origin

AUSTRALIA PACIFIC LNG

REPORT

Ecology Assessment Report

Q-4160-15-RP-0002

Australia Pacific LNG Upstream Phase 1

Lot 2 BWR104, Lot 50 BWR104 and Lot 52 BWR104

Revision	Date	Description	Originator	Checked	QA/Eng	Approved
0	10/5/2012`	Issued for use	Steve Cupitt	Michael Jones	Marion Huxley / Kerry Lazarus	Alison White
E	16/03/2012	Issued for review	Steve Cupitt	Michael Jones	Jeromy Claridge	Jeromy Claridge
D	01/03/2012	Issued for review	Steve Cupitt	Erik Kadri	Michael Jones	Jeromy Claridge
C	15/12/2011	Issued for review	Steve Cupitt	John Herron	Erik Kadri	Jeromy Claridge
B	29/08/2011	Issued for review	Steve Cupitt	Richard Floyd	Jeromy Claridge	Jeromy Claridge
A	07/08/2011	Issued for review	Steve Cupitt	Richard Floyd	Jeromy Claridge	Jeromy Claridge

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1. Definitions & Abbreviations

1.1 Definitions

Table 1: Definitions

Term	Definition
Project	Australia Pacific LNG Upstream Phase 1 Project
Study area	Lot 2 BWR104, Lot 50 BWR104 and Lot 52 BWR104 of Australia Pacific LNG gas fields
Unidel	Unidel Group Pty Ltd

1.2 Abbreviations

Table 2: Abbreviations

Abbreviation	Description
DBH	Diameter at breast height
DERM	Department of Environment and Resource Management
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EIS	Environmental impact statement
EP Act	Environmental Protection Act (Qld) 1994
EPBC Act	Environment Protection and Biodiversity Conservation Act (C'wlth) 1999
ESA	Environmentally sensitive area
HVR	High value regrowth
MNES	Matters of national environmental significance
NC Act	Nature Conservation Act (Qld) 1992
NC Reg	Nature Conservation (Wildlife) Regulation (Qld) 2006
RE	Regional ecosystem
WONS	Weeds of National Significance

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2. Introduction

Unidel Group Pty Ltd (Unidel) was commissioned by Origin to undertake a field ecology assessment of several land parcels within lots 2 BWR104, 50 BWR104 and 52 BWR104 of the Australia Pacific LNG gas fields (the Project). This report has been prepared by Steve Cupitt, Senior Environmental Scientist. Field surveys were undertaken by two ecologists; Sandrine Martinez and Steve Cupitt, both from Unidel.

This report provides a description of the ecological constraints within the properties surveyed (Lot 2 BWR104, Lot 50 BWR104 and Lot 52 BWR104). The results are based on an initial desktop assessment followed by a field survey to confirm the type and extent of vegetation communities, assess habitat values and key habitat features, and observe significant flora and fauna.

2.1 Purpose and Scope

Project approval conditions require demonstration of how impacts to areas of ecological value have been (in order of preference):

1. Avoided;
2. Minimised; and
3. Mitigated.

Previous stages of the Project have sought to achieve avoidance of impacts on areas of ecological value where practicable, through the Environmental Impact Statement (EIS), where a program of ecological surveys was undertaken to gather information on the ecological constraints within the broader area. The results of these surveys assisted in the determination of potential ecological impacts of the Project and were used in the high-level selection of infrastructure locations. The EIS formed the basis of Project approval by Commonwealth and State Government departments.

This Ecology Assessment Report builds on the results of these ecology studies and identifies ecological values at a property scale to inform further project planning.

This report addresses specific requirements contained in DSEWPaC Approval 2009/497 and the Coordinator-General's Report. These requirements include:

- Ground-truth and map any Category A, B or C Environmentally Sensitive Areas and the presence of species classed as endangered, vulnerable, or near threatened under the *Nature Conservation Act 1992*;
- Ground-truth and map any areas of Regional Ecosystem (RE) that differ in extent or type from the Department of Environment and Resource Management (DERM) mapping database;
- Ground-truth and map any pre-existing areas of significant disturbance within Category B or C Environmentally Sensitive Areas;
- Ground-truth vegetation communities in all areas of ecological sensitivity category (BAAM) 1-4 where matters of national environmental significance are mapped, likely or found;
- Identify and map areas of EPBC listed ecological communities that may provide habitat for EPBC listed species;
- Evaluate habitat quality and indicate likelihood of occurrence of threatened species;
- Identify and evaluate any exceptional environmental features;
- Map and report any unidentified specimens or unconfirmed findings;
- Map and report any significant weed or pest infestations;

- Consider constraints on infrastructure layout relevant to bioregional corridors including for EPBC listed threatened species, migratory species and connectivity for EPBC listed threatened ecological communities;
- Consider constraints on infrastructure layout relevant to ecological sensitivity categories;
- Provide site specific management recommendations to minimise impact on MNES, significant flora and fauna including identification of previously cleared or disturbed areas or lower value vegetation; and
- Provide site specific advice on potential for development to cause impacts on MNES within the no impact zone (300m) and impact risk zone (200m) and make recommendations to avoid and minimise harm to MNES.

2.2 Limitation

The field ecology survey on Lot 2 BWR104, Lot 50 BWR104 and Lot 52 BWR104 was completed prior to finalising the Environmental Constraints Planning and Field Development Protocol. Field survey efforts were focused on areas of the property where direct resource development or associated development is planned.

Other areas of the property not directly surveyed were assessed using high quality aerial imagery and mapping datasets to refine RE mapping boundaries. Inference of EVNT species likelihood and species habitats was derived though a combination of the previous field surveys, database searches, inspection of aerial imagery and extensive field experience.

Further surveys in accordance with relevant guidelines may be required for the study area following the completion of detailed project design. This broader process will be informed by the constraints identified in this report.

Moreover, detailed fauna surveys were not undertaken as part of this assessment. Field survey aimed to identify fauna species using opportunistic observations only within the designated time frame and in the prevailing weather conditions and season. Additional fauna species would likely be identified with intensive survey effort.

3. Site Context

3.1 Location

The study area is comprised of Lot 2 on BWR104, Lot 50 on BWR104 and Lot 52 on BWR104. Excluded from the study area is portion of Lot 50 BWR104 which is located within the BG International Petroleum Lease (PL) 458 and the areas identified as deep gilgais on **Figure 1** due to inaccessibility. Deep Gilgai areas could not be traversed due to the presence of deep water and full survey was not undertaken in these areas, however observation of vegetation structure was made to the extent possible by investigating the fringes of the area.

The total area of the lots is approximately 773.87 ha. The Site is located between the townships of Miles and Chinchilla approximately 30km east of Miles, in the Western Downs Regional Council Local Government Area. The site is bounded by Goombi Fairymeadow Road to the West, McNulty Road to the East and Scoulters Road to the North. The study area is located within the Brigalow Belt South Bioregion.

3.2 Climate

The climate of the region is typical of sub-tropical Queensland. Miles has a mean long term (1908 – 2005) annual maximum temperature of 27.1°C and mean annual minimum of 12.2°C (BOM 2011). Mean long term (1885 – 2011) annual rainfall is 652.4mm and approximately 40% of annual rainfall occurs in the summer months of December, January and February (BOM 2011).

3.3 Geology and Soils

The Australian Soils Resource Information System shows the study area as occurring on Chromosol soils, as mapped by the Atlas of Australian Soils (Northcote *et al*. 1960-68). Chromosol soils are described as soils with a strong texture contrast between the A and B horizons, with the latter not strongly acid and not sodic (Isbell 2002).

The three land parcels are generally Land zone 4 – flat to gently undulating tertiary clays plains with *g*ilgai micro relief that includes small areas of thin sandy or loamy Sodosols and Chromosols, Land zone 5 – old loamy and sandy plains along the southern boundary, merging from a higher elevation, and Land zone 7 – ironstone jump-ups.

Figure 1: Overview of the study area (Rev0)

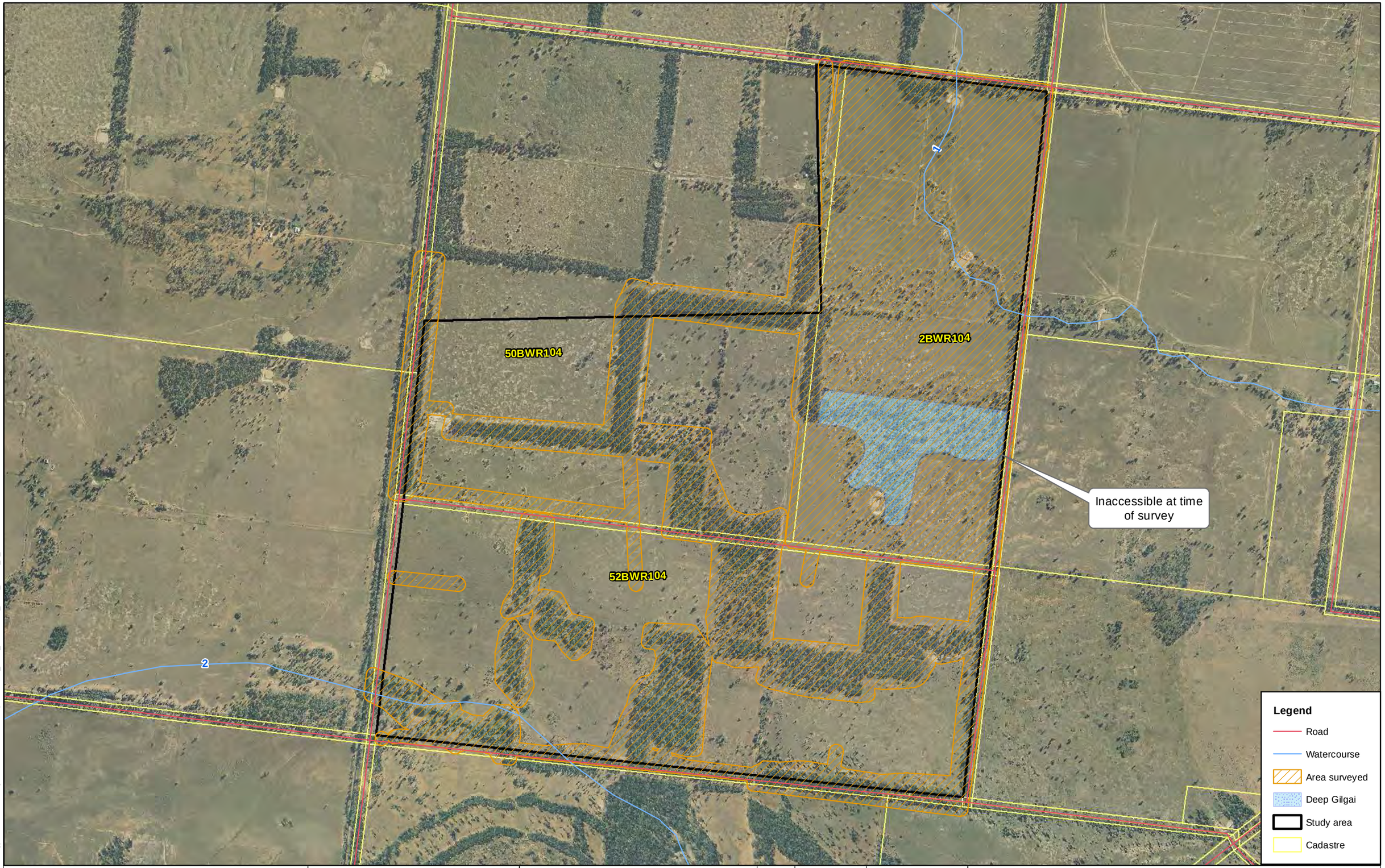

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Figure 1
Study area overview

Date: 10/05/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

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A	Issued for review	22/03/2012
B	Issued for review	28/03/2012
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4. Methodology

The methodology involved a desktop review of ecological databases, followed by field surveys of the study area. A detailed explanation of these activities is outlined in the following sections.

Unidel is an organisation approved to undertake pre-clearance surveys; approved by Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) in writing on 28 June 2011.

4.1 Desktop and Literature Review

The following information sources were reviewed:

- EPBC Act protected matters search Tool (DSEWPaC 2012) (accessed 01/03/2012);
- DERM RE mapping (version 6.1) (DERM 2011a) and essential habitat mapping (version 3.1) (DERM 2011b);
- DERM high value regrowth (HVR) vegetation mapping (version 2.1) (DERM 2011c) and property map of assessable vegetation mapping
- DERM Wildlife Online Database (DERM 2011h) (accessed 01/03/2012); and
- DERM Referable Wetland Database (DERM 2011e) (accessed 01/09/2011).

The desktop database searches outlined above were undertaken using a central coordinate at (-26.7550, 150.4140) with a 10km search radius.

4.2 Field Survey

Preclearance surveys were conducted in general accordance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner *et al*. 2005). All data was collected on a Trimble in line with the Australian Pacific LNG Environmental Constraints Planning and Field Development Protocols (Australian Pacific LNG 2011).

The field survey of the study area was undertaken from the 23 May to 27 May 2011 by ecologists, Steve Cupitt and Sandrine Martinez. The field survey involved several steps as outlined in the following sections.

4.3 Flora Survey

The vegetation surveyed was undertaken in accordance with the quaternary site assessment methodology, as specified in Neldner *et al.* (2005). Information collected was entered into a Trimble GPS in line with the Australian Pacific LNG Environmental Constraints Planning and Field Development Protocols (Australian Pacific LNG 2011). The data collected was used to assess the accuracy of RE mapping and the occurrence of any threatened ecological communities within the study area.

Random meander surveys, using the technique as described by Cropper (1993), were also undertaken throughout potential habitat of threatened and regionally significant flora species identified from database searches.

Where threatened flora species were found in large numbers within the study area, estimates of numbers of individuals were made based on densities observed over a smaller area.

4.4 Opportunistic Fauna Detection and Habitat Survey

Opportunistic fauna observations were made during survey. Some fauna habitat searches were also undertaken (logs, rocks and other debris were turned). Where threatened and regionally significant

fauna species were encountered, these were counted and recorded at the point at which they were observed. Habitat characteristics were assessed and recorded where significant, and included:

- Presence of tree hollows;
- Presence of senescent (old) or dead trees (stags);
- Rocky outcrops;
- Wetland, riverine and groundwater springs;
- Density of shrub and ground layers;
- Canopy cover;
- Soil type;
- Ridges and upper slopes;
- Fallen bark, timber or logs;
- Leaf litter;
- Decorticating bark;
- Winter flowering species;
- Termite mounds; and
- Pest species.

