

APPENDIX

INLAND
RAIL 

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Terrestrial Ecology Technical Report

Part 2 of 2

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

APPENDIX

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Terrestrial Ecology Technical Report

Appendix A Predictive Habitat and Threatened Ecological Community Modelling Methodology

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix A

Predictive habitat and threatened ecological community modelling methodology

Inland Rail Border to Gowrie EIS

Appendix A – Predictive habitat
modelling methodology

**Australian Rail Track
Corporation**

Reference: 3100

Contents

1	Introduction	1
1.1	Background.....	1
1.2	Context	1
1.3	Review of existing databases and literature	1
2	Species and communities included within the predictive habitat mapping model	5
3	Predictive habitat modelling input datasets	7
4	Predictive habitat modelling categories.....	8
4.1	Matters of national environmental significance migratory species	8
4.1.1	General context	8
4.1.2	Unlikely habitat	8
4.1.3	Potential habitat	8
4.1.4	Important habitat.....	8
4.2	Non-matters of national environmental significance flora and fauna species	9
4.2.1	General context	9
4.2.2	Unlikely habitat	9
4.2.3	General habitat	9
4.2.4	Essential habitat	10
4.2.5	Core habitat	10
5	Predictive habitat models and general assumptions associated with their development	11
5.1	Flora and fauna habitat models	11
6	References.....	21
7	Bibliography	22
7.1	Flora species	22
7.2	Fauna species – conservation significant species	23
7.1	Fauna species – conservation significant species	24
7.2	Fauna species – special least concern (excluding migratory bird species)	30

Figures

Figure 5.1	Schematic indicating the relationship between specimen backed records, predicted general habitat, essential habitat and core habitat category designations for species listed under the NC Act
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Tables

Table 1.1	Database and document review summary
Table 1.2	Assessments and reports providing ecological information for areas associated with the Project
Table 2.1	Conservation significant flora species identified from database searches
Table 2.2	Conservation significant fauna species identified from database searches
Table 2.3	Conservation significant migratory species identified from database searches
Table 5.1	EPBC Act listed migratory species habitat assumptions used to map areas of occurrence within ecology study area
Table 5.2	Listed NC Act conservation significant flora species habitat assumptions used to map areas of occurrence within ecology study area
Table 5.3	Listed conservation significant fauna species habitat assumptions used to map areas of occurrence within the Impact assessment area

1 Introduction

1.1 Background

For the purposes of the Inland Rail Project (NSW Border to Gowrie) (the Project) predictive habitat models for flora and fauna have been prepared. These models have been designed to map the potential areas that are likely to be analogous to habitat associated with *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth (Cth)) (EPBC Act) listed migratory species, and *Nature Conservation Act 1992* (NC Act) listed threatened and near-threatened species. This mapping has the following objective:

- To provide predictive habitat modelling for EPBC Act listed migratory fauna species and NC Act listed threatened and near-threatened flora and fauna species to:
 - Identify areas of potential habitat
 - Facilitate the calculation of potential disturbance areas associated with the Project and to subsequently inform significant adverse residual impacts for matters of national environmental significance (MNES) and matters of state environmental significance (MSES).

This document outlines the methodology used for the development of the predictive habitat models and provides the species/community specific assumptions and mapping requirements required to reproduce the predictive habitat models for each individual species or community. The models have been used to prepare maps indicating the potential extent of each threatened/migratory species associated with the Project as identified in the Project Environmental Impact Statement (EIS) Terms of Reference (ToR), in addition to those species identified from the desktop review phase of the Project EIS.

1.2 Context

For context with respect to the methodology's compliance with EPBC Act Survey Guidelines for threatened species, the more conservative approach of this methodology surpasses the guidelines expectations. The "How to use these guidelines" statement includes:

"... Alternatives to a dedicated survey may also be appropriate. For example, a desktop analysis of historic data may indicate that a significant impact is not likely. Similarly, a regional habitat analysis may be used to determine the importance of a site to the listed birds. Proponents should also consider the proposals impact in the context of the species' national, regional, district and site importance to establish the most effective survey technique(s)..."

This methodology includes analysis of historic and current data gained from a range of sources (as listed in Table 1.1 (Section 1.3), with direct and current survey efforts including dedicated ground truthing surveys of the database mapping and follow-up ecological assessments within the project area as part of the projects geotechnical drilling survey program.

In addition, a total of two ecological assessments were identified to present the ecological values, including species protected under the NC Act within the ecology study area (refer Table 1.2).

1.3 Review of existing databases and literature

Each predictive fauna habitat model has been developed to deliver a process that is robust, transparent and repeatable. The first stage in developing each of the models involved determining the extent of species occurrence and the availability of information pertaining to available species habitat.

Eleven data sources were accessed to identify MNES migratory species and NC Act threatened and near-threatened species that have potential to occur within the ecology study area. These data sources are listed in Table 1.1.

In addition, a total of two ecological assessments were identified to present the ecological values, including species protected under the NC Act within the Impact assessment area (refer Table 1.2).

Table 1.1 Database and document review summary

Database/data source name	Database search date	Database search areas	Data type
Atlas of Living Australia (ALA)	11/05/2020	Impact assessment area	Records of flora and vertebrate fauna, including conservation significant species listed under the EPBC Act and/or NC Act (i.e. MNES and MSES)
Birds Australia	29/03/2019	Impact assessment area	Records of avian fauna, including threatened and migratory species listed under the EPBC Act
Biodiversity Planning Assessment (BPA) mapping (Queensland Government 21/2/2018)	26/02/2020	Impact assessment area	State, regional and locally significant biodiversity matters mapping. This mapping has been used to indicate the location of bioregional corridors (i.e. in the State, regional and local context). This mapping has also been used in the predictive modelling to identify core habitat areas
Back on Track species prioritisation framework (DERM 2010; DERM 2010)	26/02/2020	Condamine and the Border Rivers Maranoa-Balonne NRM regions	The Back on Track species are categorised as Critical, High, Medium, or Low priority for the State and for the NRM regions. There is also a data deficient category according to three sets of criteria: probability of extinction, consequences of extinction and potential for successful recovery. Data is presented as a list of species.
EPBC Act Protected Matters Search Tool (PMST) (Australian Government)	26/02/2020	Impact assessment area	MNES listed under the EPBC Act, incorporating world heritage properties, national heritage places or wetlands of international importance
MSES Wildlife habitat mapping (Queensland Government 2019)	26/02/2020	Impact assessment area	Essential habitat under the VM Act for a conservation significant species listed under the EPBC Act and/or the NC Act (i.e. MNES and MSES)
Regulated Vegetation Management Map (Queensland Government 2018)	26/02/2020	Impact assessment area	Mapping of REs and HVR that provide habitat for TECs and conservation significant species under the EPBC Act and/or NC Act
Register of critical habitat (Australian Government)	26/02/2020	Australian extent	Critical habitat listed under the EPBC Act
Map of Referable Wetlands (Queensland Government 2018)	26/02/2020	Regional extent	Includes State significant, referable wetlands, important wetlands in the Great Barrier Reef catchments and wetland REs
Wetland Info database (DES 2019)	26/02/2020	Impact assessment area	Provides interactive maps, species records, case studies and legislation associated with Queensland wetlands
Wildlife Online database (Queensland Government)	26/02/2020	Impact assessment area	Records of flora and vertebrate fauna, including conservation significant species listed under the EPBC Act and/or NC Act
Queensland waterways for waterway barrier works (Queensland Government 2018)	26/02/2020	Impact assessment area	Waterways where proposed waterway barrier works require assessment and approval under the Fisheries Act
Watercourse Identification Mapping (Queensland Government 2018)	26/02/2020	Impact assessment area	Known extent of watercourses and drainage features that are managed under the Water Act

Database/data source name	Database search date	Database search areas	Data type
Fish Habitat Areas (Queensland Government 2018)	26/02/2020	Impact assessment area	Boundaries of gazetted, declared fish habitat areas
Queensland Springs Database (Queensland Government 2018)	26/02/2020	Regional extent	The dataset provides a comprehensive catalogue of permanently saturated springs that have fixed locations and any associated surface expression groundwater dependent ecosystems (GDEs).
Matters of State Environmental Significance (Queensland Government)	26/02/2020	Impact assessment area	Location of MSES, including: - Protected areas - Marine parks - Management A and Management B declared fish habitat areas - Threatened and special least concern wildlife listed under the NC Act - Regulated vegetation under the VM Act - Wetlands in a wetland protection area or wetlands of high ecological significance - Wetlands and watercourses in high ecological value waters as defined in the <i>Environmental Protection (Water) Policy 2009</i>, Schedule 2 - Legally secured offset areas.
Aquatic Biodiversity Assessment Mapping Method (AquaBAMM)/Aquatic Conservation Assessments (ACA)	26/02/2020	Impact assessment area	Conservation values of aquatic ecosystems for: - Biodiversity and species richness - Presence of threatened species or community - Presence of priority species or ecosystem - Ecosystem complexity (e.g. uniqueness of geomorphology) - Landscape connectivity A summary score (Aquascore) is produced and classified into one of five rankings: - Very High - High - Medium - Low - Very Low

Table 1.2 Assessments and reports providing ecological information for areas associated with the Project

Document title	Reference	Summary of significant findings related to Sensitive environmental receptors
Australian Rail Track Corporation Limited/Transport - Land/Multiple lots/Queensland/Inland Rail Border to Gowrie project, QLD (EPBC referral 2018/8165)	Aecom (2018)	- No observations of threatened flora species, but recognition that the following non-MNES threatened species has previously been identified within the study area: Tall hawkweed (<i>Picris barbarorum</i>) Finger panic (<i>Digitaria porrecta</i>) - No observations of threatened fauna species, but recognition that the following non-MNES threatened species and non-threatened migratory species may the study area: - Fork-tailed swift (<i>Apus pacificus</i>) - Sharp-tailed Sandpiper (<i>Calidris acuminata</i>) - Glossy-black cockatoo (<i>Calyptorhynchus lathamii</i>) - Satin Flycatcher (<i>Myiagra cyanoleuca</i>) - Common Death Adder (<i>Acanthophis antarcticus</i>) - Identification of 11 restricted matters (flora) within the study area - Identification of 10 non-native fauna species (pest species) within the study area
Inland Rail (Border to Gowrie) Aquatic Ecology Technical Report)	Ecological (2020)	- Confirmation that wetlands and ground-water dependant ecosystems occur throughout the impact assessment area - No habitat present for Bells' turtle of the Silver perch within the impact assessment area - Watercourses to be intersected by the rail alignment are mostly ephemeral and were assessed to be in fair condition overall

In addition to the data sources identified above, findings associated with EIS field investigations/analysis assisted in the validation and iteration of the predictive habitat mapping. However, it must be noted that field investigations were subject to voluntary land access agreements which place heavy restrictions upon area that were accessible.

In addition to previous surveys and site based investigations, recovery programs were assessed in order to identify areas of high conservation significance or of recognised conservation value for each of the MNES migratory species or NC Act threatened or near-threatened species subject to predictive habitat modelling.

Of the EPBC Act migratory species identified as potentially impacted by the project activities, eight are subject to the Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act (Commonwealth of Australia 2015). These consist of the following:

- Osprey (*Pandion haliaetus*)
- Oriental cuckoo (*Cuculus optatus*)
- Satin flycatcher (*Myiagra cyanoleuca*)
- Rufous fantail (*Rhipidura rufifrons*)
- Black-faced monarch (*Monarcha melanopsis*)
- Spectacled monarch (*Symposiachrus trivirgatus*)
- Yellow wagtail (*Motacilla flava*)
- Fork-tailed swift (*Apus pacificus*)

Information contained within the Draft Referral guideline for the species identified above was used to inform the predictive mapping for the relevant species.

2 Species and communities included within the predictive habitat mapping model

A total of two conservation significant flora species and five conservation significant fauna species listed under the provisions of NC Act were identified as occurring or potentially occurring within the impact assessment area (refer Table 2.1 and Table 2.2). All of these species have potential to occur within the ecology study area.

