

Ecological Assessment Report for Fairview West 2018:

An ecological assessment report completed for the Yebna North Project

Document Number: 0007-650-PLA-0023

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Abbreviations and Units

Acronym	Description
DEHP	Department of Environment and Heritage Protection, Queensland
DES	Department of Environment and Science, Queensland
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
Fairview	Santos GLNG Fairview Gas Field
GLNG	Gladstone Liquefied Natural Gas
MNES	Matters of National Environmental Significance
NCA	<i>Nature Conservation Act 1992</i>
NP	National Park
PL	Petroleum Lease
RE	Regional Ecosystem
RoW	Right of Way
SF	State Forest
TEC	Threatened Ecological Community

1.0 Introduction

1.1 Purpose and Scope

The purpose of this report is to document ecological assessment of the Yebna North Project area, which is located on Petroleum Lease (PL) 232 (hereafter referred to as the Site).

The report has been prepared to comply with the site assessment and ecological survey requirements listed in Santos GLNG's approvals

The scope of the assessment was to undertake the following:

- Perform a quaternary vegetation assessment for each Regional Ecosystem (RE) present and produce a ground-truthed RE map for all mappable vegetation within the Site;
- Assess the presence or absence of *any Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed Threatened Ecological Communities (TEC);
- Search for the presence of any threatened flora listed under the EPBC Act and/or *Nature Conservation Act 1992* (NC Act);
- Conduct incidental searches for the presence of any threatened fauna listed under the EPBC Act and/or NC Act; and
- Provided habitat mapping for EPBC Act listed species
- Quantifies areas of threatened species habitat and ecological communities that are subject to statutory disturbance limits in the Santos GLNG environmental approvals.

1.2 Site Description

The Site is located on the "Yebna" property (Lot 2 on Plan AB247 and Lot 1 on Plan AB81), situated approximately 58 km east-northeast of the town of Injune in south central Queensland (Figure 1). The Site is within the boundary of the Banana Shire Council in Subregion 24 (Carnarvon Ranges) of the Brigalow Belt bioregion (Sattler and Williams 1999). This Subregion is characterized by the presence of predominantly coarse-grained sedimentary rocks forming undulating to hilly topography with areas of deep valleys and gorges.

The Site contains a predominantly vegetated plateau located above predominately-cleared lower slopes draining to the Dawson River, located in the south of the Site. Vegetation within the Site is typical of the Subregion including woodland communities dominated by several eucalypt species. The Site is currently grazed by cattle and limited existing coal seam gas (CSG) infrastructure is present.

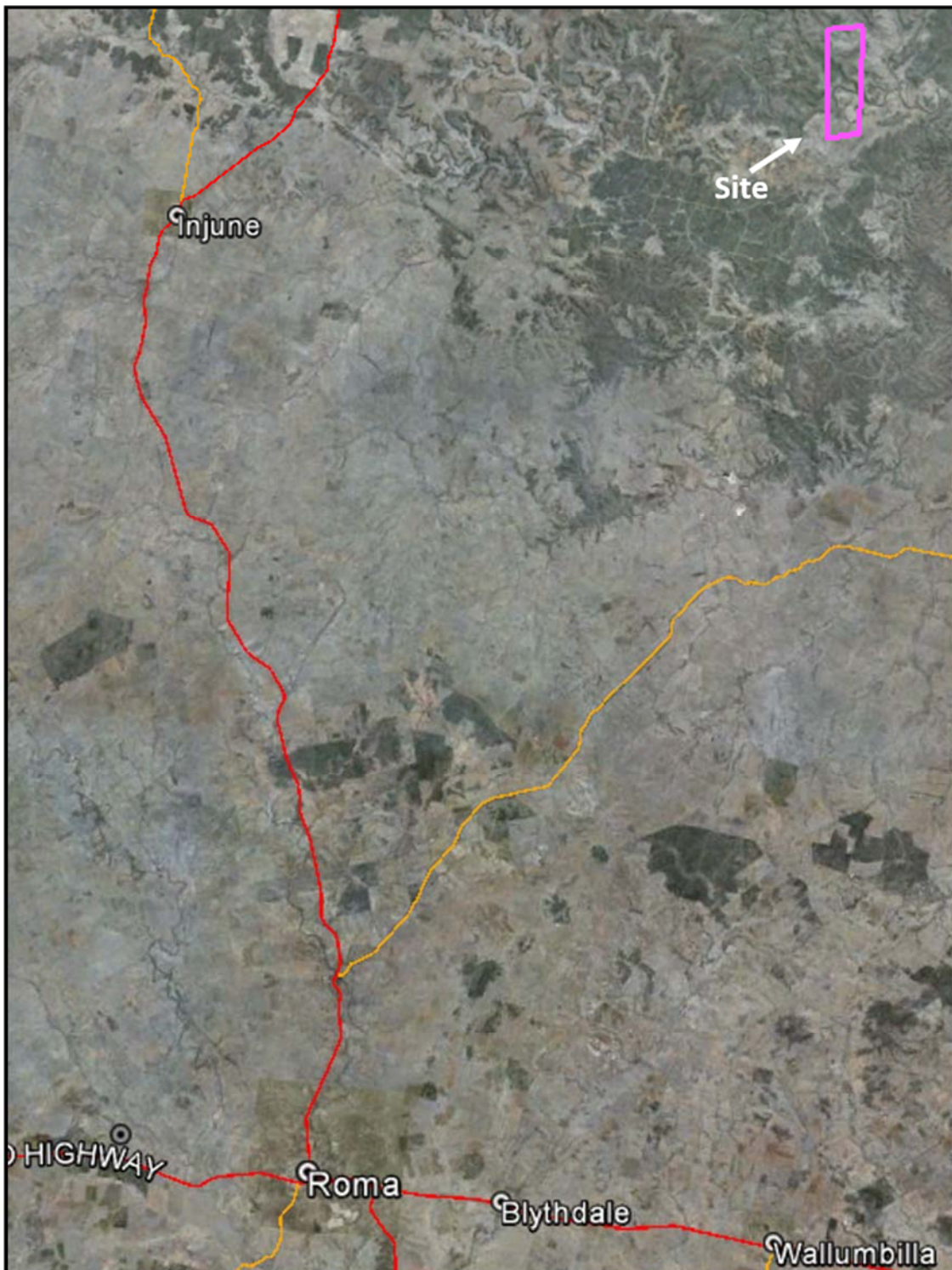


Figure 1: Location Map for Yebna North

2.0 Methodology

Mitch Bird, Santos Senior Environmental Advisor, undertook ecological assessment of the Site. Mitch Bird was previously approved by the Department of the Environment and Energy (DoEE) (formerly the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC)) to undertake ecological assessment works for the Gladstone Liquefied Natural Gas (GLNG) project.

2.1 Desktop Assessment

A desktop assessment was undertaken, which included interrogation of the following ecological data sets:

- Remnant RE (DSITI 2017a) and Mature Regrowth (DEHP 2012) mapping – Biodiversity Status;
- Essential Habitat (EH) mapping;
- Referrable Wetlands mapping;
- Ordered Stream mapping;
- Qld Governments Biomaps mapping applications fauna and flora record;
- Santos' internal threatened species records;
- Protected Plants Flora Survey Trigger Map;
- EPBC Act Protected Matters Search Tool (PMST); and
- Atlas of Living Australia fauna and flora records.

Searches were conducted using the spatial layers in Santos' WebGIS and/or using property lot/plan details or approximate site centre point co-ordinates. These datasets provided a baseline for subsequent field assessment.

2.2 Field Assessment

Verification of desktop findings, and additional findings of significance identified in-field, were undertaken in general accordance with the following:

- *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al. 2012);
- *Methodology for Conducting Ecological Assessments – GLNG Areas Rev 4.1* (Santos 2014); and
- *Functional Thresholds for Assessing Regional Ecosystem Functionality* (Santos 2015).