An assessment of habitat quality based upon the relative abundance of fauna microhabitats and the provision of the above habitat characteristics was made. The greater the diversity and abundance of microhabitats and habitat characteristics, the greater the potential habitat value of the area.

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5. Results and Discussion

This section presents the results of studies undertaken along with a discussion of key findings. The results are presented in two sections; a desktop and literature review and a field survey.

5.1 Desktop and Literature Review

Data sources used for desktop searches of the study area are listed in section 3.1. A summary of results follows.

5.1.1 Commonwealth Matters

A review of the EPBC protected matters search tool as described in section 3.1 was undertaken; the following sections present a summary of relevant results. A copy of the full report is presented in **Appendix A**.

Threatened Ecological Communities

The results of the EPBC protected matters search for threatened ecological communities in the search area are presented in **Table 3**.

Table 3: Threatened ecological communities potentially occurring in the search area

Name	EPBC Act Status	Type of Presence[1]
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Known to occur
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Likely to occur
Weeping Myall Woodlands	Endangered	Likely to occur
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Likely to occur
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	May occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Listed Flora

The results of the EPBC protected matters search for listed flora species in the search area are presented in **Table 4.**

Table 4: EPBC listed flora potentially occurring in the search area

Scientific Name	Common Name	EPBC Act Status	Type of Presence[1]
Cadellia pentastylis	Ooline	Vulnerable	Likely to occur
Homopholis belsonii	-	Vulnerable	May occur
Pterostylis cobarensis	Cobar Greenhood Orchid	Vulnerable	Likely to occur

Scientific Name	Common Name	EPBC Act Status	Type of Presence[1]
Westringia parvifolia	-	Vulnerable	Likely to occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Listed Fauna

The results of the EPBC protected matters search for listed fauna species in the search area are presented in **Table 5**.

Table 5: EPBC listed fauna potentially occurring in the search area

Class	Scientific Name	Common Name	EPBC Act Status	Type of Presence[1]
Birds	*Erythrotriorchis radiates*	Red Goshawk	Vulnerable	Likely to occur
	Lathamus discolour	Swift Parrot	Endangered	May occur
	Geophaps scripta scripta	Squatter Pigeon	Vulnerable	Likely to occur
	Neochmia ruficauda ruficauda	Star Finch	Endangered	Likely to occur
	Poephila cincta cincta	Black-throated Finch	Endangered	May occur
	Rostratula australis	Australian Painted Snipe	Vulnerable	May occur
Mammals	*Chalinolobus dwyeri*	Large-eared Pied Bat	Vulnerable	May occur
	Nyctophilus timoriensis	Greater Long-eared Bat	Vulnerable	May occur
Fish	*Maccullochella peelii peelii*	Murray Cod	Vulnerable	May occur
Reptiles	*Anomalopus mackayi*	Five-clawed Worm-skink	Vulnerable	May occur
	Delma torquata	Collared delma	Vulnerable	May occur
	Egernia rugosa	Yakka Skink	Vulnerable	Likely to occur
	Furina dunmalli	Dunmall's Snake	Vulnerable	May occur
	Paradelma orientalis	Brigalow Scaly-foot	Vulnerable	Likely to occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Migratory Species

The results of the EPBC protected matters search for listed migratory species in the search area are presented in **Table 6**.

Table 6: EPBC listed migratory species potentially occurring in the search area

Class	Scientific Name	Common Name	Type of Presence[1]
Migratory Marine Birds	*Apus pacificus*	Fork-tailed Swift	Species or species habitat may occur within area
	Ardea alba	Great Egret, White Egret	Species or species habitat may occur within area
	Ardea ibis	Cattle Egret	Species or species habitat may occur within area
Migratory Terrestrial Species	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Species or species habitat likely to occur within area
	Hirundapus caudacutus	White-throated Needletail	Species or species habitat may occur within area
	Merops ornatus	Rainbow Bee-eater	Species or species habitat may occur within area
Migratory Wetlands Species	*Gallinago hardwickii*	Latham's Snipe, Japanese Snipe	Species or species habitat may occur within area
	Nettapus coromandelianus albipennis	Australian Cotton Pygmy-goose	Species or species habitat may occur within area
	Rostratula benghalensis s. lat.	Painted Snipe	Species or species habitat may occur within area

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Marine Species

The results of the EPBC protected matters search for listed marine species in the search area are presented in **Table 7**.

Table 7: EPBC listed marine species potentially occurring in the search area

Class	Scientific Name	Common Name	Type of Presence[1]
Birds	*Anseranas semipalmata*	Magpie Goose	May occur
	Apus pacificus	Fork-tailed Swift	May occur
	Ardea alba	Great Egret, White Egret	May occur
	Ardea ibis	Cattle Egret	May occur
	Gallinago hardwickii	Latham's Snipe, Japanese Snipe	May occur

Class	Scientific Name	Common Name	Type of Presence[1]
	Haliaeetus leucogaster	White-bellied Sea –Eagle	Likely to occur
	Hirundapus caudacutus	White-throated Needletail	May occur
	Lathamus discolor	Swift Parrot	May occur
	Merops ornatus	Rainbow Bee-eater	May occur
	Nettapus coromandelianus albipennis	Australian Cotton Pygmy-goose	May occur
	Rostratula benghalensis s. lat.	Painted Snipe	May occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Weeds

The EPBC protected matters search identified Weeds of National Significance (WONS) and other non-native plants that may be present within the search area. These are listed in **Table 8**.

Table 8: Weeds of National Significance and other non-native plants potentially occurring in the search area

Scientific Name	Common Name	Type of Presence[1]
Hymenachne amplexicaulis	Hymenachne	Likely to occur
Parkinsonia aculeata	Parkinsonia	Likely to occur
Parthenium hysterophorus	Parthenium weed	Likely to occur
Salix spp. except S. babylonica, S.x calodendron & S.x reichardtiji	Willow	Likely to occur
Salvinia molesta	Salvinia	Likely to occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Pest Fauna

All pest fauna identified from the EPBC protected matters search tool are listed in **Table 9**.

Table 9: Pest fauna species potentially occurring in the search area

Scientific Name	Common Name	Type of Presence[1]
Sus scrofa	Pig	Likely to occur
Felis catus	Domestic Cat	Likely to occur
Oryctolagus cuniculus	Rabbit, European Rabbit	Likely to occur
Vulpes vulpes	Red Fox, Fox	Likely to occur

1: The protected matters search tool is a predictive tool used to identify potential presence based upon the known geographic distribution of the threatened ecological community or species identified or the likely presence of suitable habitat.

Wetlands

Internationally significant wetlands that were identified by the EPBC protected matters search tool include a Ramsar listed wetland known as Narran Lake Nature Reserve, which is approximately 400km south-west, and downstream of the study area.

5.1.2 State Matters

A summary of relevant desktop search results for EVNT flora and fauna species listed under the NC Act is presented in the following sections. Full results are presented in **Appendix B**.

Listed Flora

Three species of flora listed under the NC Act was identified within the database search area (**Table 10**).

Table 10: Wildlife Online records of threatened flora species within the search area

Scientific Name	Common Name	NC Act Status
Rutidosis lanata	-	Endangered
Gonocarpus urceolatus	-	Vulnerable
Acacia tenuinervis	-	Near Threatened

Listed Fauna

Records of ten EVNT fauna species listed under the NC Act were identified within the search area. These are listed in **Table 11**.

Table 11: Wildlife Online records of threatened fauna species within the search area

Class	Scientific Name	Common Name	NC Act Status
Amphibians	*Cyclorana verrucosa*	Rough collared frog	Near Threatened
Birds	*Lophoictinia isura*	Square-tailed kite	Near Threatened
	Accipiter novaehollandiae	Grey Goshawk	Near Threatened
	Calyptorhynchus lathami	Glossy black-cockatoo	Vulnerable
	Ephippiorhynchus asiaticus	Black-necked stork	Near Threatened
	Grantiella picta	Painted honeyeater	Vulnerable
Mammals	*Chalinolobus picatus*	Little pied bat	Near Threatened
Reptiles	*Hemiaspis damelii*	Grey snake	Endangered
	Strophurus taenicauda	Golden-tailed gecko	Near Threatened
	Egernia rugosa	Yakka skink	Vulnerable

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Environmentally Sensitive Areas (ESAs)

DERM's ESA mapping (DERM, 2011d) was reviewed to identify ESAs (applicable to chapter 5A activities defined by the EP Act) mapped in the study area.

The ESA mapping indicated no Category A or Category C ESAs are present in the study area. However, Category B ESAs (endangered REs) are present. Essential habitat, which is a Category C ESA, was not mapped on site.

The DERM referable wetland search results (DERM 2011e) for the study area is included in Appendix C; no referable wetlands are within the study area.

The DERM ESA mapping for the study area is included as **Figure 2**.

Endangered Regional Ecosystems

All endangered regional ecosystems identified during the desktop analysis (using the DERM RE version 6.1) and their description can be found below in **Table 12**. The DERM (2011a) RE mapping for the study area is included as **Figure 3**.

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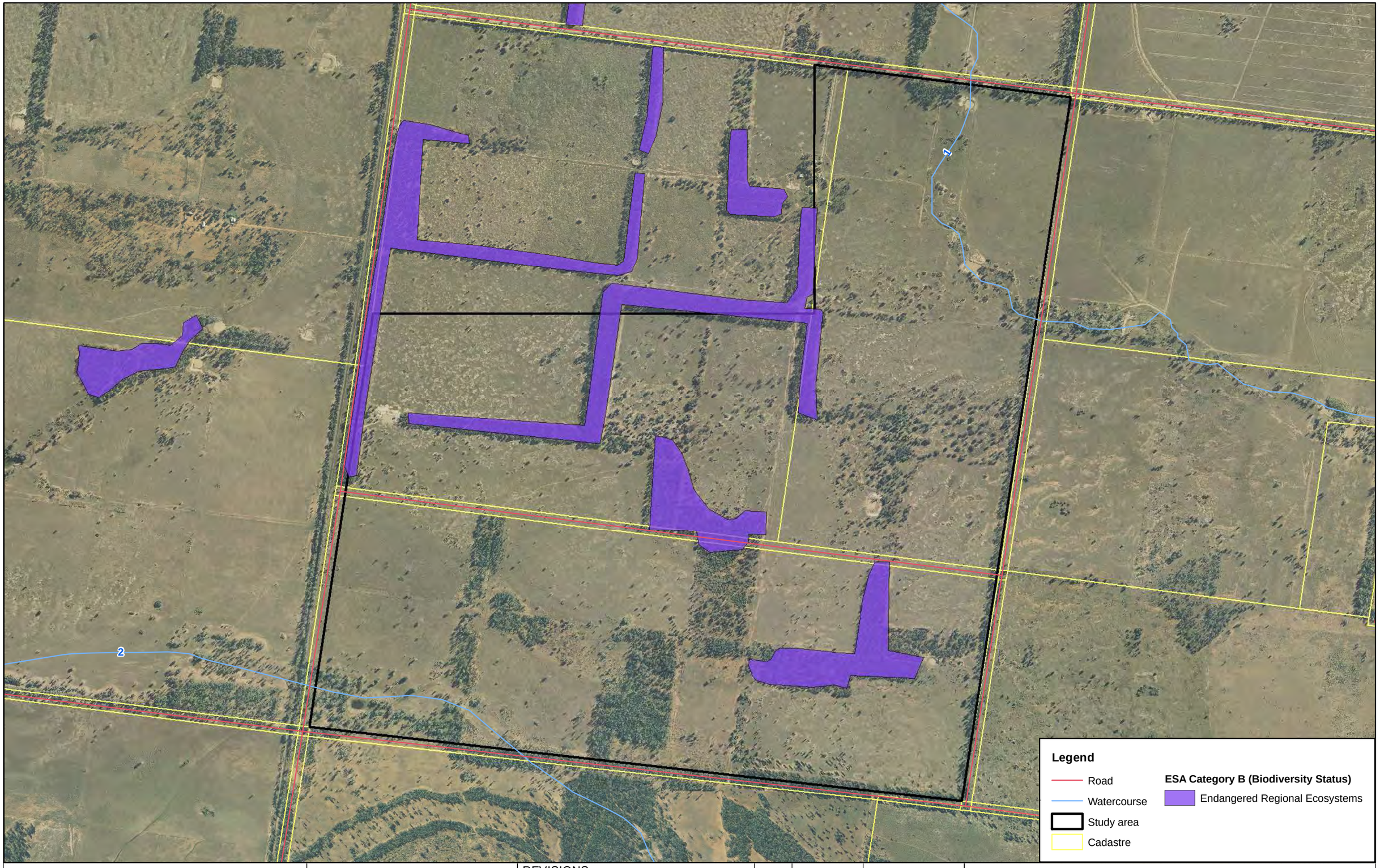
Figure 2: ESAs mapped by DERM within the study area (Rev0)



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GIS Section - Unidel

Figure 2
ESA's mapped by DERM within the study area

Date: 10/05/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

REVISIONS		
A	Issued for review	22/03/2012
B	Issued for review	28/03/2012
0	Issued for use	10/05/2012
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Regional Ecosystems Version 6.1 © State of Queensland (Environmental Protection Agency) 2009

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Table 12: Endangered REs mapped by DERM as present within the study area

RE code	General description	Description
11.4.3*	*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozonic clay plains.	Open-forest dominated by *Acacia harpophylla* and/or *Casuarina cristata*. *Acacia harpophylla* (10-16m high) predominates forming a fairly continuous canopy with varying densities of *Casuarina cristata* (14-18m high), forming part of the canopy or emerging above it. *Casuarina cristata* may be dominant or form pure stands particularly in the south of the bioregion (subregions 33, 36). *Eucalyptus spp.* such as *E. orgadophila*, *E. populnea*, *E. microcarpa*, *Eucalyptus woollsiana*, *E. cambageana* and *E. thozetiana* (on shallower soils and upper slopes) may be scattered through the canopy or occur as emergents up to 22m high. *Brachychiton rupestris* may also be present in places. An open to dense, tall shrub layer is present, and is dominated by *Eremophila mitchellii* and/or *Geijera parviflora*. Low shrubs are often present, occasionally forming a distinct layer dominated by species such as Carissa ovata and *Alectryon diversifolius*. Tree/shrub height may range from 3-8 m. *Melaleuca bracteata* may be present in low-lying areas. The ground layer is sparse to open, and composed of grasses and forbs. Occurs on Cainozoic clay plains with cracking clay soils which are often with a weak gilgai microrelief. The plains may be flat to gently undulating. Soils are often cracking clay which are usually deep to very deep, often self-mulching, and sometimes with surface stone. Texture contrast soils and other clays may also be present in places.

