



Chapter 3. Flora and Fauna



1. INTRODUCTION

A vegetation survey and a fauna assessment were commissioned for the Conjuboy Diatomite Project baseline study. The purpose of these studies was to assess the environment values of the area and to provide background information suitable for the preparation of an EMOS. This report documents the outcomes of the vegetation and fauna studies conducted at the proposed mine lease and along the approximate route of the proposed haul route.

The scope of the vegetation survey was to:

- provide vegetation mapping of indicative regional ecosystems (vegetation communities)
- describe the vegetation noting any species of significance
- assess the flora for local and regional significance
- discuss weed management issues together with recommendations for plants to be used in site rehabilitation.

The scope of the fauna assessment was to:

- assess the likelihood of any significant fauna species occurring in the area from a desktop review of literature and database searches
- conduct a field investigation over a two day period to document observed fauna species and assess habitat integrity and significance
- assess the requirement for, and nature of further studies, based on desktop investigations and field inspections.

2. VEGETATION SURVEY

2.1 Methodology

2.1.1 Desktop study

To facilitate the flora and fauna investigations the site was divided into 6 areas based on aerial photograph interpretation of topography and vegetation. These areas are described as follows.

- Basalt Plateau - curves from the northern edge to the eastern edge of the proposed lease area and includes the haul route, it is very stony on the surface (stones to boulders).
- Basalt Wall - the face of the basalt flow, it is dominated by cobbles, stones and boulders.
- Colluvial Slope - the area at the bottom of the Basalt Wall, it has a lower gradient and is dominated by basalt cobbles and stones.
- Tea Tree Gullies - seepage areas in the basalt wall, dominated by groves of *Melaleuca bracteata*.
- Flats - the area between the Colluvial Slope and the creek zone, an area of transported sediments over diatomaceous earth.
- Watercourse - 0 to 10 m from the creek bed proper.

Plant species likely to occur in the study sites were identified with reference to the following materials:

- Brooker and Kleinig (1994) *Field Guide to Eucalypts: volume 3, Northern Australia*.
- Sattler and Williams (1999) *The Conservation Significance of Queensland's Bioregional Ecosystems*.
- Other flora studies conducted by NRA in the region.
- A HERBRECS search of plant species was conducted through the Queensland Herbarium to determine Rare and Threatened species previously recorded from the Conjuboy area. The search area was 26600E 793300N to 27100E 793700N (UTM AGD 66). The search results are attached in Appendix C.

2.1.2 Fieldwork

Walk-through surveys were carried out in the early dry season (on 21 to 23 May 2002) to ground-truth vegetation communities identified from aerial photographs. The dominant canopy, mid-storey and ground species were noted and a rating was given to the more common species according to their apparent abundance in the community. The rating uses a scale called the DAFOR scale (based on the initial letter for each rating).

- Dominant
- Abundant
- Frequent
- Occasional
- Rare



Other readily identifiable species present at the site were listed, however many plant species could not be identified due to lack of flowering or fruiting material. Obvious natural and anthropogenic disturbances were recorded.

2.1.3 Mapping of Flora – Regional Ecosystems

Dominant canopy species noted during site investigations were used to define the Regional Ecosystem (RE) that most closely corresponded to the community present at the site. Vegetation is described using the RE codes and descriptions of Sattler and Williams (1999). The conservation status of the REs was established as follows (Sattler and Williams 1999).

- REs with >30% of their original extent are classified as “not of concern”
- REs with 10-30% of their original extent remaining are classified as “of concern”
- REs with less than 10% of their original extent are considered endangered.

2.1.4 Significant Flora Species

Species lists compiled from site investigations and HERBRECS were compared against species listed as Protected Wildlife in the *Queensland Nature Conservation (Wildlife) Regulation* 1994 and the *Commonwealth Environment Protection and Biodiversity Conservation Act* 1999.

2.1.5 Weeds

The *Queensland Rural Lands Protection Act* 1985 requires land managers to control certain declared weeds. Declared weed species were identified and this report presents recommended control measures. Other weed species known to occur or likely to occur in the proposed mine lease area or along the haul route are listed, and recommended control measures are presented. In particular, reference is made to priority weeds listed in Dalrymple Shire Council's Management Plan: Control of Declared Plants and Animals within the Dalrymple Shire (1999).

2.1.6 Rehabilitation

Lists of species for use in rehabilitation were prepared based upon observations made during site investigations. Selection of native species was made on the following criteria:

- the species to be used in rehabilitation must be recorded from the site
- the mix must include grass, shrub and canopy species
- the mix should include species which produce fruit and nectar for birds.

2.2 Results

2.2.1 Mapping of Flora – Regional Ecosystems

Two vegetation communities dominate the survey area (Figure 3). The survey area was slightly different to the proposed MLA, but the RE and vegetation information for the northern part of the survey area will be similar, if not identical, to the unsurveyed area (RE 9.8.1). The plains surrounding and including the creek zone are dominated by the RE 9.3.2 (Mt Molloy Box on alluvium, Plate 1). The basalt wall and plateau, and the proposed haul route are dominated by the RE 9.8.1 (Ironbark on red soil plains and rocky rises, Plate 2). Neither of these vegetation communities are of concern at present. Black Tea Tree Gullies (RE 9.3.10: Mountain Coolibah, Black Tea Tree and springs on black soil plains, Plate 3) are a discrete vegetation community associated with seepages along the basalt wall. Although the Regional Ecosystem they represent is not of concern at present, disturbance of these communities should be avoided because of their locally restricted distribution. The vegetation communities encountered are described in Table 3.1.

2.2.2 Significant Flora Species

No Rare, Vulnerable or Endangered species (as listed in the *Nature Conservation (Wildlife) Regulation 1994* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*) were identified during site investigations. The HERBRECS database search identified one plant of conservation significance. *Brachychiton albidus* is a rare plant (as listed in the *Nature Conservation (Wildlife) Regulation 1994*) noted from the area but was not encountered during the survey.

A full list of plant species found during field surveys is presented in Appendix C. None of the plant species encountered on the proposed mine lease area or the approximate proposed haul route are specifically listed the *Queensland Nature Conservation (Wildlife) Regulation 1994*, except as in "A plant indigenous to Australia, other than a presumed extinct, endangered, vulnerable or rare plant, is a common plant." (Schedule 5 Part 2).

Legend

 Proposed MLA

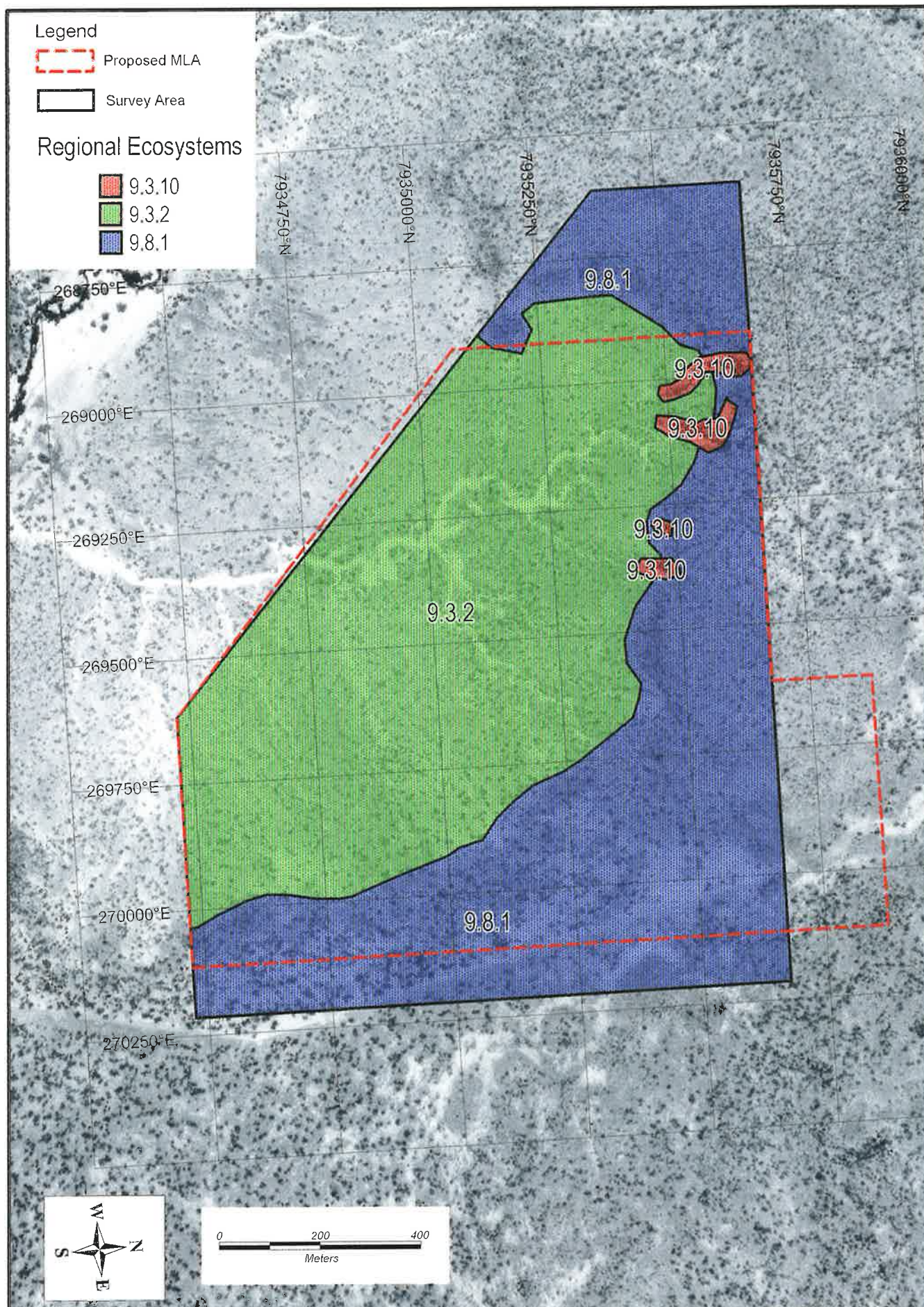
 Survey Area

Regional Ecosystems

 9.3.10

 9.3.2

 9.8.1



PROJECT: Conjuboy Diatomite Project
TITLE: Distribution of vegetation areas

JOB NO: 235001.07
DATE: Sep 2002
SOURCE: NRA

Natural Resource Assessments



Figure: 3

Table 3.1: Vegetation Description and Regional Ecosystems identified at the Conjuby Diatomite Project Mine Lease

