of *Taphozous troughtoni*. Poster abstract, Proceedings of the 10th Australasian Bat Conference, Cairns, April 2002. *Australasian Bat Society Newsletter* **18**, 29.
- Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.

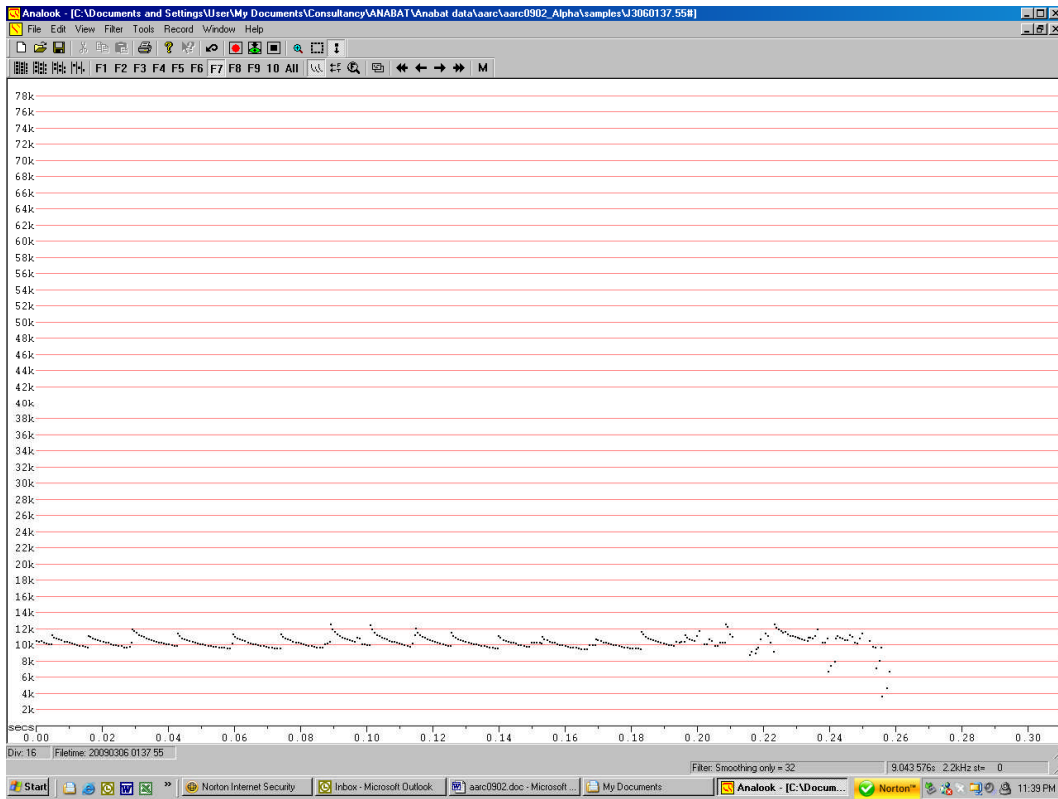
Appendix 1. Bat call traces recorded during Alpha survey, March 2009.