In addition, 14 migratory species as listed under the EPBC Act have been identified from desktop based assessments as potentially occurring within the ecology study area (refer Table 2.3). All of these species have undergone habitat modelling.

Table 2.1 Conservation significant flora species identified from database searches

Family	Species name ¹	Common name	NC Act status	Data source		Likelihood of occurrence
				Wildlife online	Atlas	
Asteraceae	<i>Picris barbarorum</i>	A hawkweed	V	✓	✓	Known
Cyperaceae	<i>Cyperus clarus</i>	A sedge	V	✓	✓	Possible
Poaceae	<i>Digitaria porrecta</i>	Finger Panic Grass	NT	✓	✓	Known

Table notes:

V = Vulnerable NT = Near threatened

✓ = species present within database record within the impact assessment area

Table 2.2 Conservation significant fauna species identified from database searches

Family	Species name	Common name	NC Act status	Data source		Likelihood of occurrence
				Wildlife online	Atlas	
Cacatuidae	<i>Calyptorhynchus lathami lathami</i>	Glossy black-cockatoo (eastern)	V	✓	✓	Possible
Cacatuidae	<i>Lophochroa leadbeateri</i>	Major Mitchell's cockatoo	V	✓		Possible
Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	Platypus	SLC	✓		Possible
Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SLC	✓	✓	Known
Elapidae	<i>Acanthophs antarcticus</i>	Common death adder	V	✓		Known

Table notes:

V = Vulnerable SL = Special least concern

✓ = species present within database record within the impact assessment area

Table 2.3 Conservation significant migratory species identified from database searches

Family	Species name	Common name	NC Act status	Data source			Likelihood of occurrence
				Wildlife online	PMST	Atlas	
Accipitridae	<i>Pandion haliaetus</i>	Osprey	SL		✓		Possible
Apodidae	<i>Apus pacificus</i>	Fork-tailed swift	SL	✓	✓		Possible
Cuculidae	<i>Cuculus optatus</i>	Oriental cuckoo	SL	✓	✓	✓	Possible
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced monarch	SL	✓	✓	✓	Possible
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous fantail	SL		✓		Possible

Family	Species name	Common name	NC Act status	Data source			Likelihood of occurrence
				Wildlife online	PMST	Atlas	
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin flycatcher	SL	✓	✓		Possible
Dicruridae	<i>Symposiachrus trivirgatus</i>	Spectacled monarch	SL		✓		Possible
Motacillidae	<i>Motacilla flava</i>	Yellow wagtail	SL		✓		Possible
Scolopacidae	<i>Actitis hypoleucos</i>	Common sandpiper	SL		✓		Possible
Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	SL		✓		Possible
Scolopacidae	<i>Calidris melanotos</i>	Pectoral sandpiper	SL		✓		Possible
Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	SL				Possible
Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe	SL		✓	✓	Possible
Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	SL		✓		Possible
Threskiornithidae	<i>Plegadis falcinellus</i>	Glossy ibis	SL	✓		✓	Possible

Table notes:

SL = Special least concern

✓ = species present within database record within the impact assessment area PMST = Protected Matters Search Tool

3 Predictive habitat modelling input datasets

Predictive habitat modelling was undertaken to identify and map areas that are considered to have the potential to provide habitat for the conservation significant species and communities listed in Table 2.1, Table 2.2 and Table 2.3 which have potential to occur within the Impact assessment area. This modelling provides an additional tool to assess the likely occurrence of species and communities of interest and facilitates impact assessment by allowing for the quantification of areas of habitat using GIS.

In addition to specimen and community specific RE associations that are identified within Table 5.1, Table 5.2 and Table 5.3, additional GIS layers and field derived information have been utilised to identify areas of habitat within the Impact assessment area where applicable to a species. These layers include:

- RE datasets (Version 11) and pre-clearing regional ecosystem layers
- High resolution aerial photography with site derived datasets (i.e. utilisation of condition data, species records and general observational data pertaining to species habitat)
- Historic records of conservation significant species (derived from government databases and previous ecological investigations)
- Field derived datasets related to habitat suitability and the presence of micro-habitat features
- Topographic and geological information
- Government derived cadastral datasets
- Drainage datasets (Waterway barrier works mapping).

4 Predictive habitat modelling categories

4.1 Matters of national environmental significance migratory species

4.1.1 General context

Each predictive habitat model allowed partitioning of migratory fauna species using current scientific knowledge and pre-existing data derived from historic surveys and State based mapping identified above. The specific habitat assumptions for each species that were subject to predictive mapping are provided in Table 5.1.

The species-specific assumptions allowed the following areas to be identified for each threatened species:

- Unlikely habitat
- Potential habitat
- Important habitat.

The use of these habitat categories aligns with the Commonwealth Department of Agriculture, Water and Environment's (DAWE's) habitat definitions for species protected under the *Environment Protection and Biodiversity Conservation Act 1999*.

An overview of each of these categories is provided in the sections below.

4.1.2 Unlikely habitat

Unlikely habitat consists of areas that do not contain specimen backed records of the particular species (i.e. no point data derived from the positive identification/confirmation of a species in the field) and contain no evidence of habitat values to support the presence or existence of resident individuals or populations of the species. However, it is acknowledged that these areas may provide temporary habitat for species during exceptional circumstances. It is considered that occurrences of the subject species within these areas is an anomaly as these areas are not likely to support the species in the long term.

4.1.3 Potential habitat

Potential habitat consists of areas or locations used by transient individuals or where species may have been recorded but where there is insufficient information to assess the area as Important habitat. Potential habitat also includes habitat that is considered to potentially support a species according to expert knowledge of habitat relationships, despite the absence of specimen backed records. Potential habitat may include areas of suboptimal habitat for species. Species specific assumptions that define the Potential habitat category are identified in Table 5.1. Impact to *Potential habitat* are not considered to contribute to significant residual impacts to an MNES.

4.1.4 Important habitat

In line with DAWE's guidelines, Important habitat has been identified for migratory species under the Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act. Important habitat for migratory birds is defined in Table 2 of the Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act (Commonwealth of Australia 2015).

Species specific assumptions that define the Important habitat category for the above mentioned species is provided in Table 5.1. Impact to Important habitat are considered to contribute to significant residual impacts to an MNES.

4.2 Non-matters of national environmental significance flora and fauna species

4.2.1 General context

Each predictive habitat model allowed partitioning of habitat for flora and fauna species using current scientific knowledge and pre-existing data derived from historic surveys and State based mapping identified above. The specific habitat assumptions for each species that were subject to predictive mapping are provided in Table 5.2 and Table 5.3. The species-specific assumptions allowed the following areas to be identified for each conservation significant species:

- Unlikely habitat
- General habitat
- Essential habitat
- Core habitat.

The use of these habitat definitions has been accepted by the Commonwealth Department of Environment and Energy for similar linear infrastructure project EISs (e.g. Santos Gas Field Development EIS) and negotiations with the regulators at the inception of the Project EIS has indicated that they are amenable to the use of this modelling for the Project EIS.

An overview of each of these categories for NC Act listed species is provided in the sections below. A schematic of the interaction between the habitat categories for NC Act listed species is presented in Figure 5.1.

4.2.2 Unlikely habitat

Unlikely habitat consisted of areas that do not contain specimen backed records of the particular species (i.e. no point data derived from the positive identification/confirmation of a species in the field) and contain no evidence of habitat values to support the presence or existence of resident individuals or populations of the species. However, it is acknowledged that these areas may provide temporary habitat for species during exceptional circumstances. It is considered that occurrences of the subject species within these areas is an anomaly.

4.2.3 General habitat

General habitat consisted of areas or locations used by transient individuals or where species may have been recorded but where there is insufficient information to assess the area as essential or core habitat (i.e. records of the species are considered anomalies as general microhabitat features are not considered to be present from a desktop perspective). General habitat also includes habitat that is considered to potentially support a species according to expert knowledge of habitat relationships, despite the absence of specimen backed records. General habitat may include areas of suboptimal habitat for species. Species specific assumptions that define the general habitat category are identified in Table 5.2 and Table 5.3.

4.2.4 Essential habitat

Essential habitat consists of areas containing resources that are considered essential for the maintenance of populations of the species (e.g. potential habitat for breeding, roosting, foraging, shelter) or areas that have been confirmed as containing suitable habitat as identified by a specimen backed record or indirect evidence of the species (i.e. scat, trace, track, fur/feather, distinctive vocalisation or other site based evidence).

Essential habitat has been defined from known records (regardless of currency), generally with a 1 km buffer or site-based observation of the species during site investigations. In addition, if the 1 km buffer from the known record intersects an area identified as general habitat the general habitat rating was elevated to essential habitat. Species specific assumptions associated with the mapping of essential habitat, and instances that deviate from the above criteria are detailed in Table 5.2 and Table 5.3.

4.2.5 Core habitat

Core habitat consists of essential habitat in which the species is known, and the habitat is recognised under relevant recovery plans or other relevant plans/policies/regulations. Where essential habitat intersects with areas identified as important within the relevant bioregion specific Biodiversity Planning Assessment (BPA), these areas have been elevated to the core habitat category. Species specific assumptions associated with the mapping of core habitat areas are detailed in Table 5.2 and Table 5.3.

5 Predictive habitat models and general assumptions associated with their development

5.1 Flora and fauna habitat models

The predictive flora habitat model for each flora and fauna species was designed to provide a dynamic, robust and predictive GIS layer that could incorporate data from scientific literature, verified government datasets, specimen backed datasets (i.e. data derived from a known/confirmed location of an observed specimen) and field identified records into a single layer that could be used to identify areas that are known, or considered to have the potential to support specific EPBC Act listed migratory species and NC Act threatened and near-threatened species. Development of these layers had the ultimate objective to:

- Predict areas that have the potential to support EPBC Act listed migratory fauna species
- Predict areas that have the potential to support NC Act listed threatened and near-threatened flora and fauna species
- Facilitate the quantification of impacts to inform later stages of the EIS process
- Facilitate the assessment of impact significance in accordance with relevant MNES and MSES significant impact criteria, policies and guidelines.

The habitat modelling was created using ESRI ArcGIS, specifically the ESRI ArcGIS Model Builder which facilitated the development of scripts that allowed for the species-specific development of queries that utilised a range of GIS input datasets (e.g. vegetation communities containing site derived and filed verified information).

The models also incorporated the use of selecting relevant components and performing functions such as buffers and intersects that reflected the preferred habitat of a particular species. As a result of this process output habitat layers were generated for each species according to their individual requirements. The species-specific requirements that were used to generate the species-specific queries used to map potential habitat are identified in Table 5.1, Table 5.2 and Table 5.3 . Once produced model outputs were reviewed internally by suitably qualified and experience ecologists to assess that they accurately reflected/identified habitat suitable for supporting the relevant species. If anomalies were identified, GIS iterations were undertaken to produce outputs of greater accuracy. However, it is noted that whilst species that were identified to have potential to occur within the broader region underwent habitat modelling, the results of the modelling did not necessarily identify habitat within the Project Impact assessment area for all of the species modelled. Where this occurred, these species (i.e. without identified habitat within the ecology study area) did not undergo impact assessment as part of the Project EIS.

As the predictive flora and fauna habitat model mapping has been designed to identify areas of potential habitat for NC Act and/or EPBC Act listed species, several assumptions to the model have been made and derived from scientific literature and expert advice. These assumptions are outlined below.

- Heterogeneous RE polygons – Mapping has been designed to identify maximum areas of disturbance based on a precautionary approach. In the case of heterogeneous polygons, if the RE code is contained within the heterogeneous polygon, then the entire polygon is selected. This is of particular importance to species such as those that rely on limited areas of habitat, which would otherwise be missed by the model. Areas of predicted habitat may be removed from mapping if field survey indicates that habitat is not available.
- Buffers – Buffers have been used when integrating a specimen backed record into the predicted mapping. Generally, a 1 km buffer from the species data point is used (in line with the methodology adopted by the [VM Act] when identifying essential habitat derived from a specimen backed record). Deviations from this methodology (where they occur), are identified in Table 5.1, Table 5.2 and Table 5.3.