*Note that RE 11.4.3 is also listed as an endangered threatened ecological community under the EPBC Act.

No Concern at Present Regional Ecosystems

All no concern at present regional ecosystems identified during the desktop analysis (using the DERM RE version 6.1) and their description can be found below in **Table 13**. The RE mapped on site in intermixed 11.5.1/11.7.5/11.7.2 at 90/5/5 ratio composition.

Table 13: No concern at present REs mapped by DERM as present in the study area

RE code	General description	Description
11.5.1	*Eucalyptus crebra*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains/remnant surfaces	*Eucalyptus crebra* and/or *E. populnea* +/- *Angophora leiocarpa* +/- *E. woollsiana* (in south of bioregion) dominate the woodland (to open-woodland) canopy. A low tree layer dominated by *Allocasuarina luehmannii* +/- *Melaleuca decora* +/- *Callitris glaucophylla* +/- *C. endlicheri* is usually present. In some areas *Allocasuarina luehmannii* low woodland is the dominant layer. The ground cover is usually sparse and dominated by perennial grasses. Occurs on Cainozoic sandplains, especially outwash from weathered sandstones. Duplex soils with sandy surfaces.
11.7.5	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks.	Shrubland +/- emergent eucalypts. Characteristic genera include *Calytrix* spp., *Hakea* spp., *Kunzea* spp., *Micromyrtus* spp., *Acacia* spp., *Melaleuca* spp. and (in the ground layer) *Triodia* spp. Often scattered or fringing emergent tree species are present, including *Eucalyptus exserta*, *E. panda*, *E. curtisii*, *Corymbia trachyphloia* and *Acacia blakei*. Occurs on shallow soils often associated with natural scalds on Cainozoic lateritic duricrusts and sometimes lithosols derived from quartzose sandstone.

RE code	General description	Description
11.7.2	*Acacia spp.* woodland on lateritic duricrust.	Monospecific stands of *Acacia* spp. forest/woodland on Cainozoic lateritic duricrusts. *Acacia shirleyi* and or *Acacia catenulata* usually predominate the woodland to low woodland to low open-forest tree canopy (7-12m high). Other *Acacia* spp. that commonly occur and occasionally dominate the tree layer include *A. rhodoxylon*, *A. burrowii*, *A. sparsiflora*, *A. crassa* and *A. blakei*. Emergent eucalypt species such as *Eucalyptus thozetiana*, *E. crebra*, *E. decorticans* and *E. exserta* may be present. A low shrub layer is sometimes present and dominated by species such as *Acalypha eremorum*, *Croton phebalioides* and *Carissa ovata*. The ground layer is extremely sparse and dominated by grasses such as *Aristida caput-medusae*, *Paspalidium rarum*, *Urochloa foliosa*. Forbs are usually rare although *Sida filiformis* may be conspicuous. Occurs on scarps and adjacent tops and slopes of dissected tablelands, mesas and buttes formed from chemically altered sediments and duricrusts. The soils are shallow to very shallow lithosols with surface stone and boulders. The vegetation is often growing in pockets of shallow lithosol soil between bare rock.

High Value Regrowth

HVR mapped by DERM as present in the study area are outlined in **Table 14**.

Table 14: HVR mapped as potentially present in the study area

VR code	General description
HVR containing endangered REs	Woody regrowth >15yrs old
HVR containing of least concern REs	Woody regrowth >15yrs old

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Figure 3: REs mapped by DERM within the study area (Rev0)

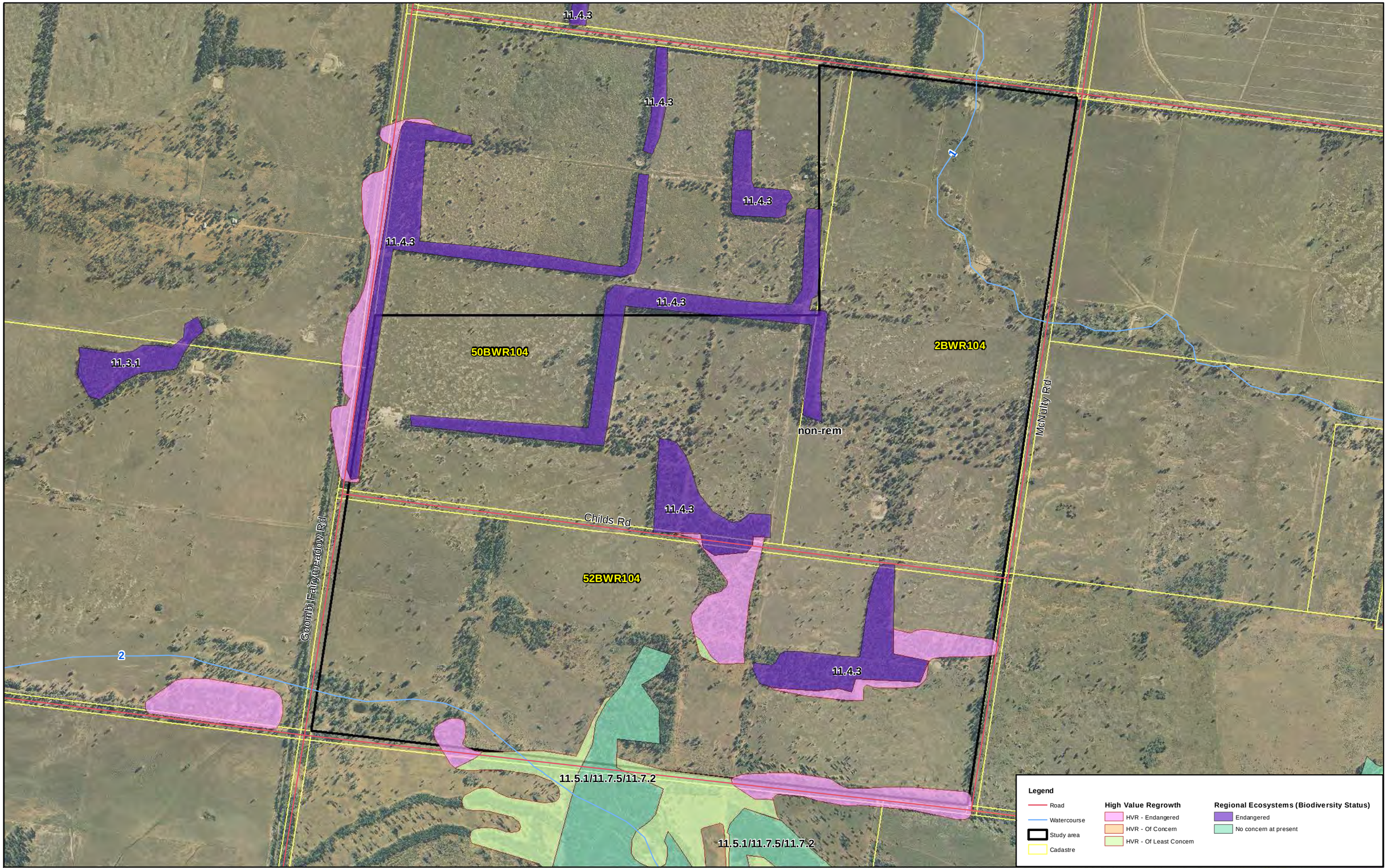

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Figure 3
REs mapped by DERM within the study area

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State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

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5.2 Field Survey

5.2.1 Commonwealth Matters

Field survey results concerning matters of national environmental significance (MNES) are described in the following sections.

Threatened Ecological Communities

The Commonwealth listed threatened ecological communities which were identified in the study area are listed in **Table 15.**

Table 15: Threatened Ecological Communities identified during field survey

Name	EPBC Act Status	Type of Presence
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	**Identified** during the site visit. The TEC was identified across the property in wide remnant shade lines and discreet rectangular stands. These areas were fenced by the land owner to conserve the communities. All identified Brigalow was in moderate to good condition, with only the large rectangular stand immediately south of Childs Road degraded by historical land use. This also includes the area of deep gilgai not completely surveyed (described below).
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	**Not present** in the study area. In Queensland the following REs form part of or align with the threatened ecological community; 11.3.3, 11.3.15, 11.3.16, 11.3.28, and 11.3.37. These communities were not identified by field survey.
Weeping Myall Woodlands	Endangered	**Not present** in the study area. Although the species *Acacia pendula* occurs widely in Queensland, the Weeping Myall Woodlands ecological community is restricted to small patches that occur within two regional ecosystems in Queensland. These are REs; 11.3.2, and 11.3.28. Neither was identified by survey.
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	**Not present**. The field survey did not detect any areas of natural grasslands. This TEC occurs in RE s11.3.21 and 11.3.24 in which were not present. Therefore, the Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland was not present in the study area.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	**Not present**. This TEC is only found within the Brigalow Belt Bioregion in REs 11.8.2a, 11.8.8 and 11.9.9a which were not present. Therefore, the White box (*Eucalyptus albens*)-Yellow box (*Eucalyptus melliodora*)-Blakely's red gum (*Eucalyptus blakelyi*) Grassy Woodland and Derived Native Grassland is not present in the study area.

Brigalow (Acacia harpophylla dominant and co-dominant)

The Brigalow (*Acacia harpophylla* dominant and co-dominant) threatened ecological community was detected within the study area. The field survey confirmed the presence of Brigalow threatened ecological community listed under the EPBC Act at several locations. The area of deep gilgai not directly surveyed (inaccessible) was traversed as far as practical to investigate the composition of the vegetation. It was found to be consistent with Brigalow TEC and met all of the case conditions for classification (see discussion below). This area is therefore considered to be Brigalow TEC. This area is

mapped by DERM as non-remnant. Due to it meeting the case conditions of the TEC however (and not being classified as regrowth) it must be considered as an endangered RE. It is mapped as such in Figure 8 and is consistent with the adjoining endangered RE 11.4.3 community.

To be considered a threatened ecological community under the EPBC Act, Brigalow (*Acacia harpophylla* dominant and co-dominant) communities must have the following characteristics:

- The Brigalow must be 15 years or older in age; and
- The vegetation community must cover at least 0.5ha; and
- Be a Brigalow community where exotic species do not exceed 50% of perennial species in the ecosystem.

The listing of the Brigalow ecological community did not distinguish between remnant and regrowth Brigalow. Brigalow regrowth is part of the Brigalow ecological community listed under the EPBC Act only if it retains the species composition and structural elements typical of that found in undisturbed areas of the listed Brigalow ecological community.

In Queensland, the Brigalow ecological community that has been listed under the EPBC Act is defined by reference to 16 REs, all of which are listed as endangered under the *Vegetation Management Act 1999*. RE 11.4.3 is mapped as occurring in the study area and is one of those 16 REs that comprise Brigalow threatened ecological community.

Habitat in regrowth Brigalow communities, while not consistent with virgin remnant communities, still has high value habitat (i.e. dense leaf litter, fallen logs, decorticating bark, presence of tree hollows, gilgai of various depths, canopy cover exceeding 50% and canopy height greater than 15 m average). The spatial extent of the threatened ecological communities identified in the study area is mapped on **Figure 4**.

Listed Flora

No threatened flora species listed under the EPBC Act were identified during the field survey. However, **Table 16** provides the likelihood assessment of species identified in the database search after field validation of habitat in the study area.

Table 16: EPBC listed flora potentially occurring in the search area

Scientific Name	Common Name	EPBC Act Status	Potential Presence
Cadellia pentastylis	Ooline	Vulnerable	**Unlikely** to occur due the landform and corresponding vegetation types not being suitable. Occurs as an emergent in Semi Evergreen Vine Thicket (SEVT) or in pure stands or mixed community on slopes of residual sandstone. (DSEWPaC 2008a)
Homopholis belsonii	-	Vulnerable	**Likely** to occur. It is a shade loving grass species found in Brigalow and woodland. (DSEWPaC 2008b) Both Brigalow and woodlands are present though the understorey of the former is disturbed.
Pterostylis cobarensis	Cobar Greenhood Orchid	Vulnerable	**Potentially present**. Habitats are eucalypt woodlands, open mallee or Callitris shrublands on low stony ridges and slopes in skeletal sandy-loam soils. Which are present on site.

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Scientific Name	Common Name	EPBC Act Status	Potential Presence
Westringia parvifolia	-	Vulnerable	**Potentially present**. Grows in sandy or stony soils in the western Darling Downs area.