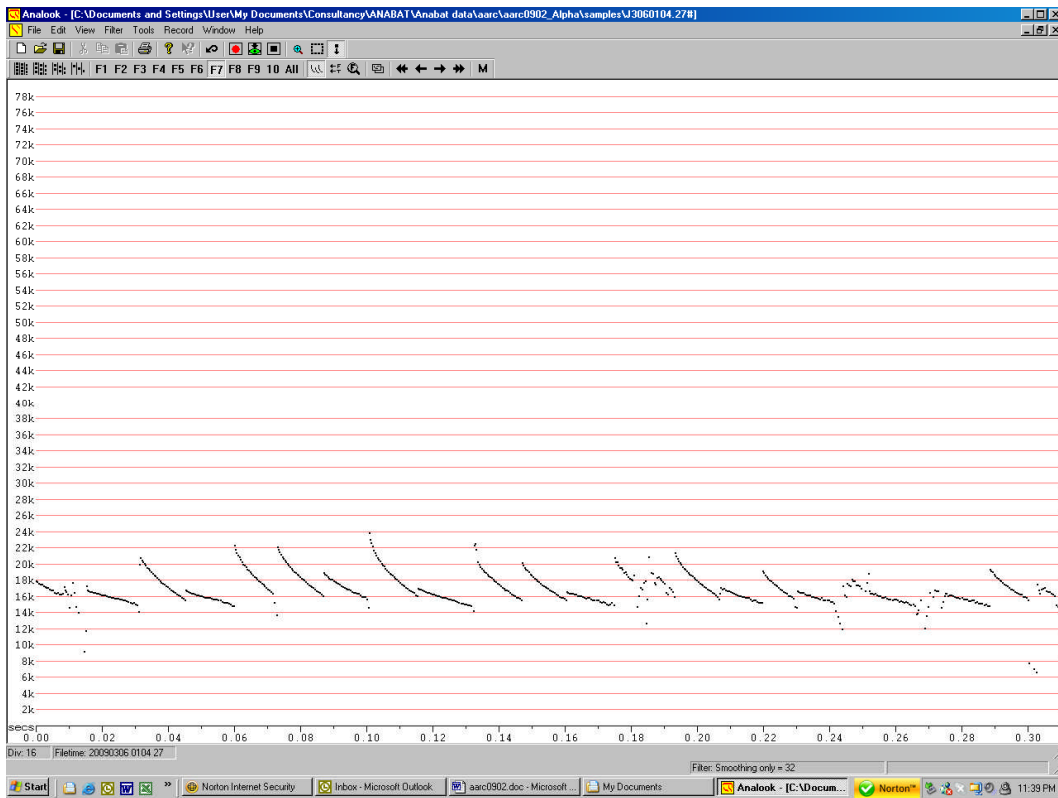
*Saccolaimus flaviventris*



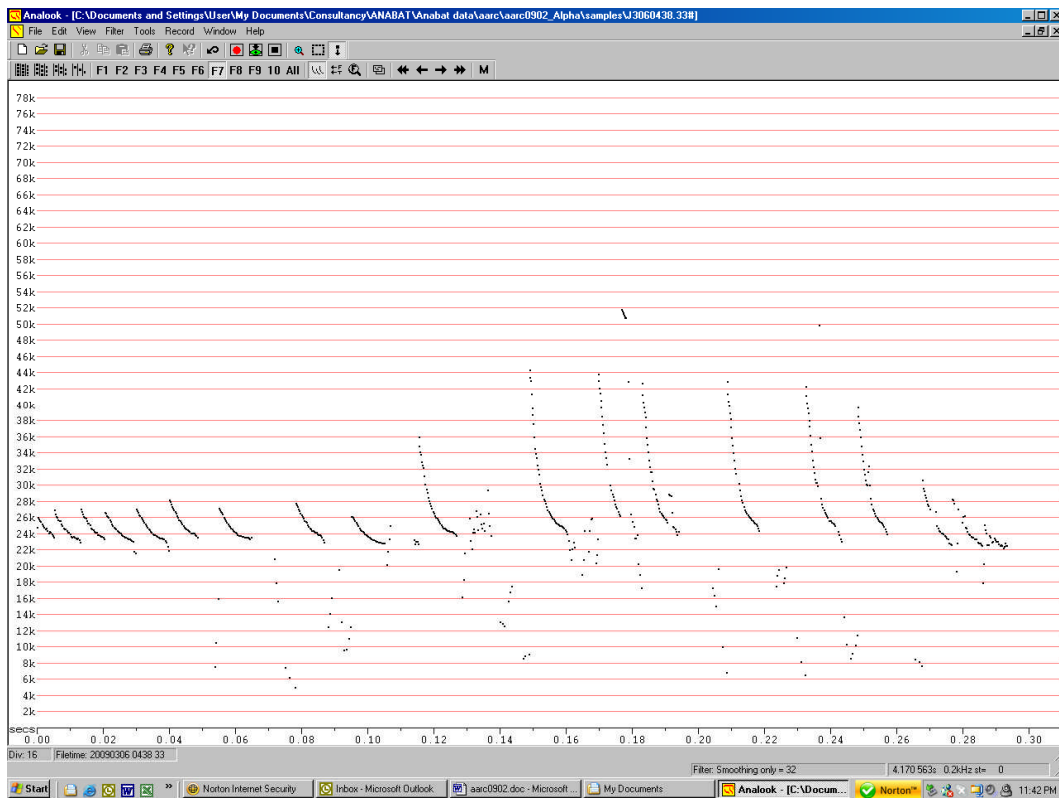
Probably *Taphozous troughoni*



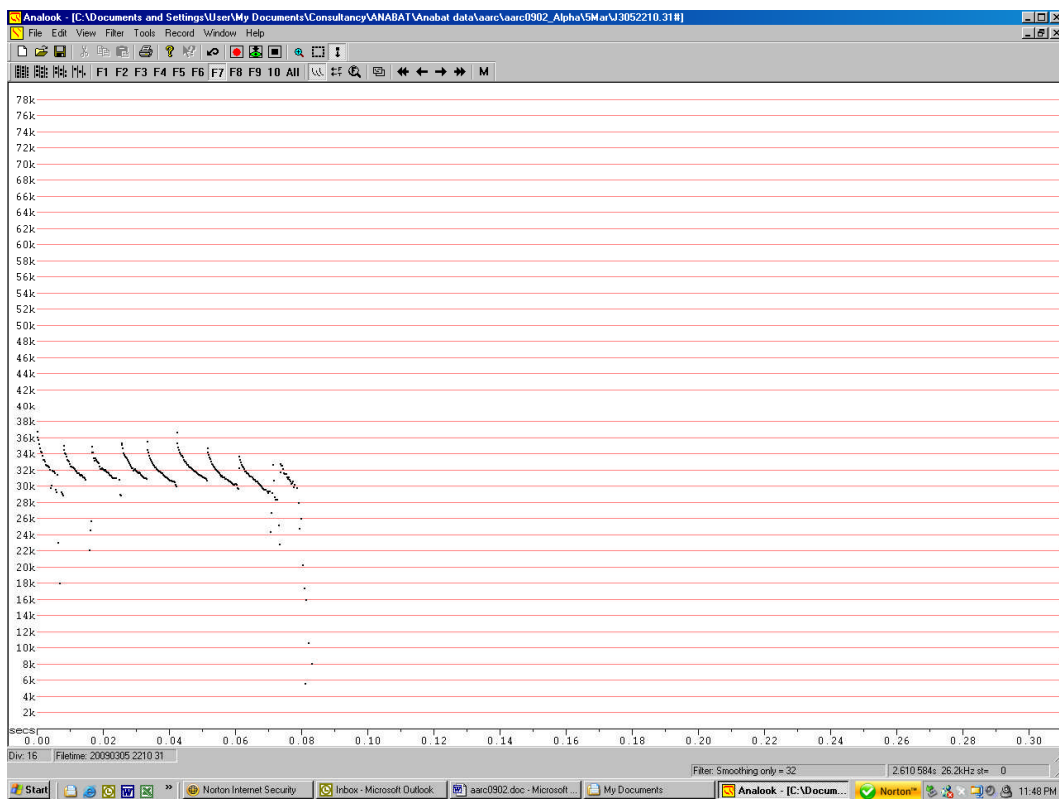
*Austronomus australis*



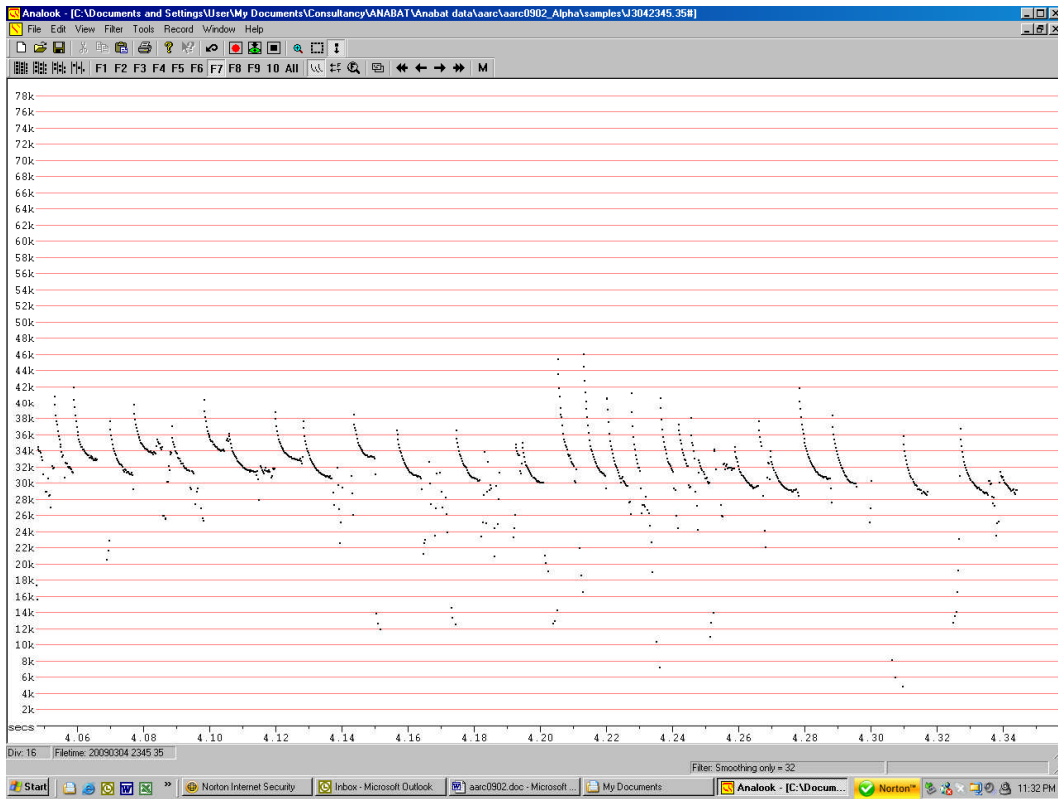
*Chaerephon jobensis*



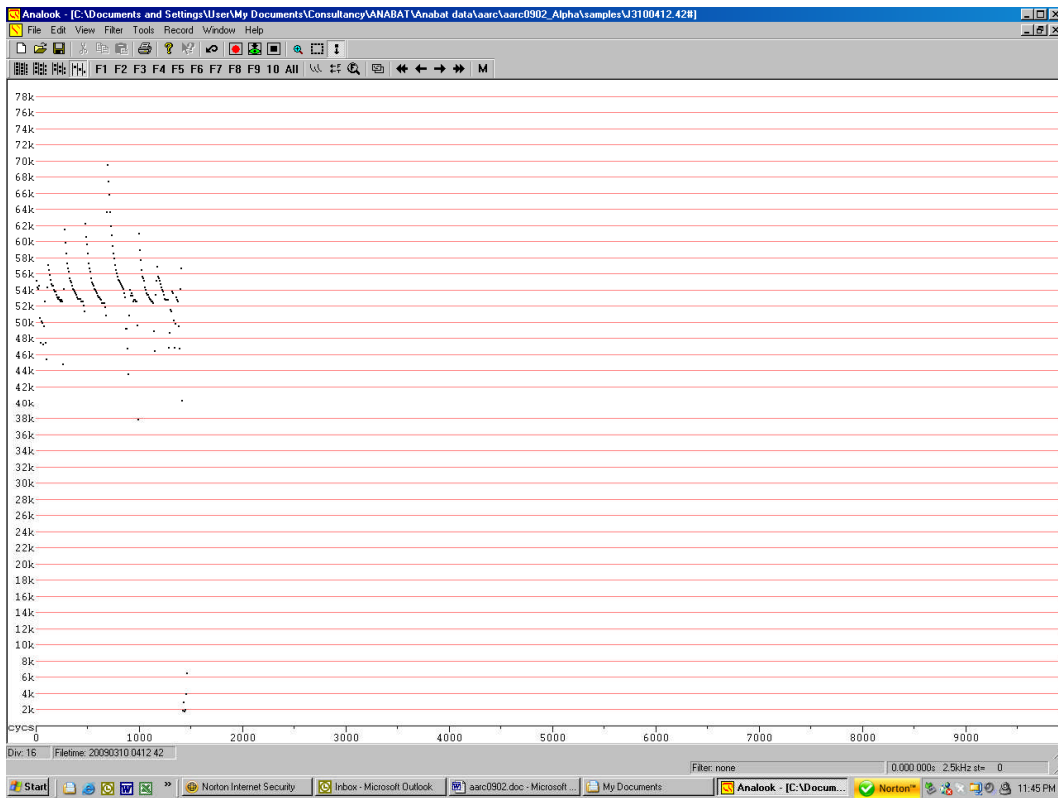
*Mormopterus beccarii*



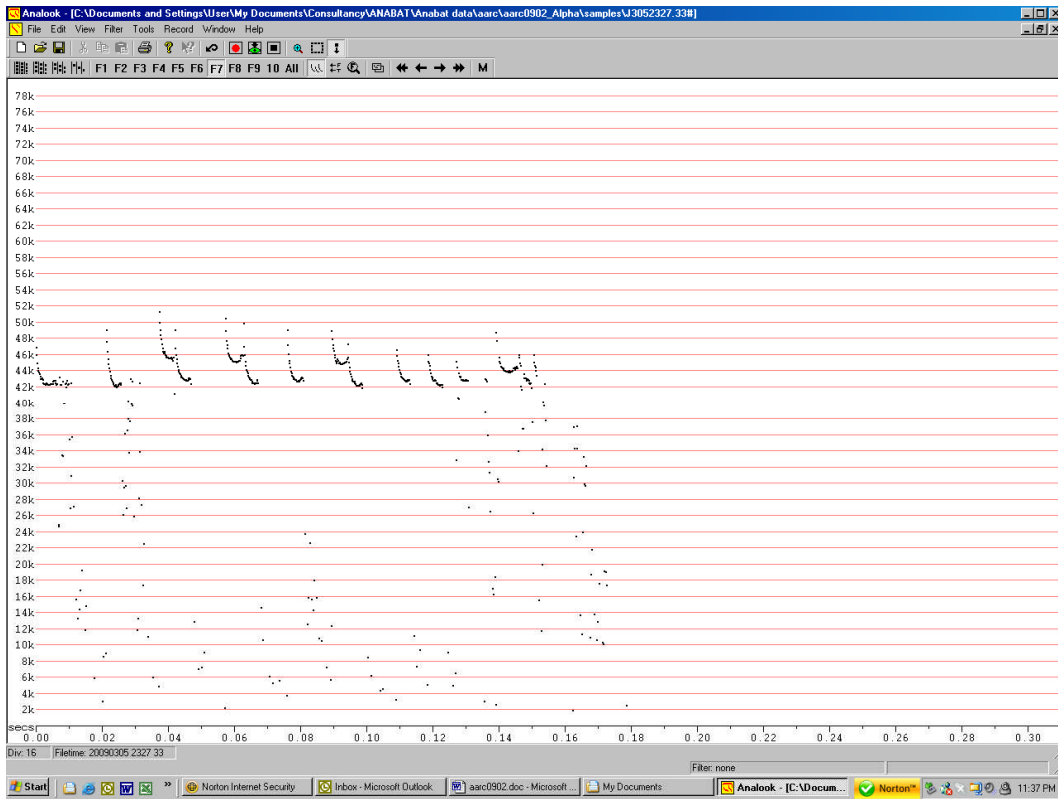
Possibly *Mormopterus* sp. 3



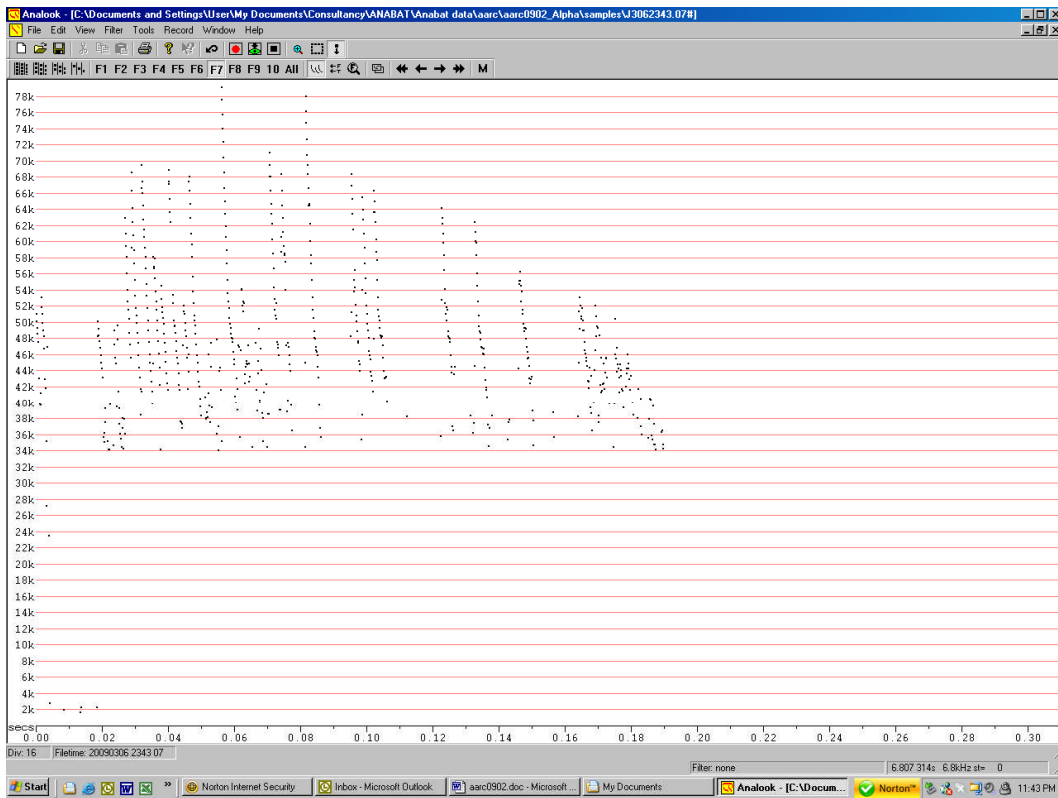
*Chalinolobus gouldii*



Possibly *Chalinolobus morio*

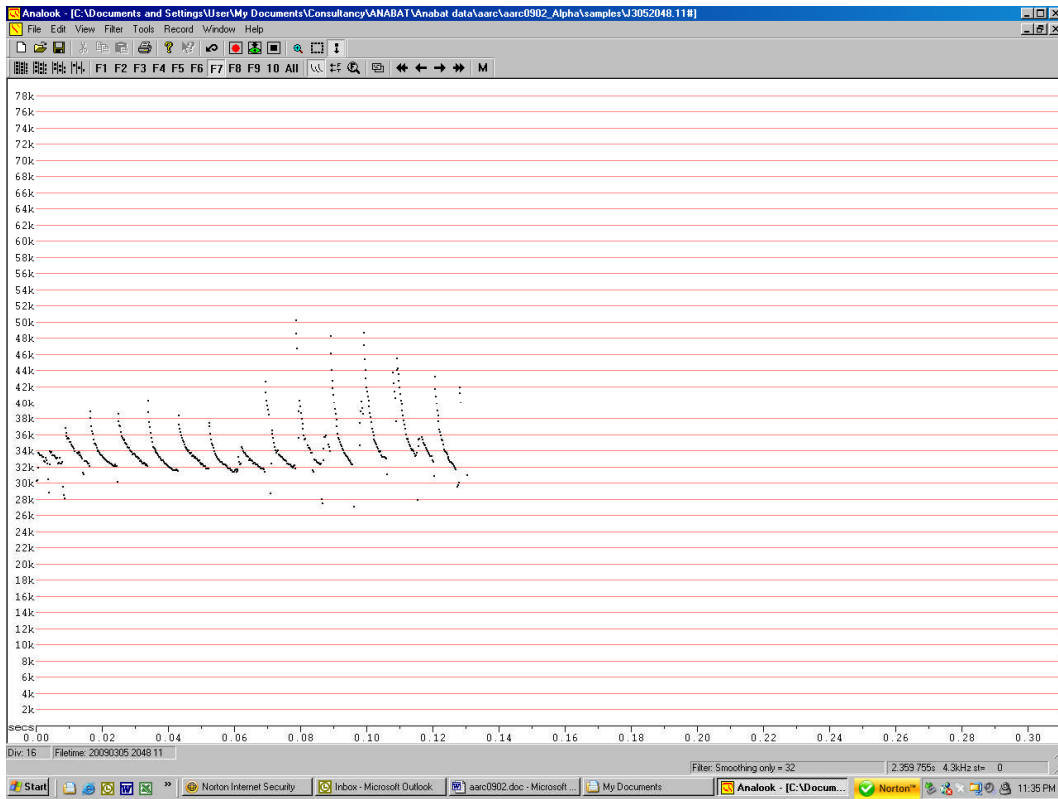


*Chalinolobus picatus*

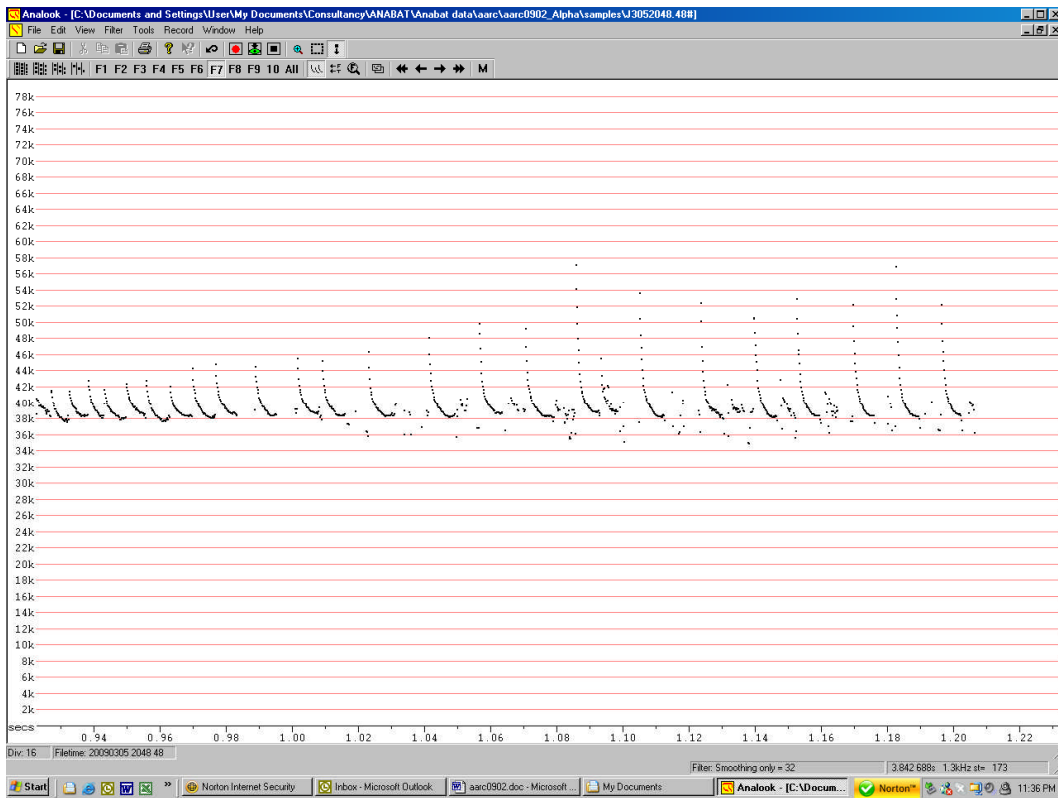


*Nyctophilus* species

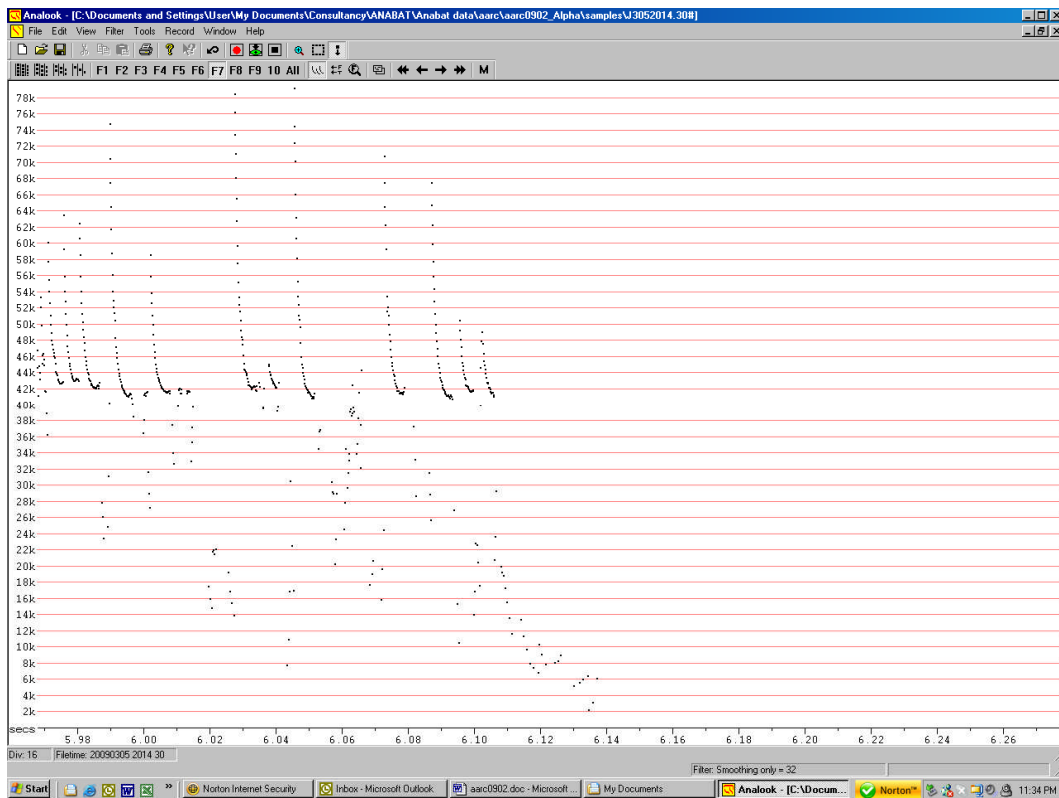




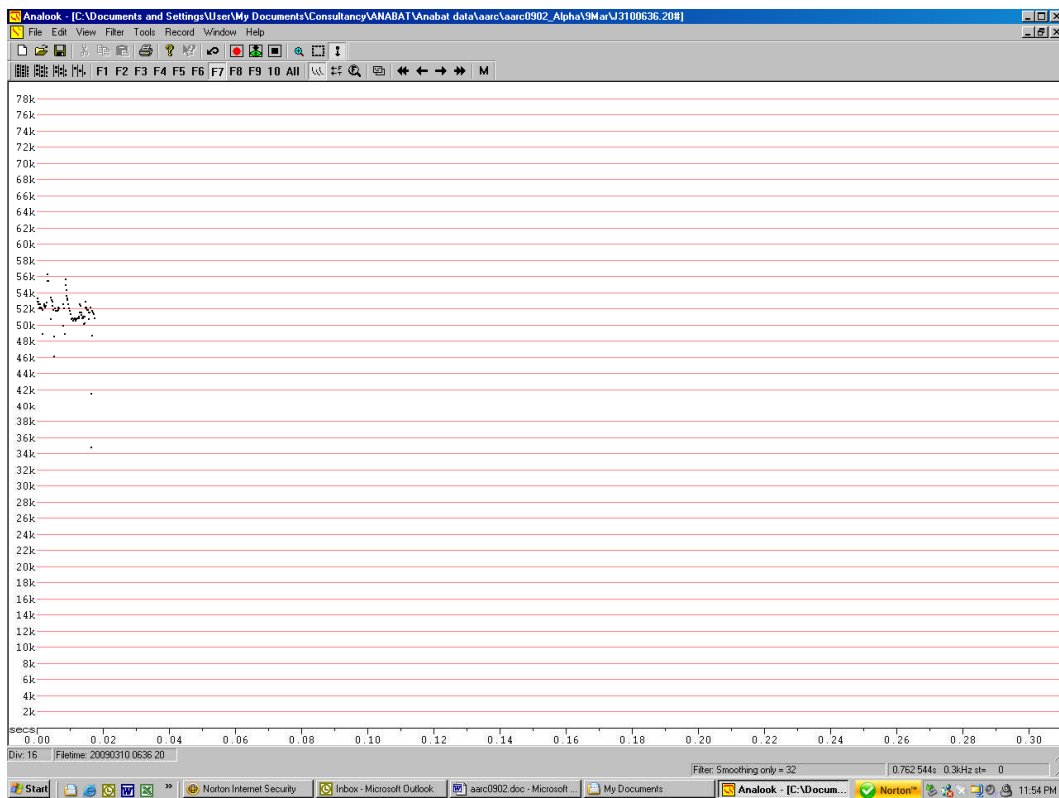
*Scotorepens balstoni*



*Scotorepens greyii*



Probably *Vespadelus baverstocki*



Possibly *Vespadelus finlaysoni* or *V. troughtoni*

# Anabat Data Analysis Summary

Client: AARC (Tsvl)      Contact: Julie Byrd      Job no.: AARC0907      Location: 70km NE of Alpha      Analysis Date: 25/10/2009

Date	28-Sep	29-Sep	2-Oct	4-Oct	5-Oct
Start time	18:48	17:19	21:03	16:10	16:22
End time	22:03	04:37	03:15	21:01	00:06
No. sequence files	46	564	36	2	492
No. files with calls	10	563	26	1	0

GENUS NAME	SPECIES NAME	NO CALLS RECORDED					Species identity comments
<i>Saccolaimus</i>	<i>flaviventris</i>	C	A	C	C		calls generally distinctive with uniform pulses around 18-21kHz; some <i>C. jobensis</i> calls overlap in frequency but are distinguished on erratic pulse shapes; several poor quality calls could have been from either species
<i>Chaerephon</i>	<i>jobensis</i>		A	B	C		distinctive calls - either flat uniform pulses at c. 15-17kHz or pulses with erratic shape and frequency around 17-20kHz; poorer quality calls can be confused with <i>S. flaviventris</i>
<i>Mormopterus</i>	<i>beccarii</i>		A	C			occasional frequency overlap with <i>S. flaviventris</i> but usually at higher frequency (23-26kHz) and pulse shape usually diagnostic (longer and with down-curved tail); several poor quality calls not distinguishable in this data set
<i>Mormopterus</i>	<i>eleryi</i>	C	C	C			poorly known but calls apparently similar to those of <i>S. greyii</i> ; latter species definitely present but a few calls in frequency range showed characteristics more commonly associated with <i>Mormopterus</i> spp. (e.g. flatter base and down-curved tail)
<i>Tadarida</i>	<i>australis</i>		B	A			calls distinctive - generally at lower frequency than anything else here; sometimes overlap with <i>C. jobensis</i> but in overlap zone <i>T. australis</i> pulses usually curved and <i>C. jobensis</i> pulses usually flat
<i>Chalinolobus</i>	<i>gouldii</i>	C	A	A			positive ID based on steep pulses with alternating frequency; no doubt about this species presence on 2 nights, but only very poor calls available from first night; responsible for high proportion of calls on nights 2 & 3
<i>Chalinolobus</i>	<i>morio</i>		B				calls at similar frequency to <i>V. troughtoni</i> but <i>C. morio</i> has distinctive pulse shape with down-turned tails (cf. upturned in <i>Vespadelus</i> spp); a few brief calls with evidence of characteristic pulse shape but not confirmed; known to occur in this region (Churchill 2008)
<i>Nyctophilus</i>	<i>species</i>		A	A			highly distinctive calls unlikely to be mistaken for anything else in this locality; <i>N. geoffroyi</i> is most likely species to occur here but <i>N. gouldii</i> may also be present
<i>Scotorepens</i>	<i>balstoni</i>	C	B	C			similar to <i>C. gouldii</i> but lacks frequency alternation; several calls very likely from this species but not positively identified
<i>Scotorepens</i>	<i>greyii</i>	C	A	B			calls generally easy to distinguish (steep curve with upturned tail at around 36-40kHz) but <i>M. eleryi</i> also known to produce calls with similar pulses in same frequency range; a number of good quality calls definitely attributable to <i>S. greyii</i>
<i>Vespadelus</i>	<i>baverstocki</i>		B				typical <i>Vespadelus</i> pulse shape (steep with upturned tail) mostly at 44-48kHz; not definitively identified from these data but a few short calls most likely from night 2
<i>Vespadelus</i>	<i>troughtoni</i>		C				possible confusion with <i>C. morio</i> but good calls have typical <i>Vespadelus</i> shape; a few poor quality calls from night 2 possibly from this species

## Anabat Data Analysis Summary

**Client:** AARC (Tsvi)

**Contact:** Julie Byrd

**Job no.:** AARC0907

**Location:** 70km NE of Alpha

**Analysis Date:** 25/10/2009

### Reliability ratings for ID:

- A definite one or more calls where absolutely no doubt about identification of bat
- B probable most likely the species named; low probability of confusion with species that use similar calls
- C possible call is comparable with the listed species, but moderate to high probability of confusion with species with similar calls

### Data quality

Data quality was highly variable for this survey. Background noise (e.g. from wind, rustling vegetation & insects) was a prominent feature of most sequence files on the first night and all files from the final night contained only noise. In contrast, data from night two was of high quality with almost no interference/noise associated with the numerous bat calls that were recorded.

Time signals recorded in the sequence files indicate that data were not recorded over a full night on either 28/9 or 4/10.

### Call identification based on:

Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.

Reference calls collected in south-eastern, central-eastern and central-western Queensland.

**Note:** the extent of geographic variation in species' call characteristics is poorly understood and reliance on the call key/s mentioned above limits ability to reliably identify some of the calls recorded in this study.

### Other references:

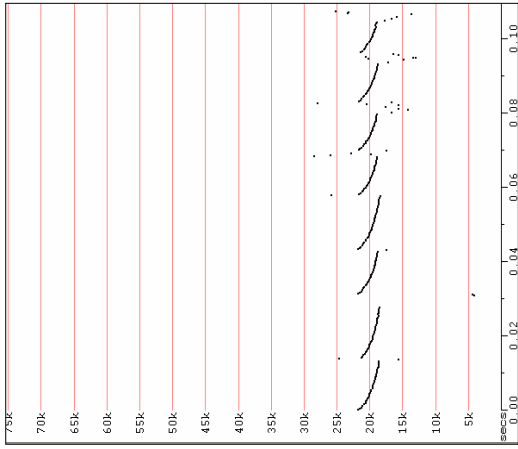
Churchill, S. (2008). *Australian Bats*. Jacana Books, Allen & Unwin; Sydney.

van Dyck, S. and Strahan, R. (ed.) (2008). *The Mammals of Australia* (Third Edition); New Holland; Sydney.

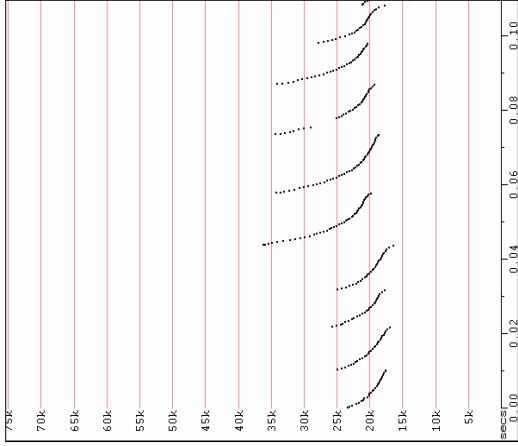
# Anabat Data Analysis Summary

Sample calls extracted from the Alpha survey data (AARC, 28 September - 5 October 2009)

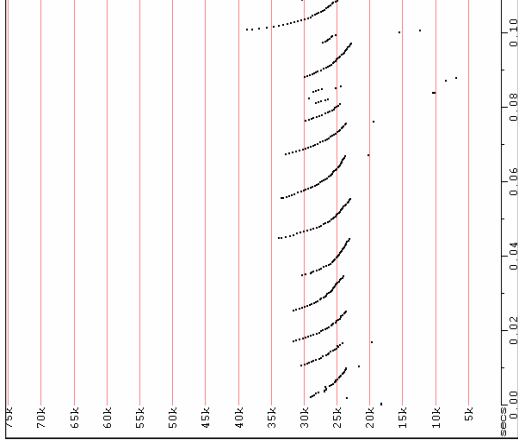
Scale: 10 msec per tick; time between pulses removed (AnalogW F7 compressed mode)