- **Essential habitat/Important habitat** – The predictive flora and fauna habitat mapping outlined in this document primarily proposes general habitat/potential habitat as the preferred habitat requirements for many of the species mapped. This is as a result of their habitat not being fully understood or cannot be easily extrapolated from available datasets. In most cases, site derived species records were used to extrapolate preferred habitat by correlating with the underlying GIS layer. In these instances, mapped habitat will overlap with the predicted general habitat/potential habitat, which has not been elevated to the essential habitat/Important habitat level in accordance with that adopted under the VM Act. For these species, where a species point record and associated 1 km buffer intersect with areas of predicted general habitat, the area of overlap has been elevated to the essential habitat category. In instances where essential habitat is located within an area of protection, this is elevated to core habitat or Important habitat. The relationship between general habitat, species records, essential habitat, protected areas and core habitat, is outlined in Figure 5.1.
- **Use of existing specimen backed records to identify habitat associations** – In instances where there was insufficient literature to confidently identify areas of potential habitat, specimen backed records were used to identify the associated vegetation association (e.g. RE type). These point-selected datasets were then assessed to determine that they were consistent with the species habitat requirements. When identified as valid, the point selected data points were incorporated into the predictive mapping “recipe” for the particular species (refer Table 5.1, Table 5.2 and Table 5.3). Point selected datasets that were not identified as being able to support the species were rejected from use in further analysis.
- **Minimum areas of habitat** – Mapping has been designed to identify maximum areas of disturbance and therefore no minimum area of habitat has been identified. The methodology was developed to predict areas of potential habitat. However, the resolution of the mapping is constrained by the data inputs (e.g. RE mapping) and therefore areas that may potentially be identified as habitat will always be contiguous to areas of similar habitat that reflect the minimum resolution for the input dataset (e.g. minimum RE polygon size, etc.).
- **Levels of habitat mapping** – General habitat/ potential habitat has primarily been indicated on the predictive mapping. However, where areas identified in relevant recovery programs or referral guidelines have been identified and these areas overlap with areas of predicted general/predicted habitat category, these areas have been elevated to Essential or Important habitat in line with the information contained within the relevant species advice/guideline or policy.

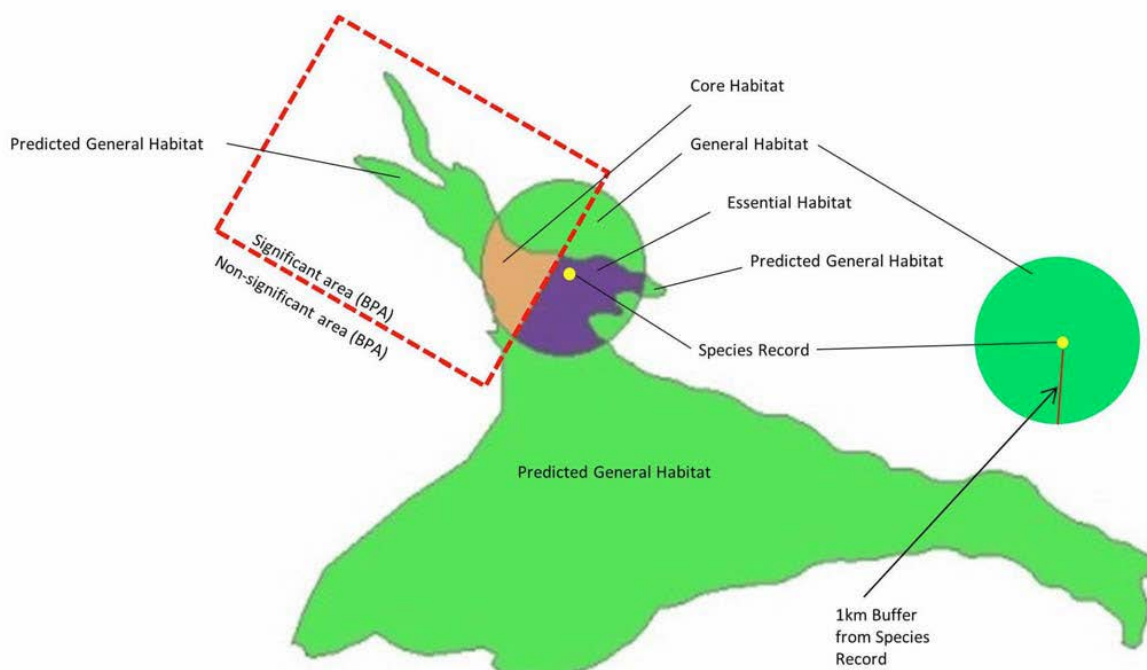


Figure 5.1 Schematic indicating the relationship between specimen backed records, predicted general habitat, essential habitat and core habitat category designations for species listed under the NC Act

Table 5.1 EPBC Act listed migratory species habitat assumptions used to map areas of occurrence within ecology study area

Class	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions (derived from references provided within the bibliography)	GIS habitat modelling instructions	
			NC Act	EPBC Act		Potential habitat	Important habitat
Birds	<i>Apus pacificus</i> (Fork-tailed swift)	Aerial migrant	SLC	M	Aerial insectivores, ubiquitous. Breeds only in the northern hemisphere.	All areas located outside of mapped remnant vegetation communities are potential habitat	All areas mapped as remnant vegetation (Category B regulated vegetation)
Birds	Oriental cuckoo (<i>Cuculus optatus</i>) Satin flycatcher (<i>Myiagra cyanoleuca</i>) Rufous fantail (<i>Rhipidura rufifrons</i>) Black-faced monarch (<i>Monarcha melanopsis</i>) Spectacled monarch (<i>Symposiachrus trivirgatus</i>)	Forest/ woodland migrants	SLC	M	This fauna group are typically found in complex habitats, including rainforests, vine thickets and wet sclerophyll forest gullies. However, during migration these species will utilise drier habitats such as riparian forests and woodlands, and larger open forest to woodland remnants with a dense understorey (Pizzey and Knight 2007).	The following is considered to be general habitat: <i>Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified as important habitat</i>	The following is considered to be important habitat: Remnant RE (Category C regulated vegetation) within 100 m of a waterway (stream order 3 or above) where they are greater than 200 ha in size: 11.8.5, 11.2.5, 11.5.2, 11.5.9, 11.7.1, 11.8.13, 11.8.15, 11.12.21
Birds	Yellow wagtail (<i>Motacilla flava</i>) Common sandpiper (<i>Actitis hypoleucos</i>) Sharp-tailed sandpiper (<i>Calidris acuminata</i>) Pectoral sandpiper (<i>Calidris melanotos</i>) Red-necked stint (<i>Calidris ruficollis</i>) Latham's snipe (<i>Gallinago hardwickii</i>) Glossy ibis (<i>Plegadis falcinellus</i>) Common greenshank (<i>Tringa nebularia</i>)	Wetland/ wader migrants	SLC	M	These are wetland species that associated with waterbodies, flooded paddocks and areas of inundation.	The following is considered to constitute general habitat: Lacustrine REs, lacustrine water bodies, palustrine REs, palustrine water bodies, riverine REs, riverine water bodies, estuarine REs, estuarine water bodies, marine REs and marine water bodies <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute potential habitat</i>	Non-breeding habitat only: mostly well-watered open grasslands and the fringes of wetlands. Roosts in mangroves and other dense vegetation. Therefore a 100 m buffer around the following is considered important habitat: Lacustrine REs, lacustrine water bodies, palustrine REs, palustrine water bodies, riverine REs, riverine water bodies, estuarine REs, estuarine water bodies, marine REs and marine water bodies.

Class	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions (derived from references provided within the bibliography)	GIS habitat modelling instructions	
			NC Act	EPBC Act		Potential habitat	Important habitat
Birds	Osprey (<i>Pandion haliaetus</i>)	Waterway/ Marine migrant	SLC	M	The Osprey is found in coastal areas including beaches and estuaries. Nest trees are usually 1km from the sea (NSW OEH).	The following is considered to constitute General habitat: Lacustrine REs, Lacustrine Water bodies, Palustrine REs, Palustrine Water bodies, Riverine REs, Riverine Water bodies, Estuarine REs, Estuarine Water bodies, Marine REs and Marine Water bodies <i>Note: Any specimen backed records (buffered to a 1km radius) that fall outside of the REs identified above are considered to constitute potential habitat</i>	Bays, estuaries, along tidal stretches of large coastal rivers, mangrove swamps, coral and rock reefs, terrestrial wetlands and coastal lands of tropical and temperate Australia and off shore islands. They feed primarily in the sea or nearby estuarine waters and nest in trees (often dead or with dead tops), rocky coastlines and on artificial structures such as telecommunication towers. Ospreys are generally found on or near the coast but also range inland along large rivers, mainly in northern Australia. As such all areas of potential habitat that intersect with a wetland are Important habitat

Table notes:

M = Migratory SLC = Special least concern

Table 5.2 Listed NC Act conservation significant flora species habitat assumptions used to map areas of occurrence within ecology study area

Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions sources ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Cyperaceae	<i>Cyperus clarus</i>	A cyperus	V	-	Grows in grassland or open woodland, in heavy soils derived from basalt. Most often associates with <i>Aristida leptopoda</i> and <i>Panicum queenslandicum</i> occur on deep alluvial black clay; in <i>Eucalyptus melanophloia</i> woodland with mid-dense ground stratum of <i>Chrysopogon fallax</i> ; and in <i>Dichanthium</i> grassland with <i>Cyperus bifax</i> and <i>Fimbristylis</i> spp.	The following REs are considered to be General habitat for this species: 11.8.4, 11.8.5, 11.8.8, 11.8.11, 11.9.2, 11.9.3, 11.9.12 <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside areas specified above</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as Essential habitat (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are Core habitat.

Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions sources ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Poaceae	<i>Digitaria porrecta</i>	Finger panic	NT	-	Occurs in communities dominated by <i>Eucalyptus orgadophila</i> on hills and slopes and <i>E. tereticornis</i> and <i>E. populnea</i> in drainage lines. Associated grasses and forbs include <i>Dichanthium sericeum</i> , <i>Panicum decompositum</i> , <i>Digitaria divaricatissima</i> , <i>Aristida leptopoda</i> , <i>Boerhavia dominii</i> , <i>Mentha satureioides</i> , <i>Psoralea tenax</i> , <i>Rhynchosia minima</i> , <i>Panicum queenslandicum</i> , <i>Paspalidium globoideum</i> , <i>Themeda avenacea</i> , <i>Ixiolaena brevicompta</i> , <i>Sclerolaena muricata</i> and <i>Tribulus micrococcus</i> . It usually occurs on dark and fine textured soils with some degree of seasonal cracking and often persists in disturbed habitats, such as fallow paddocks.	The following REs are considered to be General habitat for this species: 11.3.2, 11.3.4, 11.3.13, 11.3.21, 11.3.25, 11.4.11, 11.4.13, 11.8.5, 11.8.8, 11.8.11, 11.9.2, 11.9.3, 11.9.12, 11.11.11, 11.11.17 In addition to the above, any areas on the <u>pre-clear REs</u> that are of the following REs are considered to form general habitat when contained within a road reserve: 11.3.2, 11.3.4, 11.3.13, 11.3.21, 11.3.25, 11.4.11, 11.4.13, 11.8.5, 11.8.8, 11.8.11, 11.9.2, 11.9.3, 11.9.12, 11.11.11, 11.11.17 <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside areas specified above</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as Essential habitat (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are Core habitat.

Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions sources ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Asteraceae	Picris barbarorum	Tall hawkweed	V	V	Hawkweed occurs in Eucalyptus open woodland with a grassy understorey composed of Dichanthium spp. Upper stratum species include Eucalyptus melliodora, Eucalyptus crebra, Eucalyptus populnea, Eucalyptus albens, Angophora subvelutina, Allocasuarina torulosa, and Casuarina cunninghamiana. Collections have been made along roadsides and in cultivated areas, such as paddocks, on black, dark grey or red-brown soils (ie Landzone 8), reddish clay-loam or medium clay soils	The following Regional Ecosystems are considered to constitute general habitat: 12.3.3, 12.3.10, 12.3.11, 12.8.14, 12.8.16, 12.8.17, 12.8.19, 12.9-10.7, 12.11.7, 12.11.14, 12.12.7, 12.12.26a, 11.3.2, 11.3.2c, 11.3.10, 11.3.17, 11.3.18, 11.3.21, 11.3.30, 11.3.36, 11.5.1, 11.5.13, 11.8.5, 11.8.5a, 11.8.8, 11.9.9, 11.9.9a, 11.9.9b, 11.10.12, 11.11.1, 11.12.1c, 11.12.2c. In addition, the following pre-clearance REs are considered to constitute habitat: 11.8.8, 11.8.5 (when it is located along a road reserves on basalt derived soils) Note: Any specimen backed records (buffered to a 1km radius) that fall outside of the REs identified above are considered to constitute General habitat	Any specimen backed records (buffered to a 1km radius) that fall within areas mapped as General habitat (refer previous column) constitute Essential habitat	Core habitat has not been mapped for this species

Table notes:

1 Derived from SPRATS (Australian Government 2018) and other relevant peer reviewed sources
E = Endangered V = Vulnerable NT = Near threatened C = Least concern

Table 5.3 Listed conservation significant fauna species habitat assumptions used to map areas of occurrence within the Impact assessment area

Class/Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Reptiles/ Elapidae	<i>Acanthophis antarcticus</i>	Common death adder	V	-	The common death adder is found in a wide variety of habitats in association with deep leaf litter, including rainforest, sclerophyll forest, woodland, chenopod shrubland and coastal heathland. (DEHP)	The following remnant broad vegetation groups (BVG) are considered to be General habitat: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24a, 25, 26, 27, 28a, 28b, 28c, 28e, 29a. <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute General habitat</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as <i>Essential habitat</i> (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are <i>Core habitat</i> .
Birds/ Camaenidae	<i>Lophochroa leadbeateri</i>	Major Mitchell's cockatoo	V	-	The Major Mitchell's cockatoo is found in a range of habitats west of the Great Dividing Range, always near water, including riparian eucalypt woodland and adjacent grasslands, and open woodland/shrubland dominated by <i>Acacia</i> , <i>Callitris</i> and/or chenopods (NSW OEH). This species nests in large tree hollows.	The following regional ecosystems are considered general habitat: All remnant vegetation within 1 km of a waterway (stream order 3 or greater). 11.3.14, 11.3.18, 11.3.19, 11.5.1, 11.5.5, 11.5.21, 11.7.7, 11.8.9, 11.9.9, 11.10.4, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.3.3, 11.3.20, 11.3.28, 11.3.1, 11.3.5, 11.3.8, 11.3.34, 11.4.3, 11.4.5, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.11, 11.4.12, 11.5.4, 11.5.11, 11.5.16, 11.7.1, 11.7.2, 11.7.5 <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute General habitat</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as <i>Essential habitat</i> (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are <i>Core habitat</i> .

Class/Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Birds/ Camaenidae	<i>Calyptrorhynchus lathamii lathamii</i>	Glossy black-cockatoo	V	-	Glossy black-cockatoo is found in open forest to woodland with <i>Allocasuarina littoralis</i> , <i>A. torulosa</i> , <i>A. luehmanni</i> , <i>Casuarina cristata</i> , and <i>C. equisetifolia</i> . Seeds of the above listed species are the sole food source for this bird.	The following RE is considered general habitat: 11.3.14, 11.3.18, 11.3.26, 11.3.32, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.8, 11.5.14, 11.5.18, 11.5.21, 11.7.7, 11.8.1, 11.9.13, 11.10.9, 11.10.11, 11.11.3, 11.12.13, 11.12.15, 11.3.1, 11.3.17, 11.3.28, 11.4.1, 11.4.3, 11.4.7, 11.4.9, 11.4.10, 11.5.16, 11.7.1, 11.8.3, 11.8.5, 11.8.13, 11.9.14, 11.9.5, 11.9.10, 11.11.14, 11.2.2, 12.2.14, 12.2.19b, 12.8.23, 12.9-10.6, 12.12.26, 12.2.13, 12.5.4, 12.5.9, 12.8.14, 12.8.20, 12.9-10.4, 12.9-10.9, 12.11.9, 12.11.5, 12.11.21, 12.12.7, 12.12.9, 12.12.23, 11.10.4, 11.12.5. <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute General habitat</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as <i>Essential habitat</i> (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are <i>Core habitat</i> .
Mammals/ Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	Platypus	SLC	-	Platypus make their home in and near freshwater creeks, slow-moving rivers, lakes joined by rivers, and built water storages such as farm dams (DEHP).	The following is considered to constitute General habitat: All areas mapped as Water courses with a Stream order rating of 3 and above, and lacustrine water bodies with a buffer of 100m <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute General habitat</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as <i>Essential habitat</i> (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are <i>Core habitat</i> .

Class/Family	Scientific name	Common name	Status		Habitat requirements that are the basis for the GIS assumptions ¹	Habitat modelling assumptions		
			NC Act	EPBC Act		General habitat	Essential habitat	Core habitat
Mammals/ Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked echidna	SLC	-	The short-beaked echidna is found in forests, woodlands, heath, grasslands and desert	The following is considered to be general habitat: <u>All REs</u> (with an additional 50m into no-remnant areas) <u>excluding</u> land zones and 2 and the following RE: 11.3.11, 11.3.40, 11.8.13, 11.10.8, 11.11.5, 11.4.1, 11.5.15, 11.7.1, 11.8.3, 11.9.4, 11.9.5, 11.10.8, 11.11.18, 11.11.21, 11.12.4, 11.12.7 <i>Note: Any specimen backed records (buffered to a 1 km radius) that fall outside of the REs identified above are considered to constitute General habitat</i>	Any specimen backed records (buffered to a 1 km radius) that fall within areas mapped as <i>General habitat</i> (refer previous column) constitute <i>Essential habitat</i>	Any area identified as <i>Essential habitat</i> (refer previous column) that intersects with any area identified under the BPA mapping as 'H-Rating' (High or medium), 'J Rating' (Regional or State) or 'A Rating' (Very high, High or Medium), of any areas mapped as a national park, state forest or Nature refuge area or mapped as a voluntary Declaration (VDEC) are <i>Core habitat</i> .

Table notes:

1 Derived from SPRATS (Australian Government 2018) and other relevant peer reviewed sources

E = Endangered V = Vulnerable NT = Near threatened SLC = Special least concern C = Least concern

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7.1 Fauna species – conservation significant species

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APPENDIX

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Terrestrial Ecology Technical Report

Appendix B Species Profiles

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix B

Species Profiles

Inland Rail Border to Gowrie EIS

Appendix B - Species and
Community Profiles

**Australian Rail Track
Corporation**

Reference: 3100

Contents

1	Species and community profiles.....	1
2	Flora species	2
2.1	<i>Cyperus clarus</i>	2
2.2	Finger panic (<i>Digitaria porrecta</i>)	5
2.3	<i>Picris barbarorum</i>	9
3	Fauna species – Threatened species – Reptiles	13
3.1	Common death adder (<i>Acanthophs antarcticus</i>)	13
4	Fauna species – Special least concern mammals	16
4.1	Platypus (<i>Ornithorhynchus anatinus</i>)	16
4.2	Short-beaked echidna (<i>Tachyglossus aculeatus</i>)	19
5	Fauna species – Threatened species – Birds	22
5.1	Glossy black-cockatoo (<i>Calyptorhynchus lathami lathami</i>)	22
5.2	Major Mitchell's cockatoo (<i>Lophochroa leadbeateri</i>)	26
6	Fauna species – Migratory species – Birds	29
6.1	Black-faced monarch (<i>Monarcha melanopsis</i>)	29
6.2	Common sandpiper (<i>Actitis hypoleucos</i>)	32
6.3	Eastern osprey (<i>Pandion haliaetus</i>)	36
6.4	Glossy ibis (<i>Plegadis falcinellus</i>)	39
6.5	Latham's snipe (<i>Gallinago hardwickii</i>)	42
6.6	Oriental cuckoo (<i>Cuculus optatus</i>)	46
6.7	Pectoral sandpiper (<i>Calidris melanotos</i>)	49
6.8	Rufous fantail (<i>Rhipidura rufifrons</i>)	53
6.9	Satin flycatcher (<i>Myiagra cyanoleuca</i>)	56
6.10	Sharp-tailed sandpiper (<i>Calidris acuminata</i>)	59
6.11	Red-necked stint (<i>Calidris ruficollis</i>)	62
6.12	Spectacled monarch (<i>Symposiachrus trivirgatus</i>)	66
6.13	Yellow wagtail (<i>Motacilla flava</i>)	69
6.14	Common greenshank (<i>Tringa nebularia</i>)	72
6.15	Fork-tailed swift (<i>Apus pacificus</i>)	76

Figures

Figure 2.1	Distribution range of the <i>C. clarus</i>
Figure 2.2	Distribution range of the <i>C. clarus</i> in relation to the Project
Figure 2.3	Distribution range of Finger panic
Figure 2.4	Distribution range of Finger panic in relation to the Project
Figure 2.5	Distribution range of the <i>P. barbarorum</i>
Figure 2.6	Distribution range of the <i>P. barbarorum</i> in relation to the Project
Figure 3.1	Distribution range of the Common death adder
Figure 3.2	Distribution range of the Common death adder in relation to the Project
Figure 4.1	Distribution range of the Platypus
Figure 4.2	Distribution range of the Platypus in relation to the Project
Figure 4.3	Distribution range of the Short-beaked echidna
Figure 4.4	Distribution range of the Short-beaked echidna in relation to the Project
Figure 5.1	Distribution range of Glossy black-cockatoo
Figure 5.2	Distribution range of Glossy black-cockatoo in relation to the Project

Figure 5.3	Distribution range of Major Mitchell's cockatoo
Figure 5.4	Distribution range of Major Mitchell's cockatoo in relation to the Project
Figure 6.1	Distribution range of the Black-faced monarch
Figure 6.2	Distribution range of the Black-faced monarch in relation to the Project
Figure 6.3	Distribution range of the Common sandpiper
Figure 6.4	Distribution range of the Common sandpiper in relation to the Project
Figure 6.5	Distribution range of the Eastern osprey
Figure 6.6	Distribution range of the Eastern osprey in relation to the Project
Figure 6.7	Distribution range of the Glossy ibis
Figure 6.8	Distribution range of the Glossy ibis in relation to the Project
Figure 6.9	Distribution range of the Latham's snipe
Figure 6.10	Distribution range of the Latham's snipe in relation to the Project
Figure 6.11	Distribution range of the Oriental cuckoo
Figure 6.12	Distribution range of the Oriental cuckoo in relation to the Project
Figure 6.13	Distribution range of the Pectoral sandpiper
Figure 6.14	Distribution range of the Pectoral sandpiper in relation to the Project
Figure 6.15	Distribution range of the Rufous fantail
Figure 6.16	Distribution range of the Rufous fantail in relation to the Project
Figure 6.17	Distribution range of the Satin flycatcher
Figure 6.18	Distribution range of the Satin flycatcher in relation to the Project
Figure 6.19	Distribution range of the Sharp-tailed sandpiper
Figure 6.20	Distribution range of the Sharp-tailed sandpiper in relation to the Project
Figure 6.21	Distribution range of the Red-necked stint
Figure 6.22	Distribution range of the Red-necked stint in relation to the Project
Figure 6.23	Distribution range of the Spectacled monarch
Figure 6.24	Distribution range of the Spectacled monarch in relation to the Project
Figure 6.25	Distribution range of the Yellow wagtail
Figure 6.26	Distribution range of the Yellow wagtail in relation to the Project
Figure 6.27	Distribution range of the Common greenshank
Figure 6.28	Distribution range of the Common greenshank in relation to the Project
Figure 6.29	Distribution range of the Fork-tailed swift
Figure 6.30	Distribution range of the Fork-tailed swift in relation to the Project

1 Species and community profiles

This document presents profiles for ecological communities and species that have been considered in the ecological assessment for the Border to Gowrie Project. Profiles are presented for the following:

- Threatened flora
- Threatened fauna
 - Reptiles
 - Special least concern mammals
 - Birds
 - Migratory species.