Methodologies employed for each element of the field survey are further described in the following sections.

2.2.1 RE and TEC Assessment and Mapping

Ground-truthing of the DSITI Regional Ecosystem (RE) designation within the Site was undertaken using the quaternary level of data collection as described by Neldner et al. (2012).

Assessments were undertaken within 50 m x 10 m plots (as appropriate) for the purpose of typifying the vegetation community under assessment. Plots were chosen within representative areas of each vegetation type encountered.

Vegetation community polygons were verified in accordance with Queensland RE description and Biodiversity Status as per the Regional Ecosystem Description Database (REDD) (DSITI 2016), and

classified as either Remnant RE, vegetation consistent with RE (advanced regrowth) or Non-Remnant vegetation (Santos 2014a). For each area of potential TEC an assessment of vegetation survey data was made against TEC threshold criteria (DoEE 2017a, TSSC 2013).

Vegetation community data was captured in the field using a handheld GPS. Representative photographs were taken at each vegetation survey site. Capture and delineation of RE and TEC boundaries was undertaken using a combination of mobile GPS and/or delineation from imagery.

For identified advanced regrowth (i.e. vegetation floristically equivalent to an RE but not meeting structural thresholds of remnant RE) an ecosystem functionality assessment was conducted where necessary. This assessed selected vegetation characteristics against the parameters described in Santos (2015).

Plant names used within this document conform to those given in Bostock and Holland (2016).

2.2.2 MNES Fauna Habitat Assessment and Mapping

Microhabitat assessments were undertaken in conjunction with vegetation community surveys at each survey plot, or as required where significant variation in the type and abundance of habitat features occurred.

The results of these assessments, combined with and the surveyor's ecological knowledge of the local area, were used to predict habitat suitability for the following disturbance limited MNES species:

- *Chalinolobus dwyeri* (Large-eared Pied Bat);
- *Dasyurus hallucatus* (Northern Quoll);
- *Delma torquata* (Collared Delma);
- *Denisonia maculata* (Ornamental Snake);
- *Egernia rugosa* (Yakka Skink);
- *Erythroriorchis radiatus* (Red Goshawk);
- *Furina dunmalli* (Dunmall's Snake)
- *Geophaps scripta scripta* (Squatter Pigeon - Southern);
- *Nyctophilus corbeni* (South-eastern Long-eared Bat, Corben's Long-eared Bat);
- *Rostratula australis* (Australian Painted Snipe); and
- *Turnix melanogaster* (Black-breasted Button-quail).

These results were used to develop GIS-based mapping of potential habitat for the identified species within the Site.

2.2.3 Threatened Flora Survey

Searches for threat-listed flora under the EPBC and/or NC Act were carried out at all quaternary vegetation assessment sites within the Site, and during random meanders throughout the broader assessment area.

2.2.4 Incidental Threatened Fauna Records

Incidental records of threatened fauna collected during quaternary vegetation assessments and random meanders were fully documented including species name, location (with site co-ordinates or area of extent), habitat and number detected. Threatened fauna searches were confined to incidental observations only (i.e. no trapping or targeted search techniques were employed). Additional survey effort would be required to provide a more comprehensive inventory of threatened fauna species present at the Site.

3.0 Results

3.1 Vegetation Mapping

3.1.1 Desktop RE Mapping

A diverse range of RE vegetation communities are mapped as occurring on site. State government mapped Remnant RE and Mature Regrowth RE are displayed in Appendix A.

3.1.2 Ground-truthed RE Mapping

Six REs were ground-truthed within the Site. REs present at the site are listed in Table 1 and are mapped in Appendix B. Quaternary survey site data is summarised in Table 2. Locations of quaternary assessment sites are mapped in Appendix B

Table 1: Ground-truthed REs present within the Site.

RE Code	Regional Ecosystem Short Description from REDD (DEHP, 2017)	VM Act Status	Biodiversity Status
11.3.2	<i>Eucalyptus populnea</i> woodland on alluvial plains	OC	OC
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	LC	OC
11.9.4	Semi-evergreen vine thicket or <i>Acacia harpophylla</i> with a semi-evergreen vine thicket understorey on fine-grained sedimentary rocks	OC	E
11.9.5	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks	E	E
11.10.1	<i>Corymbia citriodora</i> woodland on coarse-grained sedimentary rocks	LC	NCAP
11.10.7	<i>Eucalyptus crebra</i> and/or <i>E. melanophloia</i> +/- <i>E. populnea</i> shrubby woodland on coarse-grained sedimentary rocks	LC	NCAP
non-rem		-	-

E = Endangered; OC = Of Concern; LC = Least Concern; NCAP = No Concern at Present

Table 2: Summary of quaternary survey site assessments within the Site.

Survey Site Code	Vegetation Description	State Mapped RE	Ground-truthed RE Type
78	Regrowth <i>Eucalyptus melanophloia</i> dominates locally on coarse-grained sedimentary rocks. Shrubs are dominated by <i>Callitris glaucophylla</i> with <i>Acacia decora</i> dominating a sparse lower shrub layer. Sparse ground layer of <i>Pennisetum ciliare</i> , <i>Aristida spp</i> and <i>Heteropogon contortus</i> . <u>Habitat Features:</u> CWD, Leaf litter <10%, Groundcover >50%	Non-remnant	Non-remnant 11.10.7
80	Remnant <i>Eucalyptus melanophloia</i> on coarse-grained sedimentary rocks. Shrubs dominated by <i>Callitris glaucophylla</i> , grassy ground layer is dominated by <i>Aristida spp</i> . <u>Habitat Features:</u> CWD, Leaf litter <10%, small hollows present, embedded rocks present and small boulders present from the colluvium.	11.3.2/ 11.3.25	11.10.7
81	<i>Acacia harpophylla</i> regrowth dominates. Historic burning has limited this community to areas sheltered by and surrounding exposed rock. Non-remnant non TEC. <u>Habitat Features:</u> CWD, Leaf litter <10%, embedded rocks present and small boulders present from the colluvium.	11.9.5a	Non-remnant 11.9.5
84	<i>Eucalyptus melanophloia</i> dominates on coarse-grained sedimentary rocks. Shrubs dominated by <i>Callitris glaucophylla</i> with <i>Acacia decora</i> dominating a sparse lower shrub layer. A grassy ground layer is dominated by <i>Aristida spp</i> . and <i>Heteropogon contortus</i> . <u>Habitat Features:</u> CWD, Leaf litter <10%, small hollows present, embedded rocks present.	11.9.5a	11.10.7
85	<i>Eucalyptus populnea</i> dominant open woodland. <i>E. melanophloia</i> locally dominant to the north. Shrub layer sparse with <i>Eremophila mitchellii</i> occasionally present. <i>Aristida ramosa</i> and <i>Pennisetum ciliare</i> dominate the ground layer. <u>Habitat Features:</u> CWD, Leaf litter <10%, groundcover >50% small and large hollows present.	11.3.2/ 11.3.25	11.3.2
87	<i>Eucalyptus camaldulensis</i> dominate a range of tree species (e.g. <i>Corymbia tessellaris</i> , <i>Angophora floribunda</i>) woodland fringing the Dawson River. <i>Casuarina cunninghamiana</i> and <i>Melaleuca viminalis</i> dominate the instream channel of the Dawson River. A variety of grasses and <i>Rubus spp</i> . dominated the ground layer. <u>Habitat Features:</u> CWD, Leaf litter <10%, small and large hollows present, Tall trees (<i>Eucalyptus camaldulensis</i>)	11.3.2/ 11.3.25	11.3.25e