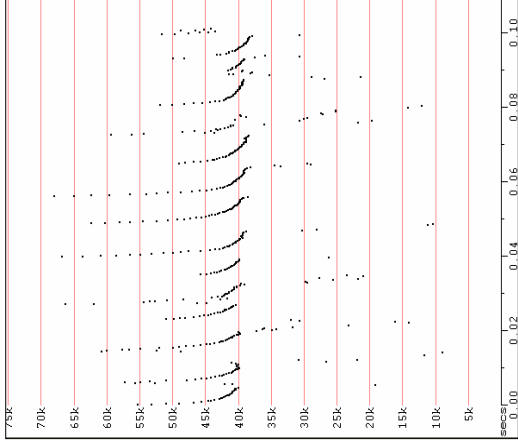
*Saccolaimus flaviventris*



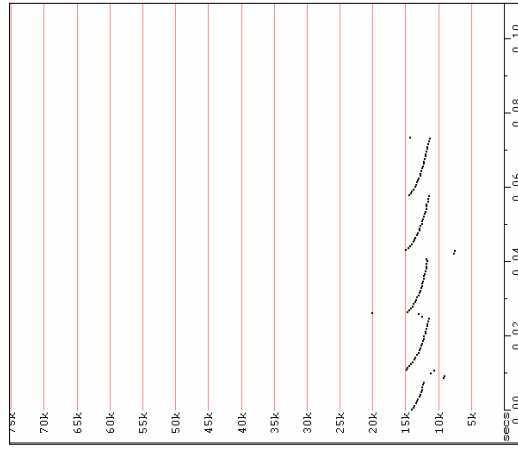
*Chaerephon jobensis*



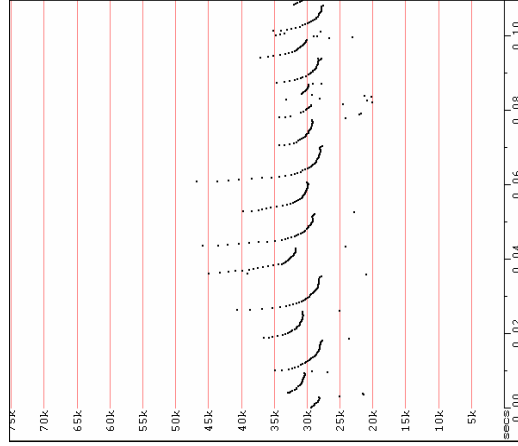
*Mormopterus beccarii*



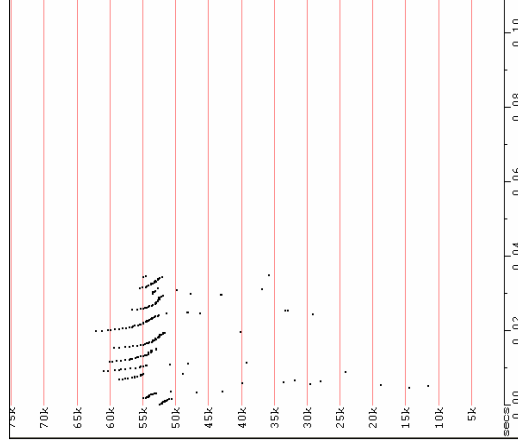
Possibly *Mormopterus eleryi*



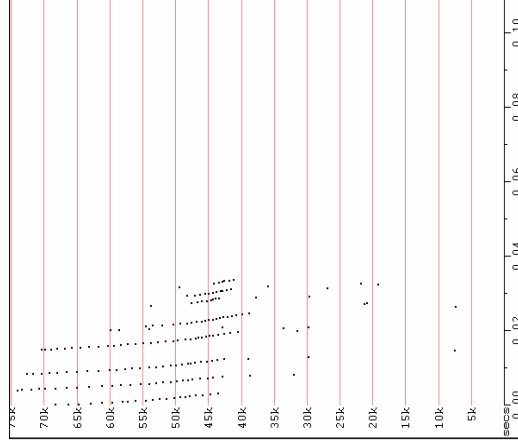
*Tadarida australis*



*Chalinobus gouldii*



Probably *Chalinobus morio*

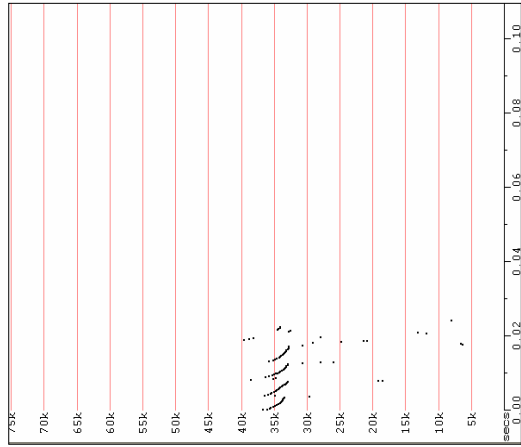


*Nyctophilus sp.*

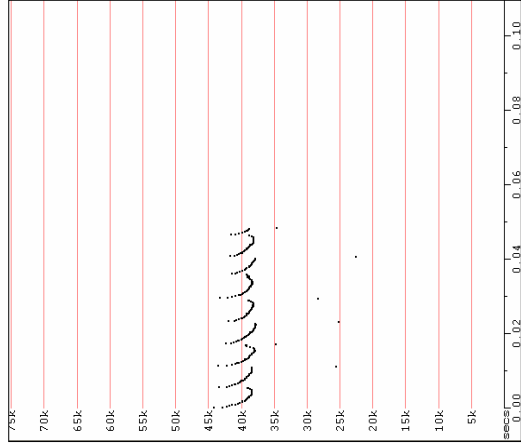
# Anabat Data Analysis Summary

## Sample calls extracted from the Alpha survey data (AARC, 28 September - 5 October 2009)

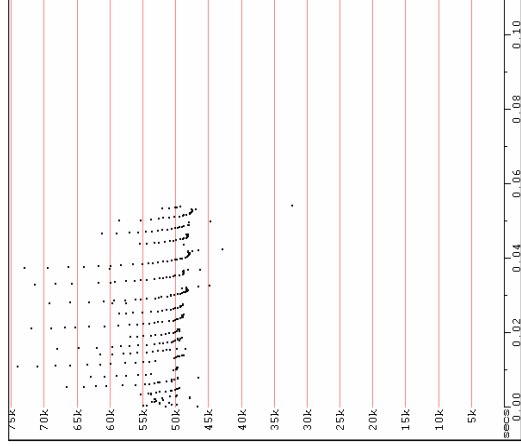
Scale: 10 msec per tick; time between pulses removed (AnalogW F7 compressed mode)



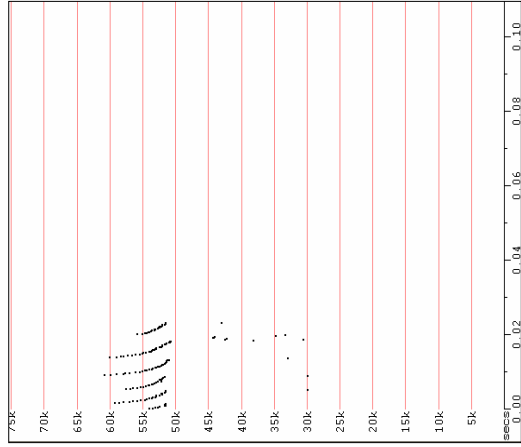
Probably *Scotorepens balstoni*



*Scotorepens greyii*



Probably *Vespadelus baverstocki*



Possibly *Vespadelus troughtoni*



# Anabat Data Analysis Summary

Job no.: AARC0909

Location: NE of Alpha

Contact: Julie Byrd

Analysis Date: 13/01/2010

**Reliability ratings for ID:**

- A definite one or more calls where absolutely no doubt about identification of bat
- B probable most likely the species named; low probability of confusion with species that use similar calls
- C possible call is comparable with the listed species, but moderate to high probability of confusion with species with similar calls

GENUS NAME	SPECIES NAME	Detector										
		24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	1-Dec	3-Dec	5-Dec	6-Dec	7-Dec	
<i>Saccoleimus</i>	<i>flaviventris</i>	A	A	A	A	A	A		A	A		
<i>Taphozous</i>	<i>georgianus/troughtoni</i>				C	B						
<i>Chaerephon</i>	<i>jobensis</i>	A	A	A	A	A	A		A	A		B
<i>Mormopterus</i>	<i>beccarii</i>	A			B		A		A	A		A
<i>Mormopterus</i>	sp. 2 or sp. 3				C	A			B	A		C
<i>Tadarida</i>	<i>australis</i>		B	B			A					
<i>Chalinolobus</i>	<i>gouldii</i>	A	A	A	A	A	A		A			B
<i>Chalinolobus</i>	<i>morio</i>		B		B					C		A
<i>Chalinolobus</i>	<i>picatus</i>											
<i>Nyctophilus</i>	species										B	
<i>Scotorepens</i>	<i>balstoni</i>	A		C	A		A		A	A		A
<i>Scotorepens</i>	<i>greyii / sanborni</i>	A		B	A		A		A	A		A
<i>Vespadelus</i>	<i>baverstocki</i>	A										B
<i>Vespadelus</i>	<i>troughtoni</i>		B		B				A	C		A

# Anabat Data Analysis Summary

Job no.: AARC0909

Location: NE of Alpha

Contact: Julie Byrd

Analysis Date: 13/01/2010

**Reliability ratings for ID:**

- A definite one or more calls where absolutely no doubt about identification of bat
- B probable most likely the species named; low probability of confusion with species that use similar calls
- C possible call is comparable with the listed species, but moderate to high probability of confusion with species with similar calls

GENUS NAME	SPECIES NAME	Detector													
		24-Nov	25-Nov	26-Nov	27-Nov	29-Nov	30-Nov	4-Dec	5-Dec	6-Dec	7-Dec				
<i>Saccoleimus</i>	<i>flaviventris</i>	A	B	A	A	A		A	A	A					
<i>Taphozous</i>	<i>georgianus/troughtoni</i>	C			C										C
<i>Chaerephon</i>	<i>jobensis</i>	A	A	B	B	A		A	A						A
<i>Mormopterus</i>	<i>beccarii</i>	A		A	A	A		A	A						A
<i>Mormopterus</i>	sp. 2 or sp. 3			C		C								C	B
<i>Tadarida</i>	<i>australis</i>		A			A		A	A					A	A
<i>Chalinolobus</i>	<i>gouldii</i>	A	A	A	A	A		A	A					A	A
<i>Chalinolobus</i>	<i>morio</i>		B		B	B								A	A
<i>Chalinolobus</i>	<i>picatus</i>											C			C
<i>Nyctophilus</i>	species										A				
<i>Scotorepens</i>	<i>balstoni</i>	C	A	A	A						A			A	A
<i>Scotorepens</i>	<i>greyii / sanborni</i>	A	A	A	A			A	A		A			A	A
<i>Vespadelus</i>	<i>baverstocki</i>		C	B	A	A		A	A		A			A	A
<i>Vespadelus</i>	<i>troughtoni</i>		A	A	A			C	A		A			A	C

# Anabat Data Analysis Summary

Job no.: AARC0909

Location: NE of Alpha

Contact: Julie Byrd

Analysis Date: 13/01/2010

## Species identity comments

Some species have very similar calls and can be difficult to differentiate, particularly in poorer recordings (brief and/or weak and/or noisy sequences). Low reliability ratings in the above table usually indicate that calls could not be diagnosed to a single species due to these similarities. Call similarities are discussed below, indicating which species may be responsible for low reliability listings in the above table.

<i>Saccolaimus</i>	<i>flaviventris</i>	} significant frequency overlap in these four spp - <i>C. jobensis</i> ≤ <i>S. flaviventris</i> ≤ <i>T. georgianus/troughtoni</i> ≈ <i>M. beccarii</i> pulsed shapes can be diagnostic in overlap zones, but brief and/or poor quality calls often indistinguishable <i>T. georgianus/troughtoni</i> and <i>M. beccarii</i> present greatest differentiation challenge <i>T. georgianus/troughtoni</i> (see taxonomic note next page) not identified positively from this data set - several calls potentially from the species but these possibly also from <i>M. beccarii</i> the other three spp all positively identified from most sites
<i>Taphozous</i>	<i>georgianus/troughtoni</i>	
<i>Chaerephon</i>	<i>jobensis</i>	
<i>Mormopterus</i>	<i>beccarii</i>	
<i>Mormopterus</i>	species 2 and 3	call pulses usually flat or slightly curved and around 28-35kHz; difficult to differentiate; frequency also overlaps with <i>C. gouldii</i> but most calls of that sp. have steep curve with distinctive alternating frequency (cf. flat pulses at uniform frequency in <i>Mormopterus</i> spp.); numerous calls potentially from <i>Mormopterus</i> spp but only positively identified at two sites; both species potentially occur in the survey area
<i>Tadarida</i>	<i>australis</i>	easily recognised in most cases - lower frequency than most other species (c. 10-13kHz); sometimes overlaps with <i>C. jobensis</i> but in overlap zone <i>T. australis</i> pulses are usually curved while <i>C. jobensis</i> pulses are flat
<i>Chalinolobus</i>	<i>gouldii</i>	positive ID based on steep pulses with alternating frequency in the range 28-33kHz; sometimes produces calls without alternation and flatter curves when flying in open space - these may be confused with the calls of <i>Mormopterus</i> spp. 2 & 3; frequently recorded this survey
<i>Chalinolobus</i>	<i>morio</i>	similar frequency (c. 50±2kHz) to <i>Vespadelus troughtoni</i> but different pulse shape (down-curved tail in <i>C. morio</i> cf. up-curved in <i>Vespadelus</i> spp.); <i>C. morio</i> present at several sites and numerous calls from other sessions that could have been either species
<i>Chalinolobus</i>	<i>picatus</i>	similar shape to <i>S. greyii</i> / <i>S. sanborni</i> but <i>C. picatus</i> usually has pulses with alternating frequency at slightly higher frequency (>40kHz) than <i>Scotorepens</i> spp.; <i>V. baverstocki</i> also partially overlaps in frequency but lacks alternation; no clear evidence of this species' presence - a few indeterminate calls on several nights that were probably more likely from <i>Scotorepens</i> sp.
<i>Nyctophilus</i>	species	distinctive calls with steep linear pulse shape; species within genus generally indistinguishable, however, <i>N. geoffroyi</i> most likely the only species that would occur in the survey area
<i>Scotorepens</i>	<i>balstoni</i>	similar to <i>C. gouldii</i> but lacks frequency alternation and often at slightly higher frequency (30-35kHz); definitely present at most sites
<i>Scotorepens</i>	<i>greyii</i> / <i>sanborni</i>	calls from these two species not able to be differentiated and both potentially occur in survey area; some poor quality calls can also be confused with <i>C. picatus</i> and <i>V. baverstocki</i> ; definitely present most sites and responsible for high proportion of calls
<i>Vespadelus</i>	<i>baverstocki</i>	frequency range c. 40-45kHz; pulse shape similar to <i>C. picatus</i> but lacks frequency alternation; also similar to but generally higher than <i>Scotorepens</i> spp; definitely present some sites but numerous calls indistinguishable from <i>Scotorepens</i> spp and/or <i>C. picatus</i>
<i>Vespadelus</i>	<i>troughtoni</i>	highly distinctive in this region - calls at higher frequency (c. 47-53kHz) than all species except <i>C. morio</i> ; latter species generally has different pulse shape (see above); a few calls from several sites at lower frequency than expected but higher than expected for <i>V. baverstocki</i> - these remain undetermined - most likely from one or other of these spp. but possibly also <i>V. vulturum</i> at extreme distributional limit

## Anabat Data Analysis Summary

**Job no.:** AARC0909

**Location:** NE of Alpha

**Contact:** Julie Byrd

**Analysis Date:** 13/01/2010

### **Call identification based on:**

Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.

Reference calls collected in south-eastern and central-eastern Queensland.

**NB:** the extent of geographic variation in species' call characteristics is poorly understood and reliance on the call key/s mentioned above limits ability to reliably identify some of the calls recorded in this study.

### **Taxonomic note - *Taphozous* species**

In the newly revised 2nd edition of *Australian Bats* (Churchill 2008) the geographic ranges of *T. georgianus* and *T. troughtoni* have been significantly revised, with *T. troughtoni* now considered to occur throughout most of central and north-eastern Queensland rather than *T. georgianus* (which now only occurs in north-western Qld). In contrast, however, the 3rd edition of *Australian Mammals* (Van Dyck & Strahan 2008) retains the former distributions and taxonomic treatment for these two species.

The revised distributions presented by Churchill (2008) are based on taxonomic work in progress (Reardon and Thomson 2002), which suggests that *T. troughtoni* probably no-longer deserves threatened species status as it appears not to be extremely limited in distribution as previously thought. The taxon, however, is listed in this report under both species names to reflect the current situation of no formally published taxonomic change and the fact that *T. troughtoni* is still listed under the Qld *Nature Conservation Act 1992*. It should be noted, however, that it has been de-listed

### **Other references:**

Churchill, S. (2008). *Australian Bats*. Jacana Books, Allen & Unwin; Sydney.

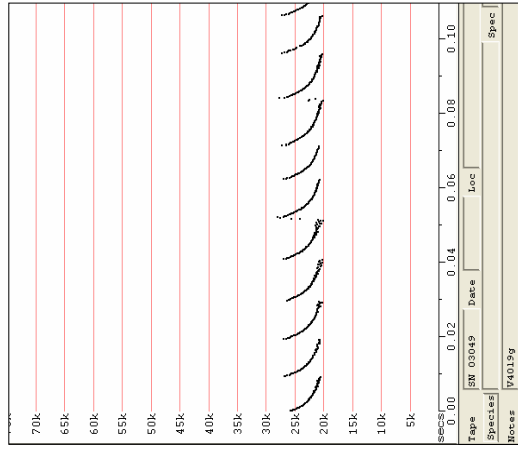
Reardon, T. and Thomson, B. (2002). Taxonomic and conservation status of *Taphozous troughtoni*. Poster abstract, Proceedings of the 10th Australasian Bat Conference, Cairns, April 2002. *Australasian Bat Society Newsletter* **18**, 29.

van Dyck, S. and Strahan, R. (ed.) (2008). *The Mammals of Australia* (Third Edition); New Holland; Sydney.

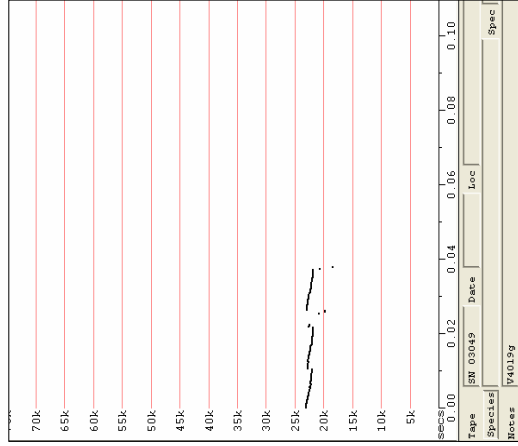
# Anabat Data Analysis Summary

## Sample calls extracted from the Alpha survey data (AARC November-December 2009)

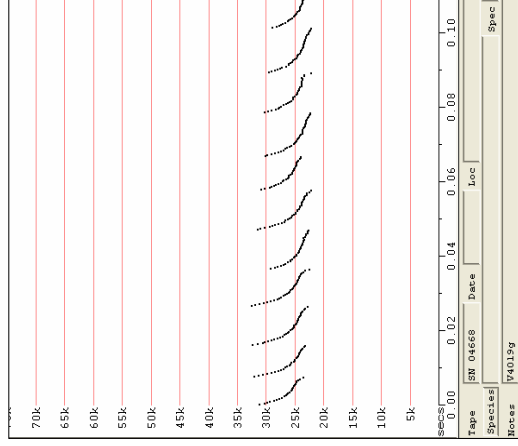
Scale: 10 msec per tick; time between pulses removed (AnalogW F7 compressed mode)



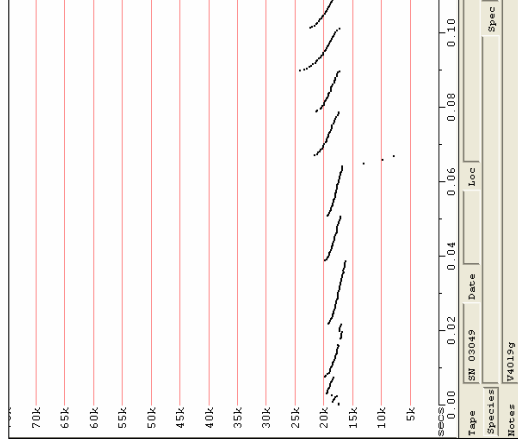
*Saccolaimus flaviventris*



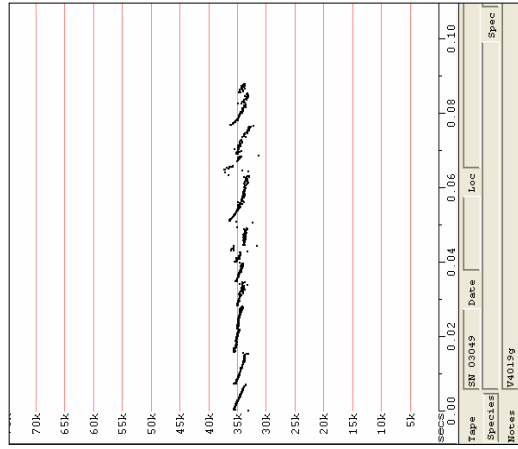
Possibly *Taphozous troughtoni*



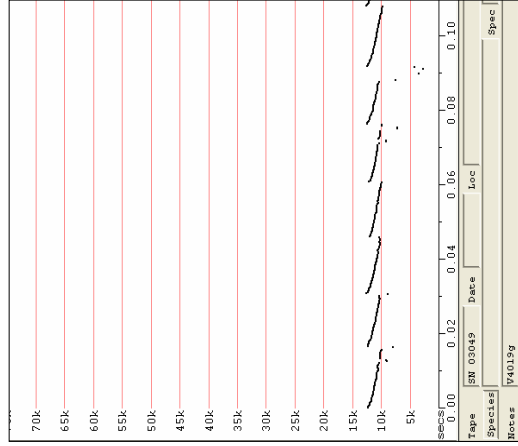
*Mormopterus beccarii*



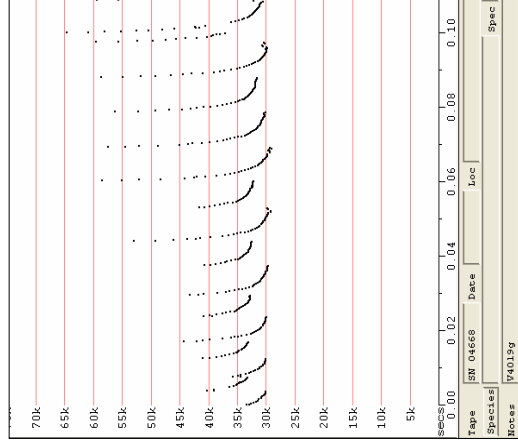
*Chaerephon jobensis*



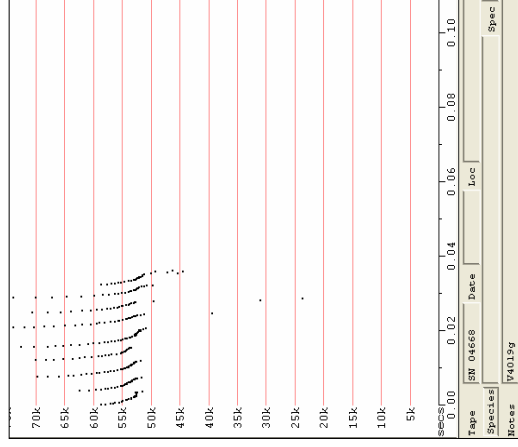
*Mormopterus* sp. 2/3



*Tadarida australis*



*Chaironobus gouldii*

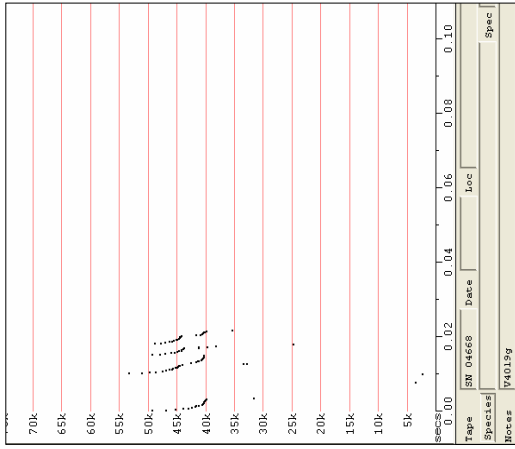


*Chaironobus morio*

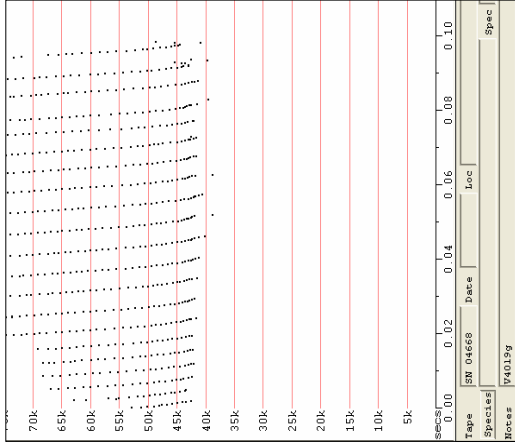
# Anabat Data Analysis Summary

Sample calls extracted from the Alpha survey data (AARC November-December 2009)