Mine Lease areas	Vegetation Description	RE (Sattler & Williams 1999)	RE Description	Conservation Status	Comments
Basalt Plateau	Narrow Leaf Ironbark dominant with Mt Molloy Box, Ghost Gum and Red Bloodwood forming an open woodland. A grass understorey of Kangaroo Grass and Black Spear Grass with Dogs Balls frequently encountered amongst the grass.	9.8.1	<i>Eucalyptus crebra</i> or <i>E. whitei</i> woodland on red basalt soils.	No concern at present	Scattered clusters of basalt boulders and cobbles. Trees separated by one to three crown diameters.
Basalt Wall	Mt Molloy Box, Narrow Leaf Ironbark, Ghost Gum and Red Bloodwood forming an open woodland. A dispersed shrub layer of Quinine Bush and Conkerberry with a groundcover of Kangaroo Grass, Black Spear Grass and Giant Spear Grass.	9.8.1 to 9.3.2	<i>Eucalyptus crebra</i> or <i>E. whitei</i> woodland on red basalt soils to <i>Eucalyptus leptophleba</i> woodland on alluvial terraces and in drainage depressions.	No concern at present	Extensive occurrence of basalt cobbles. Narrow Leaf Ironbarks occur near the top of the wall.
Colluvial Slope	Widely spaced Mt Molloy Box and Ghost Gum emergents with small Red Bloodwood trees forming a low open woodland. A dispersed shrub layer of Quinine Bush and Conkerberry with a groundcover of Dogs Balls, Kangaroo Grass, Black Spear Grass and Giant Spear Grass.	9.3.2	<i>Eucalyptus leptophleba</i> woodland on alluvial terraces and in drainage depressions.	No concern at present	Extensive occurrence of basalt cobbles. Vegetation generally undifferentiated from the Basalt Wall vegetation.
Tea Tree Gullies	Exclusive canopy layer of Black Tea Trees with a bare rocky understorey / groundlayer.	9.3.10	Mountain Coolibah, Black Tea Tree and springs on black soil plains.	No concern at present	In a seepage gully. <i>Melaleuca bracteata</i> form a dense closed canopy.
Flats	Widely to very widely spaced Mt Molloy Box and Ghost Gum woodland. Occasional occurrence of Beefwood, Quinine Bush and Conkerberry with an extensive cover of Kangaroo Grass, Black Spear Grass and an unidentified grass (<i>Dichanthium</i> sp).	9.3.2	<i>Eucalyptus leptophleba</i> woodland on alluvial terraces and in drainage depressions.	No concern at present	On Black and Red Clay Soils derived from transported materials over diatomaceous earth. Trees widely spaced separated by 3-5 crown diameters.
Watercourse	Widely to very widely spaced Mt Molloy Box and Ghost Gum woodland. Occasional occurrence of Boxthorn, Black Tea Tree, Quinine Bush and Conkerberry with a groundcover of Kangaroo Grass and Black Spear Grass.	9.3.2	<i>Eucalyptus leptophleba</i> woodland on alluvial terraces and in drainage depressions.	No concern at present	Creek bank vegetation generally undifferentiated from the Flats vegetation. Creek bed lined with diatomaceous earth.





2.2.3 Significant Weeds and Weed Control Measures

Declared Weeds

Of the exotic species identified within the proposed mine lease area, Noogoora Burr (*Xanthium pungens*) is the only Declared weed (class P3) under the provisions of the Queensland *Rural Lands Protection Act* 1985 and a proposed class 2 pest plant under the *Land Protection (Pest and Stock Route Management) Bill* 2001. Under the Act, its numbers and/or distribution are to be reduced state-wide. Control of this species should be a priority of the Conjuboy Diatomite Project weed control program.

The Queensland Department of Natural Resources has prepared a Pest Fact Sheet for *Xanthium pungens* that provides recommended control measures. A copy of this Pest Fact Sheet is presented in Appendix D. Control of this species should follow procedures laid out in this document. This weed was only observed in isolated instances on the Flats. However given the time of the year and the general lack of rain, this may not provide an accurate indication of the true extent of Noogoora Burr in the proposed mine lease area. Provisions should be made to address this potential weed problem (especially after rains) should it prove to be widespread. Otherwise point spraying of isolated plants and groups of plants should be undertaken.

Other Weed Species

The Dalrymple Shire Council's Pest Management Plan (Control of Declared Plants and Animals within the Dalrymple Shire 1999), provides a table of significant pest plants. These, and other significant weed species noted during site investigations, are discussed in Appendix E.

Parthenium Weed (*Parthenium hysterophorus*) is known to occur in the nearby Dry River and is of concern to the local landholders and Shires. This plant is a serious agricultural and environmental weed and care should be taken to ensure its exclusion or, if it is encountered, its control and elimination. The elimination of Parthenium weed, once established, may prove impracticable. Therefore, prevention of its introduction warrants specific management attention and continued vigilance. Parthenium is most likely to be encountered after a wet period.

Given the potential for existing weeds to proliferate and new weeds to be brought in and to establish it is important that a weed management plan be drawn up for the proposed mine lease area and the associated haul route. The weed management plan should address the following:

- ensure existing weeds are controlled or eradicated as determined by state legislation and local by-laws and in accordance with best practice
- ensure that strategies are put in place to prevent the entry and eradication of any new weed
- establishment of a monitoring program to identify potential and existing weed problems
- the concerns of local landholders and government bodies.

Rehabilitation

The following Tables (3.2 – 3.6) list recommended tree, shrub and grass species to be used for rehabilitation of disturbed areas on the proposed mine lease. The DAFOR scale is used to indicate the relative importance of different species in the community and hence during rehabilitation. Seed of native species for use in rehabilitation should be collected from site wherever possible and, if not possible, from local plants.

Table 3.2: Species for use in rehabilitation of the Basalt Plateau (RE 9.8.1)

Growth Form	Species*
Groundcover	<i>Heteropogon contortus</i> ^D
	<i>Heteropogon triticeus</i> ^O
	<i>Themeda triandra</i> ^D
	<i>Grewia retusifolia</i> ^A
Shrubs and Small Trees	<i>Petalostigma pubescens</i> ^A
	<i>Ficus opposita</i> ^O
	<i>Diospyros geminata</i> ^O
	<i>Hakea arborescens</i> ^F
	<i>Brachychiton diversifolius</i> ^R
Trees	<i>Corymbia erythrophloia</i>
	<i>Corymbia dallachiana</i> ^A
	<i>Eucalyptus leptophleba</i> ^A
	<i>Eucalyptus crebra</i> ^D

* DAFOR scale is used to indicate relative importance of species.

Table 3.3: Species for use in rehabilitation of the Basalt Wall and Colluvial Slope (RE 9.3.2 & 9.8.1)

Growth Form	Species*
Groundcover	<i>Cymbopogon bombycinus</i> ^J
	<i>Heteropogon contortus</i> ^D
	<i>Heteropogon triticeus</i> ^F
	<i>Themeda triandra</i> ^D
	<i>Grewia retusifolia</i> ^A
	<i>Indigofera linnaei</i> ^O
	<i>Lomandra multiflora</i> ^O
Shrubs and Small Trees	<i>Petalostigma pubescens</i> ^A
	<i>Carissa ovata</i> ^F
	<i>Capparis umbonata</i> ^O
	<i>Ficus opposita</i> ^O
	<i>Diospyros geminata</i> ^O
	<i>Hakea arborescens</i> ^A
Trees	<i>Corymbia erythrophloia</i> ^A
	<i>Corymbia dallachiana</i> ^A
	<i>Eucalyptus leptophleba</i> ^A

* DAFOR scale is used to indicate relative importance of species.

**Table 3.4: Species for rehabilitation of the Tea Tree Gully (RE 9.3.10)**

Growth Form	Species*
Groundcover	-
Shrubs and Small Trees	<i>Melaleuca bracteata</i> ^D
Trees	-

* DAFOR scale is used to indicate relative importance of species.