Figure 4: Threatened ecological communities in the study area (Rev0)

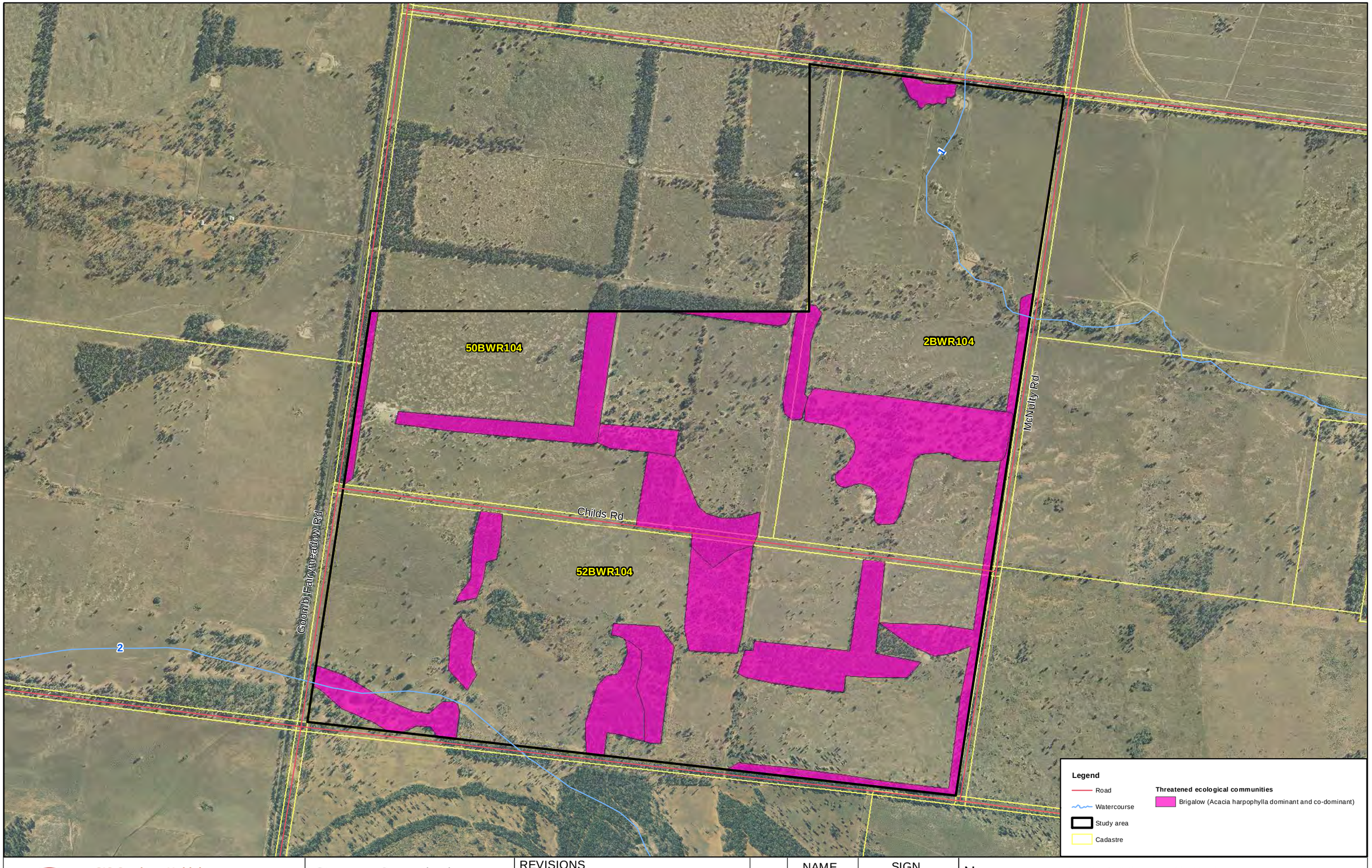

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Figure 4
Threatened ecological communities within the study area

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Project:	Australia Pacific LNG
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Map ID:	xx
Doc ID:	Q-4160-15-RP-0002

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Listed Fauna

No threatened fauna species listed under the EPBC Act were identified through opportunistic observations. However the study area was noted as providing potential habitat for birds and mammals, with numerous potential habitat trees identified during the field (see **Figure 5**).

Additionally, the presence of overflow watercourses, a dam and the Condamine River may provide habitat for aquatic fauna.

Existing habitat and the nature of the locality suggests that Yakka Skink (*Egernia rugosa*) and Brigalow Scaly-foot (*Paradelma orientalis*) potentially occur within the study area. It is recommended that additional targeted surveys are undertaken in accordance with EPBC Act survey guidelines to assess the potential occurrence of these species.

Table 17 identifies the fauna species listed under the EPBC Act that are potentially occurring within the study area following field validation of habitat. These areas of potential habitat are shown **Figure 5**.

Table 17: EPBC listed fauna species potentially occurring in the study area

Class	Scientific Name	Common Name	EPBC Act Status	Potential Presence
Birds	*Erythrotriorchis radiates*	Red Goshawk	Vulnerable	**Potentially present** due to potential habitat within the study area. The Red goshawk uses wooded and forested lands of tropical and warm-temperate Australia (Marchant and Higgins 1993). It nests in large trees (20m or taller) within 1km of permanent water and has a relatively large home range. Five historic records of pairs of Red Goshawks in southeastern Queensland suggest home ranges may vary from 50–220 km². (DSEWPaC 2012c)
	Lathamus discolour	Swift Parrot	Endangered	**Potentially present**. The Swift Parrot inhabits dry sclerophyll eucalypt forests and woodlands. Breeding habitat only occurs in Tasmania. During Winter the species undertake extensive migration along the woodlands of the Great Diving Range reaching as far north of central Southern and southeastern Queensland. It occasionally occurs in wet sclerophyll forests (DSEWPaC 2012d).
	Geophaps scripta scripta	Squatter Pigeon	Vulnerable	**Likely** to be present. Due to potential habitat (Grassy woodlands dominated by Eucalypts, and disturbed areas close to waterways and wetlands (Morcombe 2000).
	Neochmia ruficauda ruficauda	Star Finch	Endangered	**Unlikely** to be present. All subspecies of the star finch are usually closely associated with permanent surface water or frequently inundated areas, including tall, rank grasslands and rushes within woodlands. (DSEWPaC 2012e)

Class	Scientific Name	Common Name	EPBC Act Status	Potential Presence
	Poephila cincta cincta	Black-throated Finch	Endangered	**Unlikely** to be present. Massive range contraction for this species, with known populations further north of the site (coastal Northern Queensland (Townsville) and recent unconfirmed anecdotal records of the species occurring nearing Alpha Qld). It occupies woodland savannah and riverine vegetation. Inland it prefers grassy woodland dominated by eucalypts, paperbacks or acacias, where there is access to seeding grasses and water. Although these habitat types are present the species is unlikely to be present owing to recent range contractions forests (DSEWPaC 2012f).
	Rostratula australis	Australian Painted Snipe	Vulnerable	**Potentially present**. Preferred habitat (shallow grassy +/- lignum freshwater wetlands are present in remnant and regrowth vegetation areas) is absent. (DSEWPaC 2012g)
Mammals	*Chalinolobus dwyeri*	Large-eared Pied Bat	Vulnerable	**Unlikely** as no suitable roost habitat present nearby. (DSEWPaC 2012a)
	Nyctophilus timoriensis	Greater Long-eared Bat	Vulnerable	**Potentially present**. The Southern long-eared bat occurs in a wide range of habitats but shows a preference for areas surrounded by a large amount of woody vegetation (within 10km), warmer areas within the region over winter and highly drained, lower fertility soils (Pennay 2002).
Fish	*Maccullochella peelii peelii*	Murray Cod	Vulnerable	**Likely** to be present due to potential aquatic habitat (the Condamine River) within the study area.
Reptiles	*Anomalopus mackayi*	Five-clawed Worm-skink	Vulnerable	**Unlikely** to be present. The species was not observed. Species prefers grassland on rocky basaltic soils (Wilson 2005), which are not present.
	Delma torquata	Collared delma	Vulnerable	**Unlikely** to be present. The species was not observed. Species prefers rocky terrain with many small loose rocks; such features are absent in the study area (Wilson 2005)
	Egernia rugosa	Yakka Skink	Vulnerable	**Likely** to be present. The Yakka skink preferred habitat includes rocky outcrops, sand plains, dense ground vegetation, open dry sclerophyll (ironbark and Brigalow) forest and woodland, which have hollow logs, cavities in soil-bound root systems of fallen trees, rabbit warrens, and beneath rocks (Wilson 2005). These habitats are present.

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Class	Scientific Name	Common Name	EPBC Act Status	Potential Presence
	Furina dunmalli	Dunmall's Snake	Vulnerable	**Potentially present**. Due to potential habitat within remnant vegetation of the study area. Although the species is extremely rare with low record numbers, this species has been observed to occur in cleared pastoral areas where suitable micro-habitat (such as heavy soils occurs) (Wilson 2005).
	Paradelma orientalis	Brigalow Scaly-foot	Vulnerable	**Likely** to be present. Habitat present within remnant vegetation and areas of suitable micro-habitats adjacent (cleared and HVR). Utilises a wide variety of open forest habitats on several (principally sandy) soil types, sheltering under fallen timber and bark, particularly areas adjacent to remnant vegetation) (Wilson 2005). Such habitat is present in the study area.

Migratory Species

There were no migratory species identified during the field survey of the study area. However dams and deeper gilgai may attract migratory wetland species at various times through the year. It is considered that all migratory species identified through the EPBC protected matters search for the area (listed in **Table 6**) have the potential to occur in the study area.

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Figure 5: Potential habitat for listed fauna species within the study area (Rev0)

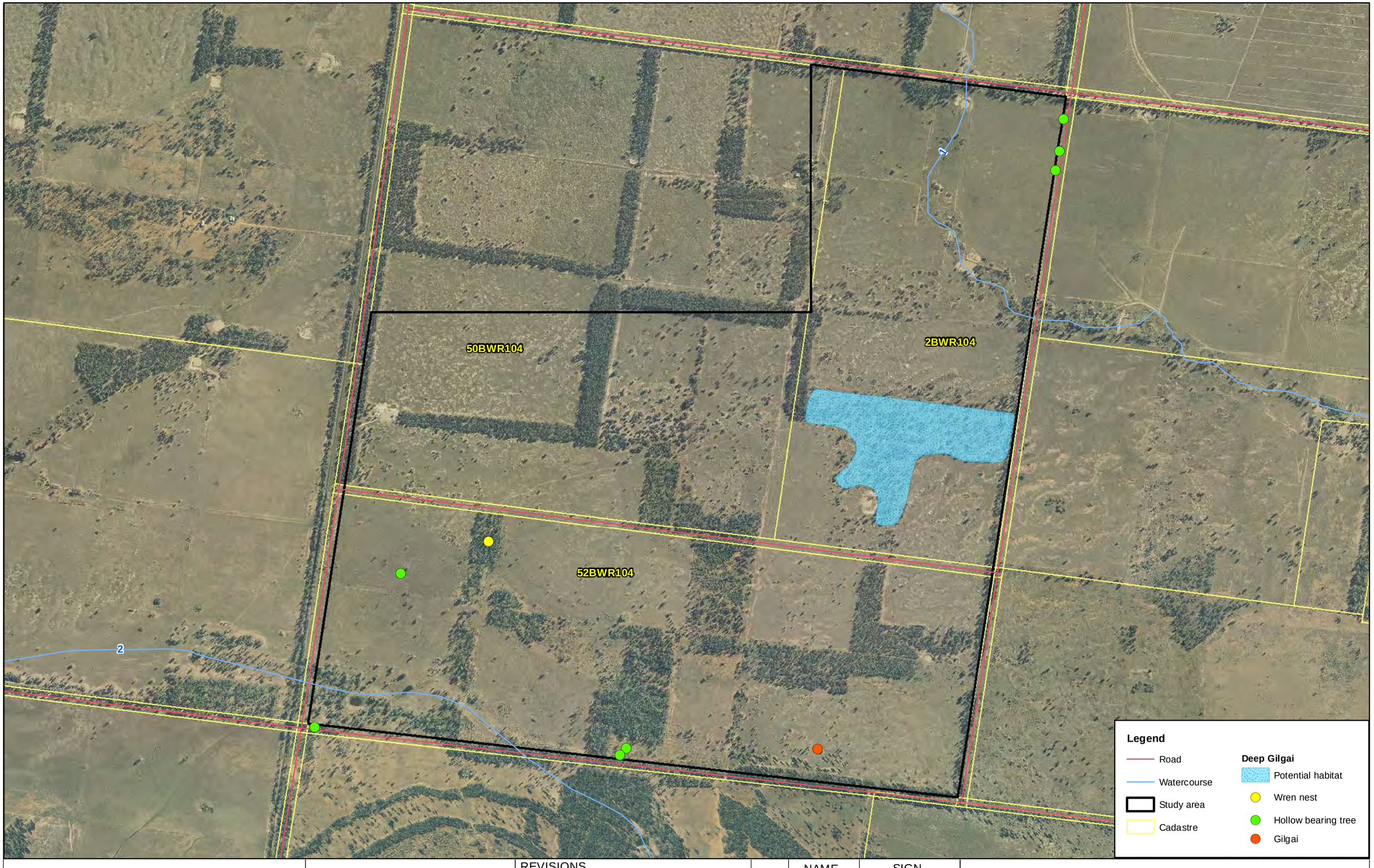

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Figure 5
Habitat for potential threatened fauna species within the study area

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5.2.2 State Matters

Field survey results concerning NC Act listed flora and fauna species are provided in the following sections.

Listed Flora

Three flora species consider EVNT under the NC Act were identified during the field inspection; *Rutidosis lanata, Eleocharis blakeana* and *Gonocarpus urceolatus*.

A small area of approximately 50m² in the transitional zone between a Brigalow/Belah community and a Cypress community on land zone 5 (deep sands) contained a number of *Rutidosis lanata* (see **Figure 6**).

A number of *E. blakeana* were recorded in the deeper gilgai within the study area. There is potential for *E. blakeana* to occur within or near other gilgai in the study area that could not be accessed during the survey due to the amount of pooled water (**Figure 1**). The gilgai in these areas were located within patches of vegetation identified as remnant or regrowth Brigalow.

In the southern region of study area on land zones 5, *G. urceolatus* was prevalent in the grassy understory. The NC Act EVNT flora species, locations and numbers observed during the field survey are listed in **Table 18**.

Table 18: EVNT flora species identified under the NC Act during the field survey

Family	Scientific Name	Common Name	NC Act Status	Occurrence at Flora Map Ref. (Appendix G)	Number of individual plants	Total number in survey area
Astraceae	*Rutidosis lanata*	Red Soil Woolly Winklewort	Endangered	56	Over 100	**Over 100**
Haloragaceae	*Gonocarpus urceolatus*	Gonocarpus	Vulnerable	2	100	
				Between 15 and 4	210,000	
				Between 16 and 5	2,442,000	
				18	1,000	
				23	196,000	
				37	2,160,000	**5,009,100**
Cyperaceae	*Eleocharis blakeana*[1]	Blakes spikerush	Near Threatened	7	10	
				9	4	
				11	100^2	
				20	5	
				40	100^2	
				47	100^2	

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Family	Scientific Name	Common Name	NC Act Status	Occurrence at Flora Map Ref. (Appendix G)	Number of individual plants	Total number in survey area
				61	Unknown[3]	
				62	Unknown[3]	**319[1]**

[1] A precise number of *E. blakeana* individuals could not be provided due to of a large section of this plant's habitat being inaccessible during the survey. The number of individuals provided indicates only those observed during the survey. Actual number will be higher.
[2] Total area of gilgai could not be accessed due to pooled water. Number provided is an estimate of the number of specimens in the gilgai.
[3] These areas could not be viewed due to pooled water. Numbers of this species at these locations are unknown.