Survey Site Code	Vegetation Description	State Mapped RE	Ground-truthed RE Type
93	<p><i>Corymbia citriodora</i> dominates a tall woodland on exposed sandstone. <i>Acacia leiocalyx</i> present in a sparse shrub layer with <i>Capparis lasiantha</i> present in sheltered rock gaps. <i>Aristida</i> spp. Dominate the ground layer.</p> <p><u>Habitat Features:</u> CWD, Leaf litter ~30%, small hollows present,</p>	11.9.4	11.10.1
95	<p>Semi-evergreen vine thicket on scape slopes. <i>Brachychiton rupestris</i> and <i>Acacia harpophylla</i> emergents extend past a diverse dense low tree / shrub layer that includes <i>Carissa ovata</i>, <i>Pittosporum spinescens</i> and <i>Alectryon diversifolius</i> with <i>Hovea lanceolata</i> on the edges of this community and that mapped as 11.10.1. Ground layer dominated by <i>Eriachne mucronata</i>.</p> <p><u>Habitat Features:</u> CWD, Leaf litter >50%, thick shrub layer</p>	11.9.4	11.9.4
104	<p><i>Eucalyptus populnea</i> dominant open woodland with <i>E. melanophloia</i> sub-dominating. Shrub layer absent. <i>Aristida</i> spp. and <i>Pennisetum ciliare</i> dominate a grassy ground layer.</p> <p><u>Habitat Features:</u> CWD, Leaf litter <10%, groundcover >50% small and large hollows present.</p>	11.3.2/ 11.3.25	11.3.2
111	<p><i>Corymbia citriodora</i> dominates a tall woodland on exposed sandstone in a sheltered gully. Some SEVT species (e.g. <i>Ficus rubiginosa</i>, <i>Carrisa ovata</i>) where large rocks have prevented fire encroachment. <i>Arundinella nepalensis</i> dominated the ground layer.</p> <p><u>Habitat Features:</u> CWD, Leaf litter <10%, embedded rocks present and small and large boulders, escarpment with overhangs</p>	11.10.1	11.10.1
117	<p><i>Eucalyptus melanophloia</i> dominates with <i>Eucalyptus crebra</i> and <i>Callitris glaucophylla</i>. Shrubby woodland present. Recent fire.</p> <p><u>Habitat Features:</u> CWD, Leaf litter <10%.</p>	11.10.7	11.10.7
118	<p>Non-remnant cleared area scattered <i>Corymbia citriodora</i> present. Mapped areas of RE 11.9.4 present on the regulated vegetation map are not present.</p> <p><u>Habitat Features:</u> Nil</p>	11.9.4	non-remnant
120	<p>Non-remnant. Historically RE 11.10.1 but now consists of little to no tree cover with a dominant <i>Pennisetum ciliare</i> understorey.</p> <p><u>Habitat Features:</u> Nil</p>	11.9.4	non-remnant

Survey Site Code	Vegetation Description	State Mapped RE	Ground-truthed RE Type
124	<i>Corymbia citriodora</i> dominates a tall woodland on exposed sandstone on the edge of a scarp. Sparse shrub layer consisting of <i>Alphitonia excelsa</i> , <i>Acacia leiocalyx</i> . <i>Arundinella nepalensis</i> and <i>Pennisetum ciliare</i> dominated the groundlayer. <u>Habitat Features:</u> CWD, Leaf litter <10%, embedded rocks present and small and large boulders, escarpment with overhangs	11.10.1	11.10.1
126	Non-remnant. Scattered sparse SEVT species present <u>Habitat Features:</u> Nil	Non-remnant	non-remnant
127	Semi-evergreen vine thicket on scarp slopes. <i>Brachychiton rupestris</i> and <i>Acacia harpophylla</i> emergent. Diverse dense low tree / shrub layer includes, <i>Denhamia oleaster</i> , <i>Diospyros humilis</i> , <i>Carissa ovata</i> , <i>Pittosporum spinescens</i> and <i>Alectryon diversifolius</i>	11.9.4	11.9.4
130	non-remnant but mature regrowth RE 11.10.1. <i>Corymbia citriodora</i> dominates regrowth to 5m and DBH ~15cm. <u>Habitat Features:</u> CWD, Leaf litter	11.9.4	non-remnant 11.10.1
134	<i>Eucalyptus melanophloia</i> dominant regrowth to 5m. Shrubby regrowth dominates following a recent fire with <i>Acacia decora</i> the most abundant species. <u>Habitat Features:</u> Limited, maybe some limited cover provided by the dense shrub layer, no CWD	Non-remnant	non-remnant 11.10.7

3.1.3 TEC Assessment

The field survey confirmed the presence of two TECs. TECs present include Brigalow (*Acacia harpophylla* dominant and co-dominant) and Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions. Two patches of Endangered RE 11.9.5 are present and both patches meet TEC criteria.

The PMST (DoEE 2017a) predicted the potential presence of two additional TECs at the Site: 'Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions' and 'Weeping Myall Woodlands'. These TECs were not detected during field survey of the Site.

3.2 Threatened Fauna

3.2.1 Likelihood of Occurrence Assessment

Desktop assessment results indicated *Calyptorhynchus lathami lathami* (glossy black-cockatoo) has been recorded within 10 km of the Site (DSITI 2017b). No listed fauna were detected during field survey of the Site; however, comprehensive fauna surveys were not undertaken. An assessment of the likelihood of occurrence of EPBC Act and/or NC Act listed fauna at the Site is summarised in Appendix C.

3.2.2 Habitat Assessment and Predictive Habitat Mapping

Fauna habitat assessments were performed at each quaternary survey site. Field assessment results and the surveyor's ecological knowledge of the local area were then combined to develop predictive habitat mapping for MNES fauna species at the Site. Habitat mapping rules for the MNES fauna predicted to occur at the Site are listed in Table 3.

Table 3: List of potentially suitable RE and habitat mapping rules for MNES species potentially present.

Species name	Potentially Suitable REs	Habitat Mapping Rules/Notes
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	This species is dependent on the presence of suitable shelter habitat in the form of caves and deep crevices in extensive rock formations (commonly sandstone). As the whole Site either contains or is within 5km of potentially suitable shelter habitat. Mapped General Habitat includes all areas of remnant vegetation and advanced regrowth.
<i>Dasyurus hallucatus</i> Northern Quoll	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	This species is dependent on the presence of suitable shelter habitat in the form of caves and deep crevices in extensive rock formations (commonly sandstone) though it may forage at a distance from this habitat. A conservative (minimum) estimate of potential habitat should include areas of woodland or open forest vegetation contiguous with suitable shelter habitat. As the whole Site either contains or is within 5km of potentially suitable shelter habitat. Mapped General Habitat includes all areas of remnant vegetation and advanced regrowth.
<i>Nyctophilus corbeni</i> South-eastern Long-eared Bat	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all areas of remnant vegetation and advanced regrowth that may be suitable for foraging or shelter.
<i>Phascolarctos cinereus</i> Koala	11.3.2, 11.3.25, 11.10.1, 11.10.7	Mapped General Habitat includes all remnant and advanced regrowth of RE dominated by Myrtaceae species.
<i>Ardea ibis</i> Cattle Egret	11.3.2, 11.3.25	Mapped General Habitat includes all remnant REs on Land Zone 3 (alluvium). However, no mapping is available for preferred habitat within this RE (off-stream shallow vegetated wetlands). The species is also likely to use ephemeral wetlands and the margins of farm dams.
<i>Ardea modesta</i> Eastern Great Egret (as Great Egret)	11.3.2, 11.3.25	Mapped General Habitat includes all remnant REs on Land Zone 3 (alluvium). However, no mapping is available for preferred habitat within this RE (off-stream shallow vegetated wetlands). The species is also likely to use ephemeral wetlands and the margins of farm dams.
<i>Erythrotriorchis radiatus</i> Red Goshawk	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all areas of remnant and advanced regrowth.
<i>Geophaps scripta</i> Squatter Pigeon (southern)	11.3.2, 11.3.25, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all areas of remnant and advanced regrowth of the nominated REs. This includes all REs except the closed SEVT communities.