Table 3.5: Species for rehabilitation of the Flats (RE 9.3.2)

Growth Form	Species*
Groundcover	<i>Heteropogon contortus</i> ^D
	<i>Heteropogon triticeus</i> ^O
	<i>Themeda triandra</i> ^D
	<i>Grewia retusifolia</i> ^A
	<i>Neptunia amplexicaulis</i> ^A
Shrubs and Small Trees	<i>Carissa ovata</i> ^F
	<i>Grevillea parallela</i> ^O
	<i>Petalostigma pubescens</i> ^A
	<i>Hakea arborescens</i> ^F
Trees	<i>Corymbia dallachiana</i> ^D
	<i>Eucalyptus leptophleba</i> ^A
	<i>Grevillea striata</i> ^O

* DAFOR scale is used to indicate relative importance of species.

Table 3.6: Species for use in rehabilitation along the Watercourse (RE 9.3.2)

Growth Form	Species*
Groundcover	<i>Heteropogon contortus</i> ^D
	<i>Heteropogon triticeus</i> ^O
	<i>Themeda triandra</i> ^D
Shrubs and Small Trees	<i>Melaleuca bracteata</i> ^F
	<i>Ficus opposita</i> ^O
	<i>Bursaria incana</i> ^O
Trees	<i>Corymbia erythrophloia</i> ^A
	<i>Corymbia dallachiana</i> ^A
	<i>Eucalyptus leptophleba</i> ^D

* DAFOR scale is used to indicate relative importance of species.

It is understood that material will be excavated to a depth of up to 20 m during mining. After processing, as much as 75% of this material will be returned to the pit as process tailings (mostly clay). This will result in a depressed final landform (5 m depression). The clay tailings may also create an impermeable layer that inhibits vertical water movement and root penetration. If this were to occur, it is not certain it would have a significant effect on drainage in this area as the surrounding diatomaceous earth conducts water very well (*pers. comm.* Rob Lait (AGE), 20 June 2002). As a precaution it may be advisable to rehabilitate any resulting drainage depression with vegetation elements from current drainage lines (eg Black Tea Tree and Boxthorn) as well as with Mt Molloy Box.

3. FAUNA ASSESSMENT

3.1 Methodology

3.1.1 Desktop Study

The desktop study involved a review of published material and searches of available databases/archives. This assessment was used to document known records for the study area and identify the potential presence of protected fauna species. Protected fauna are defined primarily as those species listed in the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 and Queensland *Nature Conservation (Wildlife) Regulation* 1994. The results of the desktop study were used to focus rapid field assessments. Literature consulted during the desktop assessment included:

- Search of the Queensland Museum Database between 266000E, 793300N & 27100E, 793700N (UTM AGD 66)
- Search of the Environment Australia EPBC Database
- Search of the Birds Australia Database
- Search of the Directory of Important Wetlands Database
- Review of the following texts: Sattler and Williams (1999), Wilson and Knowles (1988), Cogger (1992), Slater *et al.* (1989), Churchill (1998), Strahan (1995) and Duncan *et al.* (1999).

3.1.2 Fieldwork

A field investigation of the site was conducted on the 21st and 22nd of May 2002 in conjunction with the vegetation and soil surveys. The range of habitat types existing at the site was identified and an assessment was made of:

- habitat integrity
- local and regional significance of habitats
- habitat connectivity.

The rapid assessment fauna surveys included opportunistic sightings, scat analysis, audio identification (*eg* bird and frog calls), and spotlighting over a two day (1 night) period. Dedicated assessments were made of the likely presence of these protected fauna species determined during the desktop study.

3.1.3 Interpretation and Documentation

Using the habitat assessment and field observation data acquired during the fieldwork, refinements were made to the list of potentially occurring protected fauna species established during the desktop study. Likely impacts on these species were analysed based on the known ecology of the species.



3.2 Results

3.2.1 Protected and Significant Fauna Species

A total of 30 protected fauna species was identified as potentially occurring at the Conjuby Diatomite Project site (Table 3.7). Protected fauna species are those species that are protected by legislation. A further 3 fauna species, regarded as being under threat on a regional scale but not protected by legislation, were identified as potentially occurring in the study area (Table 3.7 *see* species labelled 'S = Significant'). The three Significant (S) species are of concern because they have suffered large range contractions or are very poorly known but suspected to be rare or threatened. The absence of these species from legislation reflects a lack of published information and/or a time lag between knowledge of their status and its inclusion in relevant legislation. The basis for their mention in this report is summarised in Appendix F (Table F1).

No protected or significant fauna species were observed during field surveys. Fauna species observed during field inspections are described in Appendix F (Table F2). More comprehensive fauna inventories are only possible through higher intensity field surveys.

Fauna listed in the *Nature Conservation (Wildlife) Regulation 1994* are protected under the *Nature Conservation Act 1992*. Subject to Section 93 (Aborigines' and Torres Strait Islanders' right to take *etc* protected wildlife), it is an offence to take protected animals other than under:

- (a) a conservation plan applicable to the animal; or
- (b) licence, permit or authority issued or given under a regulation; or
- (c) an exemption under a regulation.

The management principles of protected wildlife include the protection of the protected wildlife's habitat. Section 73 provides that protected wildlife is to be managed to:

- (a)
 - (iii) identify and reduce or remove the effects of threatening processes relating to the wildlife; and
 - (iv) identify the wildlife's critical habitat and conserve it to the greatest possible extent.

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* Section 3 (1) (a) – (c) includes:

- (a) provision for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and
- (b) promotion of ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
- (c) promotion of conservation of biodiversity.

"National environmental significance" as identified in Chapter 2, Part 3, Division 1 of the Act includes:

- (a) a listed threatened species included in the:
 - (i) extinct in the wild category
 - (ii) critically endangered category
 - (iii) endangered category
 - (iv) vulnerable category.

The species identified as "S" in Table 3.7 have no legislative protection. It is recommended however that they be regarded as potentially important elements in the environment and that suitable protection measures for these species are implemented.

Table 3.7: Protected and significant fauna species that have the potential to occur in the Conjuroy study area.

EPBC = Commonwealth Environment Protection and Biodiversity Conservation Act 1999

QNCr = Queensland Nature Conservation (Wildlife) Regulation 1994

Note: no species listed in Table 3.7 were observed during this field study

Species	Common Name	EPBC 1999	QNCr 1994
Reptiles			
<i>Egernia rugosa</i>	Yakka Skink	V	V
<i>Lygisaurus rococo</i>	Chillagoe Litter-skink		R
<i>Lerista ameles</i>	Limbless Fine-lined Slider		R
<i>Lerista cinerea</i>	Vine-thicket Fine-lined Slider		R
<i>Lerista wilkinsi</i>	Two-toed Fine-lined Slider		R
<i>Ctenotus zebrilla</i>	Cape York Fine-snouted Ctenotus		R
<i>Furina barnardi</i>	Yellow-naped Snake		R
<i>Ramphotyphlops broomi</i>	Blind Snake		R
<i>Simoselaps warro</i>	Burrowing Snake		R
<i>Acanthophis antarcticus</i>	Common Death Adder		R
Birds			
<i>Lophoictinia isura</i>	Square-tailed Kite		R
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Migratory and Marine Protected Species	
<i>Accipiter novaehollandiae</i>	Grey Goshawk		R
<i>Erythrotriorchis radiatus</i>	Red Goshawk	V	E
<i>Falco hypoleucos</i>	Grey Falcon		R
<i>Ninox rufa</i>	Rufous Owl		R
<i>Tyto novaehollandiae kimberli</i>	Masked Owl	V	V
<i>Hirundapus caudacutus</i>	White-throated Needletail	Migratory and Marine Protected Species	
<i>Melithreptus gularis</i>	Black Chinned Honeyeater		R
<i>Poephila cincta</i>	Black-throated Finch	V	V
<i>Neochmia ruficauda ruficauda</i>	Star Finch	E	E
<i>Neochmia phaeton</i>	Crimson Finch	V	V
<i>Erythrura gouldiae</i>	Gouldian Finch	E	E
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory and Marine Protected Species	
<i>Melithreptus gularis</i>	Black-chinned Honeyeater		R



Species	Common Name	EPBC 1999	QNCR 1994
Mammals			
<i>Dasyurus hallucatus</i>	Northern Quoll		S
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale		S
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum		S
<i>Petrogale mareeba</i>	Mareeba Rock Wallaby		R
<i>Macroderma gigas</i>	Ghost Bat		V
<i>Hipposideros diadema</i>	Diadem Horseshoe-bat		R
<i>Hipposideros semoni</i>	Greater Wart-nosed Horseshoe-bat	E	V
<i>Chalinolobus picatus</i>	Little Pied Bat		R
SUMMARY		E = 3	E = 3
		V = 5	V = 6
		Migratory and	R = 18
		Marine Protected	S = 3
		Species = 3	

Conservation Codes: E, Endangered; V, Vulnerable; R, Rare; S, significant species not listed under Queensland (QNCR 1994) or Commonwealth (EPBC 1999) legislation (see Methods for definition of significant fauna, Table 1).

3.2.2 Habitat Integrity

Habitat diversity within the study area is low and can be broadly described as an open eucalypt woodland with a shrub and grass understorey. From a fauna habitat perspective, the floristic and structural differences described for the vegetation communities in the flora section of this report are small and are unlikely to constitute discrete habitat types.

Noteable habitat structures within this woodland complex included rock screes and the high potential for hollow-bearing trees. These features are common on both a local and regional scale. A notable omission within the study area was the lack of a distinguishable riparian zone. These areas typically form focal points for fauna within the open woodland complexes.