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Figure 6: Flora species identified within the study area (Rev0)

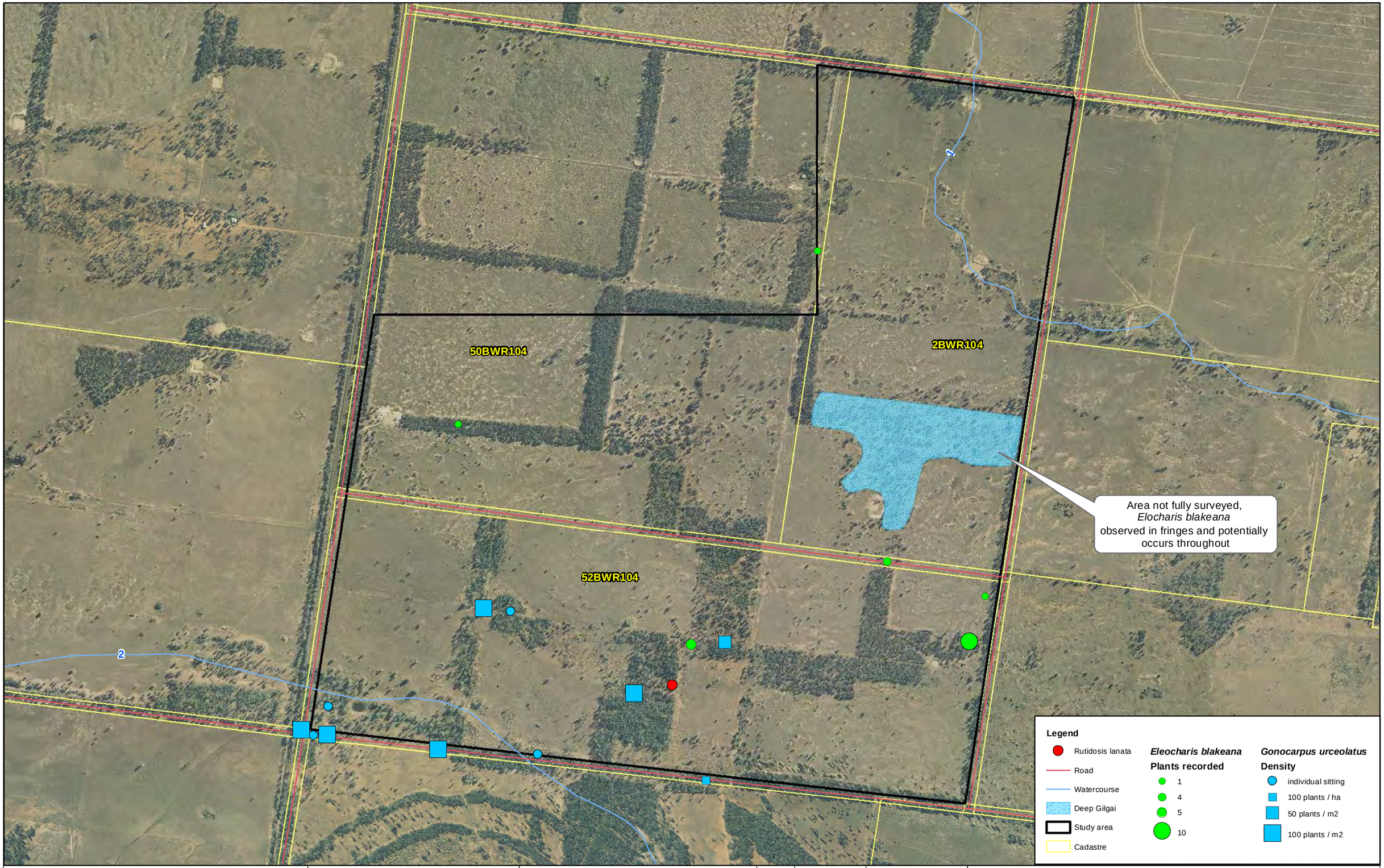

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Figure 6
Flora species identified within the study area

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Listed Fauna

No EVNT fauna species were identified under the NC Act during the field survey, however the study area does provide potential habitat for several. The Gilgai present on Site may provide habitat for EVNT amphibians such as the Rough Frog (*Cyclorana verrucosa*), with still water existing for at least part of the year. Hollow bearing trees noted in **Figure 5** may provide suitable habitat for the Grey Goshawk (*Accipiter novaehollandiae),* Painted Honeyeater *(Grantiella picta)* and Little Pied Bat *(Chalinolobus picatus)*.

The EVNT fauna species potentially occurring in the study area are listed in **Table 19**.

Table 19: EVNT fauna species potentially present on Site

Class	Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Amphibians	*Cyclorana verrucosa*	Rough collared frog	Near Threatened	**Likely**. Suitable habitat present on Site in the form of deep gilgai. The species is known to be associated with small scale wetland environments in open grasslands and woodlands (Frogs Australia Network 2012).
Birds	*Lophoictinia isura*	Square-tailed kite	Near Threatened	**Potentially Present**. Preferred habitat (open woodlands and forest) available and primary prey (passerines) may occur on Site (DSEWPaC 2102j)
	Accipiter novaehollandiae	Grey Goshawk	Near Threatened	**Potentially Present**. Inhabits a wide array of habitats and some habitat features present (hollow bearing trees). Preys on birds, reptiles and insects likely to be present in the study area (Birds in Backyards 2012).
	Calyptorhynchus lathami	Glossy black-cockatoo	Vulnerable	**Potentially Present**. Preferred habitat and food source (casuarinas) (DSEWPaC 2012i) may be present in verified RE 11.4.3 and in some parts of verified RE 11.5.1 as dominant canopy species.
	Ephippiorhynchus asiaticus	Black-necked stork	Near Threatened	**Potentially Present**. Preferred habitat is waterbodies and wetlands (DSEWPaC 2012h). Some waterbodies noted on Site.
	Grantiella picta	Painted honeyeater	Vulnerable	**Potentially Present**. Lives in dry forests and woodlands where large remnant trees support mistletoe (primary food). May be secretive out of breeding season (and therefore not be observed in survey). (DSEWPaC 2012k)

Class	Scientific Name	Common Name	NC Act Status	Likelihood of Occurrence
Mammals	*Chalinolobus picatus*	Little pied bat	Near Threatened	**Potentially Present**. Occurs most frequently in dry, open woodland communities throughout its range. Observed RE types not strongly correlated with preferred habitat though hollow bearing trees may offer suitable roosting sites (DSEWPaC 2012l). .
Reptiles	*Hemiaspis damelii*	Grey snake	Endangered	**Potentially Present**. Prefers woodlands associated with water. May be present in gilgai areas not surveyed (DERM 2011f).
	Strophurus taenicauda	Golden-tailed gecko	Near Threatened	**Likely** to occur. The golden-tailed gecko lives in open woodland and open forest where it shelters under loose bark and hollow limbs (DERM 2011g). Brigalow TEC verified on site likely to provide suitable habitat.
	Egernia rugosa	Yakka skink	Vulnerable	**Likely to occur**. Due to potential habitat within the study area, particularly Brigalow with gilgai and ground covers (DSEWPaC 2012b)

Weeds

There were no WONS encountered during the field survey. Non-native species are recorded only if they were considered to be a potential problem if not treated. Common pasture species and other non-natives were excluded from the study. In light of these parameters, only two non-native flora species were recorded during the survey. One species, Velvety Tree Pear (*Opuntia tomentosa*) which is listed as class 2 declared weeds under the *Land Protection (Pest and Stock Route Management) Regulation 2003*.

These are listed in **Table 20** below and on **Figure 7.**

Table 20: Non-native flora recorded during the ecological field survey

Scientific Name	Common Name
Opuntia tomentosa	Velvety Tree Pear
Eragrostis curvula	African Lovegrass

Pest Fauna

Two areas within the study area showed intensive diggings by feral pigs (*Sus scrofa*), however no visual observations of pigs were made during the study (**Figure 7**). The feral pig is listed as a class 2 declared pest under the *Land Protection (Pest and Stock Route Management) Regulation 2003*.

Figure 7: Pest species identified within the study area (Rev0)

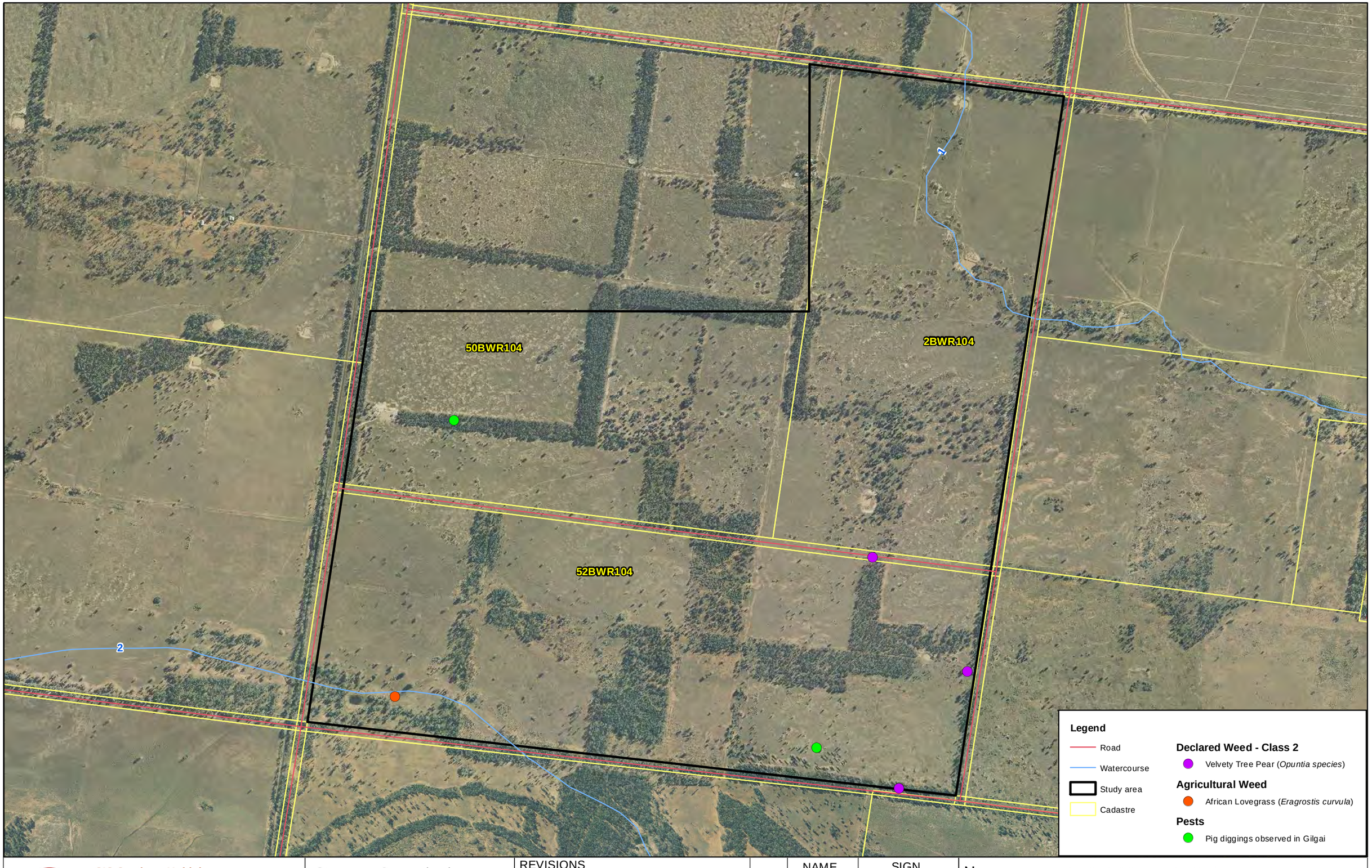

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Figure 7
Flora and Fauna pest species identified within the study area

Date: 10/05/2012

State:	Queensland
Project:	Australia Pacific LNG
Permit:	xx
Map No:	xx
Map ID:	xx
Doc ID:	Q-4160-15-RP-0002

REVISIONS		
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REV	DESCRIPTION	DATE

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Environmentally Sensitive Areas

The distribution of ESAs in the study area was ground-truthed and the boundaries of DERM mapping updated as per the field survey data. Only Category B ESAs, endangered REs, were located in the study area. A map of the ground-truthed ESAs and other environmental values are included as **Figure 8**.

Endangered Regional Ecosystems

The field survey confirmed the presence and extent of endangered RE 11.4.3. RE 11.4.3 - *Acacia harpophylla and/or Casuarina cristata shrubby open forest on Cainozoic clay plains,* observed in locations identified from desktop mapping. This community was also observed in the gilgai areas outlined previously, being consistent with the Brigalow TEC. A description of ground-truthed endangered RE within the study area is included in **Table 21**.

Table 21: Endangered REs ground-truthed in the study area

RE Code	General Description	Description
11.4.3*	*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozonic clay plains.	Open-forest dominated by *Acacia harpophylla* and/or *Casuarina cristata*. *Acacia harpophylla* (10-16m high) predominates forming a fairly continuous canopy with varying densities of *Casuarina cristata* (14-18m high), forming part of the canopy or emerging above it. *Casuarina cristata* may be dominant or form pure stands particularly in the south of the bioregion (subregions 33, 36). *Eucalyptus* spp. such as *E. orgadophila*, *E. populnea*, *E. microcarpa*, *Eucalyptus woollsiana*, *E. cambageana* and *E. thozetiana* (on shallower soils and upper slopes) may be scattered through the canopy or occur as emergents up to 22m high. *Brachychiton rupestris* may also be present in places. An open to dense, tall shrub layer is present, and is dominated by *Eremophila mitchellii* and/or *Geijera parviflora*. Low shrubs are often present, occasionally forming a distinct layer dominated by species such as *Carissa ovata* and *Alectryon diversifolius*. Tree/shrub height may range from 3-8m. *Melaleuca bracteata* may be present in low-lying areas. The ground layer is sparse to open, and composed of grasses and forbs. Occurs on Cainozoic clay plains with cracking clay soils which are often with a weak gilgai microrelief. The plains may be flat to gently undulating. Soils are often cracking clay which are usually deep to very deep, often self-mulching, and sometimes with surface stone. Texture contrast soils and other clays may also be present in places.