Species name	Potentially Suitable REs	Habitat Mapping Rules/Notes
<i>Merops ornatus</i> Rainbow Bee-eater	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all areas of remnant and advanced regrowth.
<i>Plegadis falcinellus</i> Glossy Ibis	11.3.2, 11.3.25	Mapped General Habitat includes all remnant REs on Land Zone 3 (alluvium). However, no mapping is available for preferred habitat within this RE (off-stream shallow vegetated wetlands). The species is also likely to use ephemeral wetlands and the margins of farm dams.
<i>Rostratula australis</i> Australian Painted Snipe	11.3.25	Mapped General Habitat includes all remnant RE 11.3.25. However, no mapping is available for preferred habitat within this RE (off-stream shallow vegetated wetlands). The species is also likely to use ephemeral wetlands and the margins of farm dams.
<i>Delma torquata</i> Collared Delma	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all areas of remnant and advanced regrowth.
<i>Egernia rugosa</i> Yakka Skink	11.3.2, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all remnant vegetation and advanced regrowth of the nominated RE.
<i>Furina dunmalli</i> Dunmall's Snake	11.3.2, 11.3.25, 11.9.4, 11.9.5, 11.10.1, 11.10.7	Mapped General Habitat includes all remnant vegetation and advanced regrowth of the nominated RE.
<i>Acacia grandifolia</i>	11.10.7, 11.10.1	Mapped General Habitat includes all areas of remnant and advanced regrowth of the nominated RE.
<i>Bertya opponens</i>	11.10.7, 11.10.1, 11.9.4	Mapped General Habitat includes all areas of remnant and advanced regrowth of the nominated RE.
<i>Daviesia discolor</i>	11.10.7, 11.10.1	Mapped General Habitat includes all areas of remnant and advanced regrowth of the nominated RE.
<i>Eucalyptus beaniana</i> Bean's Ironbark	11.10.7, 11.10.1	Mapped General Habitat includes all areas of remnant and advanced regrowth of the nominated RE.

3.3 Threatened Flora

The Site is not within a High Risk Area as shown on a Protected Plants Survey Trigger Map (DEHP 2017a). Desktop assessment results indicated that *Acacia calantha* (Cracow Wattle) has been recorded within 10 km of the Site (DSITI 2017b). PMST search results (DoEE 2017) also predicted the potential occurrence of the following EPBC Act listed threatened flora species: *Cadellia pentastylis*, *Dichanthium setosum* and *Tylophora linearis*. No listed flora were detected during field survey of the Site. An assessment of the likelihood of occurrence of EPBC Act and/or NC Act listed threatened flora potentially occurring at the Site is summarised in Appendix C.

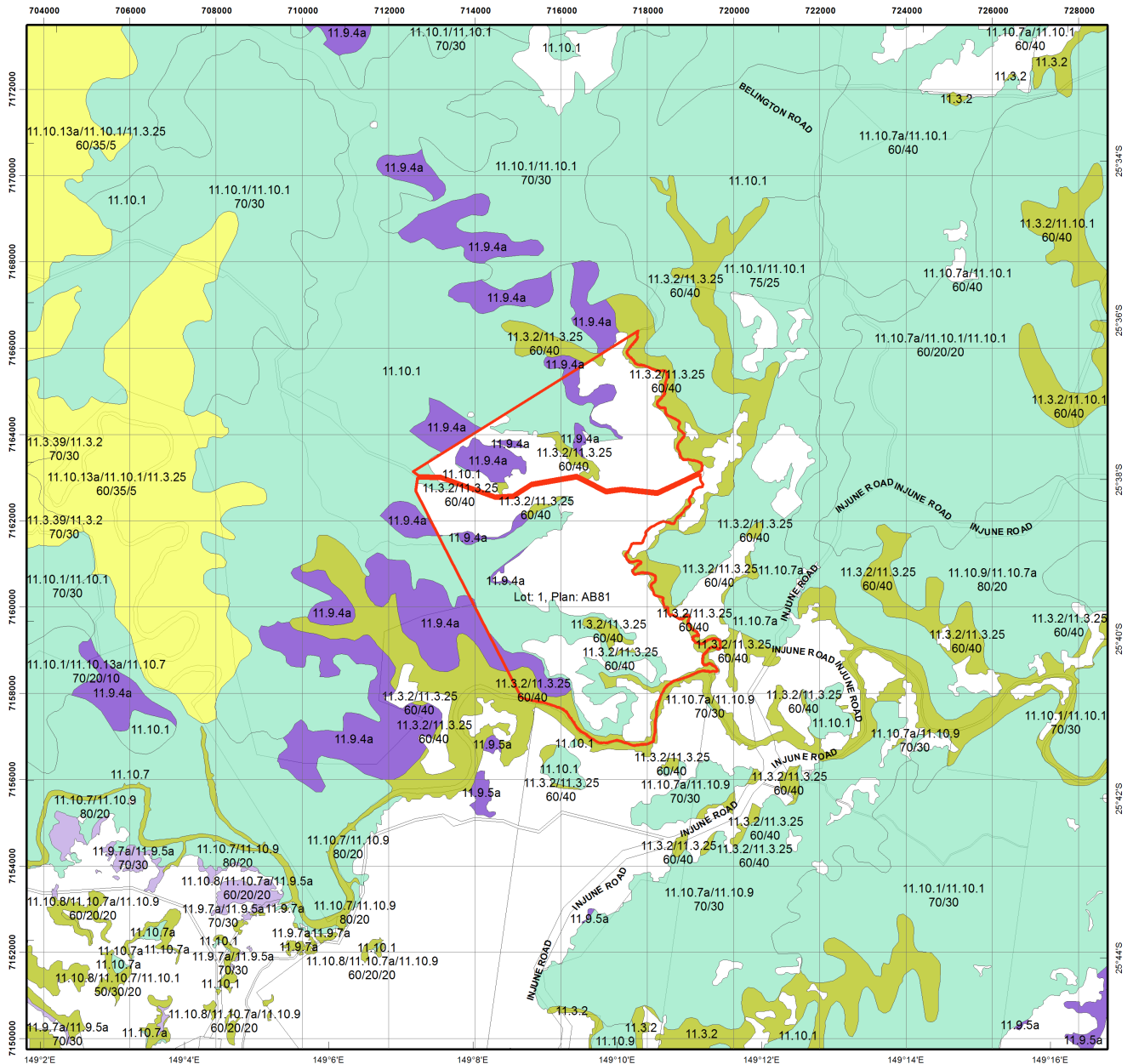
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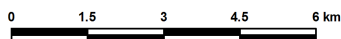
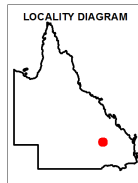
Appendix A: 2015 Remnant Regional Ecosystem Mapping



Remnant 2015 Regional Ecosystems

Biodiversity Status

- Lot and Plan
- Endangered - Dominant vegetation
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- No concern at present
- Non-remnant vegetation, cultivated or built environment
- Plantation
- Water
- Cadastral Boundaries



This product is projected into GDA 1994 MGA Zone 55

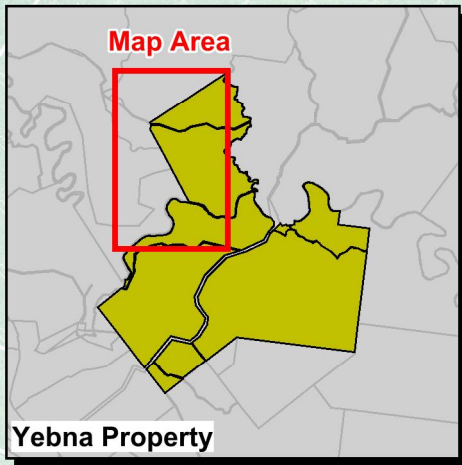
Regional ecosystem mapping over the majority of Queensland is produced at a scale of 1:100,000. At this scale, the minimum remnant polygon area is 5 hectares or minimum remnant width of 75 metres. Regional ecosystem linework reproduced at a scale greater than 1:100,000, except in designated areas, should be used as a guide only. The precision of polygon boundaries or positional accuracy of linework is 100 metres.