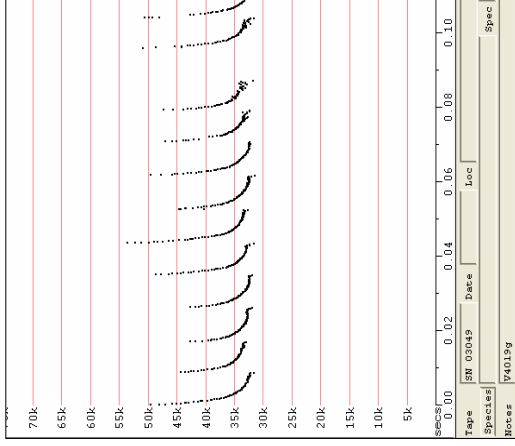
Scale: 10 msec per tick; time between pulses removed (AnatookW F7 compressed mode)



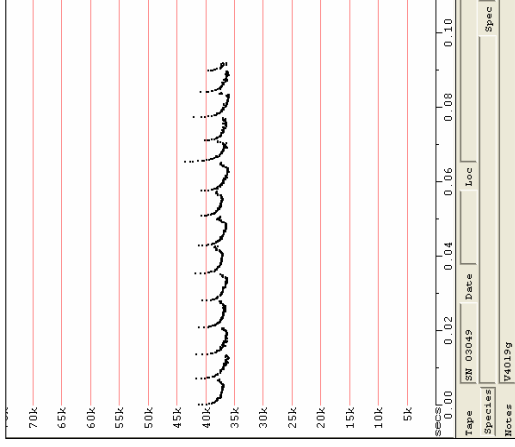
Possibly *Chalino lobus picatus*



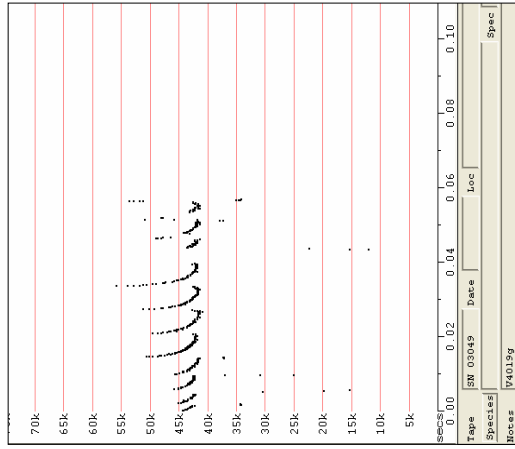
*Nyctophilus* sp.



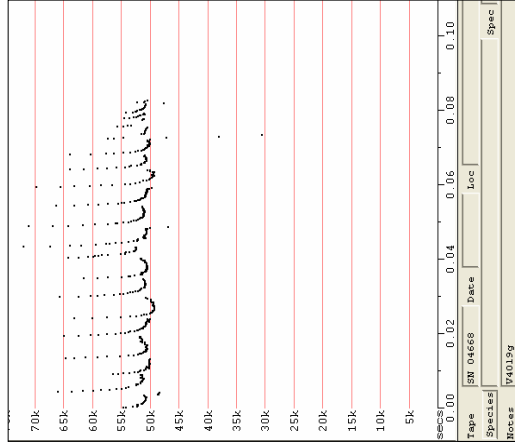
*Scotorepens balstoni*



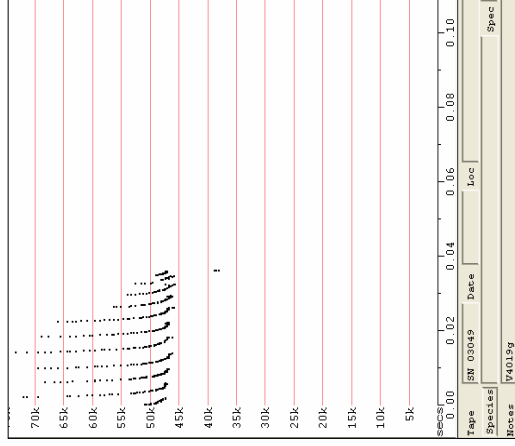
*Scotorepens greyii* / *S. sanborni*



*Vespadelus baverstocki*



*Vespadelus troungtoni*



Probably *V. troungtoni* but lower than expected; call similar to *V. vulturinus* but that species would be at extreme northern limits at this location



# Anabat echolocation data interpretation summary

Client: AARC Townsville (J Byrd)

Client reference:

Balance Job no.: AARC1002

Project name/location: Alpha, June 2010

Date: 25/06/2010

Species	Bernview 04				Bernview 07				Total calls for species
	24-Jun	26-Jun	27-Jun	28-Jun	24-Jun	26-Jun	27-Jun	28-Jun	
<b>Species positively identified</b> (i.e. species definitely present)									
<i>Chalinolobus gouldii</i>	1	432	1	1		15			450
<i>Chalinolobus morio</i>		2	6	1			4		13
<i>Chalinolobus picatus</i>			20				8		28
<i>Nyctophilus</i> species				2					2
<i>Scotorepens balstoni</i>		11		2		2		3	18
<i>Scotorepens greyii</i>	2	169	4	4		6	3		188
<i>Vespadelus baverstocki</i>		38				5	20		63
<i>Austronomus australis</i>	3	6	1	8				5	23
<i>Chaerephon jobensis</i>	5	110	8	9		2	4	7	145
<i>Mormopterus beccarii</i>		182	1		2	1			186
<i>Mormopterus ridei</i> / species 3	3	11	2	5					21
<i>Saccolaimus flaviventris</i>		6	2				3		11
<b>Total calls positively identified</b>	<b>14</b>	<b>967</b>	<b>45</b>	<b>32</b>	<b>2</b>	<b>31</b>	<b>42</b>	<b>15</b>	<b>1148</b>
<b>Calls NOT positively identified *</b>									
<i>C. gouldii</i> / <i>M. ridei</i>		127	8	19	4	1	8	7	174
<i>C. gouldii</i> / <i>S. balstoni</i>		36	3	1	3	6	1	3	53
<i>C. picatus</i> / <i>S. greyii</i>		16	11			4	1		32
<i>C. picatus</i> / <i>V. baverstocki</i>			18			1	23		42
<i>S. greyii</i> / <i>V. baverstocki</i>		78	17						95
<i>S. greyii</i> / <i>Mormopterus</i> species 6				3	1			2	6
<i>C. jobensis</i> / <i>S. flaviventris</i>	1	66	7			2	1		77
<i>M. beccarii</i> / <i>Taphozous troughtoni</i>		1			2				3
<i>S. flaviventris</i> / <i>M. beccarii</i>		76							76
unknown bat calls		141	83	4			10	1	239
<b>Total calls not positively identified</b>	<b>1</b>	<b>541</b>	<b>147</b>	<b>27</b>	<b>10</b>	<b>14</b>	<b>44</b>	<b>13</b>	<b>797</b>
<b>Total calls for site/night</b>	<b>15</b>	<b>1508</b>	<b>192</b>	<b>59</b>	<b>12</b>	<b>45</b>	<b>86</b>	<b>28</b>	<b>1945</b>

\* A species listed in the bottom section of the table that is not also listed in the top section should be considered as possibly present. Likelihood of occurrence and call identification issues for these species are discussed in the Notes section, below.

Numbers in columns represent number of calls attributed to each species or species group

## Species nomenclature:

Species names used in this summary follow Churchill (2008).

## Call identification & reporting standard:

Call identification was based on published call descriptions for southern Queensland (Reinhold *et al* 2001) and on reference calls collected from central and south-eastern Queensland.

Determination of species' identification was further refined by considering probability of occurrence based on distributional information presented in Churchill (2008) and van Dyck & Strahan (2008).

The format and content of this report complies with nationally accepted standards for the interpretation and reporting of Anabat data (Reardon 2003); latest version available from the Australasian Bat Society on-line at <http://www.ausbats.org.au/>.

# Anabat echolocation data interpretation summary

Client: AARC Townsville (J Byrd)

Client reference:

Balance Job no.: AARC1002

Project name/location: Alpha, June 2010

Date: 25/06/2010

## Notes

### ***Mormopterus ridei* / *Mormopterus* species 3**

calls have very similar pulse shape and frequency characteristics and often cannot be differentiated; both species potentially occur in the survey area

### ***C. gouldii* / *M. ridei***

frequency overlap at 30-33kHz; *C. gouldii* usually differentiated on steep pulses with alternating frequency but sometimes lacks alternation and steep initial frequency sweep - these can look like *M. ridei* calls; numerous low quality calls in the frequency range could have been from either of these species

### ***C. gouldii* / *S. balstoni***

calls overlap in frequency but better quality calls differentiated on alternating pulse frequency and steeper curve in *C. gouldii*; a number of low quality calls with intermediate pulse shape and no clear frequency alternation could have been either species

### ***C. picatus* / *S. greyii* / *V. baverstocki***

calls have similar pulse shapes and overlap in frequency - *S. greyii* 36-41kHz, *C. picatus* 39-43kHz, *V. baverstocki* 39-46kHz; most *C. picatus* calls have distinctive alternation in pulse frequency but not always obvious in short-duration calls; some *S. greyii* calls have pulses with gentler curve of longer duration than *V. baverstocki* but this feature not always obvious; numerous calls from this survey were positively attributed to each species based on these diagnostic features; however, many calls in the frequency overlap range had intermediate pulse characteristics and could not be reliably differentiated

### ***S. greyii* / *Mormopterus* species 6**

little is known about the call structure of *Mormopterus* sp 6; reference calls from central Australia are similar to those of *S. greyii* (steep FM sweep with curved base around 37-39kHz), but it is possible that the species also produces some calls with more typical *Mormopterus* pulse shape (i.e flat or slightly curved) around the same frequency; a number of calls that may have represented that latter type were observed from several sessions during this survey and it is possible that some of the calls attributed to the above group may have been from *Mormopterus* sp 6

### ***C. jobensis* / *S. flaviventris***

frequency overlaps around 17-20kHz but *C. jobensis* usually easy to differentiate due to erratic pulse shape *cf.* uniform in *S. flaviventris*; a number of calls this survey were too brief and/or poor quality for reliable differentiation

### ***M. beccarii* / *Taphozous troughtoni***

*T. troughtoni* calls (c. 23-25kHz) fall entirely within the frequency range of *M. beccarii* (22-27kHz) but are generally differentiated by their more consistent flat or slightly curved pulses (*cf.* often steeper curves and erratic pulse shape changes in *M. beccarii*); most calls this survey readily attributed to *M. beccarii* but a few brief and/or weak calls had flatter pulse shapes and could have been from *T. troughtoni*

### ***S. flaviventris* / *M. beccarii***

minor frequency overlap around 22-23kHz; *S. flaviventris* calls usually in 'excited/attack' phase at this frequency and can have pulse shapes similar to some *M. beccarii* calls; if search-phase components present in call, can easily be identified as *S. flaviventris*, but numerous calls of this type at one site had poor or no search phase components and could not be reliably identified

## Unknown calls

these are calls that were too brief or weak or noisy to enable reliable species identification; they represent species otherwise identified, not additional species

## References:

Churchill, S. (2008). *Australian Bats*. Jacana Books, Allen & Unwin; Sydney.

Reardon, T. (2003). Standards in bat detector based surveys. *Australasian Bat Society Newsletter* **20**, 41-43.

Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.

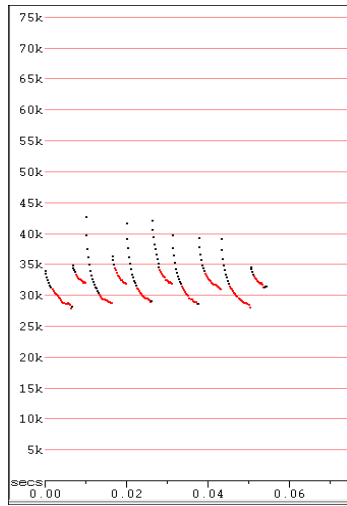
van Dyck, S. and Strahan, R. (ed.) (2008). *The Mammals of Australia* (Third Edition); New Holland; Sydney.

# Anabat Data Analysis Summary

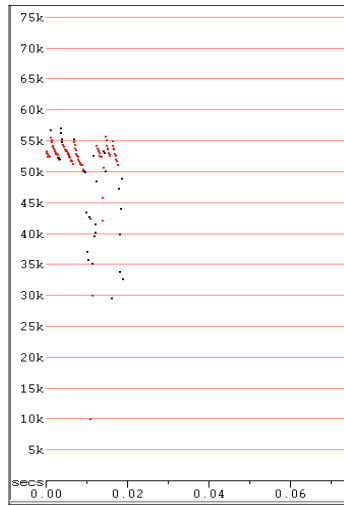
Sample calls extracted from the Alpha survey data (AARC, June 2010)

Scale: 10 msec per tick; time between pulses removed (*AnalogW* F7 compressed mode)

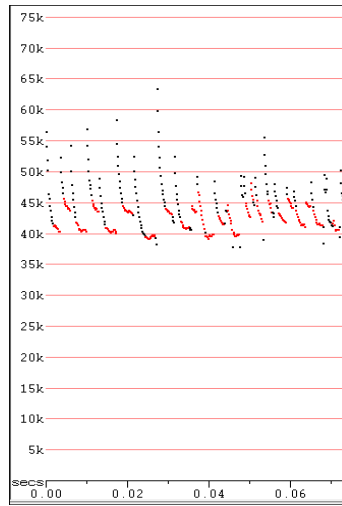
## Species positively identified



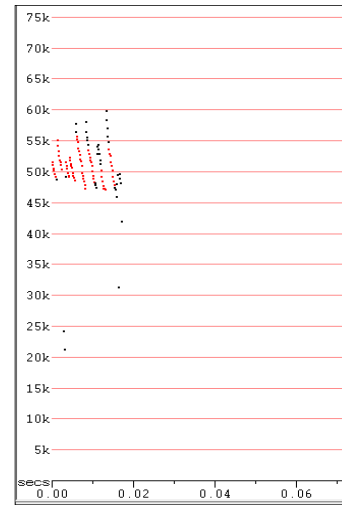
*Chalinolobus gouldii*



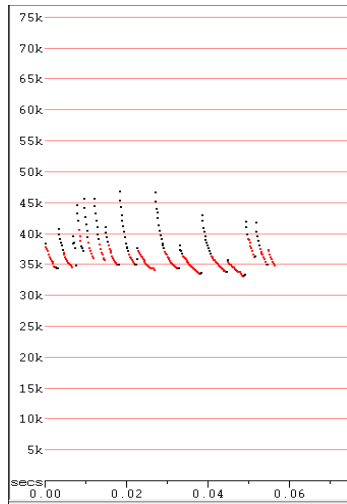
*Chalinolobus morio*



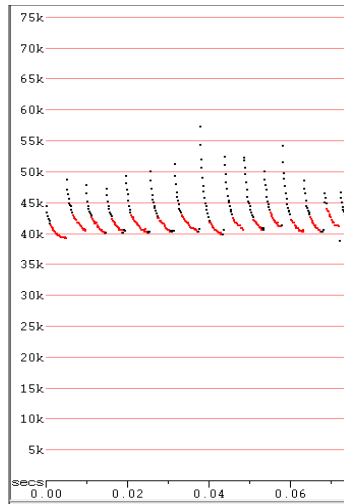
*Chalinolobus picatus*



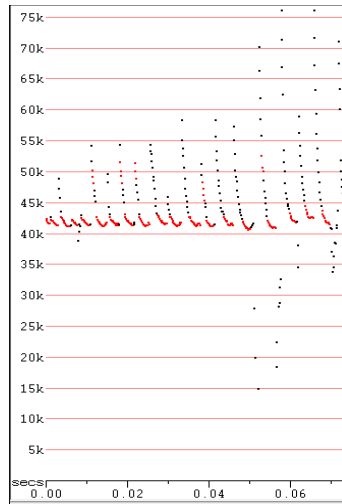
*Nyctophilus* species



*Scotorepens balstoni*



*Scotorepens greyii*



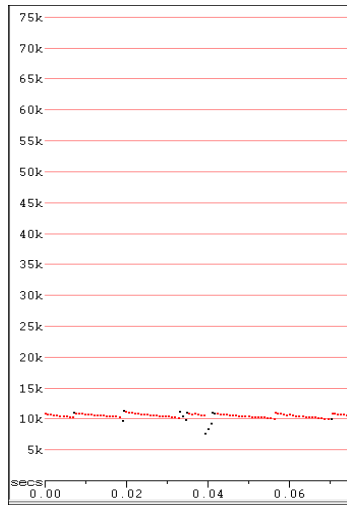
*Vespadelus baverstocki*

# Anabat Data Analysis Summary

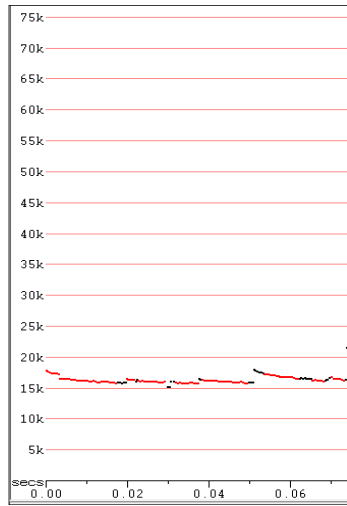
Sample calls extracted from the Alpha survey data (AARC, June 2010)

Scale: 10 msec per tick; time between pulses removed (*AnalogW* F7 compressed mode)