*Note that RE 11.4.3 is also listed as an endangered threatened ecological community under the EPBC Act.

No Concern at Present Regional Ecosystems

The DERM RE mapping indicate a no concern at present RE polygon comprising of 11.5.1/11.7.5/11.7.2 at 90/5/5 precent respectively present at the southern boundary of the study area. The field survey confirmed that this polygon is 100 % RE 11.5.1 *Eucalyptus crebra*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains / remnant surfaces**. Table 22** provides a list the no concern at present REs recorded during the field survey.

Table 22: No concern at present REs ground-truthed in the study area

RE Code	General Description	Description
11.5.1	*Eucalyptus crebra*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains/remnant surfaces.	*Eucalyptus crebra* and/or *E. populnea* +/- *Angophora leiocarpa* +/- *E. woollsiana* (in south of bioregion) dominate the woodland (to open-woodland) canopy. A low tree layer dominated by *Allocasuarina luehmannii* +/- *Melaleuca decora* +/- *Callitris glaucophylla* +/- *C. endlicheri* is usually present. In some areas *Allocasuarina luehmannii* low woodland is the dominant layer. The ground cover is usually sparse and dominated by perennial grasses. Occurs on Cainozoic sandplains, especially outwash from weathered sandstones. Duplex soils with sandy surfaces.

Wetland Ecosystems

Two streams were observed and are currently mapped by DERM. One stream is located on the south-east boundary (stream order 2) and the other in the north-east of the study area (stream order 1). These streams provide habitat for populations of wrens, with nests observed in the desert lime (*Citrus glauca*) and were therefore considered significant. The stream on the south-east boundary also contained a number of significant habitat trees. A large number of small waterholes potentially containing aquatic species were observed. These features were not mapped in the field and are not noted on DERM datasets. **Figure 9** shows the major waterways mapped by DERM in the study area.

An area in the central east of the study area is covered by deep gilgai. This area was mostly inaccessible at the time of survey due to flooding and heavy rains leading up to the field investigations. Gilgai are depressions in soil generally thought to form as a result of the swelling and shrinking of clay content. These depressions trap water and may provide habitat for birds and amphibians such as those listed in **Table 17** and **Table 19**.

This area was mapped by DERM as non-remnant, however investigations undertaken in the field (to the extent access to the area could be gained) revealed mature vegetation highly consistent with the case conditions for classification as a TEC, namely Brigalow (*Acacia harpophylla* dominant and co-dominant). On the basis of the vegetation accessed this area is considered to be a TEC and mapped accordingly (**Figure 4**).

Figure 8: Ground-truth REs within the study area (Rev0)

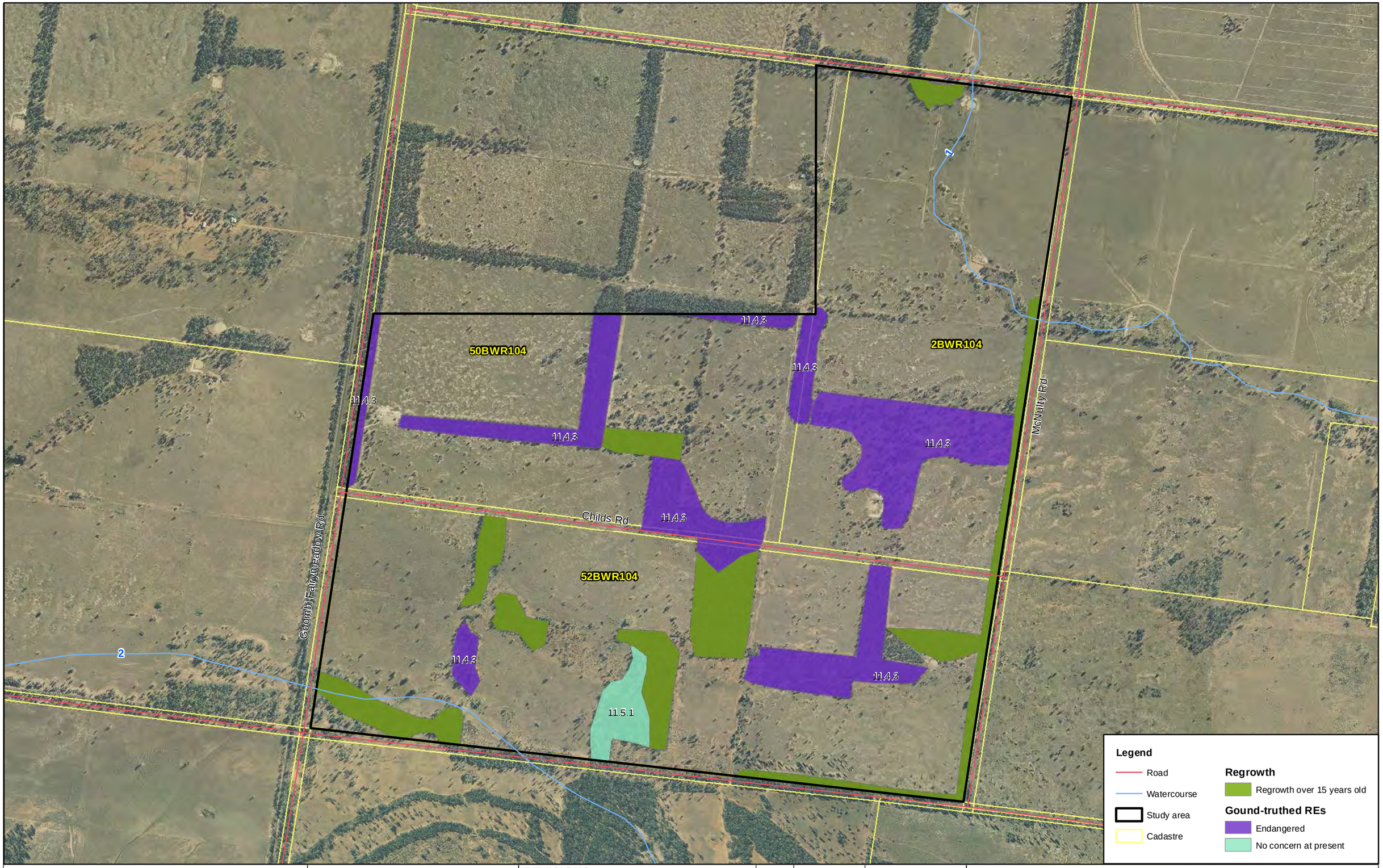

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Figure 8
Ground-truthed REs within the study area

Date: 10/05/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

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Figure 9: Wetlands and watercourses on Site (Rev0)

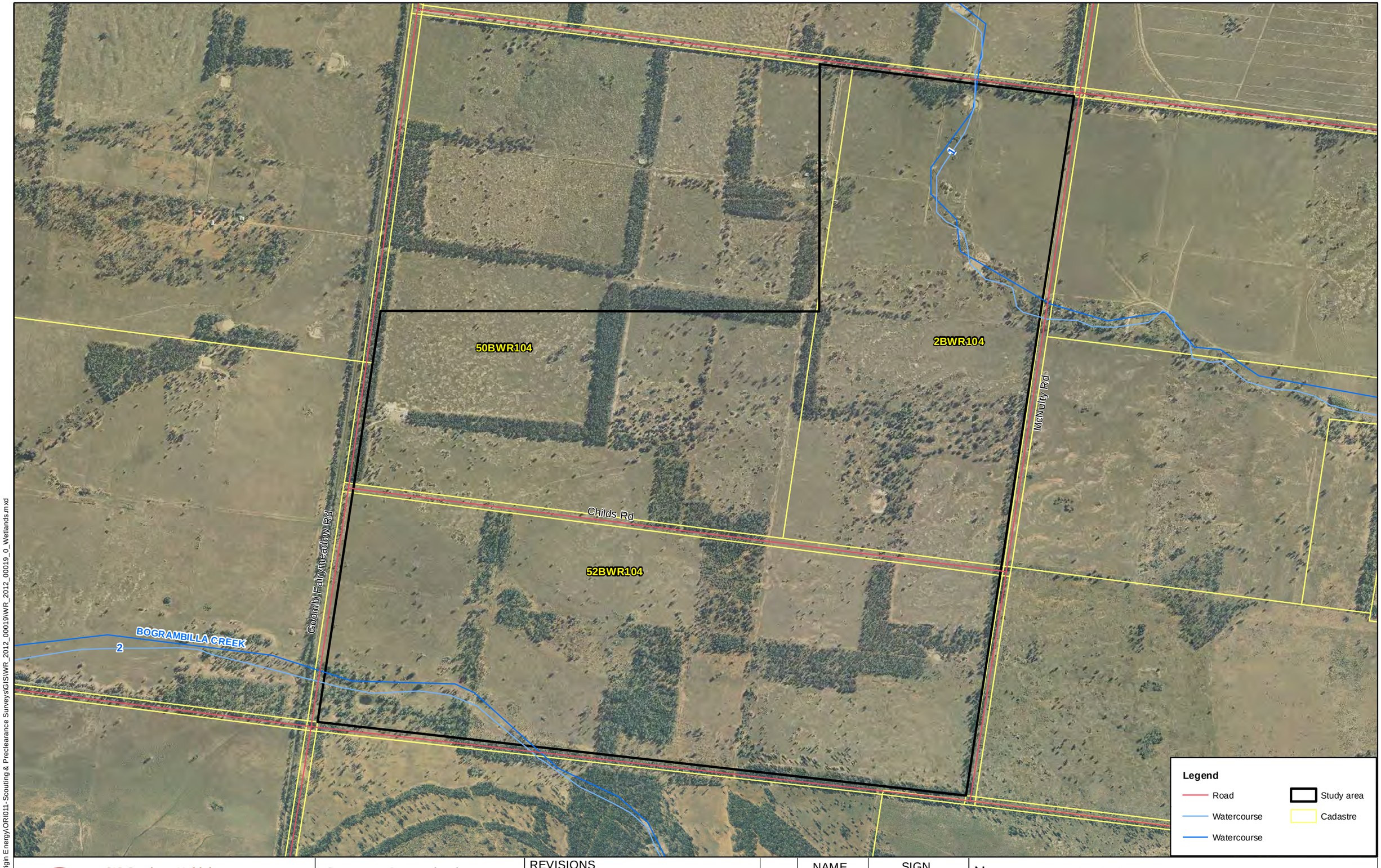

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Figure 9
Waterways identified within the study area

Date: 10/05/2012

State: Queensland
Project: Australia Pacific LNG
Permit: xx
Map No: xx
Map ID: xx
Doc ID: Q-4160-15-RP-0002

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6. Conclusion & Recommendations

The ecological field survey of the study area confirmed that DERM mapped RE were general accurate in description, however corrections were made to polygon that differ in extent and type following the field survey. Moreover, the survey found that a number of unmapped Brigalow patches meeting EPBC Act threatened ecological community definition as a result of their age and structure. These patches should be avoided.

Three NC Act EVNT flora species were observed during field surveys along with a number of habitat trees, hollow logs, deep gilgai with extensive aquatic species and small streams of stream orders 1 and 2.

After comparing various ecological data sources and field survey results the following is recommended:

- Proposed infrastructure should be located within cleared areas outside remnant vegetation;
- *Gonocarpus urceolatus*, *Rutidosis lanata* and *Eleocharis blakeana* (EVNT flora species) should be avoided in noted areas;
- Hollow bearing trees should be avoided, or where they cannot be avoided, that spotters are used to tap trees and handlers are available before disturbance or removal to ensure the safe relocation of species before clearing is undertaken;
- All vegetation communities identified as Brigalow TECs, should be avoided;
- Noted habitat areas (i.e., dense pockets of *Citrus glauca*, hollow logs) should be avoided;
- Larger gilgai should be clearly marked and avoided during site development to avoid disturbance of wetland habitat / species and *Eleocharis blakeana* around the margins;
- Maintain a minimum 100m buffer on all streams;
- Velvety Tree Pear (*Opuntia tomentose*) and the environmental weed species of African Love Grass (*Eragrostis curvula*) should be treated in impact areas to minimise the risk of spreading these weeds. These species should be mitigated through a Weed Management Strategy and control of the plants pre-construction would be in compliance with the LP Act. Awareness of African love grass (*Eragrostis curvula*) is important to reduce on-going spread. Aim to reduce spread or perform vehicle wash-down on all vehicles leaving the property;
- Consistent with approval conditions a 200m buffer, for siting permanent infrastructure, to the edge of endangered REs and or ESAs should be employed to protect these vegetation communities from harm as a result of the development;
- Brigalow threatened ecological communities identified within this report should be protected with a 200m buffer for construction areas, and;
- The presence (or otherwise) of yakka skink and Brigalow scaly-foot should be confirmed by a survey during the warmer months. The habitat and locality would suggest these species occur within the study area. However, until a survey is completed, the presence or absence of these species remains unconfirmed.