Habitat integrity across the site was generally moderate with signs of past disturbance in the form of cattle grazing and fire. This appears to have contributed to accelerated erosion along cattle tracks, watercourse bank damage and severe treading/poaching where soils are wet. Habitat types found within the study area are common both locally and regionally and are unlikely to constitute critical habitat for any fauna species. Good habitat connectivity exists between the study site and surrounds.

Conservation of Fauna Values

Impacts on fauna species, including protected and significant fauna species are likely to be low given the:

- small total area of disturbance
- proposal to stagger the disturbance/operational regime on a temporal scale
- proposal to disturb areas in a progressive pattern, allowing the potential for progressive rehabilitation
- high connectivity with similar surrounding habitat types and the high representation of similar habitat types on both a local and regional scale.

Conservation of protected and significant fauna involves protection of habitat which, for all the species shown in Table 3.7, includes the general eucalypt woodland habitat that occupies the entire site. Management of significant fauna habitat can therefore be carried out so that it complements the vegetation protection measures discussed for the vegetation communities.

Protecting fauna habitat means:

- minimising area of disturbance
- protection of tall, hollow-bearing trees. This should include inspecting hollow-bearing trees prior to clearing and either: a) removing fauna and/or b) remove hollow-bearing trees at night time when there is a lower likelihood of fauna occupying roost/nest site.
- protecting habitat integrity through weed control
- rehabilitating disturbed areas with minimal delay following disturbance.

3.2.3 *Recommendations for Further Studies*

Low levels of impact are expected on fauna assemblages within the study area. Additional fauna studies are unlikely to contribute additional information to the conservation of existing fauna and are therefore not recommended. However, areas to be disturbed should be inspected for hollow-bearing trees prior to clearing and appropriate mitigation measures undertaken as discussed in this report (*see Conservation of Fauna Values*).



Plates

Plate 3.1: RE 9.3.2 - Mt Molloy Box on alluvium



Plate 3.2: RE 9.8.1 – Ironbark on red soil plains and rocky rises



Plate 3.3: RE 9.3.10 – Mountain Coolibah, Black Tea Tree and springs on black soil plains





Chapter 6. References



- ANZECC 2000. *Australian Water Quality Guidelines for Fresh and Marine Waters*, Australian and New Zealand Environment Conservation Council.
- Brooker, M.I.H. and Kleinig, D.A., 1994. *Field Guide to Eucalyptus. Volume 3, Northern Australia*. Reed International Books Australia Pty Ltd, trading as Inkata Press, Sydney.
- Chessman, B. 1995. 'Rapid Assessment of rivers using macroinvertebrates: A procedure based on habitat-specific sampling, family level identification and a biotic index'. *Australian Journal of Ecology* **20**, 122-129.
- Churchill, S. 1998. *Australian Bats*. Reed New Holland, Sydney.
- Cogger, H.G. 1992. *Reptiles and Amphibians of Australia*. Reed Books, Australia.
- Commonwealth of Australia, 2001. *The Australian Natural Resources Atlas*. www.nlwra.gov.au/atlas.
- Dalrymple Shire Council's Management Plan: Control of Declared Plants and Animals within the Dalrymple Shire 1999.
- Duncan, A. G., Baker, B. and Montgomery, N. (eds) 1999. *The Action Plan for Australian Bats*. Environment Australia, Action Plans and Conservation Overviews. URL: <http://www.ea.gov.au/biodiversity/threatened/action/bats>.
- Environment Protection and Biodiversity Conservation Act 1999*, Commonwealth of Australia.
- EPA 1999. *Water Quality Sampling Manual*. 3rd Edition. Environmental Protection Agency.
- Grundy, M. and Bryde, N. 1989. *Land resources of the Einasleigh – Atherton dry tropics*. QDPI.
- Grundy, M. J. and Heiner, I. J. 1999. *Land Resources of the Ravenshoe – Mt Garnet Area. Volume II. Land Suitability*. QDNR.
- Grundy, M. J. and Reid, R. E. 1986. *Agricultural Land Suitability of Herberton Shire*. QDPI.
- Gunn, R. H., Beattie, J. A., Reid, R. E., van de Graaf, R. H. M. (eds) 1998. *Australian Soil and Land Survey Handbook: Guidelines for Conducting Surveys*. Inkata Press, Melbourne.
- Heiner, I. and Grundy, M. 1994. *Land Resources of the Ravenshoe –Mt Garnet area north Queensland. Vol 1. Land Resource Inventory*. QDPI.
- Henderson, R.J.F., 1997. *Queensland Plants: Names and Distribution*. Queensland Herbarium, Department of Environment, Brisbane.
- Kent, D. J. and Shepherd, R.N. 1984. *Cropping Potential in the Eastern Etheridge Shire Area, North Queensland*. QDPI Project Report Q084013. QDPI.
- Loveday, J. and Pyle, J. 1973. *The Emerson dispersion test and its relationship to hydraulic conductivity*. CSIRO – Division of Soils 15:1-7
- McDonald, R. C., Isbell, R. F., Speight, J. G., Walker, J., Hopkins, M. S. 1990. *Australian Soil and Land Survey: Field Handbook*. Inkata Press, Melbourne.

- McNeil, V.H., Churchill, R.C., Marshall, C.J. and Choy, S.C. (2000) *Preliminary Risk Assessment of Water Quality in Queensland River Basins*. Department of Natural Resources, Queensland. May 2000.
- Milson, J. 2000. *Pasture Plants of north-west Queensland*. Department of Primary Industries, Scientific Publishing, QLD.
- Nature Conservation (Wildlife) Regulation* 1994, Queensland.
- NRA, 2000. *Conjuboy Diatomite Project Baseline Studies Complete Services*. Proposal dated 11 August 2000.
- NRA, 2000a. *Site Investigations – Flora and Fauna, Kagara Zinc Ltd, Mt Garnet*. Report for Townley and Associates Pty Ltd by Natural Resource Assessments Pty Ltd, Cairns.
- NRA, 2000b. *Surveyor 1 Soil and Flora Studies*. Report for Townley and Associates Pty Ltd by Natural Resource Assessments Pty Ltd, Cairns.
- NRA, 2001. *Conjuboy Diatomite Project – Environmental Baseline Studies*. Correspondence dated 3 September 2001.
- NRA, 2002. *Conjuboy Diatomite Project – Environmental Baseline Studies*. Correspondence dated 25 January 2002.
- Parsons, W.T. and Cuthbertson, E.G., 1992. *Noxious Weeds of Australia*. Inkata Press, Melbourne
- QDME 1995. *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland – Land Suitability Assessment and Determination of Post-Mining Land Use*. (QDME, 1995).
- QDPI, 1990. *Guidelines for Agricultural Land Evaluation in Queensland*. QDPI.
- Rural Lands Protection Act* 1985. Queensland.
- Sattler, P. & Williams, R. 1999, *The conservation status of Queensland's bioregional ecosystems*. Environmental Protection Agency, Queensland.
- SGAP, undated. *The Flora of the Irvinebank Area*. Society for Growing Australian Plants, Tablelands Branch. Atherton, Queensland.
- Slater, P., Slater, P. & Slater, R. 1989. *The Slater Field Guide to Australian Birds*. Lansdowne Publishing Pty Ltd, Australia.
- Strahan, R. (ed) 1995. *The Mammals of Australia*. Reed Books, Sydney.
- Townsend, K. 1997. *Field Guide to Plants of the Dry Tropics*. Society for Growing Australian Plants, Townsville Branch. Prestige Litho. QLD.
- Wilson, S. K. & Knowles, D. G. 1988. *Australia's Reptiles: a photographic reference to the terrestrial reptiles of Australia*.



Appendix C: HerbreCs Search Results and Flora Species List

Herbarium Records

Family_Name	Status	Botanical_Name	Label
Myrtaceae		Eucalyptus leptophleba F.Muell.	64K SW to SSW of Mt Garnet.□
Fabaceae		Crotalaria aridicola Domin	Monsoon forest; in red basaltic soil area.
Fabaceae		Crotalaria aridicola Domin	
Caesalpiniaceae		Senna sophera (L.) Roxb. var. sophera	
Fabaceae		Crotalaria aridicola Domin	
Erythroxylaceae		Erythroxylum ellipticum R.Br. ex Benth.	
Solanaceae		Solanum parvifolium R.Br.	
Apiaceae		Trachymene bivistita (Domin) L.A.S.Johnson var. bivistita	
Poaceae		Aristida sciuroides Domin	near Lynd Station.□ Tussocky perennial 4.5 ft high with dense, spike-like narrow long inflorescence.
Poaceae		Aristida warburgii Mez	N of the Lynd.□ Eucalyptus forest on granite sand.□ Green tufts with oblique to straggling culms.
Poaceae		Brachiaria holosericea subsp. velutina (R.D.Webster) B.K.Simon	Near Lynd Station.□ Common in gritty soil on slope of small hill in Eucalyptus argillacea community. Slender, erect annual to 1ft high with silky hairy spikelets.
Cyperaceae		Fimbristylis sieberiana Kunth	
Poaceae	*	Paspalum dilatatum Poir.	Near Conjuboy Station.□ Common in red basaltic soils. Tussocky, dense perennial 3-4ft high.
Euphorbiaceae		Petalostigma pubescens Domin	
Mimosaceae		Acacia gonoclada F.Muell.	
Mimosaceae		Acacia hemignosta F.Muell.	
Mimosaceae		Acacia disparima subsp. calidestris M.W.McDonald & Maslin	
Portulacaceae		Calandrinia arenicola Syeda	
Myrtaceae		Eucalyptus shirleyi Maiden	North of Lynd.□ Crooked tree of 7 m with crooked spreading and descending branches; bark blackish, hard, rough and deeply furrowed; leaves glaucous.