In each of the profiles, commentary is provided on the distribution of the community or species in relation to the Project. This commentary is based on the distribution for each community or species as indicated by the predictive habitat mapping that has been developed as part of the Border to Gowrie Project Environmental Impact Statement. This mapping will be verified through detailed ecological surveys of the Project footprint in parallel to the development of the detail design. The reported distribution of communities or species will be amended, as required, following the completion of the detailed ecological surveys.

2 Flora species

2.1 *Cyperus clarus*

2.1.1 Status

EPBC Act – Not listed

NC Act – Vulnerable

2.1.2 Biology and ecology

2.1.2.1 Characteristic

Cyperus clarus is a slender tufted perennial. Its stems are erect and rigid, smooth to scabrous at the tip, 15 to 80 cm tall and 1 to 2.5 mm thick. The leaves are flat or folded and are 2 to 6 mm wide and shorter than the flowering stem. The flower head has 3 to 6 branches to 10 cm long (refer Photograph 2.1). Each branch consists of dense clusters made up of 8 to 20 short spikelets. The spikelets are flattened and are 7 to 18 mm long by 3 to 4.5 mm wide in side view. The glumes (scales enclosing the flower) are golden brown to brown and are 2.5 to 4 mm long with the sides having 3 to 4 nerves and an excurved tip to 0.8 mm long. The egg-shaped nuts are dusky brown to black in colour, 1.6 to 1.9 mm long and 0.6 to 0.8 mm diameter (Wilson 1991; Wilson 2008).



Photograph 2.1 *Cyperus clarus*

Source: Sharp n.d.

2.1.2.2 Known distribution

Specimens of *C. clarus* have been recorded in the Queensland Central Highlands, west of Brisbane near Toowoomba and in NSW near Inverell (ALA 2018) (refer Figure 2.1).



Figure 2.1 Distribution range of the *C. clarus*

Source: ALA (2018)

2.1.2.3 Distribution in relation to project

Cyperus clarus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicated that the species is known from within 10 km of the Project footprint. A record from 1976 exists to the north of the Project footprint near Pittsworth within the impact assessment area (refer Figure 2.2). Another record exists from 1934 from within the impact assessment area at the northern end of the Project. A more recent record from 1981 exists to the north-east of the Project where it intersects with the Gore Highway. Other more recent records exist in the areas surrounding Toowoomba and Mount Kent to the north-east of the Project footprint.

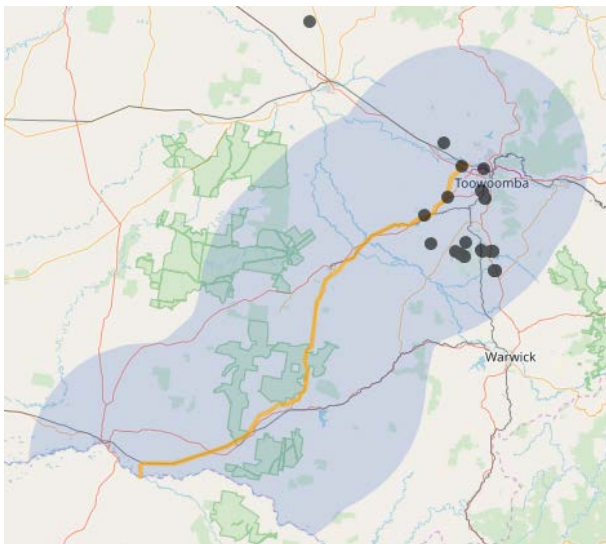


Figure 2.2 Distribution range of the *C. clarus* in relation to the Project

Source: ALA (2020)

2.1.2.4 Biology and reproduction

Cyperus clarus flowers from spring to summer (Wilson 2008).

2.1.3 Habitat

Cyperus clarus grows in grassland or open woodland, in heavy soils derived from basalt. The species is associated with grasslands where *Aristida leptopoda* and *Panicum queenslandicum* occur on deep alluvial black clay; in *Eucalyptus melanophloia* woodland with mid-dense ground stratum of *Chrysopogon fallax*; growing with *Stemmacantha australis* in mountain coolibah woodland on basalt ridges; and in *Dichanthium* grassland with *Cyperus bifax* and *Fimbristylis* spp (Queensland Herbarium 2011; Wilson 2008).

2.1.4 Threatening processes

The following have been identified as potentially threatening processes to *C. clarus*:

- Land clearing for agriculture and subsequent invasion of competitive weeds
- Mining activities which remove individuals and disrupts pollinator and disperser interactions (DERM 2010a)
- Grazing is also considered a threat in the south west management region (DERM 2010b).

2.1.5 Threat abatement/recovery plans

The following threat abatement/recovery plans have been identified as relevant for the species.

- Department of Environment and Resource Management (2010), Back on track actions for biodiversity: Taking action to achieve species conservation in the Border Rivers Maranoa-Balonne Natural Resource Management Region. Available from:
<https://qldgov.softlinkhosting.com.au/liberty/opac/search.do?queryTerm=Border%20Rivers%20Maranoa-Balonne%20Natural%20Resource%20Management%20Region%20Back%20on%20Track%20Actions%20for%20Biodiversity&mode=ADVANCED&modeRadio=KEYWORD&operator=AND&activeMenuItem=false>.

2.1.6 Summary of threat abatement/recovery plan

Cyperus clarus has been identified as a 'high priority' species of 'major' importance. Threats identified in this action plan for this species includes:

- Loss and removal of individual plants and habitat as a result of land clearing for agriculture and mining activities
- Competition with exotic invasive weeds
- Disruption of the pollinator and disperser interaction.

Management actions identified in this action plan for the species includes:

- Implement control measures for weed species in areas across the Border Rivers Maranoa-Balonne NRM region
- Provide input into impact assessments for mining activities within the region and encourage rehabilitation of abandoned mine sites
- Coordinate the Nature Refuges and Land for Wildlife Programs incentivising landholders to conserve and manage natural and cultural resources under a perpetual nature refuge agreement.

2.1.7 References

Atlas of Living Australia (2018). *Cyperus clarus*. Available from:

https://bie.ala.org.au/species/http://id.biodiversity.org.au/node/apni/2889591#tab_recordsView [Accessed 27 August 2018].

Department of Environment and Resource Management (2010a). Border Rivers Maranoa-Balonne Natural Resource Management Region Back on Track Actions for Biodiversity. Department of Environment and Resource Management, Brisbane.

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Queensland Herbarium (2011). Specimen label information. Queensland Herbarium. [Accessed 27 August 2018].

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Wilson K.L. (1991). Systematic studies in *Cyperus* section *Pinnati* (Cyperaceae). *Telopea* 4 (3): 480.

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2.2 Finger panic (*Digitaria porrecta*)

2.2.1 Status

EPBC Act – Not Listed

NC Act – Near threatened

2.2.2 Biology and ecology

2.2.2.1 Characteristics

Finger panic (*Digitaria porrecta*) is a perennial, loosely tufted, erect or ascending grass up to 60 cm tall. The nodes are pubescent and culms are branched. The leaf sheaths are smooth, or with a few hairs towards the base; the ligules are membranous, 2 to 3 mm long; the leaf blades are linear, the apex reinforced, 5 to 15 cm x 0.3 to 0.4 cm, pubescent or smooth (refer Photograph 2.2). The Finger panic has a loose branching cluster of several racemes up to 25 cm long. The lower racemes are mostly convoluted, branched divaricately 3 to 10 cm long. The upper racemes are individual with spikelet's in pairs, 5 to 7 mm long. The lower glume is approximately 1 to 1.5 mm long and the upper glume is known to be shorter than spikelet, covered with short soft hair between the outer nerves. Lower florets are known to be as long as the spikelet's, and smooth between the outer nerves but fibres at first appressed. When at length the Finger panic is woolly and upper florets are shorter than the spikelet's. The Finger panic has a similar appearance to the Hairy panic (*Panicum effusum*) and Queensland panic (*Panicum queenslandicum*), both of which are found in Queensland (DES 2018).



Photograph 2.2 Finger panic (*Digitaria porrecta*)

Source: readleaf environmental

2.2.2.2 Known distribution

The Finger panic is endemic to eastern Australia in Queensland and NSW (refer Figure 2.3). The species has been recorded in Queensland within the Brigalow Belt bioregion, Nebo district, southwest of Mackay, central highlands between Springsure and Rolleston, and from Jandowae south to Warwick. In Queensland, Finger panic occurs in communities dominated by *Eucalyptus orgadophila* on hills and slopes and and *E. tereticornis* and *E. populnea* in drainage lines (Halford 1995).



Figure 2.3 Distribution range of Finger panic

Source: ALA (2018)

2.2.2.3 Distribution in relation to project

Database records (i.e. AoLA and WildNet) indicated *Digitaria porrecta* has been identified as potentially occurring within the impact study area. Two records from 1994 exist within the impact assessment area adjacent to the Project footprint in Brookstead, two from 1995 north of Pittsworth and one record from 2018 within the Project footprint to the north where the Project intersects the Warrego Highway (refer Figure 2.4). Other records exist from within a 50 km buffer of the Project footprint to the north-west and south-east at the northern section of the alignment.

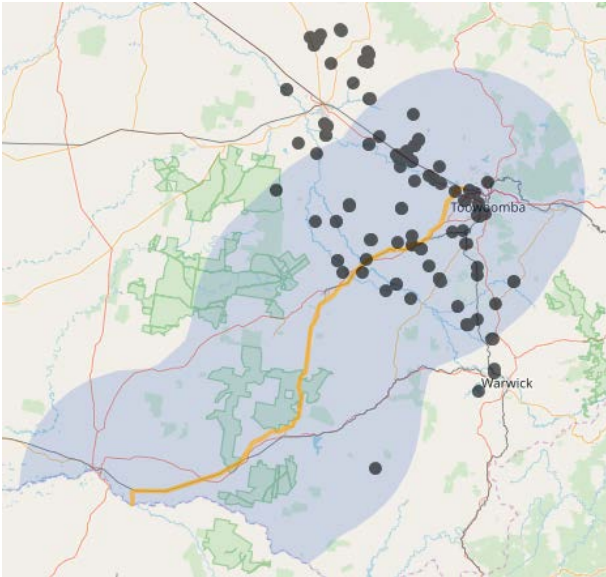


Figure 2.4 Distribution range of Finger panic in relation to the Project

Source: ALA (2020)

2.2.2.4 Biology and reproduction

The species flowers in late summer in a cylindrical cluster along a stalk and spread stiffly from the flowering stem, with the lower clusters arranged in a whorl of four to six, each up to 30 cm long. Finger panic seeds from March to April but also reproduces vegetative by dying back to the tussock base, from which it re-sprouts in summer. The species thrives in highly disturbed areas that have been cleared, including road reserves (Halford 1995, per sobs; Schell and Stark 2017).

2.2.3 Habitat

Finger panic is known to occupy dark and fine textured soils with some seasonal cracking and often persists in disturbed habitats, such as fallow paddocks, but its capability to maintain a viable population is unknown. The species is generally found in open woodland, tussock grasslands, box or forest red gum, alluvial plains and in areas with heavy cracking clays (DES 2018; Halford 1995).