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8. Appendix A: Results of EPBC protected matters search tool

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

EPBC Act Protected Matters Report

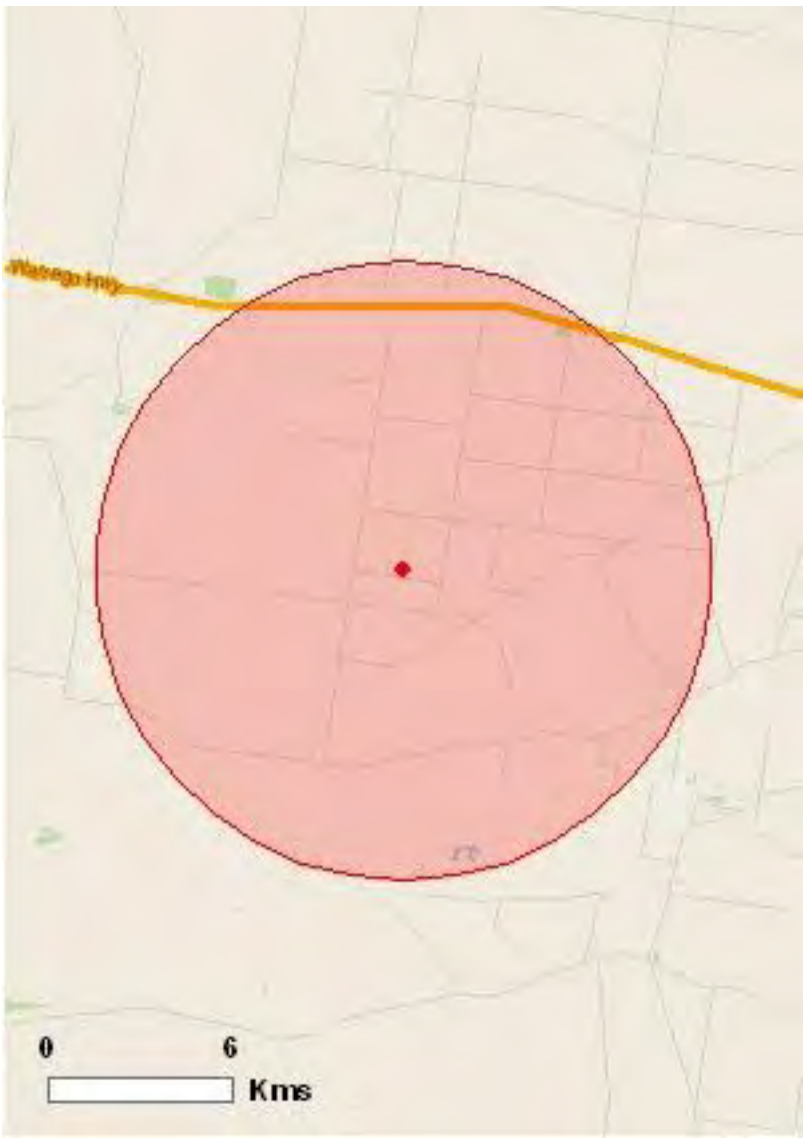
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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

Information 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

Report created: 01/03/12 13:35:39

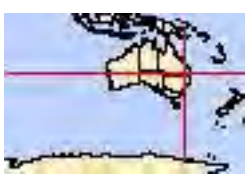
Summary
Details
Matters of NES
Other Matters Protected by the EPBC Act
Extra Information
Caveat
Acknowledgements



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

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have 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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	5
Threatened Species:	18
Migratory Species:	11

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

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

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance (RAMSAR)	[Resource Information]
Name	Proximity
Narran lake nature reserve	Upstream from Ramsar

Threatened Ecological Communities	[Resource Information]

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

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-	Endangered	Community known to

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

Name	Status	Type of Presence
dominant)		occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
BIRDS		
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat may occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
FISH		
Maccullochella peelii peelii Murray Cod, Cod, Goodoo [68443]	Vulnerable	Species or species habitat may occur within area
MAMMALS		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Nyctophilus timoriensis (South-eastern form) Greater Long-eared Bat, South-eastern Long-eared Bat [66888]	Vulnerable	Species or species habitat may occur within area
PLANTS		
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii [2406]	Vulnerable	Species or species habitat may occur within area
Pterostylis cobarensis Cobar Greenhood Orchid [12993]	Vulnerable	Species or species habitat likely to occur within area
Westringia parvifolia [4822]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
REPTILES		
Anomalopus mackayi		
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area
Delma torquata		
Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Paradelma orientalis		
Brigalow Scaly-foot [59134]	Vulnerable	Species or species habitat likely to occur within area

Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Breeding likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Breeding likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Nettapus coromandelianus albipennis		
Australian Cotton Pygmy-goose [25979]		Species or species habitat may occur within area
Rostratula benghalensis s. lat.		
Painted Snipe [889]	Vulnerable*	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Nettapus coromandelianus albipennis Australian Cotton Pygmy-goose [25979]		Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe [889]	Vulnerable*	Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
Mammals		
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtiji Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Coordinates

-26.755 150.41404

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Acknowledgements

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

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

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

Please feel free to provide feedback via the Contact Us page.

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9. Appendix B: Results of Wildlife Online Database Search

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 26.755
Longitude: 150.414
Distance: 10
Email: ekadri@unidel.com.au
Date submitted: Thursday 01 Mar 2012 12:37:07
Date extracted: Thursday 01 Mar 2012 12:40:06

The number of records retrieved = 324

Disclaimer

As the DERM 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	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		2
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		2
animals	amphibians	Hylidae	*Cyclorana verrucosa*	rough collared frog		NT		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Hylidae	*Cyclorana alboguttata*	greenstripe frog		C		1
animals	amphibians	Limnodynastidae	*Notaden bennettii*	holy cross frog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes fletcheri*	barking frog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		1
animals	amphibians	Limnodynastidae	*Neobatrachus sudelli*	meeowing frog		C		1
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		1
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		9
animals	birds	Acanthizidae	*Gerygone fusca*	western gerygone		C		3
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		5
animals	birds	Acanthizidae	*Gerygone albogularis*	white-throated gerygone		C		4
animals	birds	Acanthizidae	*Acanthiza uropygialis*	chestnut-rumped thornbill		C		1
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		18
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		3
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		13
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		5
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		12
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		1
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		4
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		NT		1
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		2
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		3
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		NT		1
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		6
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		4
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		2
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		2
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		3
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		4
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		2
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		1
animals	birds	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck		C		2
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		2
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		2
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		10
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		11
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		3
animals	birds	Anatidae	*Anas rhynchotis*	Australasian shoveler		C		2
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		12
animals	birds	Anatidae	*Aythya australis*	hardhead		C		4
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		8
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		C		1
animals	birds	Ardeidae	*Ardea ibis*	cattle egret		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		6
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		3
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		9
animals	birds	Ardeidae	*Nycticorax caledonicus*	Nankeen night-heron		C		5
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		5
animals	birds	Ardeidae	*Ardea modesta*	eastern great egret		C		7
animals	birds	Artamidae	*Artamus minor*	little woodswallow		C		1
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		16
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		5
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		9
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		13
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		1
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		13
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		1
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		12
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		16
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Calyptorhynchus lathami*	glossy black-cockatoo		V		1
animals	birds	Cacatuidae	*Eolophus roseicapillus*	galah		C		18
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		4
animals	birds	Campephagidae	*Lalage sueurii*	white-winged triller		C		3
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		3
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		1
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		3
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		13
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		6
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		2
animals	birds	Charadriidae	*Vanellus tricolor*	banded lapwing		C		2
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		5
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		4
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		NT		2
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		2
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		3
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		1
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			2
animals	birds	Columbidae	*Columba livia*	rock dove	Y			2
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		3
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		16
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		6
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		12
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		6
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		13
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		5
animals	birds	Corvidae	*Corvus sp.*					1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		6
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		22
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		4
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		2
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		2
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		4
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		1
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		4
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		13
animals	birds	Estrildidae	*Stagonopleura guttata*	diamond firetail		C		3
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		3
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		7
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		11
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		4
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		2
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		15
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		7
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		4
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		3
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		4
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		15
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		4
animals	birds	Maluridae	*Malurus leucopterus*	white-winged fairy-wren		C		4
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		1
animals	birds	Megaluridae	*Cincloramphus cruralis*	brown songlark		C		2
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		4
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		14/1
animals	birds	Meliphagidae	*Ptilotula penicillatus*	white-plumed honeyeater		C		13
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		11
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		17
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		19
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		13
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		3
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		12
animals	birds	Meliphagidae	*Gavicalis virescens*	singing honeyeater		C		1
animals	birds	Meliphagidae	*Epthianura tricolor*	crimson chat		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		7
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		12
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		6
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		V		3
animals	birds	Meliphagidae	*Sugomel niger*	black honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		2
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		10
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		9

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		21
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		1
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		3
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		16
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		4
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		8
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		2
animals	birds	Otididae	*Ardeotis australis*	Australian bustard		C		6
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		7
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		3
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		16
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		11
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		3
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			2
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		5
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		6
animals	birds	Petroicidae	*Melanodryas cucullata*	hooded robin		C		1
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		1
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		5
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		6
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		5
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		4
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		1
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		5
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		7
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		13
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		4
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		2
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		11/2
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		12
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		8
animals	birds	Psittacidae	*Melopsittacus undulatus*	budgerigar		C		2
animals	birds	Psittacidae	*Barnardius zonarius barnardi*	mallee ringneck		C		1
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		12
animals	birds	Psittacidae	*Glossopsitta pusilla*	little lorikeet		C		4
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		4
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		5
animals	birds	Rallidae	*Porphyrio porphyrio*	purple swamphen		C		1
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		2
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		11
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		20
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		C		1
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			4
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		6
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		6
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		7
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		7
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		5
animals	birds	Turnicidae	*Turnix velox*	little button-quail		C		1
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		1
animals	mammals	Dasyuridae	*Antechinus flavipes*	yellow-footed antechinus		C		1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		5
animals	mammals	Macropodidae	*Macropus robustus*	common wallaroo		C		1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		2
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		2
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		C		2
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		1
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		2
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		C		2
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		NT		1
animals	mammals	Vespertilionidae	*Nyctophilus geoffroyi*	lesser long-eared bat		C		2
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		3
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Chelidae	*Wollumbinia latisternum*	saw-shelled turtle		C		1
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		1
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		1
animals	reptiles	Elapidae	*Hemiaspis damelii*	grey snake		E		2/1
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		1
animals	reptiles	Elapidae	*Brachyurophis australis*	coral snake		C		1
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		2
animals	reptiles	Pygopodidae	*Delma plebeia*	common delma		C		2/2
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		1
animals	reptiles	Scincidae	*Egernia rugosa*	yakka skink		V	V	1
animals	reptiles	Scincidae	*Carlia pectoralis*			C		1
animals	reptiles	Scincidae	*Morethia boulengeri*			C		1
animals	reptiles	Scincidae	*Anomalopus verreauxii*			C		2
animals	reptiles	Scincidae	*Lerista punctatovittata*			C		2
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		1
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		1
animals	reptiles	Varanidae	*Varanus panoptes*	yellow-spotted monitor		C		1
fungi	club fungi	Basidiomycota	*Geastrum fornicatum*			C		1/1
plants	ferns	Marsileaceae	*Marsilea drummondii*	common nardoo		C		1/1
plants	higher dicots	Acanthaceae	*Pseuderanthemum variabile*	pastel flower		C		1/1
plants	higher dicots	Aizoaceae	*Tetragonia tetragonioides*	New Zealand spinach		C		1/1
plants	higher dicots	Apiaceae	*Actinotus gibbonsii*	dwarf flannel flower		C		1/1
plants	higher dicots	Apocynaceae	*Cynanchum bowmanii*	bowman's milkvine		C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Apocynaceae	*Sarcostemma viminale subsp. brunonianum*			C		1/1
plants	higher dicots	Apocynaceae	*Marsdenia viridiflora subsp. viridiflora*			C		1/1
plants	higher dicots	Apocynaceae	*Marsdenia pleiadenia*			C		1/1
plants	higher dicots	Asteraceae	*Rutidosis lanata*			E		1/1
plants	higher dicots	Asteraceae	*Ozothamnus diotophyllus*			C		1/1
plants	higher dicots	Asteraceae	*Brachyscome trachycarpa*			C		1/1
plants	higher dicots	Asteraceae	*Olearia canescens*			C		2/2
plants	higher dicots	Asteraceae	*Leiocarpa panaetioides*			C		1/1
plants	higher dicots	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1/1
plants	higher dicots	Caesalpiniaceae	*Senna surattensis*			C		1/1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1/1
plants	higher dicots	Casuarinaceae	*Casuarina cristata*	belah		C		2/2
plants	higher dicots	Celastraceae	*Maytenus bilocularis*			C		1/1
plants	higher dicots	Celastraceae	*Maytenus cunninghamii*	yellow berry bush		C		1/1
plants	higher dicots	Chenopodiaceae	*Dysphania glomulifera subsp. glomulifera*			C		1/1
plants	higher dicots	Crassulaceae	*Bryophyllum delagoense*		Y			1/1
plants	higher dicots	Dilleniaceae	*Hibbertia stricta*			C		1/1
plants	higher dicots	Euphorbiaceae	*Acalypha eremorum*	soft acalypha		C		1/1
plants	higher dicots	Euphorbiaceae	*Monotaxis macrophylla*			C		1/1
plants	higher dicots	Euphorbiaceae	*Croton phebalioides*	narrow-leaved croton		C		1/1
plants	higher dicots	Fabaceae	*Hovea longipes*	brush hovea		C		1/1
plants	higher dicots	Fabaceae	*Vicia sativa subsp. nigra*		Y			1/1
plants	higher dicots	Fabaceae	*Mirbelia pungens*			C		1/1
plants	higher dicots	Fabaceae	*Swainsona luteola*	dwarf darling pea		C		1/1
plants	higher dicots	Fabaceae	*Bossiaea rhombifolia subsp. concolor*			C		1/1
plants	higher dicots	Goodeniaceae	*Scaevola spinescens*	prickly fan flower		C		1/1
plants	higher dicots	Goodeniaceae	*Dampiera adpressa*			C		1/1
plants	higher dicots	Goodeniaceae	*Goodenia glabra*			C		1/1
plants	higher dicots	Haloragaceae	*Gonocarpus urceolatus*			V		2/2
plants	higher dicots	Lamiaceae	*Prostanthera*			C		1/1
plants	higher dicots	Lamiaceae	*Prostanthera lithospermoides*			C		2/2
plants	higher dicots	Lamiaceae	*Prostanthera cryptandroides subsp. euphrasioides*			C		1/1
plants	higher dicots	Lentibulariaceae	*Utricularia*			C		1/1
plants	higher dicots	Loranthaceae	*Dendrophthoe glabrescens*			C		2/2
plants	higher dicots	Loranthaceae	*Lysiana exocarpi subsp. tenuis*			C		1/1
plants	higher dicots	Loranthaceae	*Amyema quandang var. bancroftii*	broad-leaved grey mistletoe		C		2/2
plants	higher dicots	Loranthaceae	*Amyema congener subsp. rotundifolia*			C		1/1
plants	higher dicots	Malvaceae	*Sida aprica var. aprica*			C		1/1
plants	higher dicots	Meliaceae	*Owenia acidula*	emu apple		C		1/1
plants	higher dicots	Mimosaceae	*Acacia amblygona*	fan-leaf wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia microsperma*	bowyakka		C		1/1
plants	higher dicots	Mimosaceae	*Acacia melvillei*			C		3/3
plants	higher dicots	Mimosaceae	*Acacia everistii*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia omalophylla*			C		2/2
plants	higher dicots	Mimosaceae	*Acacia tenuinervis*			NT		2/2
plants	higher dicots	Mimosaceae	*Acacia deanei subsp. deanei*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Mimosaceae	*Acacia triptera*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia burrowii*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia pendula*	myall		C		1/1
plants	higher dicots	Mimosaceae	*Acacia julifera subsp. julifera*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia excelsa subsp. excelsa*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia blakei subsp. blakei*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia sparsiflora*			C		1/1
plants	higher dicots	Myrtaceae	*Kardomia jucunda*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		1/1
plants	higher dicots	Myrtaceae	*Calytrix tetragona*	fringe myrtle		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus tenuipes*	narrow-leaved white mahogany		C		2/2
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus fibrosa subsp. nubila*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca squamophloia*			C		5/5
plants	higher dicots	Myrtaceae	*Eucalyptus chloroclada*	Baradine red gum		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus woollsiana*			C		2/2
plants	higher dicots	Myrtaceae	*Melaleuca lanceolata*			C		2/2
plants	higher dicots	Myrtaceae	*Harmogia densifolia*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus exserta*	Queensland peppermint		C		2/2
plants	higher dicots	Oleaceae	*Notelaea microcarpa var. velutina*			C		1/1
plants	higher dicots	Oleaceae	*Jasminum simplicifolium subsp. australiense*			C		1/1
plants	higher dicots	Oxalidaceae	*Oxalis*			C		1/1
plants	higher dicots	Phyllanthaceae	*Phyllanthus gunnii*			C		1/1
plants	higher dicots	Phyllanthaceae	*Phyllanthus fuernrohrii*			C		1/1
plants	higher dicots	Portulacaceae	*Portulaca australis*			C		1/1
plants	higher dicots	Proteaceae	*Hakea lorea subsp. lorea*			C		1/1
plants	higher dicots	Rubiaceae	*Psydrax odorata forma subnitida*			C		1/1
plants	higher dicots	Rutaceae	*Boronia occidentalis*			C		2/2
plants	higher dicots	Rutaceae	*Philotheca difformis subsp. difformis*			C		2/2
plants	higher dicots	Sapindaceae	*Dodonaea heteromorpha*			C		1/1
plants	higher dicots	Scrophulariaceae	*Lindernia alsinoides*			C		1/1
plants	higher dicots	Solanaceae	*Solanum jucundum*			C		1/1
plants	higher dicots	Solanaceae	*Solanum tetrathecum*			C		1/1
plants	higher dicots	Solanaceae	*Solanum parvifolium subsp. parvifolium*			C		1/1
plants	higher dicots	Solanaceae	*Duboisia leichhardtii*			C		1/1
plants	higher dicots	Solanaceae	*Solanum ellipticum*	potato bush		C		1/1
plants	higher dicots	Sparrmanniaceae	*Corchorus trilocularis*			C		1/1
plants	higher dicots	Viscaceae	*Viscum articulatum*	flat mistletoe		C		1/1
plants	lower dicots	Ranunculaceae	*Clematis*			C		1/1
plants	monocots	Aponogetonaceae	*Aponogeton queenslandicus*			C		1/1
plants	monocots	Cyperaceae	*Cyperus procerus*			C		1/1
plants	monocots	Hemerocallidaceae	*Dianella brevipedunculata*			C		1/1
plants	monocots	Hemerocallidaceae	*Dianella revoluta var. revoluta*			C		2/2
plants	monocots	Hemerocallidaceae	*Dianella brevipedunculata x D.revoluta var. revoluta*			C		1/1
plants	monocots	Juncaginaceae	*Triglochin dubium*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		1/1
plants	monocots	Poaceae	*Eragrostis trichophora*		Y			1/1
plants	monocots	Poaceae	*Paspalidium albovillosum*			C		1/1