Herbarium Records

Euphorbiaceae	Phyllanthus carpentariae Muell.Arg.	Near Conjuboy Station.□ Common near spring in podsollic soil.□ Semi-prostrate, branching annual to 2ft high with very small spikelets.
Myrtaceae	Melaleuca nervosa (Lindl.) Cheel	
Poaceae	Brachiaria reptans (L.) C.A.Gardner & C.E.Hubb.	
Poaceae	Arundinella setosa Trin.	65K SW to SSW of Mt Garnet.□ In Monsoon Forest.□ Glaucous gumtop bark. Oakland Park Station Upper Copperfield River.□ Open sandy ridges.□ Bark bloodwood type, friable, yellowish.
Myrtaceae	Eucalyptus orgadophila Maiden & Blakely	
Myrtaceae	Corymbia setosa subsp. pedicellaris K.D.Hill & L.A.S.Johnson	
Fabaceae	Gastrolobium grandiflorum F.Muell.	
Fabaceae	Indigastrum parviflorum (B.Heyne ex Wight & Arn.) Schrire	
Zygophyllaceae	Tribulopsis angustifolia R.Br.	
Amaranthaceae	Gomphrena lanata R.Br.	
Convolvulaceae	Ipomoea gracilis R.Br.	
Poaceae	Elionurus citreus (R.Br.) Munro ex Benth.	
Cyperaceae	Cyperus bifax C.B.Clarke	N of the Lynd.□ Erect, compact, dull green tufts 1-1.2 m.
Poaceae	Aristida ingrata Domin	
Cyperaceae	Cyperus difformis L.	
Mimosaceae	Acacia lazaridis Pedley	65K SW to SSW of Mt Garnet.□ In monsoon forest.
Myrtaceae	Eucalyptus leptophleba F.Muell.	
Rubiaceae	Everistia vacciniifolia forma crassa S.T.Reynolds & R.J.F.Hend.	
Myrtaceae	Corymbia citriodora (Hook.) K.D.Hill & L.A.S.Johnson subsp. citriodora	CA 65km South West to SSW of Mt Garnet.□ In monsoon forest.
Myrtaceae	Corymbia confertiflora (F.Muell.) K.D.Hill & L.A.S.Johnson	CA 65K South West to SSW of Mt Garnet in Monsoon Forest.
Mimosaceae	Acacia lazaridis Pedley	
Fabaceae	Lamprolobium fruticosum Benth.	
Fabaceae	Daviesia flava Pedley	

Herbarium Records

Poaceae	*	Eragrostis cilianensis (All.) Vignolo ex Janch.	40 miles north of Conjuboy.
Convolvulaceae		Ipomoea eriocarpa R.Br.	
Sterculiaceae	R	Brachychiton albidus Guymier	
Campanulaceae		Pratia concolor (R.Br.) Domin	
Celastraceae		Denhamia pittosporoides subsp. angustifolia Jessup	
Pittosporaceae		Pittosporum spinescens (F.Muell.) L.W.Cayzer, Crisp & I.Telford	7M N of Conjuboy Station.□ Occasional on red basaltic soil with Eucalyptus crebra and Themeda australis.□ Tussocky, erect perennial 4 ft high with large, spreading panicle.
Poaceae		Aristida lazaridis B.K.Simon	
Poaceae		Bothriochloa bladhii (Retz.) S.T.Blake subsp. bladhii	
Poaceae		Chrysopogon fallax S.T.Blake	
Poaceae		Cymbopogon bombycinus (R.Br.) Domin	
Poaceae		Digitaria divaricatissima (R.Br.) Hughes	7 miles N of Conjuboy Station.□ Occasional on red basaltic soil with Themeda australis.□ Erect, tussocky perennial 3ft 6in high. 7 miles north of Conjuboy Station.□ Occasional on red, basaltic soils with Themeda australis in disturbed ground.□ Tufted, branched annual 2ft high. Foliage unpleasantly aromatic.
Poaceae	*	Eragrostis cilianensis (All.) Vignolo ex Janch.	
Poaceae		Heteropogon triticeus (R.Br.) Stapf	
Mimosaceae		Acacia julifera subsp. gilbertensis Pedley	
Pittosporaceae		Bursaria incana Lindl.	
Malvaceae		Abelmoschus moschatus subsp. tuberosus (Span.) Borss.Waalk.	
Fabaceae	*	Crotalaria spectabilis Roth	
Asclepiadaceae	*	Asclepias curassavica L.	
Poaceae		Eulalia aurea (Bory) Kunth	Conjuboy Station.□ On grey, heavy textured self mulching soil.□ Tufted, erect perennial 2-3ft high.
Poaceae		Eriochloa crebra S.T.Blake	

Herbarium Records

Poaceae	Isilema macrathetum Domin	
Poaceae	Capillipedium parviflorum (R.Br.) Stapf	
Asteraceae	Calotis scapigera Hook.	
Proteaceae	Grevillea mimosoides R.Br.	
Poaceae	Bothriochloa bladhii (Retz.) S.T.Blake subsp. bladhii	
Asteraceae	Flaveria australasica Hook.	Conjuby Station.□ Growing as a weed in homestead lawn. Wiry, tufted perennial to 18in high.
Poaceae	Sporobolus sessilis B.K.Simon	
Poaceae	Eriachne glabrata (Maiden) W.Hartley	Conjuby Station.□ Growing in water and dominating bank of drain-water channel.□ Semi-prostrate perennial forming a dense mat over water with erect flowering culms to 1ft high.
Poaceae	Paspalum distichum L.	4 miles north of Conjuby Station.□ Occasional on red, stony soil on basalt.□ Semi-erect, branched annual with erect flowering culms 18in high and rooting from lower nodes.
Poaceae	Digitaria bicornis (Lam.) Roem. & Schult.	Conjuby Station.□ Common on grey, heavy-textured soil on basalt. Tufted, erect perennial to 4ft high, rooting at lower nodes.
Poaceae	* Chloris gayana Kunth	Conjuby Station.□ Common in grey soil on heavy texture.□ Semi-prostrate annual with erect flowering culms 18in to 2ft high.
Poaceae	Brachyachne convergens (F.Muell.) Stapf	4 miles north of Conjuby Station.□ Common, often dominant in patches on red, stony soil on basalt.□ Semi-erect, hairy annual rooting from lower nodes with erect flowering culms 9in high.
Poaceae	Brachiaria gilesii (Benth.) Chase	
Poaceae	Sorghum plumosum (R.Br.) P.Beauv. var. plumosum	
Poaceae	Chloris divaricata R.Br.	Conjuby Station.□ Occasional on grey soil of heavy texture. Erect, tufted grass 3ft high.

Herbarium Records

Poaceae	Dichanthium sericeum (R.Br.) A.Camus subsp. sericeum	Conjuboy Station.□ Common near water in depressions on grey soil of heavy texture.□ Semi-prostrate or erect annual to 2ft high.
Poaceae	* Echinochloa colona (L.) Link	Conjuboy Station.□ Dominating sandy bank of permanent waterhole.□ Tall, dense, tussocky perennial 5-6ft high.
Poaceae	Echinochloa telmatophila P.W.Michael & Vickery	Conjuboy Station.□ Common near water on creek bank.□ Robust, branched, tussocky perennial to 1ft high.
Poaceae	* Eleusine indica (L.) Gaertn.	Conjuboy Station.□ Occasional in grey soil of heavy texture.□ Tufted, erect perennial, 2-3ft high.
Asteraceae	Pterocaulon sphacelatum (Labill.) F.Muell.	
Convolvulaceae	Ipomoea polymorpha Roem. & Schult.	
Poaceae	Eriochloa crebra S.T.Blake	Conjuboy Station.□ Occasional in grey soil of heavy texture.□ Tufted, erect perennial, 2-3ft high.
Fabaceae	Indigofera glandulosa Willd.	
Mimosaceae	Neptunia gracilis Benth. forma gracilis	
Mimosaceae	Acacia galioides Benth.	
Myrtaceae	Eucalyptus leptophleba F.Muell.	2M ESE of Conjuboy Station.□ Common on stony skeletal soil on basalt.□ Straggly tree 40-50ft high; grey, box-type bark.
Thymelaeaceae	Pimelea haematostachya F.Muell.	
Myrtaceae	Corymbia erythrophloia (Blakely) K.D.Hill & L.A.S.Johnson	27M S of Mt Garnet-Normanton Rd.□ Tree 5m high; dark grey/brown tessellated bark to about 2in, then smooth yellowish.