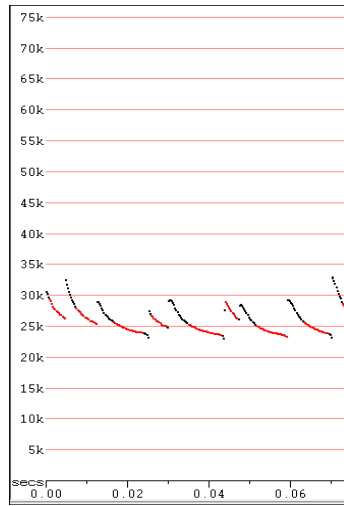
## Species positively identified



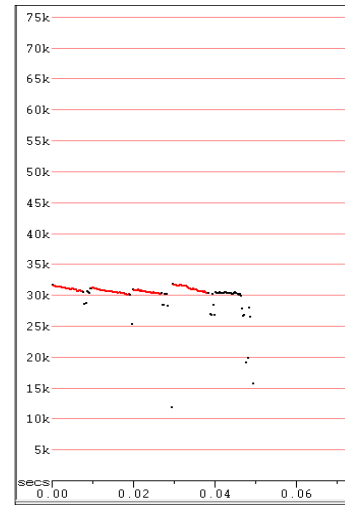
*Austronomus australis*



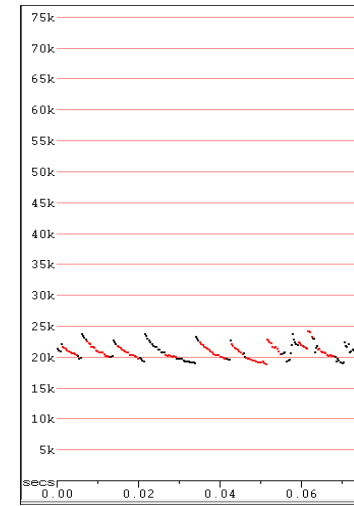
*Chaerephon jobensis*



*Mormopterus beccarii*



*Mormopterus ridei / species 3*



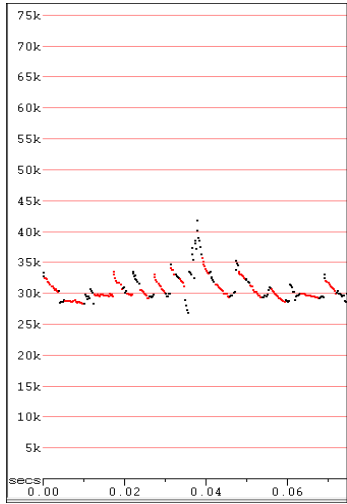
*Saccolaimus flaviventris*

# Anabat Data Analysis Summary

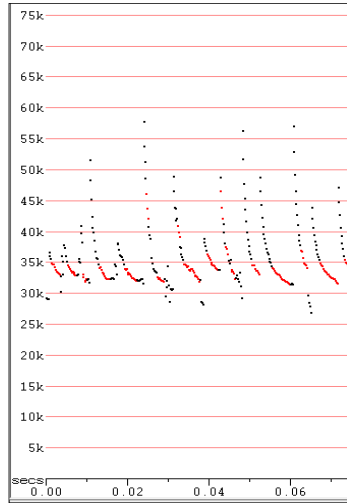
Sample calls extracted from the Alpha survey data (AARC, June 2010)

Scale: 10 msec per tick; time between pulses removed (*AnalogW* F7 compressed mode)

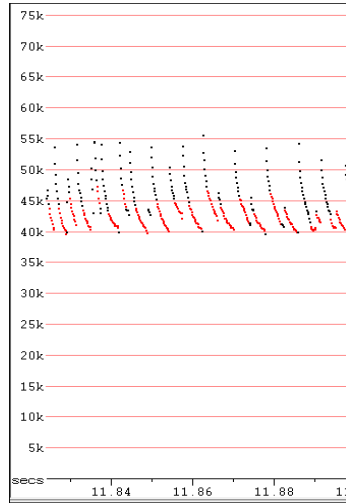
## Calls NOT positively identified



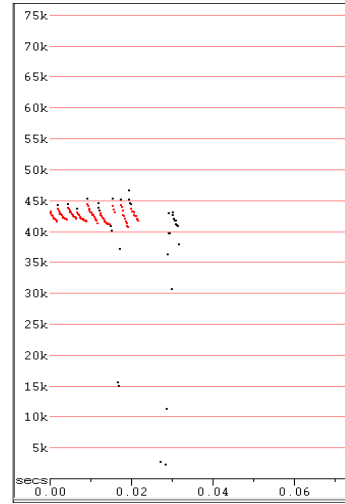
*C. gouldii* / *M. ridei*



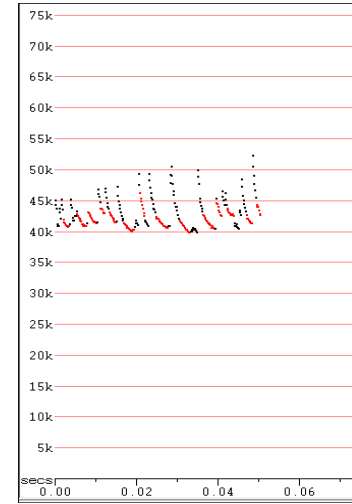
*C. gouldii* / *S. balstoni*



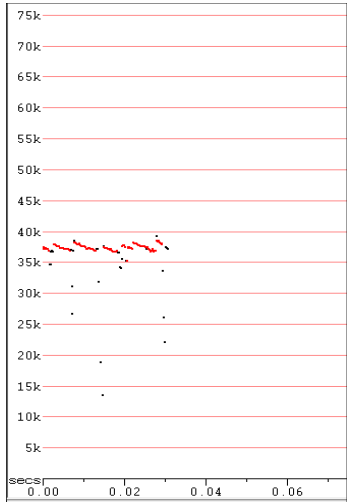
*C. picatus* / *S. greyii*



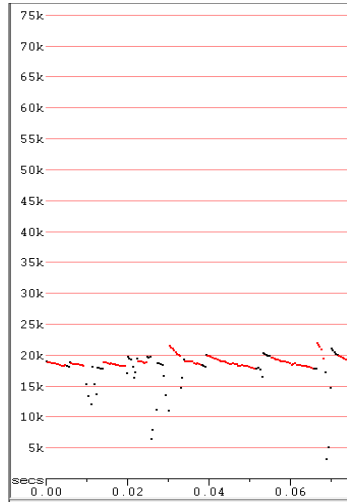
*C. picatus* / *V. baverstocki*



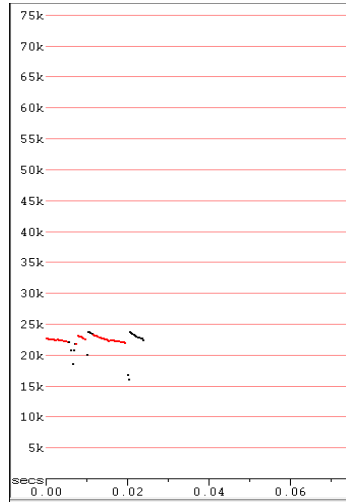
*S. greyii* / *V. baverstocki*



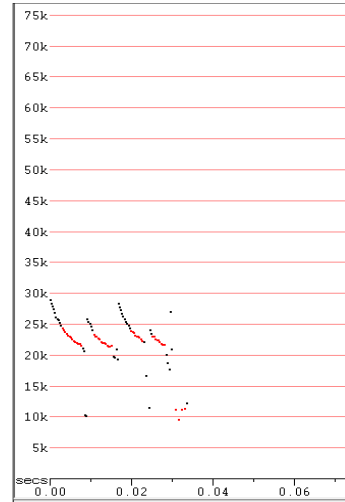
*S. greyii* / *Mormopterus species 6*



*C. jobensis* / *S. flaviventris*



*M. beccarii* / *Taphozous troughtoni*



*S. flaviventris* / *M. beccarii*

## Appendix E Queensland Herbarium Results



## Queensland Herbarium

Brisbane Botanic Gardens Mt Coot-tha • Toowong 4066 Queensland • Australia  
Telephone +61 7 3896 9326 • Facsimile +61 7 3896 9624  
e-mail Queensland.Herbarium@epa.qld.gov.au • www.epa.qld.gov.au

Enquiries            Megan Thomas  
Telephone            07 3896 9318  
Your reference  
Our reference        MBT:mh 883/08

18 July 2008

Julie Byrd  
AARC  
PO Box 675  
TOWNSVILLE Qld 4810

Dear Julie

The botanical specimens received by the Queensland Herbarium on 17 July 2008 have been identified as:

- Sn        *Archidendropsis* sp. possibly *A. thozetiana*  
H 5        *Chamaesyce dallachyana*  
H 12        *Eucalyptus* sp. No mature buds, fruits or a description of the bark were included with the specimen and these are necessary for identification of Eucalypts.  
H 13        \**Sida rhombifolia* - sida-retusa  
H 14        \**Malvastrum coromandelianum* subsp. *coromandelianum* - prickly malvastrum  
H 17        *Everistia vacciniifolia*  
H 19        *Hibiscus* sp. (Emerald S.L. Everist 2124)  
H 28        *Eucalyptus* sp. Mature buds, fruits and a description of the bark necessary.  
H 30        *Alternanthera denticulata*  
H 34        *Calytrix* sp. possibly *C. microcoma*  
H 42        *Sporobolus disjunctus*  
H 45        *Elytrophorus spicatus*, spikegrass  
H 51        *Einadia* sp. Fruits necessary for identification.  
H 52        *Dodonaea* sp. possibly *D. viscosa*. Fertile material necessary for identification.  
H 55        *Jacksonia* sp. Fertile material necessary.

\* non-native species

There is a charge of \$201.60 (16 specimens @ \$12.60 each incl GST) for these identifications and an invoice is enclosed.

Enclosed are our new plant identification charges from 1 August 2008.

Yours sincerely

G.P.Guymer  
**Director**

## Queensland Herbarium

Brisbane Botanic Gardens Mt Coot-tha • Toowong 4066 Queensland • Australia

Telephone +61 7 3896 9326 • Facsimile +61 7 3896 9624

e-mail Queensland.Herbarium@epa.qld.gov.au • www.epa.qld.gov.au

Enquiries            Megan Thomas  
Telephone          07 3896 9318  
Your reference  
Our reference      MBT/ARB:mh 1249/08

30 October 2008

Julie Byrd  
AARC  
PO Box 675  
TOWNSVILLE Qld 4810

Dear Julie

The botanical specimens received by the Queensland Herbarium on 20 October 2008 have been identified as:

- H 1     *Cyperus bifax*
- H 3     *Eragrostis sororia* - usually specimen comprising whole plant is required for identification of Eragrostis species.
- H 6     *Zornia muriculata* subsp. *angustata*
- H 7     *Capparis canescens*, juvenile
- H 8     Indeterminable - fertile material necessary.
- H 9     *Sclerolaena convexula*
- H 10    *Hibiscus burtonii*
- H 14    *Peripleura hispidula*
- H 15    *Santalum lanceolatum*
- H 21    *Zornia* sp. fertile material necessary for identification.
- H 22    *Sida atherophora*
- H 23    *Enneapogon virens*
- H 28    *Neptunia gracilis* - usually fruits necessary for identification of Neptunias.
- H 29    *Rutidosis leucantha*
- H 30    *Lomandra longifolia* - usually leaves & leaf bases are necessary for identification of Lomandras.
- H 30    *Corymbia* sp. insufficient material. There were 2 specimens numbered H30.
- H 31    Mixed specimen  
Probably \**Sorghum* x *alium* insufficient material for confirmation,  
and *Eragrostis speciosus*.
- H 32    *Jasminum didymum*
- H 33    *Olearia subspicata*
- H 34    *Digitaria ammophila*
- H 35    Mixed specimen

- Eragrostis speciosus* and *Sehima nervosum*  
H 39 *Glycine* sp. (Mackay S.B. Andrews +43)  
H 40 *Santalum lanceolatum*  
H 42 *Jacksonia rhadinoclona*  
H 43 *Stackhousia intermedia*  
H 44 *Triodia mitchellii*  
H 46 *Andropogon caricinus* var. *sericeus*  
H 49 *Comesperma pallidum*  
H 50 *Dodonaea viscosa* subsp. *angustissima*  
H 51 *Thryptomene parviflora*  
H 52 *Psydrax forsteri*  
H 54 Probably *Psydrax oleifolia*

There is a charge of \$445.50 (4.5hours @ \$99 per hour incl. gst) for these identifications and a tax invoice is enclosed.

Yours sincerely

G.P.Guymer  
**Director**

## Queensland Herbarium

Brisbane Botanic Gardens Mt Coot-tha • Toowong 4066 Queensland • Australia  
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e-mail Queensland.Herbarium@epa.qld.gov.au • www.epa.qld.gov.au

Enquiries            Gordon Guymmer, Tony Bean, Mary Loudon  
Telephone         07 3896 9318  
Your reference     GPG:ARB:ML:mh 315/09  
Our reference

2 April 2009

Julie Byrd  
AARC  
PO Box 675  
TOWNSVILLE Qld 4810

Dear Julie

The botanical specimens received by the Queensland Herbarium on 16 March 2009 have been identified as:

- H 0     *Hibiscus brachysiphonius*
- H 3     #*Digitaria longiflora*
- H 4     *Boerhavia dominii*
- H 5     *Hibiscus sturtii*
- H 6     #*Cyperus fulvus*
- H 7     *Einadia nutans*
- H 8     *Glycine tabacina*
- H 8     *Einadia nutans* subsp. *linifolia*
- H 9     *Abutilon fraseri* subsp. *fraseri* (yellow flowers) also *Bonamia media* (white flowers)
- H 10    #*Triraphis mollis*
- H 11    *Urochloa gilesii*, hairy-edged armgrass
- H 12    *Cyperus dietrichiae* var. *brevibracteatus*
- H 13    \**Verbesina encelioides*
- H 14    \**Solanum nigrum*
- H 17    Possibly *Solanum galbinum*, fertile material required
- H 17    *Enneapogon lindleyanus*
- H 19    *Minuria integerrima*
- H 20    *Eragrostis sororia*
- H 22    *Dipteracanthus australasicus* subsp. *australasicus*
- H 26    *Psydrax oleifolia*
- H 27    *Fimbristylis neilsonii*
- H 28    *Eremophila deserti*
- H 28    *Waltheria indica*
- H 29    *Maytenus cunninghamii*

- H 31 #*Eriachne aristidea*  
H 32 *Polycarpaea corymbosa*  
H 33 *Senna costata*  
H 33 *Aristida holathera* var. *holathera*  
H 34 *Sida hackettiana*  
H 35 *Basilicum polystachyon*  
H 36 *Acacia leptostachya*  
H 37 *Oldenlandia mitrasacmoides* subsp. *trachymenoides*  
H 38 \**Heliotropium indicum*  
H 41 *Persicaria attenuata*  
H 42 \**Portulaca pilosa*  
H 43 \**Portulaca pilosa*  
H 44 \**Portulaca pilosa*  
H 45 *Abutilon oxycarpum*  
H 46 *Polygonum plebeium*  
H 47 *Bergia trimera*  
H 48 *Glinus lotoides*  
H 50 *Evolvulus alsinoides* var. *villosicalyx*  
H 51 *Sida hackettiana*  
H 52 *Indigofera hirsuta*  
H 53 *Oxalis chnoodes*  
H 54 *Brachyscome ciliaris* var. *lanuginosa*  
H 56 *Polygala linariifolia*  
H 57 *Thyridolepis xerophila*  
H 58 *Dodonaea stenophylla*  
H 59 *Melaleuca tamariscina*  
H 60 *Acacia leptostachya*  
H 61 #*Leptosema chapmanii* (This species is listed as rare under Queensland's  
*Nature Conservation Act 1992.*)  
H 62 *Bursaria incana*  
H 63 *Phyllanthus fuernrohrii*  
H 64 *Phebalium glandulosum* subsp. *glandulosum*  
H 66 #*Bulbostylis barbata*  
H 67 *Acacia sparsiflora*, juvenile foliage  
H 68 #*Digitaria breviglumis*  
H 69 *Aristida caput-medusae*, many-headed wiregrass  
H 70 *Marsdenia* sp.  
H 9b #*Schoenoplectus dissachanthus*  
H 36b *Desmodium filiforme*

# These specimens have been retained for incorporation into the Herbarium collection, with thanks.

\* non-native species



There is a charge of \$891.00 (9 hrs @ \$99 per hr incl. gst) for these identifications and a tax invoice is enclosed.

Yours sincerely

G.P.Guymer  
**Director**

## Queensland Herbarium

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Enquiries            John Thompson  
Telephone            07 3896 9318  
Your reference  
Our reference        EJT:mh 1102/09

22 October 2009

Julie Byrd  
AARC  
PO Box 675  
TOWNSVILLE Qld 4810

Dear Julie

The botanical specimens received by the Queensland Herbarium on 15 October 2009 have been identified as:

H 1        *Corymbia brachycarpa*  
H 10      *Gastrolobium grandiflorum*  
H 12      *Acacia leptostachya*, juvenile foliage  
H 14      Probably *Eriachne armitii*  
H 15      *Eragrostis speciosa*  
H 16      Probably *Enneapogon robustissimus*  
H 18      Insect gall  
H 19      *Triraphis mollis*  
H 20      *Eucalyptus brownii*  
H 26      *Eragrostis lacunaria*  
H 27      *Eucalyptus similis*  
H 28      *Alphitonia excelsa*  
H 29      *Marsdenia microlepis*  
H 4        *Alstonia constricta*  
H 40      *Muehlenbeckia florulenta*  
H 41      *Psydrax forsteri*  
H 42      *Hovea parvicalyx*  
H 43      *Exocarpos sparteus*  
H 8        *Maytenus cunninghamii*  
HV 17     *Lysicarpus angustifolius*  
HV 18     *Jasminum didymum* subsp. *lineare*  
HV 20     *Corymbia dallachiana*  
HV 23     *Corymbia dallachiana*  
HV 44     *Eucalyptus cambageana*

All species are native to the area.

There is a charge of \$247.50 (2.5hrs @ \$99 per hr incl. gst) for these identifications and a tax invoice is enclosed.

Yours sincerely

G.P.Guymer  
**Director**

Plant Identification and Advisory Services  
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Enquiries            Tony Bean  
Telephone         07 3896 9318  
Your reference  
Our reference     ARB:ic 1285/09

22 December 2009

Julie Byrd  
AARC  
PO Box 675  
TOWNSWILLE Qld 4810

Dear Julie,

The botanical specimens received by the Queensland Herbarium on 15 December 2009, have been identified as:

- Glycine tabacina* (labelled as *Vigna* species?)  
H12 *Boerhavia* sp. Insufficient material for species identification  
H13 \**Eragrostis cilianensis*  
H14 *Digitaria ammophila*  
H17 *Evolvulus alsinoides*  
H17 *Triodia marginata*  
H18 *Lomandra longifolia*  
H18 *Brachychiton rupestris* or *B. populneus* ssp. *trilobus*, specimens from mature plant needed to distinguish these species.  
H19 *Alstonia constricta*  
H2 *Keraudrenia collina*  
H22 *Senna artemisioides* subsp. *artemisioides*  
H24 *Glinus lotoides*  
H24A *Leptochloa digitata*  
H25 *Juncus aridicola*  
H27 *Phragmites australis*  
H28 *Plectranthus parviflorus*  
H29 Probably *Canavalia* sp. Fertile material required for species identification  
H30 *Alternanthera denticulata* var. *micrantha*  
H31 \**Scoparia dulcis*  
H32 *Enteropogon paucispiceus*  
H33 *Dodonaea viscosa* subsp. *angustissima*  
H36 *Eucalyptus* sp., fertile material required for species identification  
H4 \**Verbesina encelioides*  
H5 *Dipteracanthus australasicus* sp. *australasicus*

- H50 *Cyperus alterniflorus*  
H51 *Capparis shanesiana*  
H52 *Rostellularia adscendens* var. *clementii*  
H54 *Corymbia leichhardtii*  
H55 The fruits belong to *Eucalyptus coolabah*  
H6 *Abutilon* sp. Insufficient material for species identification  
H7 *Alectryon oleifolius* subsp. *elongatus*  
H9 *Marsdenia viridiflora* subsp. *viridiflora*

\*non-native species

There is a charge of \$594.00 for these identifications and a tax invoice is enclosed.

Yours sincerely

G.P.Guymer  
**Director**

## Queensland Herbarium

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Enquiries            David Moore  
Telephone            07 3896 9318  
Your reference  
Our reference        DM:mh 633/10

14 July 2010

Julie Byrd  
AARC  
PO Box 675  
TOWNSVILLE Qld 4812

Dear Julie

The botanical specimens received by the Queensland Herbarium on 23 June 2010, have been identified as:

- S24    *Ipomoea brownii*
- S51    *Sauropus rigens*
- S48    *Calotis squamigera*
- S36    *Phyllanthus lacunarius*
- S20    *Sclerolaena convexula*
- S14    *Eriachne mucronata*
- S13    *Eragrostis sororia*
- S4      *Eragrostis sororia*
- S31    *Eragrostis speciosa*
- S40    *Phyllanthus fuernrohrii*
- S37    *Eragrostis sororia*
- S15    *Gastrolobium grandiflorum*
- S32    *Hibiscus burtonii*
- S7      *Phyllanthus virgatus*
- S34    *Goodenia byrnesii*
- S9      *Petalostigma banksii*
- S38    *Euphorbia tannensis* subsp. *eremophila*
- S60    *Senna* sp., insufficient material for species identification
- S53    *Marsdenia microlepis*
- S16    *Vigna* sp., insufficient material for species identification
- S49    *Canavalia papuana*
- S42    *Dianella longifolia*
- S5      *Alternanthera nana*
- S41    *Iphigenia indica*
- S27    *Murdannia graminea*
- S2      *Eragrostis* sp., inflorescence too immature for species identification
- S23    Cucurbitaceae. Fertile material required for identification
- S10    Cucurbitaceae. Fertile material required for identification



S50 *Melaleuca chisholmii*  
S59 *Dodonaea lanceolata* var. *lanceolata*  
S57 *Dodonaea stenophylla*  
S30 *Indigofera haplophylla*  
S52 *Indigofera colutea*  
S28 *Cyanthillium cinereum*  
S6 *Chenopodium carinatum*  
S8 \**Portulaca pilosa*  
S17 *Chenopodium carinatum*  
S25 *Chamaecrista absus* var. *absus*  
S26 *Vittadinia pustulata*  
S41 *Chamaecrista absus* var. *absus*  
S11 *Hibiscus sturtii*  
S19 *Sida hackettiana*  
S18 \**Sida spinosa*  
S29 \**Sida cordifolia*  
S39 *Ehretia membranifolia*  
S44 *Ventilago viminalis*  
S43 *Flindersia dissosperma*  
S47 *Pandorea pandorana*  
S46 *Nyssanthes erecta*  
S55 *Melhania oblongifolia*  
S54 *Aeschynomene brevifolia*  
S58 *Grewia latifolia*  
S33 *Aristida holathera*  
S45 *Cleistochloa subjuncea*  
S56 *Digitaria breviglumis*  
S35 *Imperata cylindrica*  
S21 *Arundinella nepalensis*  
S12 *Eragrostis elongata*  
S1 *Digitaria ciliaris*  
S3 *Eragrostis elongata*  
S22 *Scleria sphacelata*

\* non-native species

# This specimen has been retained for incorporation into the Herbarium collection, with thanks.

There is a charge of \$1584.00 (16hrs @ \$99 per hr incl. gst) for these identifications and an invoice will be forwarded to you separately.