2.2.4 Threatening processes

The following have been identified as potentially threatening processes to the Finger panic:

- Habitat loss from clearing and habitat fragmentation, disturbance and modification
- Invasive weeds compete with Finger panic for habitat resource
- Agriculture in terms of grazing impacts from livestock and physical disturbance from machinery are an identified threat (NSW DEC 2008).

2.2.5 Threat abatement/recovery plan

The following recovery plans have been identified as being relevant for this species:

- Department of Environment, Climate Change and Water NSW (2010). National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/white-box-yellow-box-blakelys-red-gum-grassy-woodland-and-derived-native-grassland-national>. In effect under the EPBC Act from 22-Mar-2013.

- Office of Environment and Heritage (2016), Saving our Species Program. Available from: <https://www.environment.nsw.gov.au/savingourspeciesapp/project.aspx?ProfileID=10222>. In effect under the BC Act 2016.

No threat abatement plan has been identified as being relevant for this species.

2.2.6 Summary of Summary of threat abatement/recovery plan

The *Save our Species* conservation strategy for *Digitaria porrecta* identifies six priority management sites:

- Bald Hills in Narrabri LGA
- Leard in Narrabri LGA
- Boggabri in Narrabri LGA
- Goolhi Road in Gunnedah LGA
- Mullaley in Gunnedah LGA
- Pine Ridge in Liverpool Plains LGA.

Threats identified at the management sites include:

- Heavy grazing by domestic stock
- Competition from invasive grasses (Johnson grass, African lovegrass and tall Rhodes grass)
- Lack of protected land at sites which the species has been recorded on.

Management activities to protect this species at the *Save our Species* sites are:

- Ensure grazing regimes are appropriate for the species/community by negotiating short and infrequent grazing, allowing for sufficient recovery periods and excluding stock from the site when the ground is wet
- Reduce and maintain weed densities through spot-spraying
- Track species abundance and condition over time through estimating total population size annually, assessing ground cover of invasive grasses and monitoring of ground condition for evidence of overgrazing.

Threats identified in the National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland include:

- Land use and management change
- Agricultural and horticultural development
- Public Infrastructure upgrades in travelling stock routes (TSRs)
- Firewood collection and 'tidying up'
- Changed fire regimes
- Increase in soil nutrients and use of chemicals
- Mowing and slashing regimes
- Revegetation management
- Weed invasion
- Climate change
- Salinity
- Acid soils
- Declining tree health and regeneration
- Increased grazing pressure from invasive herbivores

- Disease – *Phytophthora cinnamomi*
- Collection and removal of native flora.

Recovery actions identified in the National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland include:

- Collect baseline data on the locations, quality and management regimes of remnant sites
- Extent and condition mapping
- Component species surveys
- Protection of existing habitat in priority areas including on private land
- Engagement with the community, particularly where remnants occur on private land to provide information on appropriate management and with Aboriginal communities.

Summary of baseline information actions undertaken to date:

- The establishment of databases comprising of information on CMN members (land managers with Box-Gum Grassy Woodland remnants), remnant locations, composition of flora and fauna species and remnant condition from surveys of CMN members' sites and other sites
- Minimum condition criteria and assessment method developed to assist land managers in identification of listed ecological communities
- Development of regional models using remote sensing
- Mapping of Box-Gum Grassy Woodland extent
- Surveys conducted during research programs through various organisations.

2.2.7 References

Atlas of Living Australia (2018), *Digitaria porrecta*, Occurrence records map, viewed 18 August 2018, <https://bie.ala.org.au/species/http://id.biodiversity.org.au/node/apni/2920729>.

Digitaria porrecta, WetlandInfo, Department of Environment and Science, Queensland, viewed 17 August 2018, <https://wetlandinfo.des.qld.gov.au/wetlands/ecology/components/species/?digitaria-porrecta>.

Nature Conservation Act (1992) (Queensland): Near Threatened species: May 2017 list) as *Digitaria porrecta*

New South Wales Department of Environment and Conservation (2008), NSW Threatened Species: Finger Panic Grass – profile, viewed 18 April 2008, <http://www.environment.gov.au/biodiversity/threatened/species/pubs/12768-conservation-advice.pdf>.

Halford D, (1995), *Digitaria porrecta* S.T. Blake (*Poaceae*) A Conservation Research Statement. Queensland Herbarium, Brisbane and Australian Nature Conservation Agency.

Redleaf environmental, Finger panic, viewed 18 August 2018, <http://www.redleafenviro.com.au/news/vegetation-surveys.aspx>.

Queensland Herbarium, Department of Environment and Science, (2012), Potential habitat model for *Digitaria porrecta*, viewed 18 August 2018, <https://environment.ehp.qld.gov.au/species-search/details/?id=14599#!lightbox-uid-0>.

2.3 *Picris barbarorum*

2.3.1 Status

EPBC Act – Not listed

NC Act – Vulnerable

2.3.2 Biology and ecology

2.3.2.1 Characteristic

Picris barbarorum is an erect annual herb 5 to 60 cm high, much-branched, with sparse simple to bifid hooked hairs. Basal leaves are petiolate, narrow obovate to oblanceolate, attenuate at the base, 4 to 30 X 0.4 to 2.5 cm, obtuse to acute and entire to dentate. The cauline leaves are reduced upwards, sessile and truncate to cordate at the base (refer Photograph 2.3). The inflorescence is a loose terminal corymb; heads pedunculate with up to 2 bracts at the base, 5 to 8 mm diameter; involucre bracts 2 to 15 mm long, outer tomentose or with simple or hooked hairs 3 to 7 mm long on the midrib. The floret is bisexual, with ligules 8 to 12.5 mm long and yellow. The cypselas is 4 to 7.5 mm long with a beak shorter than the body, 5-ribbed and glabrous. The pappus is 5.5 to 7 mm long, of inner barbellate bristles and outer plumose bristles. It is very similar to *P. evae* but usually taller (Holzapfel 1994; Walsh 1999).

Photograph 2.3 *P. barbarorum*

Source: Blair (2018)

2.3.2.2 Known distribution

Picris barbarorum is uncommon across Queensland, NSW and Victoria. It is found in concentrated pockets in the Western Downs of Queensland to further west towards the NSW border, south to around Bourke and the Darling river floodplain (ALA 2018) (refer Figure 2.5).



Figure 2.5 Distribution range of the *P. barbarorum*

Source: ALA (2018)

2.3.2.3 Distribution in relation to project

Database records (i.e. AoLA and WildNet) indicated that *Picris barbarorum* has been identified as potentially occurring within the project footprint. Three records exist within the Project footprint from 2002 south-west of Brookstead with several records located in Brookstead from 1999 (refer Figure 2.6). Another record from 2018 is located within the Project footprint at Pittsworth. Other records within a 50 buffer of the Project footprint exist to the east of Cecil Plains, north of Acland, at Cooby Creek Reservoir at Clifton and Allora to the east of the Project footprint.

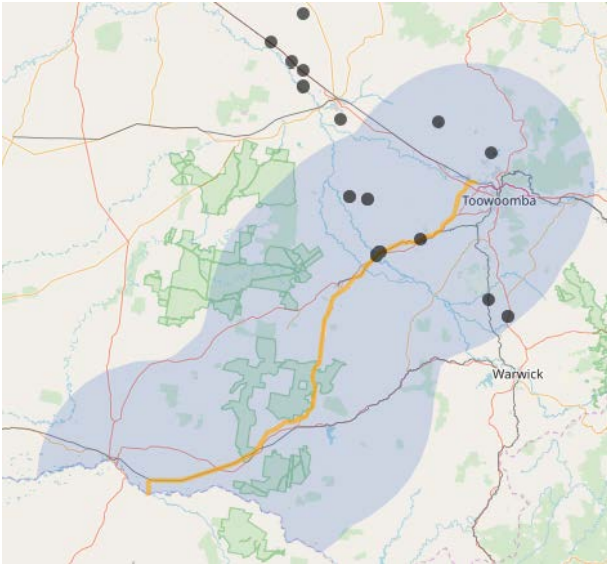


Figure 2.6 Distribution range of the *P. barbarorum* in relation to the Project

Source: ALA (2020)

2.3.2.4 Biology and reproduction

Picris barbarorum flowers and fruits from July to November (Holzapfel 1994; Walsh 1999).

2.3.3 Habitat

Picris barbarorum occurs on dark, productive soils and grey cracking clays usually at roadsides (ALA 2018).

2.3.4 Threatening processes

The following have been identified as potentially threatening processes to *P. barbarorum*:

- Weed invasion
- Inappropriate fire regimes
- Habitat fragmentation
- Clearing of vegetation for cropping and grazing (DECC 2005).

2.3.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species.

2.3.6 References

Atlas of Living Australia (2018). *Picris barbarorum*. Available from: <https://bie.ala.org.au/species/http://id.biodiversity.org.au/node/apni/2916052#overview> [Accessed 28 August 2018].

Department of Environment and Climate Change NSW (2005). Hawkweed – Profile. Available from: <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10627> [Accessed 28 August 2018].

Holzapfel (1994). *Picris barbarorum*, in PlantNet: New South Wales Flora Online. National Herbarium of New South Wales. Available from <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswflandlvl=spandname=Picris-barbarorum> [Accessed 28 August 2018].

Walsh N.G. (1999). *Picris barbarorum*, in PlantNet: New South Wales Flora Online. National Herbarium of New South Wales. Available from <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswflandlvl=spandname=Picris~barbarorum> [Accessed 28 August 2018].

Blair N. (2018). *Picris barbarorum* (Image) [Online] Available from: <https://vicflora.rbg.vic.gov.au/flora/taxon/51f1e0ac-fe12-41b2-bad1-89b87e37332c#&gid=1&pid=2> [Accessed 28 August 2018].

3 Fauna species – Threatened species – Reptiles

3.1 Common death adder (*Acanthophis antarcticus*)

3.1.1 Status

EPBC Act – Not listed

NC Act – Vulnerable

3.1.2 Biology and ecology

3.1.2.1 Characteristic

The Common death adder (*Acanthophis antarcticus*) has a short, stout body and grows to 70 to 100 cm in length. It has a large, triangular head with small and inconspicuous eyes. The body colouration varies and tends to be blackish to grey to rich reddish-brown and is marked with irregular dark-edged cross-bands (refer Photograph 3.1). The underside is whitish with black or brown flecks. The thin rat-like tail ends in a curved soft spine with a cream or black tip which has been observed to be wriggled in order to lure prey into striking range (DES 2017).



Photograph 3.1 Common death adder (*Acanthophis antarcticus*)

Source: Hay (2015)

3.1.2.2 Known distribution

The Common death adder occurs from around Darwin in the Northern Territory across to central and eastern Queensland and NSW, and through to the southern parts of South Australia and Western Australia (DES 2017) (refer Figure 3.1).

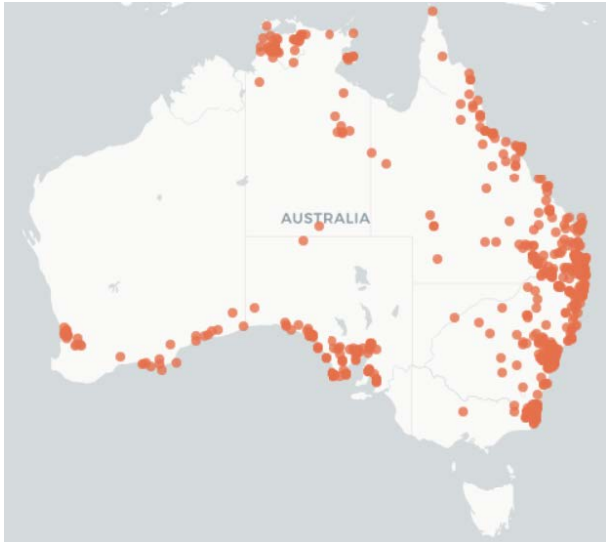


Figure 3.1 Distribution range of the Common death adder

Source: ALA (2018)

3.1.2.3 Distribution in relation to project

Database records (i.e. AoLA and WildNet) indicated that *Acanthophis antarcticus* has been identified as potentially occurring within the Impact assessment area. Numerous records as recent as 2012 have been observed around Inglewood and the surrounding State Forests of Yelarbon, Whetstone and Bringalily (refer Figure 3.2).