Table C: Flora Species List



Family	Species	Common Name	Status ¹	RE 9.8.1	RE 9.3.2	RE 9.3.10
APOCYNACEAE	<i>Carissa ovata</i>	Currant Bush		✓	✓	
ASTERACEAE	<i>*Tridax procumbens</i>			✓		
	<i>*Xanthium pungens</i>	Noogoora Burr	P3		✓	
BIGNONIACEAE	<i>Dolichandrone heterophylla</i>	Lemon Wood			✓	
BORAGINACEAE	<i>Trichodesma zeylanicum</i>	Camel Bush		✓		
CAPPARACEAE	<i>Capparis lasiantha</i>	Supplejack				✓
	<i>Capparis umbonata</i>	Native Pomegranate		✓		
CARYOPHYLLACEAE	<i>Polycarpaea corymbosa</i>	Copper Bush		✓		
CELASTRACEAE	<i>Maytenus cunninghamii</i>	Yellowberry Bush		✓		
	<i>Siphonodon pendulus</i>				✓	
CONVOLVULACEAE	<i>Ipomoea eriocarpa</i>	a Morning Glory		✓		
CUCURBITACEAE	<i>Mukia maderaspatana</i>	Red cucumber		✓		
EBENACEAE	<i>Diospyros geminata</i>	Native Ebony		✓		✓
EUPHORBIACEAE	<i>Breynia oblongifolia</i>	Breynia				✓
	<i>Euphorbia</i> sp.			✓		
	<i>Euphorbia tannensis</i>	Desert Spurge		✓		
	<i>Petalostigma pubescens</i>	Quinine Bush		✓	✓	
FABACEAE	<i>Cajanus marmoratus</i>				✓	
	<i>Cajanus scarabaeoides</i>			✓	✓	
	<i>Crotalaria brevipes</i>	a Rattlepod			✓	
	<i>Crotalaria montana</i>	a Rattlepod		✓	✓	
	<i>Indigofera linifolia</i>	Round Pod Indigo		✓		
	<i>Indigofera linnaei</i>	Birdsville Indigo		✓	✓	
	<i>*Stylosanthes hamata</i>	Caribbean Stylo		✓	✓	
	<i>Stylosanthes</i> sp	Stylo		✓	✓	
	<i>Tephrosia juncea</i>	Tephrosia		✓		
	<i>Trifolium dubium</i>			✓		
	<i>Uraria lagopodioides</i>				✓	
FLACOURTIACEAE	<i>Homalium brachybotrys</i>	Hard Boxwood		✓		
MALVACEAE	<i>Sida cordifolia</i>	Flannel Weed			✓	
MIMOSACEAE	<i>Acacia bidwillii</i>				✓	
	<i>*Acacia farnesiana</i>	Mimosa		✓	✓	
	<i>Acacia victoriae</i>	Gundabluie		✓		
	<i>Neptunia amplexicaulis</i>	Selenium Weed		✓	✓	
MORACEAE	<i>Ficus opposita</i>	Fig		✓		✓
MYOPORACEAE	<i>Myoporum montanum</i>	Boobialla		✓		
MYRTACEAE	<i>Corymbia citriodora</i>	Lemon Scented Gum		✓		
	<i>Corymbia dallachiana</i>	Cabbage Gum		✓	✓	
	<i>Corymbia erythrophloia</i>	Red Bloodwood		✓	✓	
	<i>Eucalyptus crebra</i>	Grey Ironbark		✓		
	<i>Eucalyptus leptophleba</i>	Molloy Red Box		✓	✓	
	<i>Melaleuca bracteata</i>	Black Tea Tree			✓	✓
ORCHIDACEAE	<i>Cymbidium canaliculatum</i>	Black Orchid	C	✓	✓	✓
PITTOSPORACEAE	<i>Bursaria incana</i>	Box Thorn			✓	

POACEAE	<i>Cymbopogon bombycinus</i>	Lemon Scented Grass	✓	✓	
	<i>Dichanthium sp</i>	Bluegrass		✓	
	<i>Digitaria bicornis</i>	Hairy Finger Grass	✓	✓	
	<i>Eragrostis sp.</i>		✓	✓	
	<i>Heteropogon triticeus</i>	Giant Spear Grass	✓	✓	
	* <i>Melinis repens</i>	Red Natal	✓	✓	
	<i>Sporobolus australasicus</i>	Australian Dropseed	✓	✓	
	* <i>Themeda quadrivalvis</i>	Grader Grass	✓	✓	
	<i>Themeda triandra</i>	Kangaroo Grass	✓	✓	✓
PROTEACEAE	<i>Grevillea parallela</i>	Silver Oak		✓	
	<i>Grevillea striata</i>	Beefwood		✓	
	<i>Hakea arborescens</i>	Tree Hakea	✓	✓	
SANTALACEAE	<i>Santalum lanceolatum</i>	Australian Sandalwood	✓		
SMILACACEAE	<i>Eustrephus latifolius</i>	Wombat Berry	✓	✓	✓
STERCULIACEAE	<i>Brachychiton diversifolius</i>	Kurrajong	✓		
	<i>Waltheria indica</i>	Waltheria	✓		
TILIACEAE	<i>Grewia retusifolia</i>	Dogs Balls	✓	✓	
VITACEAE	<i>Cayratia trifoliata</i>		✓		
XANTHORRHOEACEAE	<i>Lomandra multiflora</i>		✓	✓	

* Indicates an introduced species.

¹ Status of the species under Queensland legislation.

C - Common Protected Wildlife (*Queensland Nature Conservation Act 1992*)

P3 - Class P3 declared weed (*Rural Lands Protection Act 1985*)



Appendix E: Weeds and Recommended Control Measures

Weeds and Recommended Control Measures

The table below presents weed species known to occur or have the potential to occur (field survey, Dalrymple Shire Council (Pest) Management Plan, 1999) within the proposed mine lease area. Control methodologies are provided based on recommendations provided in DNR Pest Factsheets or within the Dalrymple Shire (Pest) Management Plan. Application of chemical control should be in accordance with product specifications.

Weed management should involve integrated control that includes:

- minimising the area of disturbance.
- timing chemical control for when plants are actively growing, but prior to seed set
- rehabilitating disturbed areas as soon as possible following disturbance
- quarantine measures which minimise the risk of introducing new weeds to the site. These may involve
 - cleaning of machinery, tools and other work gear prior to arrival on site
 - use of clean straw, tea-tree mulch or other seed-free medium as a mulch

Species Name	Common Name	Noted During Site Investigation?	Rural Lands Protection Act 1985	Priority of the Dalrymple Shire (Pest) Management Plan ¹	Prevention and Control Measures (Sources: Dalrymple Shire (Pest) Management Plan 1999, DNR Pest Fact Sheets)
<i>Acacia nilotica</i>	Prickly Acacia	No	P2	B, C	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Agave sisalana</i>	Sisal Hemp	No	-	B, C, G	Contact the Dalrymple Shire Environmental Officer on (07) 4787 5600
<i>Bryophyllum</i> spp	Mother of Millions	No	P4	B, C, G	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Cryptostegia grandiflora</i>	Rubbervine	No	P3	B, C, D, F	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Eichornia crassipes</i>	Water Hyacinth	No	P3	C, E, F	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Eriocereus martinii</i>	Harrisia Cactus	No	P3	B, C, F	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Jatropha gossypifolia</i>	Bellyache Bush	No	-	B, C, G	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Lantana camara</i>	Lantana	No	-	C, D, E, F, G, H	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Parkinsonia aculeata</i>	Parkinsonia	No	P3	B, C	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Parthenium hysterophorus</i>	Parthenium Weed	No	P3	B, C, D, F, H	Refer to DNR Pest Fact Sheet (Appendix D)

Species Name	Common Name	Noted During Site Investigation?	Rural Lands Protection Act 1985	Priority of the Dalrymple Shire (Pest) Management Plan ¹	Prevention and Control Measures (Sources: Dalrymple Shire (Pest) Management Plan 1999, DNR Pest Fact Sheets)
<i>Pistia stratiotes</i>	Water Lettuce	No	P3	A	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Prosopis</i> spp	Prickly Mesquite	No	P2 & P3	B	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Ricinus communis</i>	Castor-oil Plant	No	-	B, C, D, G	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Salvinia molesta</i>	Salvinia	No	P3	A, F	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Solanum torvum</i>	Devils Fig	No	-	C, E, G, H	Contact the Dalrymple Shire Environmental Officer on (07) 4787 5600
<i>Sporobolus pyramidalis</i> and <i>S. natalensis</i>	Giant Rats Tail Grass	No	P2	A	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Stachytarpheta</i> spp	Snakeweed	No	-	B, C, E, G, H	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Thevetia peruviana</i>	Captain Cook Tree	No	-	B, G	Contact the Dalrymple Shire Environmental Officer on (07) 4787 5600
<i>Tribulus terrestris</i>	Caltrop	No	-	B, C, E, G	Contact the Dalrymple Shire Environmental Officer on (07) 4787 5600
<i>Xanthium pungens</i>	Noogoora Burr	Yes	P3	-	Refer to DNR Pest Fact Sheet (Appendix D)
<i>Ziziphus mauritiana</i>	Chinese Apple	No	P3	B, C, H	Refer to DNR Pest Fact Sheet (Appendix D)

Dalrymple Shire Control Definitions:

- A: Total eradication
- B: Eradication of isolated infestations
- C: Containment/Prevention from spreading
- D: Control in buffer zone circumstances
- E: Extension and Education
- F: Biological control
- G: Environmental Weed requiring control
- H: Integrated Pest Management



Appendix F: Fauna Significance and Species



Table F1: Significant Species of the Study Area and the Reason for their Significance Nomination.

Species	Reason for significance	Source
Northern Quoll, <i>Dasyurus hallucatus</i>	Australia-wide decline and ecological susceptibility to population extinction	Braithwaite and Griffiths 1994 S. Burnett (James Cook University, Townsville) unpublished data
Brush-tailed Phascogale, <i>Phascogale tapoatafa</i>	Extreme rarity and ecological susceptibility to population extinction	S. Burnett unpublished data
Common Ringtail, <i>Pseudocheirus peregrinus</i>	Widespread decline throughout north Queensland and Cape York	John Winter (Acting Threatened Species Coordinator, EPA, Atherton)

Table F2: Fauna Species Observed During Field Investigations of the Conjuboy Study Area.