Regional ecosystems are defined as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil. The polygons are labelled by regional ecosystem (RE); where more than one RE occurs, the percentage of each is labelled. The label consists of 3 components: bioregion, land zone, and vegetation community – the dominant canopy species. e.g.: RE 12.3.3. Descriptions of REs are found online. Use the search term "Regional Ecosystem Framework".

Regional ecosystem mapping at 1:100,000 map scale is derived from the following sources: 1:80,000 B&W 1960's aerial photography, Landsat TM imagery, geology, soils, land systems data, field survey and historical records.

Remnant woody vegetation is defined as vegetation that has not been cleared or vegetation that has been cleared but where the dominant canopy has >70% of the height and >50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy. Non-remnant vegetation includes regrowth and disturbed native vegetation.

Appendix B: Groundtruthed Regional Ecosystem Mapping



● Quaternary Sites

Biodiversity Status

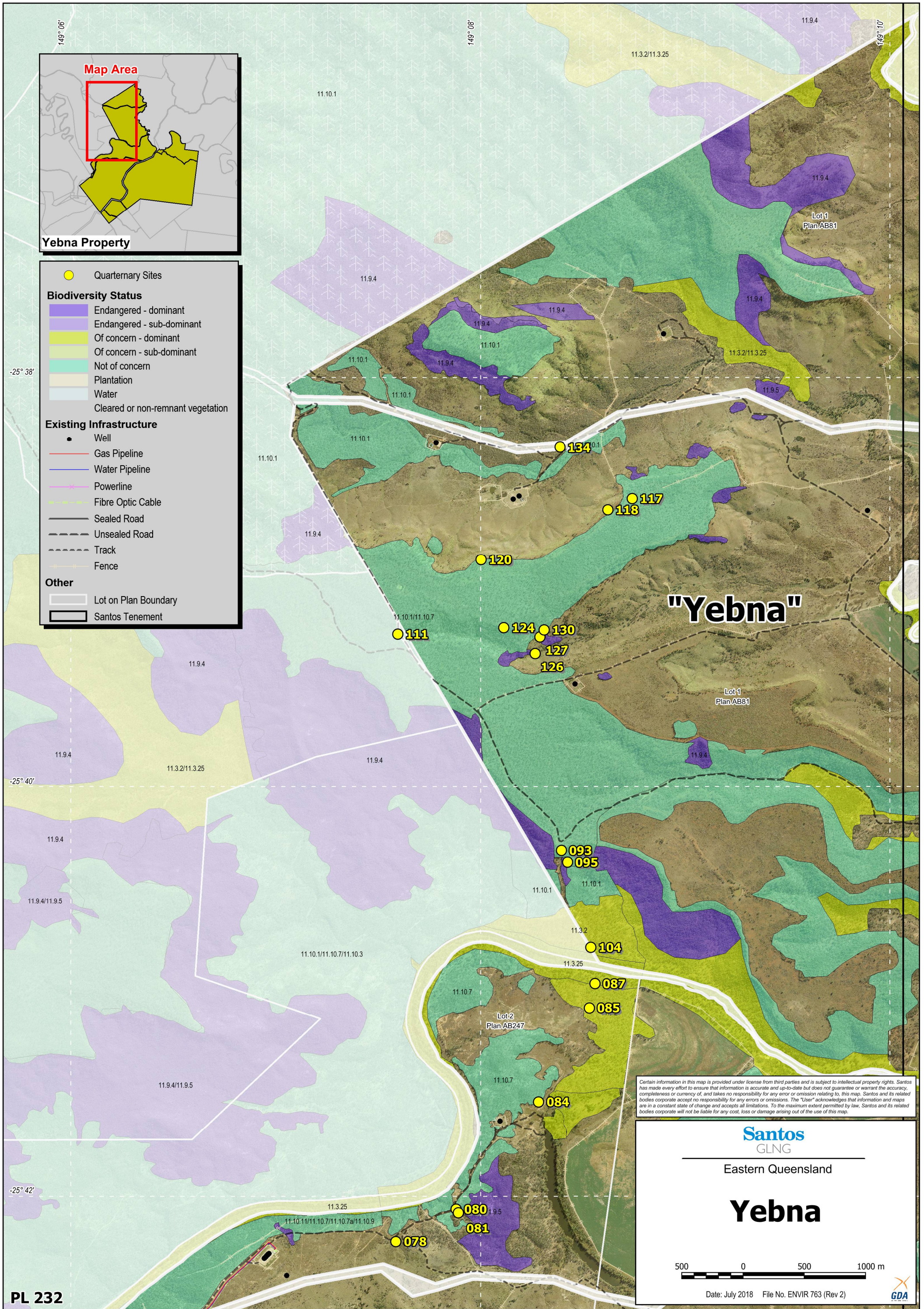
- Endangered - dominant
- Endangered - sub-dominant
- Of concern - dominant
- Of concern - sub-dominant
- Not of concern
- Plantation
- Water
- Cleared or non-remnant vegetation

Existing Infrastructure

- Well
- Gas Pipeline
- Water Pipeline
- Powerline
- Fibre Optic Cable
- Sealed Road
- Unsealed Road
- Track
- Fence

Other

- Lot on Plan Boundary
- Santos Tenement



Certain information in this map is provided under license from third parties and is subject to intellectual property rights. Santos has made every effort to ensure that information is accurate and up-to-date but does not guarantee or warrant the accuracy, completeness or currency of, and takes no responsibility for any error or omission relating to, this map. Santos and its related bodies corporate accept no responsibility for any errors or omissions. The "User" acknowledges that information and maps are in a constant state of change and accepts all limitations. To the maximum extent permitted by law, Santos and its related bodies corporate will not be liable for any cost, loss or damage arising out of the use of this map.

Santos
GLNG

Eastern Queensland

Yebna



Date: July 2018 File No. ENVIR 763 (Rev 2)