Yours sincerely

G.P.Guymer  
**Director**

Appendix F Threatened Species Not Observed on the Project site



**Threatened Flora Known from the Region not Identified on the Project Site**

Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Zamiaceae	<i>Macrozamia platyrhachis</i>	-	Endangered	Endangered	Restricted to the Blackdown Tableland / Planet Downs area of the Dawson Range in central Queensland, in eucalypt woodland or open forest on sandy soil. Seeds become ripe in March to April (Department of the Environment, 2009)	Unlikely
Blenchnaceae	<i>Blechnum ambiguum</i>	-	Not Listed	Near Threatened	Common on wet rocks, usually found in open forest, especially common in sandstone areas (PlantNet, 2009)	Unlikely
Apocynaceae	<i>Marsdenia brevifolia</i>	-	Vulnerable	Vulnerable	Occurs on serpentine rock outcrops or crumbly black soils derived from serpentine in eucalypt woodland. Flowering occurs from November to February, fruiting from February to June (Department of the Environment, 2009)	Low Potential
Apocynaceae	<i>Cerbera dumicola</i>	-	Not Listed	Near Threatened	Found near Howard Point, Middle Percy Island, 55 km NE of Arthur Point, Shoalwater Bay (APNI, 2009).	Unlikely
Asteraceae	<i>Rutidosia glandulosa</i>	-	Not Listed	Near Threatened	Leichhardt District, Blackdown Tableland, 32 km SE of Blackwater, along a sandy creek (APNI, 2009)	Low Potential



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Asteraceae	<i>Trioncinia retroflexa</i>	-	Not Listed	Endangered	Occurs in soils are moderately shallow to deep cracking clay soils, dark brown to reddish brown in colour, often self mulching, and with gravel, stone or linear gilgai sometimes present (Department of the Environment, 2009)	High Potential
Brassicaceae	<i>Lepidium hyssopifolium</i>	Basalt Peppercross	Endangered	Not Listed	Basalt Peppercross can be found on a variety of soils, growing in association with many vegetation types, including eucalypt woodland with grassy ground cover, low open casuarina woodland with a grassy ground cover and tussock grass, flowering in summer (APNI, 2009)	Unlikely
Campanulaceae	<i>Wahlenbergia islensis</i>	-	Not Listed	Near Threatened	Leichhardt region; near Isla George (APNI, 2009)	Low Potential
Celastraceae	<i>Apatophyllum flavovirens</i>	-	Not Listed	Endangered	Leichhardt District: Bull Creek Gorge, 15 km W of 'Castlevale', W of Springsure (APNI, 2009)	Low Potential
Celastraceae	<i>Apatophyllum teretifolium</i>	-	Not Listed	Near Threatened	Leichhardt District: Lonesome National Park, NNE of Injune (APNI, 2009)	Low Potential

Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Ericaceae	<i>Leucopogon cuspidatus</i>	Beard Heath	Vulnerable	Not Listed	Leucopogon cuspidatus collections have been made from open forest, woodland and heath on rocky slopes with granitic or serpentinite substrates, flowering from July to October (Department of the Environment, 2009)	Low Potential
Ericaceae	<i>Leucopogon grandiflorus</i>	Whorl-leaved Heath	Not Listed	Near Threatened	Found at Leichhardt District - Carnarvon Creek (APNI, 2009)	Low Potential
Euphorbiaceae	<i>Bertya opponens</i>	-	Vulnerable	Not listed	Flowering is generally believed to occur between July and August, although timing is more dependent on the individual site characteristics. The two coastal populations, because of their different climatic and seasonal variations, normally flower in October-November, but can flower as late as February (Department of the Environment, 2009)	Unlikely
Euphorbiaceae	<i>Shonia carinata</i>	-	Not Listed	Vulnerable	Located within the Maranoa District: Summit of Junction Ridge, N of Marlong Arch, Mt Moffatt National Park (APNI, 2009)	Low Potential

Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Euphorbiaceae	<i>Bertya pedicellata</i>	-	Not Listed	Near Threatened	Grows in heath or open eucalypt forest with heath understorey on skeletal sandy loam soils derived from rhyolite on steep rocky slopes, rock pavements and in mountain gorges; located near Rockhampton (Department of the Environment, 2009)	Low Potential
Fabaceae	<i>Daviesia discolor</i>	-	Vulnerable	Vulnerable	Occurs on sandy soil derived from sandstone and on lateric clay, at altitudes of 600 to 900 m, in open eucalypt forest dominated by <i>Eucalyptus shaerocarpa</i> and <i>Eucalyptus nigra</i> . Flowering occurs from August to October (Department of the Environment, 2009)	Unlikely
Fabaceae	<i>Daviesia quoquoversus</i>	-	Not Listed	Vulnerable	Located in the Leichhardt district, Blackdown Tableland, 25 km from Mimosa Creek (APNI, 2009)	Low Potential
Fabaceae	<i>Desmodium macrocarpum</i>	Large-podded Trefoil	Not Listed	Near Threatened	Located in clay soils and skeletal soils (ANRA, 2009)	Moderate Potential
Fabaceae	<i>Zornia pallida</i>	-	Not Listed	Near Threatened	Rare in Queensland, no information about this species (APNI, 2009; North Australian Land Manager, 2009)	Potential





Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Haloragaceae	<i>Haloragis exalata subsp. velutina</i>	Tall Velvet Sea-berry	Vulnerable	Vulnerable	Often occurs in damp places near watercourses and in woodland on steep, rocky slopes. Flowering from January to April (Department of the Environment, 2009)	Low Potential
Lamiaceae	<i>Plectranthus blakei</i>	-	Not Listed	Near Threatened	Located in the Leichhardt district, in the Blackdown Tableland Park APNI, 2009)	Low Potential
Longaniaceae	<i>Logania diffusa</i>	-	Vulnerable	Vulnerable	This species occurs on the top of the plateau escarpment in heathland in the Blackdown Tableland and in open forest with shallow, sandy, often stony soil overlying sandstone. Flowering occurs in March to September, fruiting in January (Department of the Environment, 2009)	Low Potential
Loranthaceae	<i>Lysiana filifolia</i>	-	Not Listed	Near Threatened	Only known to parasitise she-oaks growing in open woodland communities, recorded flowering and fruiting from June to August (Lokkers et al., 2005)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Mimosaceae	<i>Acacia grandifolia</i>	-	Vulnerable	Not Listed	Known only from 2 localities in the Burnett District, Qld, occurring as open stands among sandstone outcrops in sand or in shallow, stony soils derived from basalt. Flowers in September (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia tenuinervis</i>	-	Not Listed	Near Threatened	Grows in Brigalow scrub or eucalypt woodland, in ironstone gravel. Flowers August to September (Wattle, 2001)	Low Potential
Mimosaceae	<i>Acacia arbiana</i>	-	Not Listed	Near Threatened	Confined to the summits of Ropers and Scotts Peak and perhaps other peaks of the Peak Range, E of Clermont, Qld. Recorded from trachyte outcrops in heath-like vegetation. Flowers July to August (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia spania</i>	Western Rosewood	Not Listed	Near Threatened	Known only from two localities near Emerald, Qld, where it occurs as relatively pure stands in shallow red soil surrounded by open eucalypt woodland. Flowers in August (Wattle, 2001)	Low Potential
Mimosaceae	<i>Acacia hockingsii</i>	-	Not Listed	Vulnerable	Restricted to the Isla Gorge area, Qld. Grows in shallow soil over sandstone in eucalypt woodland (Wattle, 2001)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Mimosaceae	<i>Acacia islana</i>	-	Not Listed	Vulnerable	Restricted to the Isla Gorge area (50 km SSW of Theodore), Qld. Grows in Eucalyptus woodland on shallow, stony soil over sandstone (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia storyi</i>	-	Not Listed	Near Threatened	Occurs on the Blackdown Tableland and adjacent, lower land on W side, Qld. Grows on sandstone plateaux, in open forest. Flowers April to August and fruits August , September and December (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia pubicosta</i>	-	Not Listed	Near Threatened	Restricted to the Biggenden area, south-eastern Qld. Confined to rocky slopes (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia gittinsii</i>	-	Not Listed	Near Threatened	Confined to the Blackdown Tableland S of Blackwater, Qld. Grows on sandstone in Eucalyptus woodland; it is common in places in wetter areas (Wattle, 2001)	Unlikely

Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Mimosaceae	<i>Acacia tingoorensis</i>	Tingoora Wattle	Not Listed	Vulnerable	Restricted to a small area near Kingaroy in the Burnett District, south-eastern Qld; grows in deep red loam or shallow loamy and sandy soils, in eucalypt woodland or forest; forms dense stands on roadsides. Flowers August to September (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia pubifolia</i>	Wyberba Wattle	Vulnerable	Vulnerable	Grows on rocky granite hillsides, in sandy, stony or loam soil in eucalypt-scrub woodland or Eucalyptus-Callitris forest. Flowers September to November (Wattle, 2001)	Unlikely
Mimosaceae	<i>Acacia ramiflora</i>	-	Vulnerable	Not Listed	Poorly known and inadequately collected species in the Torrens Creek- Pentland area; also near headwaters of Gilbert R., Qld. Grows on sandstone hills (Wattle, 2001). This species occurs within the Burdekin, Desert Channels, Northern Gulf and Wet Tropics (Queensland) Natural Resource Management Regions (EPBC, 2008)	Low Potential
Myrtaceae	<i>Baeckea trapeza</i>	-	Not Listed	Vulnerable	Located along Two Mile Creek in the Blackdown Tableland (APNI, 2009)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Myrtaceae	<i>Ochrosperma obovatum</i>	-	Not Listed	Vulnerable	Inhabits the Burnett District, 6 km ESE of Brovinia (APNI, 2009)	Unlikely
Myrtaceae	<i>Melaleuca pearsonii</i>	-	Not Listed	Near Threatened	On exposed plateaus in closed heath to open shrubland (APNI, 2009)	Low Potential
Myrtaceae	<i>Sannantha brachypoda</i>	-	Not Listed	Near Threatened	Grows in a wide range of habitats, including Melaleuca dominated open forest and Eucalypt forest (PlantNet, 2009)	Low Potential
Myrtaceae	<i>Homoranthus zeteticorum</i>	-	Not Listed	Near Threatened	Located in Salvator Rosa National Park in Queensland (APNI, 2009)	Unlikely
Myrtaceae	<i>Eucalyptus pachycalyx</i> subsp. <i>waajensis</i>	Pumpkin Gum	Not Listed	Endangered	Common in hills west of Herberton and north of Mount Garnet and at Mt Mulligan in N Qld, a small occurrence near Waaje in the Barakula area. Flowering period February (Brooker and Kleinig, 2004)	Unlikely
Myrtaceae	<i>Eucalyptus sicilifolia</i>	-	Not Listed	Vulnerable	Very restricted, known only from Little St Peter Montain and Mt Zamia Environmental Park, near Springsure, Flowering period from July to September (Brooker and Kleinig, 2004)	Unlikely

Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Myrtaceae	<i>Eucalyptus decolor</i>	-	Not Listed	Near Threatened	Known only from the Many Peaks Range S of Gladstone and ranges south of Biggenden; flowering from December to March (Brooker and Kleinig, 2004)	Unlikely
Myrtaceae	<i>Melaleuca groveana</i>	Grove's Paperbark	Not Listed	Near Threatened	Grows in heath, often in exposed sites	Unlikely
Myrtaceae	<i>Homoranthus decumbens</i>	-	Vulnerable	Vulnerable	This species grows in shrub land on shallow sandy soils containing lateritic pebbles and on sandstone cliff edges in the Blackdown National Park (Department of the Environment, 2009)	Unlikely
Myrtaceae	<i>Homoranthus decasetus</i>	-	Not Listed	Near Threatened	Inhabits the Isla Gorge in the Leichhardt district (APNI, 2009)	Low Potential
Myrtaceae	<i>Eucalyptus raveretiana</i>	Black Ironbox	Vulnerable	Vulnerable	Occurs in riparian woodlands on alluvial flats along riverbanks on sandy and / or alluvial soils, between Rockhampton, Charters Towers and the lower Burdekin. Recorded flowering from December to January, fruiting February to April (Brooker and Kleinig, 2004)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Myrtaceae	<i>Corymbia scabrida</i>	Rough-leaved Yellowjacket	Not Listed	Near Threatened	Restricted distribution to the west of Springsure in central Qld, flowering period October (Brooker and Kleinig, 2004).	Unlikely
Picrodendraceae	<i>Pseudanthus pauciflora subsp. arenicola</i>	-	Not Listed	Near Threatened	Grows in health land, accompanied by <i>Banksia</i> sp. and <i>Leptospermum</i> sp. and in Eucalypt woodlands (personal communication with Queensland Herbarium, June 2009)	Moderate Potential
Rhamnaceae	<i>Polianthion minutiflorum</i>	-	Vulnerable	Vulnerable	Grows in forest and woodland on sandstone slopes and gullies with skeletal soil. It is known from five areas in east Queensland, from Redcliffe Vale, about 110 km west of Mackay, south to Kingaroy	Low Potential
Rutaceae	<i>Boronia eriantha</i>	Round-leaflet Sandstone Boronia	Not Listed	Near Threatened	Located in soils which are shallow with low water-holding capacity and low fertility, shrub layers and ground cover tend to be sparse (APNI, 2009)	Low Potential
Santalaceae	<i>Thesium australe</i>	Austral Toadflax	Vulnerable	Vulnerable	Occurs in grassland or grassy woodland and is often found in damp sites in association with Kangaroo Grass (DEC, 2009)	Low Potential



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Solanaceae	<i>Solanum adenophorum</i>	-	Not Listed	Endangered	A relatively rare species recorded from scattered localities in Qld in the Dingo-Nebo-Clermont area near Rockhampton (APNI, 2009)	Moderate Potential
Surianaceae	<i>Cadellia pentastylis</i>	Ooline	Vulnerable	Vulnerable	Occurs on the western edge of the NSW north-west slopes, from Mt Black Jack near Gunnadah to west of Tenterfield, and extends into Queensland to Carnarvon Range and Callide Valley, south-west of Rockhampton. The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities of Brigalow (Department of the Environment, 2009)	Unlikely
Arecaceae	<i>Livinstona fulva</i>	-	Not Listed	Near Threatened	Blackdown Tableland in open Eucalypt forest (PASCOA, 2009)	Unlikely
Arecaceae	<i>Livinstona nitida</i>	-	Not Listed	Near Threatened	Open eucalypt forest, stream banks and on rocky escarpments in the Carnarvon and Isla Gorge area of central Queensland (PASCOA, 2009)	Low Potential
Cyperaceae	<i>Cyperus clarus</i>	-	Not Listed	Vulnerable	Grows in grassland or open woodland, on heavy soils derived from basalt (PlantNet, 2009)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Cyperaceae	<i>Eleocharis blakeana</i>	-	Not Listed	Near Threatened	Grows in ephemerally wet situations, such as gilgais, often associated with brigalow and belah woodland and on clayey soil (PlantNet, 2009)	Moderate Potential
Juncaginaceae	<i>Maundia triglochinosides</i>	-	Not Listed	Vulnerable	Flowering occurs during warmer months. Grows in swamps, creeks or shallow freshwater 30 - 60 cm deep on heavy clay, low nutrients (DEC, 2009)	Unlikely
Orchidaceae	<i>Gastrodia crebriflora</i>	-	Not Listed	Vulnerable	A ground orchid inhabiting the Blackdown Tableland (APNI, 2009)	Unlikely
Orchidaceae	<i>Pterostylis woollsii</i>	Long Tail Greenhood	Not Listed	Near Threatened	Grows in dry open granite forests (PlantNet, 2009)	Unlikely
Orchidaceae	<i>Diuris parvipetala</i>	Slender Purple Donkey Orchid	Not Listed	Vulnerable	Found in near Carnarvon Gorge in central Queensland and in south-eastern Queensland, from Brigooda near Murgon, south to the New South Wales border. It grows in shallow, brown, basalt loam soils (DERM, 2009)	Unlikely
Orchidaceae	<i>Phaius australis</i>	Lesser Swamp-orchid	Endangered	Endangered	Inhabits swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest, mostly in coastal areas (Department of the Environment, 2009)	Unlikely



Family	Scientific Name	Common Name	Conservation Status		Habitat	Likelihood of Presence on the Project Site
			EPBC	NC Act		
Orchidaceae	<i>Genoplesium validum</i>	-	Not Listed	Near Threatened	Located within creeks along the Blackdown Tableland (APNI, 2009)	Low Potential
Poaceae	<i>Arthraxon hispidus</i>	Hairy-joint Grass	Vulnerable	Vulnerable	Found along the edges of rainforests, creeks and swamps. Flowering between March to July and summer to autumn (Department of the Environment, 2009)	Low Potential
Poaceae	<i>Digitaria porrecta</i>	Finger Panic Grass	Endangered	Near Threatened	Occurs in grasslands on extensive basaltic plains, and in undulating woodlands and open forests with an underlying basaltic geology. Seeding period from March to April (Department of the Environment, 2009)	Unlikely
Poaceae	<i>Dichanthium queenslandicum</i>	King Blue-grass	Vulnerable	Vulnerable	Endemic to Queensland where it occurs mostly on black clay soils around Emerald and more rarely on the Darling Downs. Flowers November to January (Department of the Environment, 2009)	Low Potential
Poaceae	<i>Dichanthium setosum</i>	Bluegrass	Vulnerable	Near Threatened	<i>Dichanthium setosum</i> is associated with heavy basaltic black soils and stony red-brown hardsetting loam with clay subsoil and is found in moderately disturbed areas. Flowering period November to June (Ausgrass, 2002)	Unlikely



### Threatened Fauna Known from the Region Not Observed on the Project Site

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Acanthophis antarcticus</i>	Common Death Adder	Not Listed	Near Threatened	Inhabits grasslands, woodlands, and rocky ranges (Wilson 2005). Lies concealed under leaf litter, or half buried under soil or sand (Tyler and Knight 2009)	Due to the abundance of similar habitat type surrounding the Project site, if the species was present in the region, the Project is unlikely to impact on the species / Moderate Potential
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Migratory	Near Threatened	Rainforests, gallery forests, tall mangroves, and closed forests, woodlands, river edge forest (Simpson and Day 2010)	Due to the abundance of similar habitat type surrounding the Project and migratory nature of the species, it is considered unlikely that, if it were present in the region, the Grey Goshawk would be impacted by the Project / Low Potential
<i>Adelotus brevis</i>	Tusked Frog	Not Listed	Vulnerable	The Tusked Frog inhabits rainforest, wet sclerophyll country (Tyler and Knight 2009) and flooded grasslands (Robinson 1999). It is found coastal of the Great Dividing Range from central-eastern Queensland to southern New South Wales	Some suitable habitat may occur on the Project site, however it is likely that the Project is west of the species preferred range. Due to the abundance of similar habitat type surrounding the Project site, if the species was present in the region, it is unlikely there would be an impact to the species / Low Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Aerodramus terraereginae</i>	Australian Swiftlet	Not Listed	Near Threatened	This species occurs in tropical north-east Queensland from the Cape York Peninsula south as far as the Eungella Range near Mackay and inland to Chillagoe. It is mainly found near the coast including a number of offshore islands (Simpson and Day 2010)	The known range for this species is not near the Project site. The Wildlife Online results showed only two records of the species in the Central Highlands area. It is therefore considered unlikely that the species would be impacted by the Project / Unlikely
<i>Amytornis striatus</i>	Striated Grasswren	Not Listed	Near Threatened	The Striated Grasswren prefers spinifex clumps on sand dunes, mallee woodlands, or on rocky ranges in central west Queensland (Simpson and Day 2010, ABRS 2009)	Due to the abundance of similar habitat type surrounding the Project, if the species was present in the region, it is considered unlikely that the Project would impact on the species / Unlikely
<i>Anthochaera phrygia</i>	Regent Honeyeater	Endangered	Endangered	Regent Honeyeaters mostly occur in dry box-ironbark eucalypt woodland and dry sclerophyll forest associations. They sometimes use native pine <i>Callitris</i> sp woodlands, usually where mixed with eucalypts (Department of the Environment, Water, Heritage and the Arts 2009)	Some suitable habitat occurs on the Project site, however the range of this species is further south, if the species was present; it is considered unlikely that the Project would impact on the species / Unlikely



Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Bettongia tropica</i>	Northern Bettong	Endangered	Endangered	This species is now restricted to four areas of the north-eastern tropical rainforest zone, although has formerly been identified in the Rockhampton area by a single specimen (Menkhorst and Knight 2001). Their distribution appears to be limited by the availability of hypogenous fungi (truffles) and potentially <i>Alloteropsis semialata</i> and <i>Hyposix spp.</i> , all of which are critical food resources (Johnson & McIlwee 1997)	As this species has not been identified within the Central Highlands region since 1884 (Pope 1996), it is considered unlikely that there would be any extant populations in the area, and therefore there are not considered to be any impacts possible by the Project on the species / Unlikely
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Vulnerable	Dry and wet eucalypt forests, and roosts in caves and mines (Menkhorst and Knight 2001)	Suitable habitat for this species exists, but distribution of the Large-eared Pied Bat is east of the Project site / Unlikely
<i>Climacteris erythroga</i>	Red-browed Treecreeper	Not Listed	Near Threatened	The Red-browed Treecreeper favours the tall, smooth-barked trees of wet eucalypt forests, and rainforest margins (Simpson and Day 2010)	Suitable habitat for this species does not exist on the Project site and its distribution is within south-east Queensland, therefore it is considered unlikely that the species would inhabit or access the Project / Unlikely
<i>Ctenotus capricorni</i>	Skink	Not Listed	Near Threatened	This skink species prefers sandy areas supporting Spinifex, often in association with shrub and woodland communities (Cogger 2000). Known range is throughout most of Queensland	Some suitable habitat may occur on the Project site however given the species large range and the availability of similar habitat in the region it is unlikely the Project will adversely affect it / Moderate Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Cyclorana verrucosa</i>	Rough Collared Frog	Not Listed	Near Threatened	Found around temporary ponds, ditches, claypans and creeks in wooded or open country, following summer rains (Robinson 1999)	Whilst suitable habitat for the species occurs within the Project site, it is outside of the normal range for the species (northern New South Wales up to south-east Queensland), and it is considered unlikely that there would be a population of the species within the Project area / Unlikely
<i>Dasyurus geoffroii geoffroii</i>	Western Quoll	Vulnerable	Extinct in the wild	The last specimens of the Western Quoll in Queensland were collected between 1884 and 1907. The species disappeared from central Australia around the 1940s–1950s. The species is now known only from Western Australia (Department of the Environment, Water, Heritage and the Arts 2009)	The available data indicates that the species is no longer extant within Queensland. It is therefore considered that the Project will not impact on the species / Unlikely
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	Not Listed	The Northern Quoll is found in savannahs and rocky eucalypt woodlands, mostly within 200km of the coast (Menkhorst and Knight 2004)	Despite targeted trapping and extensive spotlighting activities within the Project site, this species was not detected. It is considered unlikely that the species is found within the Project site / Unlikely
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll (southern subspecies)	Endangered	Vulnerable	The Spotted-tailed Quoll is found in many habitats, including rainforest, wet and dry sclerophyll forest, coastal heath and scrub. Dens in tree hollows, hollow logs, and rock crevices (Menkhorst and Knight 2004)	Despite targeted trapping and extensive spotlighting activities within the Project site, this species was not detected. It is considered unlikely that the species is found within the Project site / Unlikely



Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Delma torquata</i>	Collared Delma	Vulnerable	Vulnerable	The Collared Delma favours open rocky terrain, although has been recorded in woodland and Brigalow sites (Wilson 2005). It can be found within disturbed habitats (Cogger 2000) and known populations are concentrated around south-east Queensland, with disjunct populations recorded near the Project site	Despite targeted trapping active searching activities within the Project site, this species was not detected. Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential
<i>Denisonia maculata</i>	Ornamental Snake	Vulnerable	Vulnerable	This species occurs in Brigalow woodlands growing on clay and sandy soils, riverside woodland, and open forest growing on natural levees (Shine 1983), showing a preference for moist areas (Wilson and Knowles 1988)	This species was not trapped or observed despite targeted efforts across the Project site. Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential
<i>Egernia rugosa</i>	Yakka Skink	Vulnerable	Vulnerable	Usually found in open dry sclerophyll forest or woodland. Fallen timber and ground litter provide cover along with dense ground vegetation (Cogger 2000)	This species was not trapped or observed despite targeted efforts across the Project site. Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Not Listed	Near Threatened	The Black-necked Stork prefers open, freshwater environs, including the margins of billabongs and swamps, shallow floodwaters over grasslands, wet heathlands, watercourse pools, sewage farms, dams and adjacent grasslands, and savannah woodlands (Morcombe 2002)	Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential
<i>Erythrotriochis radiatus</i>	Red Goshawk	Vulnerable	Endangered	The Red Goshawk is typically found over wooded and forested land with a mosaic of vegetation types in tropical and warm temperate climates in coastal and subcoastal areas (Marchant and Higgins 1993)	While the Project site offers a mosaic of vegetation types, this species is generally found closer to the coast in areas with permanent water. The Project will not disturb its favoured habitat and is unlikely have any adverse impacts on this species / Low Potential
<i>Falco hypoleucos</i>	Grey Falcon	Migratory	Near Threatened	The Grey Falcon is found over much of arid and semi-arid Australia, usually observed in lightly timbered country, especially stony plains and lightly timbered acacia shrublands (Morcombe 2002). Little else is known of the species or its movements	Given the availability of similar habitat in the region, and the migratory status of the bird, it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Low Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Furina barnardi</i>	Yellow-naped Snake	Not Listed	Near Threatened	The Yellow-naped snake inhabits open forests, where it shelters under fallen timber and litter (Cogger 2000)	Despite active searches in areas of likely habitat, this species was not observed. Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential
<i>Furina dunmalli</i>	Dunmall's Snake	Vulnerable	Vulnerable	This species is commonly found in the Brigalow Belt Region, including belah, brigalow and cypress pine communities	Extensive habitat searching and trapping for reptiles was undertaken, and no evidence of this species was detected during the survey. It is considered unlikely this species inhabits the Project site / Moderate Potential
<i>Grantiella picta</i>	Painted Honeyeater	Not Listed	Near Threatened	This species is found in forests, woodlands, dry scrublands, often with abundant mistletoe (Simpson and Day 2010)	Despite targeted bird surveys in areas of likely habitat, this species was not identified within the Project site. Given the availability of similar habitat in the region, it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Low Potential
<i>Hermiaspis daemellii</i>	Grey Snake	Not Listed	Near Threatened	This species favours cracking soil areas of the Brigalow Belt (Wilson 2005), in dry sclerophyll forests and woodlands (Cogger 2000)	Despite active searches in areas of likely habitat, this species was not observed. Given the availability of similar habitat in the region it is unlikely the Project will have an adverse impact on the species if it does utilise the area / Moderate Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Kerivoula papuensis</i>	Gold-tipped Bat	Not Listed	Near Threatened	The Gold-tipped Bat inhabits rainforests, and occasionally wet and dry sclerophyll forests, and is usually noted in dense vegetation close to creeklines (Menkhorst and Knight 2001)	Despite ANABAT recordings within riparian habitat over a range of conditions, this species was not identified within the Project area. This species is generally inhabits the coastline / Unlikely
<i>Lasiorhinus krefftii</i>	Northern Hairy-nosed Wombat	Endangered	Endangered	The last known colony of Northern Hairy-nosed Wombats is now restricted to 300 ha in Epping Forest National Park in central Queensland. The Northern Hairy-nosed Wombat occurs along an ancient water course in the park where the soil is sandy and dry (DEWHA, 2009)	Despite active searches in areas of likely habitat, this species was not observed. This species is only known to inhabit one centralised location / Unlikely
<i>Lathamus discolor</i>	Swift Parrot	Endangered	Endangered	The Swift Parrot inhabits forests and woodlands with flowering trees (Morcombe 2002). It breeds only in Tasmania, and migrates to mainland Australia in autumn (Higgins 1999). It has been recorded in the Central Highlands region 3 times	This species has not been seen during any of the field surveys conducted by AARC to date. Migratory birds vary their habitat use in response to variations in climatic conditions and the subsequent spatial and temporal patterns of food productivity. It is therefore considered that, even if the species was observed within the Project area, it would be only transiently during migration, and the Project would not have any impact on breeding populations or habitats / Unlikely

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Lerista allanae</i>	Allan's Lerista	Endangered	Endangered	Allan's Lerista is endemic to black soils of the Brigalow Belt at Clermont, Logan Downs Station, and Retro Station, with the most recent specimen being collected in 1960 (Wilson 2005). It is possible that cultivation and grazing have lead to their decline	Despite active searches in areas of likely habitat, this species was not observed. This species is poorly known, there have not been any recent sightings of the species, and the area is currently grazed by cattle. It is therefore considered unlikely that the species is present in the Project area / Unlikely
<i>Lewinia pectoralis</i>	Lewin's Rail	Not Listed	Near Threatened	This species inhabits swamps, lakes, tidal creeks, saltmarshes, lush wet pasture, or paperbark and other swamp woodlands (Simpson and Day 2010)	Suitable habitat occurs on the Project site however given the species range (majority of eastern and southern coast of Australia) and the availability of similar habitat in the region it is unlikely the Project will adversely affect it / Unlikely
<i>Lophoictinia isura</i>	Square-tailed Kite	Migratory	Near Threatened	This species is found in a range of habitats including woodlands dominated by eucalypts and pandanus, gallery forests, and heaths (Simpson and Day 2010). Appears to occupy large hunting ranges of more than 100 km <sup>2</sup> (DECC 2005).	Suitable habitat occurs on the Project site however given them mobility of the species, the availability of similar habitat in the region and large hunting ranges of individual birds, it is unlikely the Project will adversely affect the Square-tailed Kite population / Unlikely





Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Macroderma gigas</i>	Ghost Bat	Not Listed	Vulnerable	The Ghost Bat requires undisturbed roost caves or mineshafts, which are usually complex systems with multiple openings (Menkhorst and Knight 2001)	Roosting habitat required by the species is not present within the Project area. Therefore it is considered unlikely that the species would frequent the Project site, and there will be no impact from the Project on the species / Low Potential
<i>Macronectes giganteus</i>	Southern Giant-petrel	Endangered	Endangered	This species is marine, over open seas and inshore waters. It favours the edge of the continental shelf and edge of ice-packs (Morcombe 2002)	The habitat required by the species is not present within the Project area. Therefore it is considered unlikely that the species would frequent the Project site, and there will be no impact from the Project on the species / Unlikely
<i>Melithreptus gularis</i>	Black-chinned Honeyeater	Not Listed	Near Threatened	The Black-chinned Honeyeater is often found in the upper levels of open forest and woodland dominated by box and ironbark eucalypts, also in riparian areas (Australian Museum, 2006)	Some suitable habitat may occur on the Project site however given the species range (widespread throughout both Queensland and Australia) and the availability of similar habitat in the region it is unlikely the Project will adversely affect it / Moderate Potential
<i>Neochmia phaeton</i> and <i>Neochmia phaeton phaeton</i>	Crimson Finch	Vulnerable	Endangered	The Crimson Finch is found in waterside vegetation including pandanus, cane grass, paperbarks, and lush grasses (Simpson and Day 2010)	Riparian habitats similar to those occurring on the Project site are commonly represented in the wider area. It is considered unlikely that mining activities would result in adverse impacts on this species / Unlikely

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Neochmia ruficauda ruficauda</i>	Star Finch	Endangered (Eastern and Southern)	Endangered (Eastern)	This species occupies grassland or grassy woodland near water (Simpson and Day 2010)	Grassland and grassy woodland habitats similar to those occurring on the Project site are commonly represented in the wider area. It is considered unlikely that mining activities would result in adverse impacts on this species as a whole / Moderate Potential
<i>Neophema pulchella</i>	Turquoise Parrot	Not Listed	Near Threatened	The Turquoise Parrot inhabits woodland and open grassland, both natural and partly cleared (Simpson and Day 2010)	Grassland and grassy woodland habitats similar to those occurring on the Project site are commonly represented in the wider area. It is considered unlikely that mining activities would result in adverse impacts on this species as a whole / Unlikely
<i>Nettapus coromandelianus</i>	Cotton Pygmy-goose	Migratory	Near Threatened	This species is found in coastal wetlands, preferring deep permanent pools and swamps with abundant aquatic grasses (Simpson and Day 2010)	Wetland habitats similar to those occurring on the Project site are commonly represented in the wider area. Despite targeted bird surveying in areas of likely habitat, this species was not observed. It is considered unlikely that mining activities would result in adverse impacts on this species as a whole / Moderate Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Ninox strenua</i>	Powerful Owl	Not Listed	Vulnerable	The Powerful Owl inhabits eucalypt forests, preferring the tall wet forests of ranges. They can also be found marginally in lower or drier forest that holds prey and large hollows (Simpson and Day 2010). The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. Pairs of Powerful Owls are believed to have high fidelity to a small number of hollow-bearing nest trees and will defend a large home range of 400-1450 ha (DECC 2005)	Habitats similar to those occurring on the Project site are commonly represented in the wider area. This species was not observed. It is considered unlikely that mining activities would result in adverse impacts on this species as a whole / Unlikely
<i>Nyctophilus timoriensis</i>	Eastern Long-eared Bat	Vulnerable	Vulnerable	Found in a range of dry woodland and shrubland communities in arid and semi-arid areas (Menkhorst and Knight 2001). It roosts in tree hollows, crevices, and under loose bark	Habitats similar to those occurring on the Project site are commonly represented in the wider area. ANABAT recordings over a range of seasons and in a range of likely habitats did not detect any presence or potential presence of the species. It is considered unlikely that mining activities would result in adverse impacts on this species as a whole / Low Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Onychogalea fraenata</i>	Bridled Nailtail Wallaby	Endangered	Endangered	The Bridled Nailtail Wallaby is confined to acacia-dominated woodland and shrubland in Taunton Scientific Reserve near Dingo, and Idalia National Park (Menkhorst and Knight 2001)	This species has shown up in the database searches as the search included the entire Central Highlands region. However, due to the known restricted range of the species, there is not considered to be any impacts of the Project to the wallaby populations in either National Park / Unlikely
<i>Paradelma orientalis</i>	Brigalow Scaly-foot	Vulnerable	Vulnerable	The Brigalow Scaly-foot inhabits the Brigalow Belt region on sandstone ridges, dry forests and woodlands (Wilson 2005).	The Project site was searched extensively for reptiles and the Brigalow Scaly-foot was not detected. If the species inhabits the Project site the availability of similar habitat in the surrounding region makes it unlikely the Project will adversely affect it / Moderate Potential
<i>Pedionomus torquatus</i>	Plains-wanderer	Vulnerable	Vulnerable	The Plains-wanderer inhabits natural open grasslands, treeless with patches of open ground, may be lightly grazed. Avoids country where grass is too tall or dense, or too sparse, low, or heavily grazed. Infrequent records of it being in low shrublands (Simpson and Day 2010)	This species was not detected during any of the AARC surveys within the Project site. Due to the grazing activities already undertaken on the Project site, the potential for the species to be inhabiting the area is considered low. If, however, the site was suitable for the species, there is habitat of similar disturbance in the region / Low Potential

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird	Not Listed	Vulnerable	This species is recorded from tropical and subtropical seas, and is pelagic, often far from land (Simpson and Day 2010). A single record of the species from the Central Highlands region showed up in database searches	As the Project site is not coastal, it is considered highly unlikely that the species would utilise the site. There is not considered to be any risk to the species from the Project / Unlikely
<i>Podargus ocellatus plumiferus</i>	Plumed Frogmouth	Not Listed	Vulnerable	This race is found in patches of subtropical lowland rainforest (Simpson and Day 2010)	This habitat type is not found within the Project site, therefore it is considered unlikely that there would be any impact to the species from the Project / Unlikely
<i>Poephila cincta cincta</i>	Black-throated Finch (Southern subspecies)	Endangered	Endangered	The southern subspecies inhabits open woodland, scrubby plains, Pandanus flats with deep cover of grasses, never far from water	Due to the abundance of similar habitat types surrounding the Project site, the Project is unlikely to have impact on the species / Unlikely
<i>Psephotus pulcherrimus</i>	Paradise Parrot	Extinct	Extinct in the wild	Records of the Paradise Parrot indicate it favoured open grassy woodlands and scrubby grasslands on broad river valleys and plains where termite mounds are common (Morcombe 2002). Formally found near Duaringa, unconfirmed reports have been investigated and are currently thought to be incorrect (Olsen 2007)	Current data indicates that the species is extinct. Whilst habitat that the species would favour is found within the Project area, there is no information to suggest that the species is extant / Unlikely

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Rheodytes leukops</i>	Fitzroy River Turtle	Vulnerable	Vulnerable	This species is known only from the Fitzroy River and its tributaries (Cogger 2000). Requires rivers systems with fast-flowing, permanently water	The Project site is not part of the Fitzroy River drainage area. Additionally, the Project site does not offer any areas of the species preferred habitat (permanent fast-flowing water), therefore it is considered unlikely that the species would inhabit the Project site / Unlikely
<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable	Vulnerable	This species inhabits shallow inland wetlands, either permanent or temporary (Marchant and Higgins 1993)	Due to the abundance of similar habitat type surrounding the Project site, if the species was present in the region, the Project is unlikely to impact on the species / Low Potential
<i>Sminthopsis douglasi</i>	Julia Creek Dunnart	Endangered	Endangered	This species is restricted to the Mitchell Grass Downs country of northwest Queensland. It gets its name from the fact that until recently, all known individuals had been found within a short radius of Julia Creek and Richmond. During dry conditions, especially when ground cover is sparse, the Dunnart may shelter in cracks in the ground. After rain it likes the protection of low plant communities.	No suitable habitat exists for this species within or adjacent to the Project site / Unlikely

Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Stictonetta naevosa</i>	Freckled Duck	Not Listed	Near Threatened	The Freckled Duck breeds in densely vegetated freshwater lakes, creeks, swamps, and floodwaters with thickest of Melaleuca, Casuarina, Leptospermum, or Canegrass and Lignum. After breeding, they move out to open waters (Morcombe 2002)	Habitat suitable for the species exists within the Project area; however no individuals of the species were noted during any of the surveys conducted by AARC. Due to the abundance of similar habitat type surrounding the Project site, if the species was present in the region, the Project is unlikely to impact on the species / Moderate Potential
<i>Strophurus taenicauda</i>	Golden-tailed Gecko	Not Listed	Near Threatened	This species is endemic to the southern Brigalow Belt in dry sclerophyll forests featuring a mix of ironbark eucalypts, cypress pine, and brigalow (Wilson 2005)	The Project site has been searched extensively for reptile species, and no Golden-tailed Geckoes were observed / Low Potential
<i>Tadorna radjah</i>	Radjah Shelduck	Migratory / Marine	Near Threatened	During the dry season the bird flocks to sand pools on coastal waters, mangrove-lined river channels, tidal mudflats and beaches, or will remain inland on permanent lagoons and pools along major rivers and where deeper swamps remain on river floodplains. In the wet season the birds move from littoral habitat to the shallow margins of wetlands (Simpson and Day 2010)	Due to the migratory habits of the species, even though some habitat exists within the Project area, it is considered unlikely that the species would be impacted by the Project activities, as birds would relocate to similar habitat within the wider region / Moderate Potential



Scientific Name	Common Name	Conservation Status		Habitat	Notes / Likelihood of Presence on Project Site
		EPBC Act	NC Act		
<i>Turnix melangaster</i>	Black-breasted Button-quail	Vulnerable	Vulnerable	This species is usually found in low-canopy, closed rainforest or monsoon forests vine thickets, and drier shrubby scrubs such as Brigalow thickets, where there is a deep leaf-litter (Simpson and Day 2010)	Patches of habitat suitable for the species exists within the Project area; however no individuals of the species were noted during any of the surveys conducted by AARC. Due to the abundance of similar habitat type surrounding the Project site, if the species was present in the region, the Project is unlikely to impact on the species / Unlikely



Appendix G Migratory Birds of the Alpha Region

### Migratory Birds Observed on and Adjacent to the Project Site

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Anas supecillosa</i>	Pacific Black Duck	Migratory	Has a wide range throughout Australia and frequents all types of standing water.	Will visit the Project site during wet season when standing pools of water are common. As water availability decreases this species will move on.	Y
<i>Anthus novaeseelandiae</i>	Australian Pipit	Marine/ Migratory	Common in open country throughout much of Australia	Common throughout the year	Y
<i>Aquila audax</i>	Wedge-tailed Eagle	Migratory	Mixed eucalypt woodland	Common throughout the year	Y
<i>Ardea alba</i>	Great Egret	Marine/ Migratory	wetlands, flooded pastures, dams, estuarine mudflats, mangroves, common, widespread	Most common in the wet season	Y
<i>Ardea intermedia</i>	Intermediate Egret	Marine/ Migratory	Wetlands, flooded fields	Most common in the wet season	Y
<i>Chenonetta jubata</i>	Wood Duck	Migratory	Grassland, open woodland, wetlands, floodplains, dams	More common in the wet season, may be found in large dams and other permanent water sources throughout the year.	Y
<i>Anas gracilis</i>	Grey Teal	Migratory	Sheltered watered areas, timbered pools and river systems are favoured habitat (Birds in Backyards).	Very mobile during dry periods, possibly present on the Project Site for most of the year.	Y
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	Marine/ Migratory	Most wooded habitat.	Partially nomadic, some northward migration (Birds in Backyards, 2010)	Y