CODES

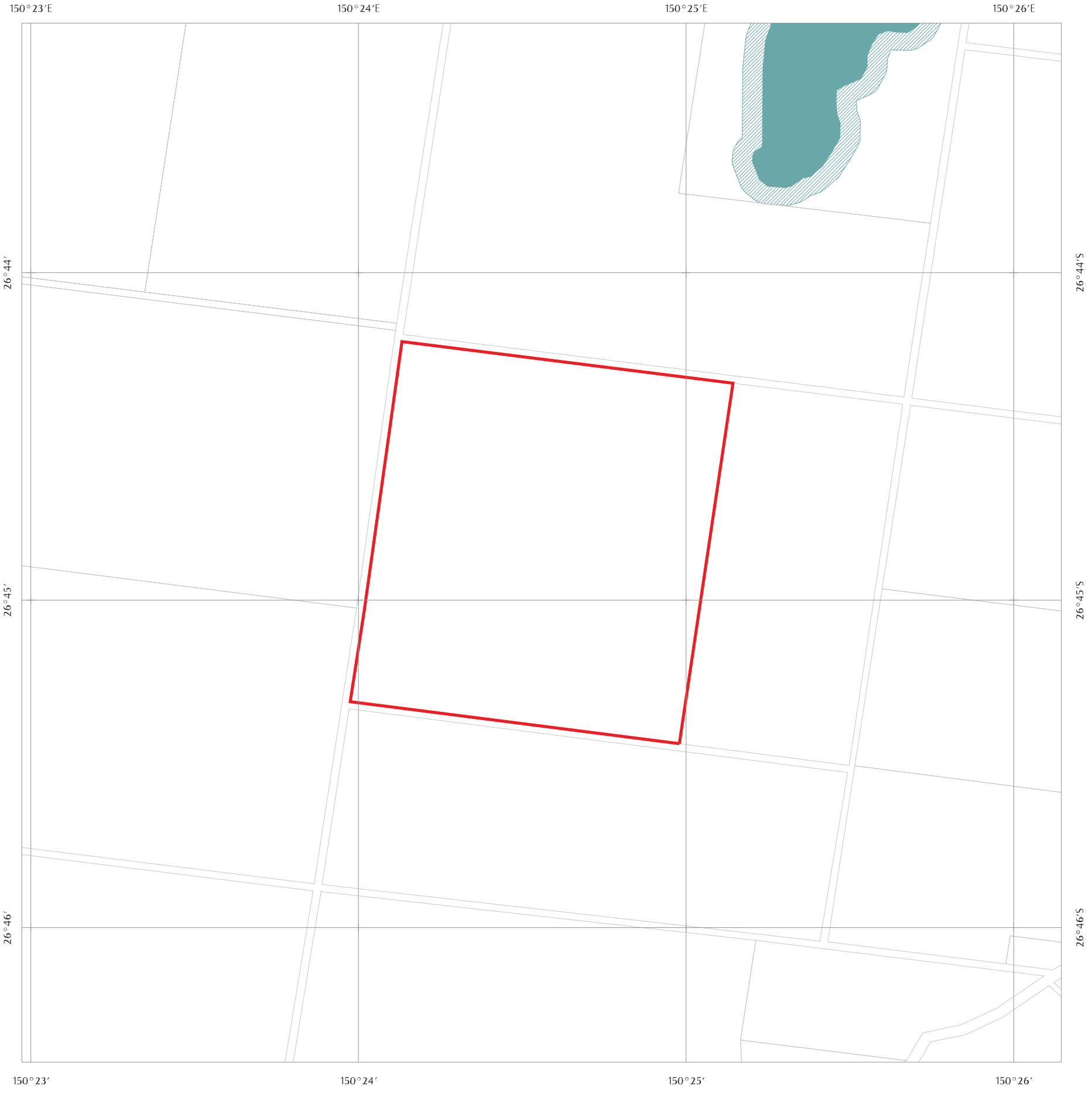
I - Y indicates that the taxon is introduced to Queensland and has naturalised.

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

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

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

10. Appendix C: Results of DERM Referrable Wetland search



Map of Referable Wetlands

Requested By: JGRAY@UNIDEL.COM.AU
Date: 01 Sep 11 Time: 08.54.37

Centered on Lot on Plan:
50 BWR104

Legend

- Selected Land Parcel
- Property Boundary

GBR Wetland Protection Area

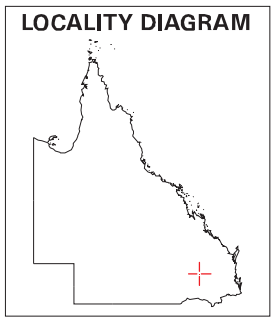
- Wetland
- Trigger Area

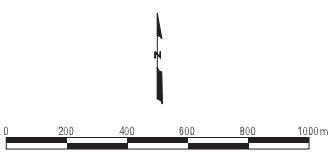
Wetland Management Area

- Wetland
- Trigger Area

Queensland Government

LOCALITY DIAGRAM





This scale bar is approximate only
Horizontal Datum: Geocentric Datum of Australia 1994 (GDA94)
This product is unprojected and is not suitable for measuring distances

This map should only be used to apply policies outlined in the Temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments (SPP for GBR Wetlands).

Information shown on the map includes multiple spatial datasets that define policies stated in the Temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments (SPP for GBR Wetlands). Datasets include wetlands, roads, rail lines and cadastral boundaries.

All datasets are current as at 30 April 2010.

The maps are produced at a scale relevant to the size of the lot on plan identified and should be printed as A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale i.e. property level. For property assessment, digital linework should be used as a guide only.

The Wetlands Regulatory Map is A4 portrait and should be printed at this size.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Resource Management at planning.support@derm.qld.gov.au

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11. Appendix D: Fauna recorded at the study area during field survey

Class	Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status
Amphibians	Myobatrachidae	*Lymnodynastes salmini*	Salmon striped frog	LC	
Birds	Corcoracidae	*Struthidea cinerea*	Apostle bird	LC	
Birds	Columbidae	*Geopelia humeralis*	Bar-shouldered dove	LC	
Birds	Campephagidae	*Coracina novaehollandiae*	Black-faced cuckoo-shrike	LC	
Birds	Accipitridae	*Elanus axillaris*	Black-shouldered Kite	LC	
Birds	Falconidae	*Falco berigora*	Brown Falcon	LC	
Birds	Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater	LC	
Birds	Otididae	*Ardeotis australis*	Australian Bustard	LC	
Birds	Cacatuidae	*Cacatua tenuirostris*	Long Billed Corella	LC	
Birds	Columbidae	*Ocyphaps lophotes*	Crested Pigeon	LC	
Birds	Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin	LC	
Birds	Cacatuidae	*Eolophus roseicapillus*	Galah	LC	
Birds	Rhipiduridae	*Rhipidura albiscapa*	Grey fan tail	LC	
Birds	Artamidae	*Cracticus torquatus*	Grey Butcherbird	LC	
Birds	Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush	LC	
Birds	Halcyonidae	*Dacelo novaeguineae*	Laughing Kookaburra	LC	
Birds	Artamidae	*Cracticus tibicen*	Magpie	LC	
Birds	Monarchidae	*Grallina cyanoleuca*	Magpie-lark	LC	
Birds	Meliphagidae	*Philemon corniculatus*	Noisy Friarbird	LC	
Birds	Meliphagidae	*Manorina melanocephala*	Noisy Miner	LC	
Birds	Psittacidae	*Platycercus adscitus*	Pale-headed Rosella	LC	
Birds	Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant	LC	
Birds	Meliphagidae	*Anthochaera chrysoptera*	Little Wattle bird	LC	
Birds	Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet	LC	
Birds	Psittacidae	*Psephotus haematonotus*	Red Rumped Parrot	LC	

Class	Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status
Birds	Falconidae	*Falco cenchroides*	Nankeen Kestral	LC	
Birds	Psittacidae	*Trichoglossus chlorolepidotus*	Scaly Breasted Lorikeet	LC	
Birds	Pardalotidae	*Pardalotus striatus*	Striated Pardalote	LC	
Birds	Cacatuidae	*Cacatua galerita*	Sulphur-crested Cockatoo	LC	
Birds	Corvidae	*Corvus orru*	Torresian Crow	LC	
Birds	Accipitridae	*Aquila audax*	Wedge-tailed eagle	LC	
Birds	Campephagidae	*Coracina papuensis*	White-bellied Cuckoo-shrike	LC	
Birds	Corcoracidae	*Corcorax melanorhamphos*	White Winged Chough	LC	
Birds	Acanthizidae	*Acanthiza nana*	Yellow Thornbill	LC	
Mammals	Macropodidae	*Macropus gigantius*	Eastern Grey kangaroo	LC	
Mammals	Tachyglossidae	*Tachyglossus aculeatus*	Echidna	LC	

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12. Appendix E: Flora recorded at the study area during field survey

Family	Scientific Name	Common Name	NC Act Status	EPBC Act Status
Cyperaceae	*Eleocharis blakeana*	Blake's spike-rush	NT	
Haloragaceae	*Gonocarpus urceolatus*	Gonocarpus	V	
Asteraceae	*Rutidosis lanata*	Red-soil Wooly Wrinklewort	V	
Casuarinaceae	*Casuarina cristata*	Belah	LC	
Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Ironbark	LC	
Mimosaceae	*Acacia harpophylla*	Brigalow	LC	
Myoporaceae	*Eremophila mitchellii*	False Sandalwood	LC	
Rutaceae	*Geijera parviflora*	Wilga	LC	
Poaceae	*Melinus repens*	Red Natal Grass	LC	
Myrtaceae	*Eucalyptus populnea*	Poplar Box	LC	
Melaiaceae	*Owenia acidula*	Emu Apple	LC	
Myrtaceae	*Eucalyptus coolabah*	Coolibah	LC	
Casuarinaceae	*Casuariana cuninghamiana*	Beefwood	LC	
Cactaceae	*Opuntia tomentosa*	Velvety Tree Pear	Y	
Poaceae	*Eragrostis curvula*	African Lovegrass	Y	

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