Appendix C: Threatened Species Likelihood of Occurrence

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<p><i>Xerothamnella herbacea</i> Xerothamnella</p>	E	E	<p>A low, sprawling herbaceous species that occurs in Brigalow (<i>Acacia harpophylla</i>) dominated communities in shaded situations, often in leaf litter and is associated with gilgais (shallow ground depressions) and/or minor drainage lines (DEHP 2017i). <i>Xerothamnella herbacea</i> is known from a number of widely scattered sites ranging from near Yelarbon north to Kokotungo, west of Gladstone (ALA 2017). It has been collected within the Santos gas field development area: there are six published records of the species in Brigalow open forest in the Arcadia Valley (ALA 2017; DSITI 2017d).</p>	<p>Unlikely to be present. Suitable habitat (Brigalow-dominated open forests and woodlands) along drainage lines and /or gilgai is not present within the Site.</p>
<p><i>Tylophora linearis</i> Slender Tylophora</p>	E	E	<p>Found in drier open forests and woodlands of <i>Eucalyptus</i>, <i>Callitris</i> and <i>Allocasuarina</i> species (DoEE 2017b). It has been collected at numerous localities in NSW, principally on the western slopes of the Great Dividing Range from Temora to the Linton - Yetman area (ALA 2017). It is only known in Queensland from one specimen collected near Glenmorgan in 1960 (ALA 2017).</p>	<p>Unlikely to be present. Although potentially suitable habitat is present, the Site is outside the known range of this species (ALA 2017).</p>
<p><i>Eriocaulon carsonii</i> Salt Pipewort</p>	E	E	<p>This herbaceous species is endemic to flowing discharge springs of the Great Artesian Basin and has been recorded from spring complexes in Queensland, New South Wales and South Australia (DoEE 2017b). In south central Queensland this species is confined to artesian discharge springs in the Injune and Taroom areas (DSITI 2017d). There are six records within tenement PL99 (DSITI 2017d, ALA 2017).</p>	<p>Unlikely to be present. Suitable habitat (artesian discharge springs) is not present within the Site.</p>
<p><i>Bertya opposens</i></p>	V	LC	<p>In Queensland this species is widely distributed within an area bounded by Emerald in the north and Charleville in the west, with outliers near Moranbah and Charters Towers (ALA 2017; DoEE 2017b). <i>Bertya opposens</i> has been recorded growing in a variety of community types including mixed shrubland, lancewood woodland, mallee woodland, eucalypt/acacia open forest with shrubby understorey, <i>Eucalyptus/Callitris</i> open woodland and the margins of semi-evergreen vine-thicket (SEVT) on shallow and rocky or much deeper and well-drained soils (DoEE 2017b, DEHP 2017). The species has been recorded at several locations within the Fairview gas field (ALA 2017).</p>	<p>Potentially present. Suitable habitat on sandstone hills exists within the Site.</p>