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Elanus axillaris</i>	Black-shouldered Kite	Migratory	Open woodland, grassland, roadsides	Nomadic, populations may condense around mouse plagues	Y
<i>Euseyornis melanops</i>	Black-fronted Dotterel	Migratory	Shallow wetlands, lakes, rivers	Generally resident although occasionally travelling to favourable feeding areas.	Y
<i>Eurystomus orientalis</i>	Dollarbird	Marine / Migratory	Woodlands, inland watercourses, open country with scattered trees	The Dollarbird arrives in northern and eastern Australia in September each year to breed. In March or April the birds return to New Guinea (Birds in Backyards, 2010)	Y
<i>Falco berigora</i>	Brown Falcon	Migratory	Prefers grassland, often with scattered trees or perches	May move throughout the year to areas where conditions are favourable	Y
<i>Falco cenchroides</i>	Nankeen Kestrel	Marine/ Migratory	Lightly wooded areas	Some birds are partially migratory, others disperse in response to the availability of food and some are largely resident.	Y
<i>Falco longipennis</i>	Australian Hobby	Migratory	Woodland	Possibly on the Project Site throughout the year depending on conditions	Y
<i>Grus rubicunda</i>	Brolga	Migratory	Grassland, open wetlands	Partly migratory, some northward migration outside of breeding season (Feb to May) (Birds in Backyards, 2010)	Y
<i>Haliastur sphenurus</i>	Whistling Kite	Marine/ Migratory	Woodlands, open country and wetlands	Partially migratory, generally resident in northern Australia	Y

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Merops ornatus</i>	Rainbow Bee Eater	Migratory	Non-remnant grassland, commonly found during the summer in un-forested areas in most of southern Australia	Migrates north during the winter into northern Australia, New Guinea, and some of the southern islands of Indonesia.	Y
<i>Nycticorax caledonicus</i>	Nankeen Night Heron	Marine/ Migratory	Vegetated wetlands, riparian areas, swamps, floodplains	Nomadic in response to rainfall	Y
<i>Pelecanus conspicillatus</i>	Australian Pelican	Marine/ Migratory	Wetlands, dams	Wet season	Y
<i>Threskiornis molucca</i>	White Ibis	Marine/ Migratory	Wetlands, grassland	Nomadic, moves to areas with favourable conditions	Y
<i>Todiramphus macleayii</i>	Forest Kingfisher	Marine / Migratory	Open sclerophyll forest with a patchy or sparse understorey. They favour watercourse vegetation and the margins of swamps and billabongs	Likely to inhabit Project site year-round	Y
<i>Todiramphus sanctus</i>	Sacred Kingfisher	Marine/ Migratory	Woodland, tall open forest	Likely found on the Project site throughout the year	Y
<i>Petrochelidon nigricans</i>	Tree Martin	Migratory	Open woodlands and watercourses	Seasonal movement northward in winter months. Likely to be found on the Project site throughout the year.	
<i>Vanellus miles</i>	Masked Lapwing	Migratory	Non-remnant grassland / Brigalow creek	Likely found on the Project site throughout the year	Y

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Vanellus tricolor</i>	Banded Lapwing	Migratory	Non-remnant grassland	Likely found on the Project site throughout the year	Y
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Migratory	Widespread in arid areas and wet habitat	Generally resident and partly migratory but movements are not well known	N
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Migratory, Rare NC Act	Mature, tall forests with overhead canopy and open understory	Limited habitat is available on the Project site	N
<i>Anthochaera phrygia</i>	Regent Honeyeater	Migratory, Endangered (NCWR & EPBC)	Prefers Eucalypt forest and woodlands	Strongly nomadic, mostly confined to NSW and VIC	N
<i>Apus pacificus</i>	Fork-tailed Swift	Marine	Found in varied habitat, rainforest to semi-desert.	A summer migrant found in Australia from October to April.	N
<i>Ardeola ibis</i>	Cattle Egret	Marine/Migratory	Wet pastures with tall grass, open wetlands and margins.	Partial migrant, most likely found on the project Site in the wet season.	N
<i>Cacomantis variolosus</i>	Pallid Cuckoo	Marine	Open country, tends to avoid dense, closed vegetation.	Common in northern Australia, likely found on the Project site throughout the year.	N

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo	Marine	Open forests, woodland, roadsides.	Partial migrant, breeds in south-eastern Australia during winter and spring. Resident in northern Australia (Birds in Backyards, 2010)	N
<i>Chrysococcyx lucidus</i>	Shining Bronze-cuckoo	Marine	Wet dense rainforest, eucalypt forest, woodlands.	Summer migrant (Birds in Backyards, 2010).	N
<i>Erythrotriorchis radiates</i>	Red Goshawk	Migratory, Endangered NCWR, Vulnerable EPBC	Woodland or forest with a mosaic of vegetation.	Generally occurs over eastern QLD and northern Australia, possibly found on the Project site in the wet season (DERM, 2010)	N
<i>Falco hypoleucos</i>	Grey Falcon	Migratory, Rare NC Act	Shrubland, grassland and wooded watercourses in arid and semi-arid regions. Also occurs near wetlands where surface water attracts prey. (DECC)	Mostly nomadic, possibly resident in moist inland areas. Inland birds may overwinter in Northern Australia (SAAL NRM, 2007).	N
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Marine/ Migratory	Low vegetation around wetlands in shallows, sedges, reeds, heaths, salt marsh and irrigated crops.	Migrates to Australia in September, most leave Queensland by mid-April (Birds in Backyards, 2010).	N
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Marine/ Migratory	Inhabits seasonally flooded swamps, lagoons and floodplains.	Possibly present on site during the wet season.	N



Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Hirundapus caudacutus</i>	White-throated Needletail	Marine/ Migratory	Habitat includes high open spaces above almost any habitat.	Migrates to Australia in early October, returning to Asia in March, mostly departed by April.	N
<i>Lathamus discolor</i>	Swift Parrot	Marine, Endangered NC Act and EPBC	Forests and woodlands with flowering trees.	Breeds in Tasmania and migrates north in winter, most commonly into VIC and NSW. Less frequently into central Queensland.	N
<i>Lophoictinia isura</i>	Square-tailed Kite	Migratory, Rare NC Act	Open wooded areas throughout mainland Australia. Also found along inland timbered watercourses	Possibly on the Project Site throughout the year depending on conditions	N
<i>Nettapus pulchellus</i>	Cotton Pygmy-goose	Migratory, Rare NC Act	Lakes, lagoon, swamps and dams, particularly with abundant aquatic vegetation.	Suitable habitat may occur on the Project Site during the wet season	N
<i>Numenius minutus</i>	Little Curlew, Little Whimbrel	Marine/ Migratory	Found in dry open grasslands in wet season.	Suitable habitat is likely available during the wet season.	N
<i>Oxyura australis</i>	Radjah Shelduck	Migratory, Marine, Rare NC Act	More common further north in Cape York and Northern Territory, occupies wetlands and estuaries in monsoon regions.	Inhabits coastal areas during dry season, unlikely to travel as far as the Project site during the wet season.	N
<i>Rostratula benghalensis</i>	Painted Snipe	Marine/ Migratory Vulnerable NCWR & EPBC	Well vegetated shallow inland wetlands	Can be resident or nomadic, may appear on the Project site in good wet seasons.	N

Scientific Name	Common Name	Status	Habitat	Timing	Observed on the Project Site
<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	Marine	Rainforest, monsoon forest, eucalypt forest and woodlands, river-edge thickets, swamp woodlands.	Migrates to Australia from August, leaves by March.	N

Appendix H Flora Secondary and Quaternary Transect Pro-formas



## AARC FLORA SURVEY PROFORMA Secondary Transect

<b>Project</b>	
<b>Date</b>	
<b>Recorder</b>	
<b>Site No.</b>	
<b>GPS Coordinates</b>	
<b>Site Photo No.</b>	

<b>Locality</b>	
<b>Site Context</b>	
<b>RE</b>	
<b>General Notes</b>	

<b>Altitude</b>	<b>Erosion Pattern</b>	<b>Slope (°)</b>	<b>Aspect</b>

<b>Soil Description</b>	
<b>Geology</b>	
<b>Additional Soil Notes</b>	

<b>Disturbance Severity (1 = minor 2 = moderate 3 = severe)</b>	
<b>Storm Damage</b>	
<b>Road Works</b>	
<b>Fire</b>	
<b>Clearing</b>	
<b>Grazing</b>	
<b>Weeds</b>	



<b>Other</b>	
--------------	--

Height (m)	Emergent	T1	T2	T3	S1	S2	Ground

<b>Stem Cover (Bitterlich Method)</b>	
---------------------------------------	--

Species Stem Cover (50x10m) – count all woody stems	
Emergent	
T1	
T2	
T3	
S1	
S2	
S3	

Additional Notes (sketch if required)



<b>Crown Cover Calc.</b>	<b>0m</b>	<b>5m</b>	<b>10m</b>	<b>15m</b>	<b>20m</b>	<b>25m</b>	<b>30m</b>	<b>35m</b>	<b>40m</b>	<b>45m</b>











Appendix I Fauna Trapsite Descriptions



**Transect 1 (Photo Plate 20)** was located at a riparian site along Sandy Creek; the dominant vegetation consisted of Silver-leaved Ironbark (*Eucalyptus melanophloia*), Moreton Bay Ash (*Eucalyptus tessellaris*) and Dallachy's Gum (*Corymbia dallachiana*) trees. This site was established in the initial dry season survey and replicated in the wet season. Trapping at this site involved a pitfall line, Elliott traps and funnel traps;



**Photo Plate 20 Fauna Transect 1**

**Transect 2 (Photo Plate 21)** was located in Non-remnant Grassland where the dominant vegetation was Buffel Grass (*Pennisetum ciliare*) and occasional wattle (*Acacia sp.*) regrowth. This site was surveyed during the dry season. Trapping at this site involved a pitfall line, Elliott traps and funnel traps;



**Photo Plate 21 Fauna Transect 2**

**Transect 3** was located in a Brigalow (*Acacia harpophylla*) Open Woodland with a dense understory of shrubs. This site was surveyed during the dry season. Trapping at this site involved a pitfall line, Elliott traps and funnels traps;

**Transect 4** was located in a co-dominant Brigalow (*Acacia harpophylla*) and Dawson Gum (*Eucalyptus cambageana*) Woodland with moderate amounts of shrubs and grasses. This site was surveyed during a dry season survey. Trapping at this site involved a pitfall line and Elliott traps;



**Transect 5 (Photo Plate 22)** was located within a Silver-leaved Ironbark (*Eucalyptus melanophloia*) Woodland with a Quinine Tree (*Petalostigma pubescens*) dominated understory and sparse groundcover. This site was surveyed in the dry season. Trapping at this site involved a pitfall line and Elliott traps;



**Photo Plate 22      Fauna Transect 5**

**Transect 6 (Photo Plate 23)** was located in a White Cypress Pine (*Callitris glaucophylla*) Woodland, with a low density of shrubs and groundcover. This site was replicated in the dry and wet season. Trapping at this site involved a pitfall line, funnel traps, cage traps and Elliott traps;



**Photo Plate 23    Fauna Transect 6**



**Transect 7 (Photo Plate 24)** was located in a riparian site with a mixed canopy of *Bauhinia (Lysiphyllum carronii)*, River Red Gum (*Eucalyptus camaldulensis*), Poplar Box (*Eucalyptus populnea*) and Brigalow (*Acacia harpophylla*), and was surveyed in the dry season and replicated in the wet season. Trapping at this site included a funnel traps, Elliott traps and cage traps;



**Photo Plate 24 Fauna Transect 7**

**Transect 8 (Photo Plate 25)** was located within a Silver-leaved Ironbark (*Eucalyptus melanophloia*) Woodland, with a shrubby understorey of Currant Bush (*Carissa ovata*) and moderate grass layer. It was established and surveyed in the dry season. Trapping at this site involved a pitfall line, Elliott traps and funnel traps;



**Photo Plate 25 Fauna Transect 8**



**Transect 9 (Photo Plate 26)** was located in a Riparian Woodland with an overstorey dominated by Brigalow (*Acacia arpophylla*) and associated Poplar Box (*Eucalyptus populnea*). This transect was established and surveyed in the wet season. Trapping at this site involved a pitfall line, Elliott traps and funnel traps;



**Photo Plate 26 Fauna Transect 9**

**Transect 10 (Photo Plate 27)** was located in a Silver-leaved Ironbark (*Eucalyptus melanophloia*) Open Woodland. Traps were located in close proximity to fallen timber in which a number of hollows had formed. This transect was established and surveyed in the wet season. Trapping at this site involved a pitfall line, Elliott traps and funnel traps;



**Photo Plate 27      Fauna Transect 10**



**Transect 11 (Photo Plate 28)** was located in a Silver-leaved Ironbark (*Eucalyptus melanophloia*) Dominated Woodland. Associated species include Poplar Box (*Eucalyptus populnea*) and a shrub layer dominated by the Quinine Tree (*Petalostigma pubescens*). This transect was established and surveyed in the wet season. Trapping at this site involved a pitfall line, funnel, Elliott and cage traps;



**Photo Plate 28 Fauna Transect 11**

**Transect 12 (Photo Plate 29)** was located in a Silver-leaved Ironbark (*Eucalyptus melanophloia*) Open Woodland with areas of large fallen timber. This transect was established and surveyed in the wet season. This transect consisted of cage and funnel traps;



**Photo Plate 29 Fauna Transect 12**



**Transect 13** was located in a Weeping Bottlebrush (*Melaleuca tamariscina*) Heathland. This transect was established and surveyed in the wet season. This transect consisted of Elliott traps and cage traps;

**Transect 14 (Photo Plate 30)** was established and surveyed in the wet season in non-remnant grassland dominated by Buffel grass (*Pennisetum ciliare*). Trapping at this site involved a pitfall line, funnel traps and Elliott traps;



**Photo Plate 30      Fauna Transect 14**



**Transect 15 (Photo Plate 31)** was located in a Weeping Bottlebrush (*Melaleuca tamariscina*) Heathland. This transect was established and surveyed in the dry season and consisted of a pitfall line, funnel traps, Elliott traps and cage traps;



**Photo Plate 31    Fauna Transect 15**

**Transect 16 (Photo Plate 32)** was established in a Poplar Box (*Eucalyptus populnea*) Woodland on an undulating plain. Dry season trapping included a pitfall line, Elliott traps, funnel traps and cage traps;



**Photo Plate 32      Fauna Transect 16**



**Transect 17 (Photo Plate 33)** was established upslope on skeletal soils in a Lancewood (*Acacia shirleyi*) Woodland. This transect was established and surveyed in the dry season and included Elliott traps, cage traps and funnel traps; and



**Photo Plate 33      Fauna Transect 17**

**Transect 18 (Photo Plate 34)** was established in a Queensland Yellowjacket (*Eucalyptus similis*) Open Woodland. This transect included Elliott traps, funnel traps and cage traps.



**Photo Plate 34      Fauna Transect 18**



**Transect 19 (Photo Plate 35)** was established in a sandy riparian creekline, which has been listed by DERM as an endangered regional ecosystem. Tree species included River Red Gum (*Eucalyptus camaldulensis*), Poplar Box (*Eucalyptus populnea*), White Cypress Pine (*Callitris glaucophylla*) and Brigalow (*Acacia harpophylla*), with a dense grass layer. Trapping entailed a pitfall line, cage traps, funnel traps, Elliott traps and Anabat.



**Photo Plate 35      Fauna Transect 19**

**Transect 20 (Photo Plate 36)** was located on a sandy flat plain, with Silver-leaved Ironbark (*Eucalyptus melanophloia*), Lancewood (*Acacia shirleyi*) and Rough-leaved Bloodwood (*Corymbia setosa*) Open Woodland, with a shrubby understory. Trapping included a pitfall line, funnel traps, Elliott traps, cage traps and an Anabat.



**Photo Plate 36    Fauna Transect 20**



**Transect 21 (Photo Plate 37)** was located in a narrow riparian creek. Substrate was a mix of sand and rock. Trapping included a pitfall line, Elliott traps, cage traps and funnels.



**Photo Plate 37 Fauna Transect 21**



**Transect 22 (Photo Plate 38)** was located directly adjacent to a permanent lagoon. Large River Red Gum (*Eucalyptus camaldulensis*) trees were fringing the waterbody. Trapping efforts included Elliott traps, funnel traps, cage traps and two Anabats.



**Photo Plate 38      Fauna Transect 22**

**Transect 23 (Photo Plate 39)** was located in a Brigalow (*Acacia harpophylla*) Open Woodland with a moderate density of fallen timber and hollow logs. A fire had occurred recently in the adjacent Non-remnant grassland community. Trapping efforts included a pitfall line, Elliott traps, funnel traps and cage traps.



**Photo Plate 39      Fauna Transect 23**



**Transect 24 (Photo Plate 40)** was located in a narrow riparian area, with Poplar Box (*Eucalyptus populnea*), Brigalow (*Acacia harpophylla*) and False Sandalwood (*Eremophila mitchelli*). This area is used as a stock watering hole. Trapping efforts included a pitfall line, Elliott traps, cage traps and funnel traps.



**Photo Plate 40      Fauna Transect 24**

**Transect 25 (Photo Plate 41)** was located in a low open woodland of Rough-leaved Bloodwood (*Corymbia setosa*) and Bottlebrush (*Melaleuca nervosa*) on undulating hills. Fallen timber and grass tussocks were present. Trapping included Elliott traps, cage traps and funnel traps.



**Photo Plate 41      Fauna Transect 25**



**Transect 26 (Photo Plate 42)** was located within a fringing riparian area, with a dense grass and shrub layer. No hollows were present in the Rustyjacket (*Corymbia leichhardtii*) trees. Trapping included a pitfall line, Elliott traps, cage traps, funnel traps and an Anabat.



**Photo Plate 42    Fauna Transect 26**

**Transect 27 (Photo Plate 43)** was established in a large River Red Gum (*Eucalyptus camaldulensis*) riparian area along Splitter Creek. Trapping efforts included a pitfall line, Elliott traps, funnel traps, cage traps and Anabat.



**Photo Plate 43    Fauna Transect 27**



**Transect 28 (Photo Plate 44)** was located in a Brigalow (*Acacia harpophylla*) and River Red Gum (*Eucalyptus camaldulensis*) riparian area, with a dense grass layer on creek banks. Trapping included a pitfall line, cage traps, funnel traps and Elliott traps.



**Photo Plate 44      Fauna Transect 28**

**Transect 29 (Photo Plate 45)** was located along a riparian area with surrounding fallen timber and tree hollows. Trapping efforts included a pitfall line, funnel traps, cage traps, Elliott traps and an Anabat.



**Photo Plate 45      Fauna Transect 29**



**Transect 30 (Photo Plate 46)** was located in a dense woodland of Thozet's Box (*Eucalyptus thozetiana*) with a shrubby understory of False Sandalwood (*Eremophila mitchelli*). Trapping efforts included Elliott traps, funnel traps, cage traps and an Anabat.



**Photo Plate 46      Fauna Transect 30**

**Transect 31 (Photo Plate 47)** was located in a sandy plain with an open woodland dominated by Silver-leaved Ironbark (*Eucalyptus melanophloia*) and a dense grass layer of Soft Spinifex (*Triodia pungens*) and Buck Spinifex (*Triodia mitchelli*). Trapping included a pitfall line, cage traps, funnel traps, Elliott traps and an Anabat.



**Photo Plate 47      Fauna Transect 31**

**Transect 32** was located along Well Creek, in a section with multiple channels and a wide floodplain. Faunal habitat included tree hollows, fallen timber and a densely grassed understory. Trapping efforts included a pitfall line, Elliott traps, funnel traps, cage traps and an Anabat.



**Transect 33 (Photo Plate 48)** was located in a Lancewood (*Acacia shirleyi*) Woodland with a high density of fallen timber and tussock grass species. Trapping included Elliott traps, funnel traps, cage traps and an Anabat.



**Photo Plate 48      Fauna Transect 33**

**Transect 34 (Photo Plate 49)** was located in a small River Red Gum (*Eucalyptus camaldulensis*) drainage line within a Carbeen Moreton Bay Ash (*Corymbia tessellaris*) floodplain. The trapping regime included a pitfall line, Elliott traps, funnel traps, cage traps and an Anabat.



**Photo Plate 49    Fauna Transect 34**



**Transect 35 (Photo Plate 50)** was located on a sandy plain inhabited by Poplar Box (*Eucalyptus populnea*) in an open woodland. Fallen timber and small tree hollows were present. Trapping included Elliott traps, cage traps and funnel traps.



**Photo Plate 50    Fauna Transect 35**

**Transect 36 (Photo Plate 51)** was established with a Weeping Bottlebrush (*Melaleuca tamariscina*) Heathland, with pisolitic, pebbly substrate. This site included Elliott traps, funnel traps, cage traps and an Anabat.



**Photo Plate 51      Fauna Transect 36**