Species	Common Name
Reptiles	
<i>Carlia jarnoldae</i>	Lined Rainbow-skink
<i>Diporiphora australis/bilineata</i>	Eastern Two-lined Dragon
Birds	
<i>Dromaius novaehollandiae</i>	Emu
<i>Milvus migrans</i>	Black Kite
<i>Aquila audax</i>	Wedge-tailed Eagle
<i>Grus rubicundra</i>	Brolga
<i>Ardeotis australis</i>	Australian Bustard
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Eolophus roseicapillus</i>	Galah
<i>Platycercus adscitus</i>	Pale-headed Rosella
<i>Dacelo novaeguineae</i>	Blue-winged Kookaburra
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
<i>Rhipidura leucophrys</i>	Willy Wagtail
<i>Gerygone fusca</i>	Western Gerygone
<i>Artamus minor</i>	Little Woodswallow
<i>Struthidea cinerea</i>	Apostle-bird
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Corvus orru</i>	Torresian Crow
Mammals	
<i>Bettongia tropica</i>	Rufous Bettong
<i>Oryctolagus cuniculus</i>	Rabbit*
<i>Vulpes vulpes</i>	Fox*
<i>Felis catus</i>	Cat*
<i>Canis familiaris/lupus</i>	Dog*/ Dingo
<i>Bos taurus</i>	Cattle*

* = Introduced species.

Species	Common Name	EPBC 1999	QNCR 1994
Reptiles			
Egernia rugosa	Yakka skink	V	V
Lysgisaurus rococo	Chillagoe Litter-skink		NT
Lerista ameles	Limbless Fine-lined Slider		V
Lerista cinerea	Vine-thicket Fine-lined Slider		V
Lerista wilkinsi	Two-toed Fine-lined Slider		C
Ctenotus zebrilla	Cape York Fine-snouted Ctenotus		C
Furina barnardi	Yellow-naped snake		C
Ramphotyphlops broomi	Blind snake		
Simoselaps warro	Burrowing Snake		
Acanthophis antarcticus	Common Death Adder		V
Birds			
Lophoictinia isura	Square-tailed kite		C
Haliaeetus leucogaster	White-bellied Sea Eagle	Migratory and Marine Protected Species	C
Accipiter novahollandiae	Grey Goshawk		C
Erythrotriorchloris radiatus	Red Goshawk	V	E
Falco hypoleucos	Grey Falcon	V	V
Ninox rufa	Rufous Owl		NT
Tyto novaehollandiae kimberli	Masked Owl	V	C
Hirundapus caudacutus	White-throated Needletail	V and Migratory and Marine Protected Species	V
Poephila cinta	Black-throated Finch	E	C
Neochmia rufiauda ruficauda	Star Finch	E	C
Neochmia phaeton	Crimson Finch	E	C
Erythrura gouldiae	Gouldian Finch	E	E
Mylagra cyanoleuca	Satin Flycatcher	Migratory and Marine Protected Species	SL
Melthithreptus gularis	Black-chinned Honeyeater		C
Mammals			
Dasyurus hallucatus	Northern Quoll	E	C
Phascogale tapoatafa	Brush-tailed Phascogale	V	C
Pseudocheirus peregrinus*	Common Ringtail Possum		LC
Petrogale mareeba	Mareeba Rock Wallaby		C
Macroderma gigas	Ghost Bat	V	E
Hipposideros diadema	Diadem Horseshoe-Bat	E	NT

Species	Common Name	EPBC 1999	QNCR 1994
Hipposideros semoni	Greater Wart-nosed Horseshoe-bat	V	E
Chalinolobus picatus	Little Pied Bat		C
EPBC STATUS SUMMARY		QNCR STATUS SUMMARY	
E= Endangered = 6 V = Vulnerable = 8 Migratory and marine protected species = 3		E = Endangered = 4 V = Vulnerable = 6 NT = near threatened = 3 C = least concern = 15 SC= Special Least Concern = 1	

* *not Pseudocheirus peregrinus occidentalis*

Source of updated conservation status

[Species Profiles \(SPRAT\) \(environment.gov.au\)](https://environment.gov.au/species/profiles/sprat)

[Species - Conservation status of Queensland wildlife | Open Data Portal | Queensland Government](#)

WildNet Records

Conservation Significant Species List

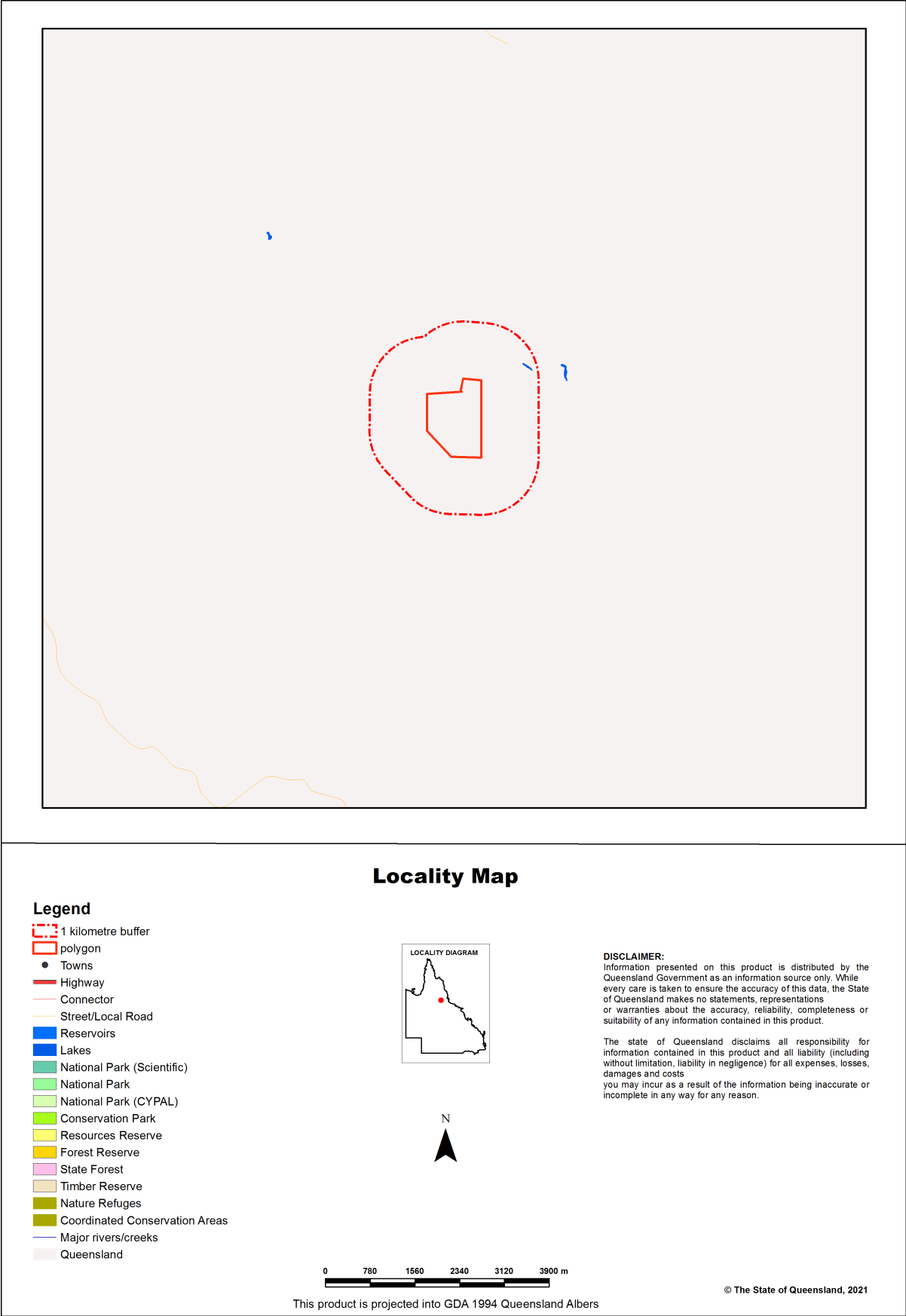


For the selected area of interest 104.11ha

Current as at 11/08/2021

WildNetCSSpeciesList

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest .

Table 1. Area of interest details

Size (ha)	104.11
Local Government(s)	Charters Towers Regional
Bioregion(s)	Einasleigh Uplands
Subregion(s)	Undara - Toomba Basalts
Catchment(s)	Burdekin

Protected Area(s)

No estates or reserves are located within the area of interest.

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

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Conservation significant species are species listed:

- as [threatened](#) or near threatened under the Nature Conservation Act 1992;
- as threatened under the [Environment Protection and Biodiversity Conservation Act 1999](#) or
- [migratory species](#) protected under the following international agreements:
 - o Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
 - o China-Australia Migratory Bird Agreement
 - o Japan-Australia Migratory Bird Agreement
 - o Republic of Korea-Australia Migratory Bird Agreement

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

No species found within the area of interest.