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Daviesia discolor</i>	V	V	Disjunct populations occur within Blackdown Tableland, Salvator Rosa section of Carnarvon National Park and the Mt. Walsh area near Biggenden (ALA 2017; TSSC 2008b) where it grows on sandy to clay loam soils, typically well drained, on sandstones, laterite and metamorphic or acid volcanic rocks (DEHP 2017b). This species grows in open forest dominated by <i>Eucalyptus</i> and/or <i>Corymbia</i> spp. or mixed shrubland with scattered <i>Triodia</i> sp. hummocks and <i>Angophora</i> sp. trees (TSSC 2008a).	Potentially present. Suitable habitat on sandstone hills is present, though of limited extent, within the Site.
<i>Swainsona murrayana</i> Slender Darling-pea	V	V	This herbaceous species often grows in heavy soils, especially depressions, and is also found on grey and red to brown clay and clay-loam soils in Bladder Saltbush (<i>Atriplex vesicaria</i>) herbland, Black Box (<i>Eucalyptus largiflorens</i>) woodland and grassland communities and is frequently associated with <i>Maireana</i> species (DoEE 2017b). This species is known in Queensland from five specimens; one collected south of Surat in Brigalow Belt subregion 29 (Weribone High); and four from central western Queensland between Boulia, Birdsville and Longreach (ALA 2017).	Unlikely to be present. Suitable habitat (heavy soils associated with drainage depressions) is not present at the Site. The Site is outside the known range of this species (ALA 2017).
<i>Westringia parvifolia</i>	V	V	This species of low shrub is known to occur on stony and sandy soils supporting mallee woodland (Baker's Mallee <i>Eucalyptus bakeri</i> , Green Mallee <i>E. viridis</i>) with a Spinifex (<i>Triodia</i> sp.) ground layer (DoEE 2017b). It is only known from a relatively small area in the Goondiwindi - Inglewood – Yelarbon area of the southern Darling Downs in Queensland, extending south to the Yetman area of New South Wales (ALA 2017, DoEE 2017b).	Unlikely to be present. Although minor areas of suitable habitat (<i>E. bakeri</i> mallee woodland on sandstone hills) is present at the Site, the Site is distant from the nearest record of the species with an apparently limited distribution.
<i>Acacia curranii</i> Curly-bark Wattle	V	V	This species has a disjunct distribution in western New South Wales (NSW) and south-eastern Queensland. The species is reported in Queensland from the Barakula and Gurulmundi areas (ALA 2017; DSITI 2017d) where it occurs on sandy soils of deeply weathered lateritic plateaus in widely scattered thickets in patches of diverse heath scrub with emergent trees (DoEE 2017b).	Unlikely to be present. Suitable habitat (lateritic plateaus, Land Zone 7) is not present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Acacia grandifolia</i>	V	LC	This species is geographically limited to the Gayndah, Mundubbera, Coulston Lakes and Proston areas (DoEE 2017b) with two outlying (non-specimen) records (ALA 2017) from Boxvale SF (Carnarvon Range) and one (specimen-based) from Dawson Range (ALA 2017, DSITI 2017d). It is recorded from a variety of land forms (hilly terrain of varying aspects and slope, on hillcrests, in gullies on plains) on sandy to clay loams derived from sandstone and acidic volcanic rocks (DEHP 2017b).	Potentially present. Suitable habitat exists within the Site.
<i>Calytrix gurulumdensis</i>	V	V	This species is geographically limited to an area between Gurulmundi and Barakula State Forest in Queensland (ALA 2017, DSITI 2017d). It is recorded as occurring in open shrubland with sparse, stunted Eucalyptus, Casuarina and Acacia spp. and in Triodia hummock grassland with scattered shrubs on shallow red gravelly soil; and on sandstones (DoEE 2017b). The soils are usually well drained, usually shallow and either gravelly sandy clay or sandy in texture (DEHP 2017b). The habitat at Gurulmundi State Forest is consistent with RE 11.7.5 (DEHP 2017b; DoEE 2017b).	Unlikely to be present. Suitable habitat (lateritic plateaus, Land Zone 7) is not present within the Site.
<i>Eucalyptus beaniana</i> Bean's Ironbark	V	LC	This tree species is endemic to Queensland, where it is known from disjunct populations in the Isla Gorge area, sandstone uplands between Injune and Taroom and the Monogorilby/Allies Creek/Koko State Forest area southwest of Mundubbera (ALA 2017, DSITI 2017b). In these areas it grows on shallow sandy soils (lithosols) of sandstone cliff tops and ridges (DEHP 2017b) in eucalypt woodland or open forest, co-dominant or associated with Spotted Gum (<i>Corymbia citriodora</i> subsp. <i>variegata</i>), Gympie Messmate (<i>Eucalyptus cloeziana</i>), <i>E. suffulgens</i> , Large-fruited Yellowjacket (<i>C. watsoniana</i>), Brown Bloodwood (<i>C. trachyphloia</i>) and Narrow-leaved White Mahogany (<i>E. tenuipes</i>) (DEHP 2017b; TSSC 2008b). It is potentially present in suitable habitat within the Carnarvon Ranges subregion.	Potentially present. Suitable habitat (eucalypt woodlands on sandstone hills) is present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Homoranthus decumbens</i>	E	V	This species is a low shrub occurring in tall shrubland or heath up to 800 m above sea level. It occurs on the edge of sandstone cliffs or in shallow sandy soils containing lateritic (iron-rich) pebbles (DEHP 2017b). This species is confined to Barakula State Forest (DSITI 2017d); a specimen from Blackdown Tableland referred to within ALA (2017) and DoEE (2017b) has been re-determined by Queensland Herbarium (DSITI 2017d) as <i>H. brevistylis</i> .	Unlikely to be present. Although minor areas of suitable habitat on sandstone hills is present within the Site, the Site is located approximately 147km north-west of the nearest specimen-backed record.
<i>Phaius australis</i> Swamp Orchid	E	E	This species is commonly associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest and is distributed from northern New South Wales to northern Queensland (DoEE 2017b). Typically, <i>Phaius australis</i> is restricted to the swamp-forest margins, where it occurs in sclerophyll forest of Broad-leaved Paperbark (<i>Melaleuca quinquenervia</i>) and/or Swamp Mahogany (<i>Lophostemon suaveolens</i>); swampy rainforest (often with sclerophyll emergents); or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (<i>Archontophoenix cunninghamiana</i>) or Cabbage Tree Palm (<i>Livistona australis</i>) (DoEE 2017b). Disjunct populations of the species are known from Blackdown Tableland and Carnarvon Gorge (DSITI 2017d).	Unlikely to be present. No suitable habitat (swamp forest) is present within the Site.
<i>Aristida annua</i> A Wire-grass	V	V	This species is confined to grasslands and grassy woodlands on black clay and basalt soils between the Springsure/Emerald and Clermont areas (DoEE 2017b, ALA 2017).	Unlikely to be present. Suitable habitat (grasslands and grassy woodlands on fertile deep clay soils) is not present within the Site.
<i>Arthraxon hispidus</i> Hairy-joint Grass	V	V	Outlying and disjunct populations of this species associated with springs or spring-fed wetlands occur in the Carnarvon Range and Taroom area (DSITI 2017b). In Queensland, this species has been recorded growing in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps (TSSC 2008c).	Unlikely to be present. Suitable habitat (permanent wetlands) is not present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Dichanthium queenslandicum</i> King Bluegrass	E	V	This grass occurs in tussock grasslands of sub-coastal eastern Queensland (DoEE 2017b) on heavy black cracking clays derived from basalt or fine-grained sedimentary rocks (DEHP 2017b). This species often grows in association with other species of blue grasses (<i>Dichanthium</i> and <i>Bothriochloa</i> spp.) and other grass species restricted to this soil type (DEHP 2017b). It is confined to natural grassland or Doolan (<i>Acacia salicina</i>) thickets in grassland and grassy eucalypt woodland communities (DEHP 2017b).	Unlikely to be present. Suitable habitat (grasslands and grassy woodlands on fertile deep clay soils) is not present within the Site.
<i>Dichanthium setosum</i> A bluegrass	V	LC	Occurs in Queensland and north-eastern NSW (ALA 2017). In Queensland, it is patchily recorded from Toowoomba in the south to the upper Burdekin River catchment in the north. It grows on basaltic black clays and hard-setting red-brown loams (DoEE 2017b) in woodland or open grassy woodland dominated by Brigalow (<i>Acacia harpophylla</i>) and/or eucalypt species (DSITI 2017d). In Queensland and NSW it has also been found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture (DoEE 2017b).	Unlikely to be present. Suitable habitat (grasslands and grassy woodlands on fertile deep clay soils) is not present within the Site. The closest specimen records for the species are located in Carnarvon NP and the Springsure / Emerald area (ALA 2017).
<i>Homopholis belsonii</i> Belson's Panic	V	E	Occurs in northern NSW and the southern Brigalow Belt of Queensland (ALA 2017, DoEE 2017b). Within Queensland it principally occurs in Poplar Box (<i>Eucalyptus populnea</i>), Brigalow (<i>Acacia harpophylla</i>) and Belah (<i>Casuarina cristata</i>) dominated communities where it grows preferentially in shaded areas (DoEE 2017b).	Unlikely to be present. Ground layers at the site are highly disturbed and dominated by exotic grasses.
<i>Thesium australe</i> Austral Toadflax	V	V	This species of perennial herb is parasitic on grasses especially Kangaroo Grass (<i>Themeda triandra</i>) (DoEE 2017b). It is found in grasslands and grassy woodlands on basalt and fine-grained soils (DoEE 2017b). It is distributed from eastern Victoria to south central Queensland (DoEE 2017b). In Queensland it has been recorded from the Darling Downs, South Burnett and Carnarvon National Park (ALA 2017).	Unlikely to be present. Suitable habitat (grasslands and grassy woodlands on fine-grained soils) is not present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Cadellia pentastylis</i> Ooline	V	V	Occurs in northern NSW and southern Queensland (DoEE 2017b). Within Queensland it occurs patchily from near Rockhampton westward to near Blackall and southward to the State border (ALA 2017) where it occurs on undulating plains, valley slopes, hillsides and scarps, often in association with Brigalow and SEVT communities (DoEE 2017b, Santos 2012).	Unlikely to be present. Small areas of suitable SEVT habitat is present within the Site. However, the species, a large and conspicuous tree, is not currently known to occur at the Site. The closest specimen records for the species are located ~30 km north-west of the Site (ALA 2017).
<i>Macrozamia platyrhachis</i>	E	E	This cycad species has a restricted distribution in the Blackdown Tableland – Planet Downs area of the Dawson Range in central Queensland where it occurs in eucalypt woodland or open forest on deep sandy soils derived from sandstone (Queensland Herbarium 2007). There is an outlying historical record (1973) from the Ceres Holding southeast of Springsure (DSITI 2017b). The species grows in eucalypt woodland or open forest with on deep sandy soils derived from sandstone at altitudes between 300 and 780m (Forster and Holland 2007).	Unlikely to be present. Although minor areas of suitable habitat on sandstone hills is present within the Site, the Site is located 110km south south-east of the nearest specimen-backed record.
Fauna				