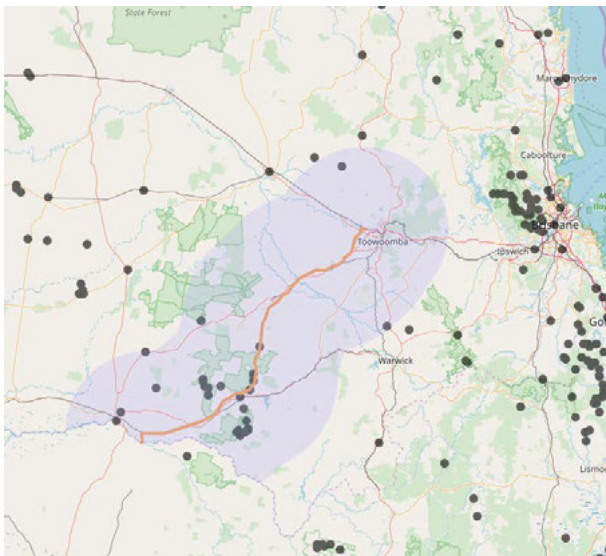


Figure 3.2 Distribution range of the Common death adder in relation to the Project

Source: ALA (2020)

3.1.2.4 Biology and reproduction

The Common death adder is active both day and night, with cryptic colouration to avoid detection and uses the tip of its tail to mimic the movement of a worm to lure and ambush prey. Its diet consists primarily of lizards, small mammals, birds and frogs. The venom of the Common death adder contains a highly toxic neurotoxin (DES 2017).

Males reach sexual maturity at 24 months and females at 42 months. Mating usually occurs in spring, however females reproduce only every second year. Common death adders give birth to live young, typically born in autumn and the number of young in a litter is usually between 10 to 20 (DES 2017).

3.1.3 Habitat

Within its range, the Common death adder occurs in a wide variety of habitats in association with deep leaf litter, including rainforests, wet sclerophyll forests, grasslands, woodland, chenopod dominated shrublands and coastal heathlands (DES 2017).

3.1.4 Threatening processes

The following have been identified as potentially threatening processes to the Common death adder:

- Inappropriate grazing and fire regimes
- Poisoning by cane toads
- Clearing of vegetation, including loss of habitat through coastal development (DES 2016).

3.1.5 Threat abatement/recovery plans

No recovery plan has been identified as being relevant for this species. The following threat abatement plan is relevant to this species:

- Department of the Environment (2015). Threat abatement plan for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.

3.1.6 Summary of threat abatement/recovery plans

Threats identified in the Threat abatement plan for predation by feral cats include:

- Predation on native species causing a critical decline in many species across animal groups
- Competition for food with species they share dietary overlap and disease transmission
- Contributed to the extinction of many ground nesting bird species and the decline of small mammals.

Threat abatement actions for feral cats include:

- Effectively control cats in different landscapes
- Improve effectiveness of existing control measures for feral cats
- Develop and maintain alternative strategies for the recovery of threatened species
- Gain public support for feral cat management and promote responsible cat ownership.

3.1.7 References

Atlas of Living Australia (2018). *Acanthophis antarcticus*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:25b1747b-a67b-4603-9d13-e98da9a0122e#overview> [Accessed 23 August 2018].

Department of Environment and Science (2017). *Common death adder*. Available from: https://www.ehp.qld.gov.au/wildlife/animals-az/common_death_adder.html [Accessed 3 September 2018].

Hay, C. (2015). *Acanthophis antarcticus* (Image) [Online] Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:2a5645ea-e3af-4810-9f6e-c84279cca737#gallery> [Accessed 3 September 2018].

4 Fauna species – Special least concern mammals

4.1 Platypus (*Ornithorhynchus anatinus*)

4.1.1 Status

EPBC Act – Not listed

NC Act – Special Least Concern

4.1.2 Biology and ecology

4.1.2.1 Characteristic

The male Platypus (*Ornithorhynchus anatinus*) is about 50 cm long and weighs about 1.5 kg while the female is typically 40 cm long, weighing 1 kg. However, size may vary with the smallest specimens found in the north and largest in the south. The Platypus has a leathery snout resembling a duck bill and broad flat tail. The snout is chocolate in colour and pliable (refer Photograph 4.1). Its streamlined body has uniform brown upperparts and pinkish brown underparts. It has short limbs and webbed feet with claws. Adult males are equipped with a 12 mm long spur on each hind ankle which can inject venom (DES 2018; Menkhorst and Knight 2011).



Photograph 4.1 Platypus (*Ornithorhynchus anatinus*)

Source: Wormleaton (2018)

4.1.2.2 Known distribution

The Platypus is found in bodies of freshwater in eastern Australia, from the Annan River in northern Queensland to the far south of Victoria and Tasmania (refer Figure 4.1). In Queensland, platypus live east of the Great Dividing Range, and in some western-flowing streams. In north Queensland, the range of the Platypus is closer to the coast (DES 2016; OEH 2018).



Figure 4.1 Distribution range of the Platypus

Source: ALA (2018)

4.1.2.3 Distribution in relation to project

Ornithorhynchus anatinus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicate this species is known from a record in 2002 within approximately 5 km of the Project footprint near Inglewood (refer Figure 4.2). Other records exist within 50 km of the Project footprint at the southern end of the Project near Goondiwindi and the norther end at the Toowoomba Range.

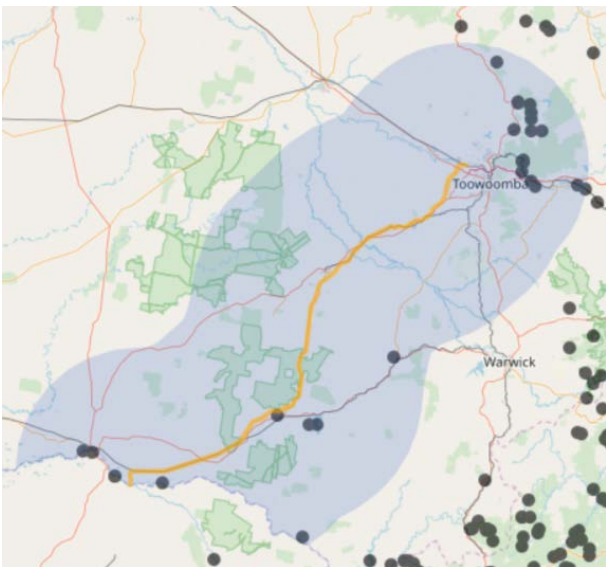


Figure 4.2 Distribution range of the Platypus in relation to the Project

Source: ALA (2020)

4.1.2.4 Biology and reproduction

The diet of the Platypus consists mainly of the benthic invertebrates, particularly insect larvae. They also known to feed on shrimps, water bugs, swimming beetles, tadpoles, worms, freshwater pea mussels and snails. Occasionally they will also catch cicadas and moths. Platypus are mainly crepuscular and rely on receptors in their sensitive bill to find and catch food (Australian Museum 2015; DES 2016).

In Queensland, Platypus mate in August, and about a month later in the south. After mating, the females build nesting burrows that can be up to 30 m long. After securing themselves within the burrow they lay two eggs which they incubate for about two weeks before they hatch. They are fed by their mother for a further 4 to 5 months before they leave the burrow and reach maturity at one year old (DES 2016; Menkhorst and Knight 2011).

4.1.3 Habitat

Found in freshwater streams, ranging from alpine creeks to tropical lowland rivers, lakes, shallow reservoirs and dams. They prefer areas with steep, vegetated banks for their burrows which are also concealed by vegetation (Menkhorst and Knight 2011).

4.1.4 Threatening processes

The following have been identified as potentially threatening processes to the Platypus:

- The biggest threat to the Platypus is the loss of habitat, especially land clearing and dams that disrupt the natural water flow
- Predation by introduced species such as foxes, cats and dogs and the entanglement in litter, such as fishing line and yabby traps are also threats to the Platypus
- Pollution, algal growths, siltation and destruction of creek banks are a threat to Platypus burrows (DES 2016; OEH 2018).

4.1.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species.

4.1.6 References

Atlas of Living Australia (2018) *Ornithorhynchus anatinus*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:ac61fd14-4950-4566-b384-304bd99ca75f> [Accessed 21 August 2018].

Australian Museum (2015). Platypus, *Ornithorhynchus anatinus*. Available from:

<https://australianmuseum.net.au/platypus> [Accessed 21 August 2018].

Department of the Environment and Science (2016). Platypus. Available from:

<https://www.ehp.qld.gov.au/wildlife/animals-az/platypus.html> [Accessed 21 August 2018].

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Office of Environment and Heritage, NSW (2018). Platypus. Available from:

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<https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/native-animal-facts/platypus> [Accessed 21 August 2018].

4.2 Short-beaked echidna (*Tachyglossus aculeatus*)

4.2.1 Status

EPBC Act – Not listed

NC Act – Special Least Concern

4.2.2 Biology and ecology

4.2.2.1 Characteristic

The Short-beaked echidna (*Tachyglossus aculeatus*) is recognised by the extensive coverage of spines. It has a length of up to 450 mm and weighs up to 7 kg (females will usually weigh less). It also has hair present between the spines and they range in colour from light brown in the northern, hotter parts of Australia to darker in the south. The snout is 7 to 8 cm long and is rigid (refer Photograph 4.2). It has short, stout limbs and on the front feet they have five flattened claws which for digging. The back feet point backwards and help to push the soil away when the animal is burrowing (NPWS 1999; Queensland Museum 1995).



Photograph 4.2 Short-beaked echidna (*Tachyglossus aculeatus*)

Source: Edmonds (2015)

4.2.2.2 Known distribution

The Short-beaked echidna is found across all states and territories but appears to be most abundant in central and eastern Australia (ALA 2018) (refer Figure 4.3).

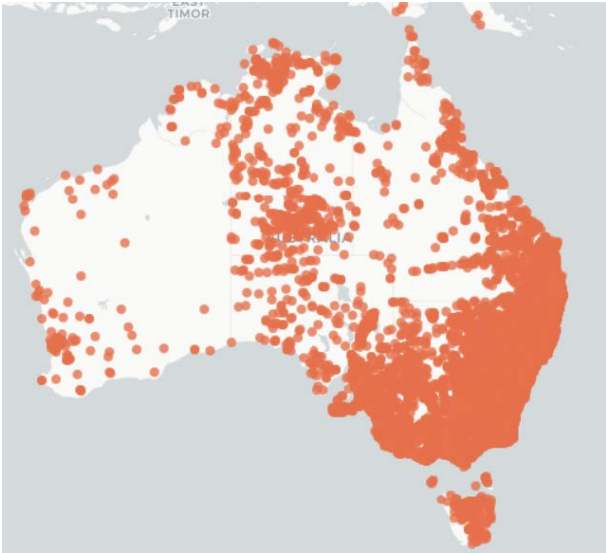


Figure 4.3 Distribution range of the Short-beaked echidna

Source: ALA (2018)

4.2.2.3 Distribution in relation to project

Database records (i.e. AoLA and WildNet) indicated that *Tachyglossus aculeatus* has been identified as potentially occurring within the Project footprint. A record from 2003 exists within the Project footprint at Pampas north-east of Millmerran (refer Figure 4.4). Records exist within a 50 km buffer of the Project footprint in all directions.