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

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

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the [WildNet database](#) include:

- [Species profile search](#) - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- [Species lists](#) - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- [Biomaps](#) - view biodiversity information, including WildNet records approved for publication, and generate reports
- [Queensland Globe](#) - view spatial information, including WildNet records approved for publication
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- [WetlandMaps](#) - view species records, survey locations etc. approved for publication
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Other useful sites for accessing Queensland biodiversity data include:

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WildNet Records

Pest List

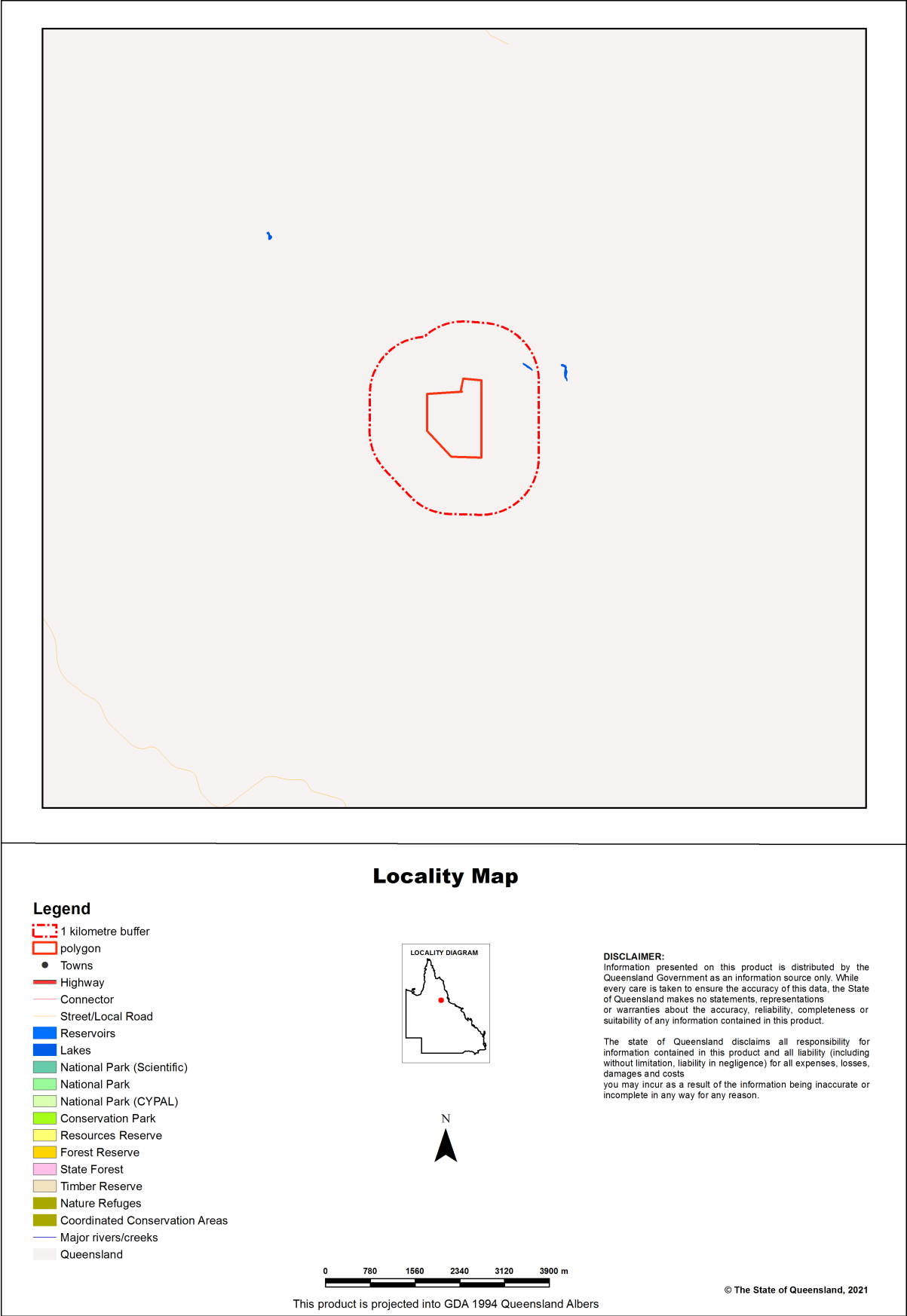


For the selected area of interest 104.11ha

Current as at 11/08/2021

WildNetPestList

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest .

Table 1. Area of interest details

Size (ha)	104.11
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Bioregion(s)	Einasleigh Uplands
Subregion(s)	Undara - Toomba Basalts
Catchment(s)	Burdekin

Protected Area(s)

No estates or reserves are located within the area of interest.

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Pest List

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Species Data

Contextual location information is presented in Map 1.

A summary of the pests recorded within the area of interest and its one kilometre buffer is presented in Table 2.

Table 2. Pests recorded within the area of interest and its one kilometre buffer

No pests found within the area of interest and its one kilometre buffer.

Species table headings and codes

Taxon Id: Unique identifier of the taxon from the WildNet database.

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Endemicity: The endemicity code for the taxon (Introduced (Intranational) (IA), Introduced (International) (II), Introduced (Unknown), Exotic (Intranational) (XA), Exotic (International) (XI) and Exotic (Unknown) (XU)).

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WildNet Records Species List

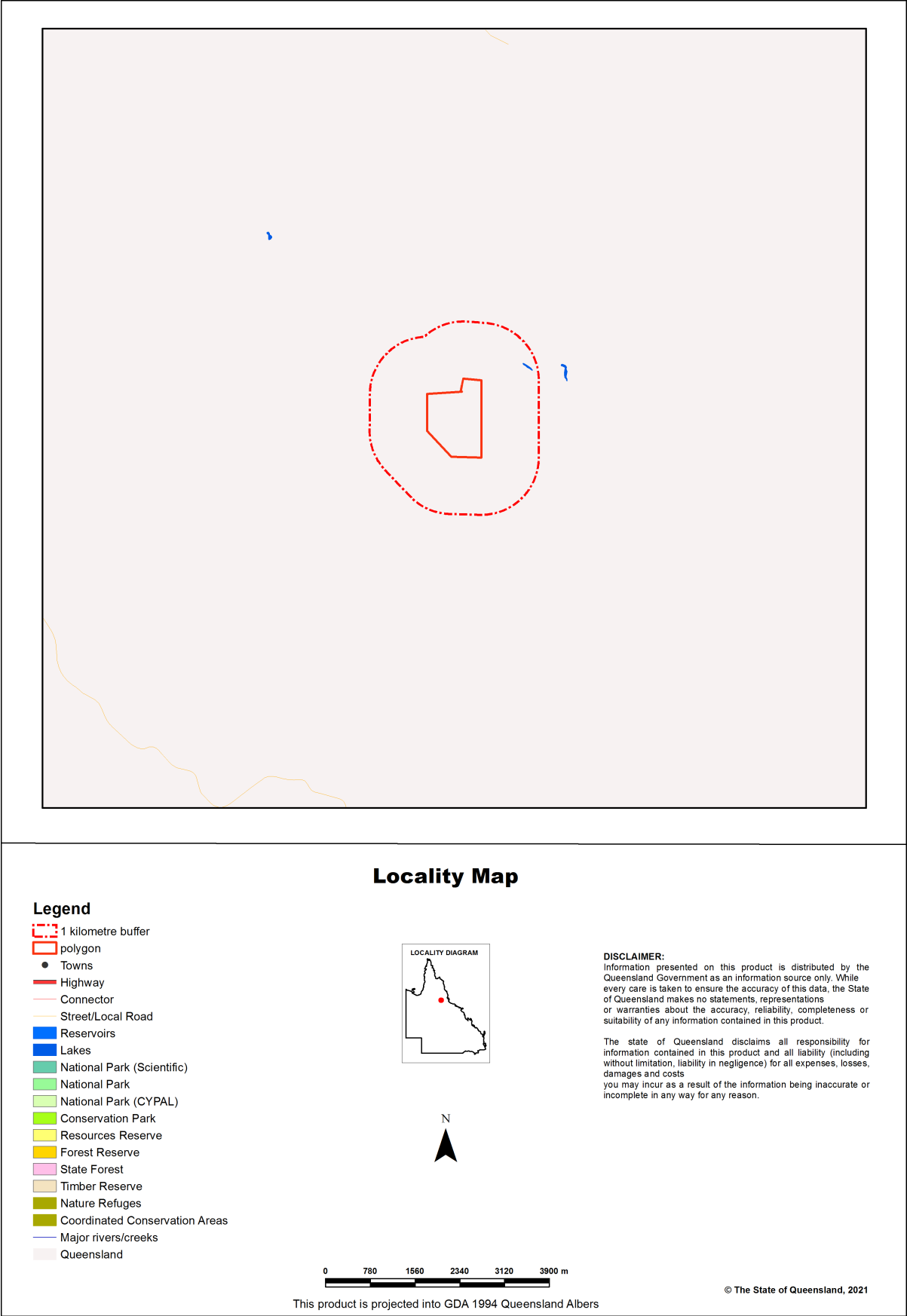


For the selected area of interest 104.11ha

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WildNetSpeciesList

Map 1. Locality Map



Summary Information

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Species List

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Table 2 lists the animals recorded within the area of interest and its one kilometre buffer.

Table 3 lists the plants recorded within the area of interest and its one kilometre buffer.

Table 4 lists the fungi recorded within the area of interest and its one kilometre buffer.

Table 5 lists the protists recorded within the area of interest and its one kilometre buffer.

Table 2. Animals recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Table 3. Plants recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Table 4. Fungi recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Table 5. Protists recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Species table headings and codes

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