<i>Ardea ibis</i> Cattle Egret	Ma	LC	Widely distributed through coastal and near-coastal Australia but a scarce visitor to south central Queensland (Birdlife Australia 2017). Nests colonially in trees in or beside waterbodies but birds may be encountered in a variety of ephemeral wetland and pasture habitats (Birdlife Australia 2017). Parts of the Fairview gas field with potentially suitable habitat can support the species at least periodically.	Potentially present. Limited areas of ephemeral wetland are present within the Site.
<i>Ardea modesta</i> Eastern Great Egret (as <i>A. modesta</i> Great Egret)	Ma	LC	Widely distributed in coastal and inland Australia, using artificial and natural ephemeral and permanent wetlands (Birdlife Australia 2017). Parts of the Fairview gas field with potentially suitable habitat can support the species at least periodically.	Potentially present. Limited areas of ephemeral wetland are present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Botaurus poiciloptilus</i> Australasian Bittern	E	LC	This species is very rarely recorded in Queensland (Birdlife Australia 2017) with most records from southern Queensland. It is usually associated with densely vegetated wetlands (DoEE 2017b) and within the Santos gas field development area is most likely to be present on major watercourses where suitable wetlands may be present.	Unlikely to be present. Only a very limited area of ephemeral wetland is present within the Site.
<i>Erythrotriorchis radiatus</i> Red Goshawk	V	V	A highly mobile species with a large home range; breeding habitat is in intact tall forest associated with major drainage lines, especially near permanent water bodies and where there is high avian prey diversity, but the species could potentially forage much further away from these areas (Marchant and Higgins 1993). Based on known occurrence (ALA 2017) the forested uplands of the Fitzroy and Dawson River catchments may potentially support this species.	Potentially present. Suitable riparian habitat with tall trees is located within the vegetation associated with the Dawson River (RE 11.3.25).
<i>Geophaps scripta scripta</i> Squatter Pigeon (southern subspecies)	V	V	Inhabits grassy woodlands with open areas for foraging habitat usually within proximity to a nearby water source (Higgins and Davies 1996).	Likely to be present. The species is known from the Fairview gas field and has been recorded at or within 10km of the Site. Suitable habitat (grassy woodlands) is present within the Site.
<i>Lathamus discolor</i> Swift Parrot	CE, Ma	E	This species is migratory, visiting Queensland in winter and known historically at least as far north as Duaringa (Higgins 1999) but now rarely recorded beyond the south-eastern corner of Queensland (Birdlife Australia 2017). There are no published records within the Fairview gas field area and it is not considered to be present.	Unlikely to be present. The Site is outside the known migratory range of the species.
<i>Merops ornatus</i> Rainbow Bee-eater	M	LC	Common breeding spring-summer visitor to southern Queensland, including the Fairview gas field area (Birdlife Australia 2017). Likely to be seasonally present.	Likely to be present. Birds known to occur in this area.
<i>Neochmia ruficauda ruficauda</i> Star Finch	E	E	The range of this subspecies has contracted markedly and it may now be extinct (Maute and Legge 2012). It is considered to be no longer extant in the Fairview gas field area.	Unlikely to be present. The species is considered extinct within the Fairview gas field area.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Pandion cristatus</i> Eastern Osprey (as <i>P. haliaetus</i> Osprey)	M, Ma	LC	A fish-eating raptor mostly found on the coast but occasionally reported on inland waterways (Birdlife Australia 2017, ALA 2017). Suitable habitat is limited within the Fairview gas field area to reaches of permanent water in the Dawson River and its tributaries. Resident populations are unlikely and the presence of the species in the area is likely to be represented by vagrant individuals.	Unlikely to be present. No suitable habitat (permanent watercourses supporting fish populations) is present within the Site.
<i>Pedionomus torquatus</i> Plains-wanderer	CE	V	The few records of this taxon in eastern Queensland (ALA 2017) may not be reliable as they are well distant from all other known occurrences in the State and suitable habitat (Parker 2012) is not generally present. At best they would represent vagrants. The species is not considered to be present in the Fairview gas field area.	Unlikely to be present. No suitable habitat (plains with short grasses and forbs) is present within the Site and the species is not considered to occur within the Fairview gas field.
<i>Plegadis falcinellus</i> Glossy Ibis	M, Ma	LC	A nomadic waterbird using permanent and ephemeral shallow wetlands (Birdlife Australia 2017). The Fairview gas field area is within the species range (ALA 2017).	Potentially present. Limited areas of ephemeral wetland are present within the Site.
<i>Poephila cincta cincta</i> Black-throated Finch	E	E	The range of this subspecies has contracted markedly northward (Grice 2012, Garnett et al. 2011) and it is considered to be no longer extant in the Fairview gas field area.	Unlikely to be present. The species is considered extinct within the Fairview gas field area.
<i>Polytelis swainsonii</i> Superb Parrot	V	LC	This species is very rarely recorded as a winter visitor to Queensland (Birdlife Australia 2017). There are no published records within the Santos gas field development area and it is not considered to be present.	Unlikely to be present. Site is outside the known migratory range of the species.
<i>Rostratula australis</i> Australian Painted Snipe	E	V	Forages at shallow edges and adjacent vegetated margins of freshwater wetlands (DoEE 2017b) and is able to use both artificial and natural ephemeral and permanent wetlands (Marchant and Higgins 1993).	Potentially present. Limited areas of ephemeral wetland are present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Maccullochella peelii</i> Murray Cod	V	-	In Queensland naturally-occurring populations of this species are confined to permanent water in riverine environments in the Condamine, Maranoa-Balonne, Weir, Moonie and Macintyre River catchments (Lintermans 2007).	Unlikely to be present. Outside of the species known range.
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	V	V	All known occurrences of this species are within or near forested landscapes with relatively high relief (DSITI 2017d). The species may be present in uplands with likely presence of appropriate geology (usually sandstone) providing essential habitat (caves, crevices, holes) and associated foraging habitat.	Potentially present. Minor areas of potentially suitable habitat (i.e. rock holes/crevices in rocky hills) is present within the Site, and the Site is located within the known range of the species.
<i>Dasyurus hallucatus</i> Northern Quoll	E	LC	Formerly widespread in south-central Queensland this species has declined markedly and is now confined to rugged and remote areas throughout its distribution (Burnett 2012). Forested uplands with high relief and/or containing abundant rock outcrops may support the species.	Potentially present. The Site is within the species' historical range and limited areas of potentially suitable den sites (i.e. rock holes/crevices) are present within the Site. The nearest recent records are from the Carnarvon Range (ALA 2017).
<i>Nyctophilus corbeni</i> South-eastern Long-eared Bat	V	V	The distribution and habitat preferences of this species are very poorly known; it inhabits a range of dry forest types in south central Queensland (Reardon 2012).	Potentially present. Potentially suitable foraging and roosting habitat is present in remnant woodland within the Site.
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby	V	LC	The distribution of this taxon does not extend to the Santos gas field development area (Lundie-Jenkins 2012). The Rock-wallaby present in the area is the non-listed <i>P. herberti</i> (DEHP 2017b).	Unlikely to be present. The species is not known from the Site, and the Site is outside the species known range.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Phascolarctos cinereus</i> Koala (combined populations of QLD, NSW and the ACT)	V	V	This species requires eucalypt woodland and forest habitat with suitable food trees (primarily <i>Eucalyptus</i> spp.) (DoEE 2017b). Woodlands containing food trees in riparian/alluvial areas are particularly favoured (Melzer et al. 2014). Potential food trees occurring within the Site include <i>Eucalyptus tereticornis</i> , <i>E. camaldulensis</i> , <i>E. populnea</i> , <i>E. melanophloia</i> and <i>E. crebra</i> . The Fairview gas field area is within the known range of the species (ALA 2017).	Likely to be present. Suitable habitat (<i>Eucalyptus</i> -dominated woodlands and open forests) is present within the Site.
<i>Anomalopus mackayi</i> Five-clawed Worm-skink	V	E	This species is confined in Queensland to the eastern Darling Downs, where it is known to inhabit grasslands on heavy cracking clay soils (Wilson 2015) and does not occur in the Fairview gas field area.	Unlikely to be present. Suitable habitat (grasslands on heavy clay soils) is not present at the Site and the species does not occur within the Fairview gas field area.
<i>Delma torquata</i> Collared Delma	V	V	Occupies a range of eucalypt woodlands and open forests; lives under surface rock and large woody debris (Wilson 2015). The Site is within the species' known range with several records from locations north-west of Roma (ALA 2017).	Potentially present. Eucalypt woodland with potentially suitable shelter sites (e.g. small rocks, woody debris) is present within the Site.
<i>Denisonia maculata</i> Ornamental Snake	V	V	Occurs in lowlands associated with the Dawson and Fitzroy catchments (DoEE 2017b). Known southerly distribution limit is approximately Lake Nuga Nuga (ALA 2017). Lives in woodland and grassland with cracking clay soils, usually in close proximity to wet or seasonally wet areas e.g. billabongs, gilgais, floodplains, riparian corridors (DoEE 2017b).	Unlikely to be present. Habitat with preferred substrate (e.g. deep cracking clay, gilgais) is not present at the Site, and the Site is not within the known range of the species (ALA 2017).
<i>Egernia rugosa</i> Yakka Skink	V	V	Lives in a range of woodland and open forests dominated by <i>Eucalyptus</i> , <i>Acacia</i> and <i>Callitris</i> spp.; also grassland with regrowth trees (DoEE 2017b). Requires suitable soils for burrows or shelters in sinkholes, abandoned rabbit warrens or large fallen/piled woody material (Eddie 2012).	Likely to be present. Eucalypt woodland and non-remnant areas with potentially suitable shelter sites (e.g. large logs, log piles) are present within the Site.

Scientific & Common Name	EPBC Act Status	NC Act Status	Distribution and Known Habitat Use	Likelihood of Occurrence
<i>Furina dunmalli</i> Dunmall's Snake	V	V	Occupies woodlands and open forests; may be reliant on presence of abundant fallen woody debris (Hobson 2012).	Likely to be present. Potentially suitable foraging and shelter habitat is present in remnant and regrowth REs throughout the Site.
<i>Rheodytes leukops</i> Fitzroy River Turtle	V	V	The species is confined to the Fitzroy and Dawson River catchments where it requires permanent water in riverine environments (Limpus et al. 2011).	Likely to be present. Suitable riverine habitat is present within the Dawson River, and the species has been recorded 5 km upstream from the Site.

Key: M = Marine; Ma = Migratory; CE = Critically Endangered; E = Endangered; V = Vulnerable.