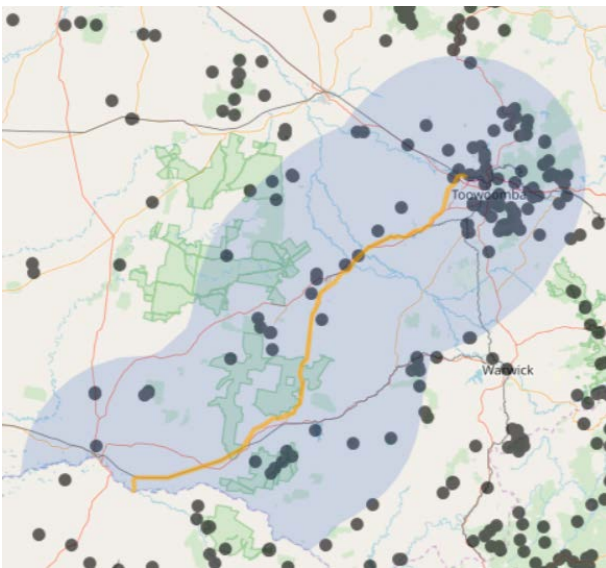


Figure 4.4 Distribution range of the Short-beaked echidna in relation to the Project

Source: ALA (2020)

4.2.2.4 Biology and reproduction

Termites and ants are its preferred food however it also eats earthworms, beetles and moth larvae.

Short-beaked echidnas breed from the end of June to early September. A particular characteristic displayed by echidnas during the breeding season is the formation of 'trains'. A female lays a single egg, which is incubated in the pouch and takes about ten days to hatch. The young echidna is suckled by its mother from mammary glands in the pouch, and is carried in the pouch for about three months. During this time the female will sometimes leave the young animal in a burrow, made by the female for its protection. The young echidna will leave the burrow at around 12 months of age. They have been known to live 10 to 16 years in the wild (Rismiller 1993; Rismiller and Seymour 1991; Strahan 1995).

4.2.3 Habitat

The distribution of the Short-beaked echidna ranges from undisturbed to disturbed habitats, and includes forests, woodlands, shrublands and grasslands, rocky outcrops and agricultural lands. Echidnas are usually found among rocks, in hollow logs, under vegetation or piles of debris, under tree roots or sometimes in wombat or rabbit burrows (Hyett and Shaw 1980).

4.2.4 Threatening processes

The following have been identified as potentially threatening processes to the Short-beaked echidna:

- Habitat loss – urban development
- Roadkill on roads
- Invasive predators, mostly domestic dogs (NPWS 1999).

4.2.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species.

4.2.6 References

Atlas of Living Australia (2018) *Tachyglossus aculeatus*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:0d4c9c0c-51d3-44e0-a365-fe0f8b791c66#overview> [Accessed 21 August 2018].

Edmonds A. (2015). *Tachyglossus aculeatus*. (Image) [Online] Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:0d4c9c0c-51d3-44e0-a365-fe0f8b791c66#gallery> [Accessed 30 August 2018].

Hyett, J. and Shaw, N. (1980). *Australian Mammals: A Field Guide for NSW, Victoria, South Australia and Tasmania*, Thomas Nelson Australia, Melbourne.

National Parks and Wildlife Service (1999). *Echidnas, Helping Them in the Wild*. Hurstville, New South Wales: National Parks and Wildlife Service.

Queensland Museum (1995). *Wildlife of Greater Brisbane*. Brisbane: Queensland Museum Publications.

Rismiller, P. D. (1993). 'Overcoming a prickly problem', *Australian Natural History Magazine*, vol. 24, no. 6, pp. 22–29.

Rismiller, P.D. and Seymour, R.S. (1991). 'The echidna', *Scientific American*, vol. 264, no. 2, February, pp. 96– 103.

Strahan, R. (ed.) (1995). *The Mammals of Australia*, Reed Books, Sydney.

5 Fauna species – Threatened species – Birds

5.1 Glossy black-cockatoo (*Calyptorhynchus lathami lathami*)

5.1.1 Status

EPBC Act – Not listed

NC Act – Vulnerable

5.1.2 Biology and ecology

5.1.2.1 Characteristic

The Glossy black-cockatoo (*Calyptorhynchus lathami lathami*) is a small black cockatoo that is approximately 46 to 51 cm in length with a wingspan of 90 cm, a tail 21 to 23 cm and an inconspicuous crest and broad bulbous bill. Adult males have solid bright red panels in the ventral surface of their tail feathers, while females have light orange-red panels with black barring (refer Photograph 5.1). Females also have irregular patches of yellow on the head and neck. Immature individuals also have irregular patches of yellow on the head and wing coverts. Tail barring in males is lost in successive moults as the panels become bright red (Pizzey and Knight 2007; Schodde et al. 1993).

The Glossy black-cockatoo is distinguished from the Red-tailed (*C. banksii*) and Yellow-tailed (*C. funereus*) black-cockatoo by its' smaller size, dull brown tinge to the head and breast, inconspicuous crest, and red rather than yellow panels in the tail (Glossy Black Conservancy 2010).



Photograph 5.1 Glossy black-cockatoos (*Calyptorhynchus lathami lathami*)

Source: Claridge (2016)

5.1.2.2 Known distribution

The Glossy black-cockatoo has a widespread distribution, ranging from Gympie to the southeast Queensland border, inland to Augathella and Tambo (refer Figure 5.1). The distribution continues south into NSW spreading inland to the Central Western Plains of NSW and also into eastern Victoria (Schodde et al. 1993).



Figure 5.1 Distribution range of Glossy black-cockatoo

Source: ALA (2018)

5.1.2.3 Distribution in relation to project

Database records (i.e. AoLA and WildNet) indicated *Calyptrorhynchus lathami lathami* has been identified as potentially occurring within the project footprint. A record from 2005 occurs where the Project footprint intersect Bringalily State Forest at the northern end of the area (refer Figure 5.2). Other records from within 50 km of the Project footprint occur at Bringalily and Whetstone State Forests to the west of the Project, Yelarbon State Forest to the south, north-west of Pittsworth and the region to the north-east of the Project footprint where it meets Toowoomba Range.

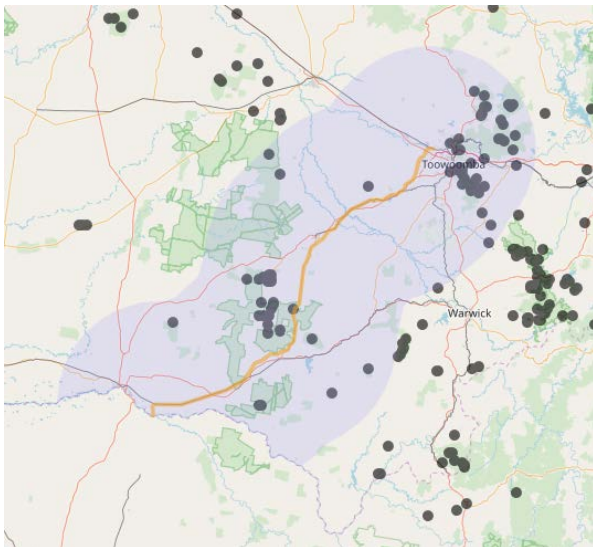


Figure 5.2 Distribution range of Glossy black-cockatoo in relation to the Project

Source: ALA (2020)

5.1.2.4 Biology and reproduction

The Glossy black-cockatoo feed almost exclusively on the seeds of species of *Allocasuarina* and *Casuarina* species throughout their range. In addition, within an area, feeding is often restricted to one or two individuals of a single species. This species also shows a strong fidelity to particular feed trees, returning to selected trees over consecutive years (Cameron 2005; Cameron and Cunningham 2006; Clout 1989).

Below are species that Glossy black-cockatoo's are known to feed on:

- *Allocasuarina torulosa*
- *Casuarina equisetifolia*
- *A. littoralis*
- *A. verticillata*
- *C. cristata*
- *C. pauper*
- *A. gymnanthera*
- *A. diminuta* (OEH 2017).

Glossy black-cockatoos are dependent on large hollow-bearing eucalypts for nesting. Hollows used for nests are typically located 10 to 20 m above the ground, in vertical or near vertical branches, stems, and spouts, or in trunk cavities. The same nest will be utilised in successive seasons, and they are known to often nest in close proximity to other nesting pairs. The peak breeding season occurs from March to August in southeast Queensland and northeastern NSW and clutch size is typically comprised of a single egg (Cameron 2006; Garnett et al. 1999; Glossy Black Conservancy 2010; Pizzey and Knight 2007).

5.1.3 Habitat

The Glossy black-cockatoo prefers woodland areas dominated by she-oak (*Allocasuarina* spp.), or open sclerophyll forests/woodlands with a stratum of *Allocasuarina* spp. beneath a canopy of *Eucalyptus* spp., *Corymbia* spp. or *Angophora* spp. Glossy black-cockatoos have also been recorded in mixed *Allocasuarina*, *Casuarina*, *Callitris* and *Acacia harpophylla* woodland assemblages. In southeast Queensland, west of the Great Dividing Range, they have been observed feeding in remnant Belah (*Casuarina cristata*) and Bulloak (*Allocasuarina luehmannii*) forests (Glossy Black Conservancy 2010).

5.1.4 Threatening processes

The following have been identified as potentially threatening processes to Glossy black-cockatoo:

- Reduction of suitable habitat through clearing for development
- Decline of hollow bearing trees over time due to land management activities
- Excessively frequent fire which eliminates sheoaks, depleting habitat and feed trees
- Limited information on the location of nesting aggregations and the distribution of high quality breeding habitat
- Disturbance from coal seam gas and open cut coal mining causing loss of foraging and breeding habitat as well as disturbing reproductive attempts
- Illegal bird smuggling and egg-collecting (OEH 2017).

5.1.5 Threat abatement/recovery plans

The following threat abatement/recovery plans have been identified as being relevant for this species.

- Office of Environment and Heritage (2017). Save Our Species: Help save the Glossy Black-Cockatoo. New South Wales Government. Available from: <https://www.environment.nsw.gov.au/savingourspeciesapp/ViewFile.aspx?ReportProjectID=1178&ReportProfileID=10140>. In force under the *Biodiversity Conservation Act 2016*.

5.1.6 Summary of threat abatement/recovery plan

Threats identified in the Saving our Species plan includes:

- Loss of existing and future hollow-bearing trees
- Excessively frequent fires eliminating sheoaks from an area and preventing their development to maturity
- Reduced access to water in close proximity to foraging and nesting habitat
- Loss of habitat through clearing for development
- Global climate change impacting the spatial and temporal distribution of the species.

Management actions outline in the Saving our Species plan includes:

- Raise awareness around the importance of large old trees, which provide roosting habitat
- Protect large and small hollow bearing trees to facilitate regenerations of habitat trees
- Encourage the retention of sheoaks in the understorey and reduce impact caused by fire, slashing/underscrubbing and over-grazing
- Maintain accessibility to surface water or provide artificial sources of water ensuring vegetation cover is maintained between roosting/foraging sites and water sources
- Raise awareness among landholders on the importance of suitable habitat for the species
- Install nest boxes to provide artificial nesting sites for the species
- Enhance and restore corridors between woodland and forest habitat.

5.1.7 References

Atlas of Living Australia (2018). *Calyptrorhynchus (Calyptrorhynchus) lathami lathami*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:61461228-28c3-4174-ab6e-ac5a57daf4f9#overview> [Accessed 3 September 2018].

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Cameron, M. (2005). Group size and feeding rates of glossy black-cockatoos in central New South Wales. *Emu* 105, 299-304.

Cameron, M. (2006). Nesting habitat of the glossy black-cockatoo in central New South Wales. *Biological Conservation* 127, 402-410.

Claridge G. (2016). Glossy Black-Cockatoo (Image) [Online] Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:61461228-28c3-4174-ab6e-ac5a57daf4f9#gallery> [Accessed 3 September 2018].

Clout, M.N. (1989). Foraging behaviour of glossy black-cockatoos. *Australian Wildlife Research* 16, 467-473.

Garnett, S. T., Pedler, L. P. and Crowley, G. M. (1999). The breeding biology of the glossy black-cockatoo *Calyptrorhynchus lathami* on Kangaroo Island, South Australia. *Emu* 99, 262-279.

Glossy Black Conservancy (2010). *Glossy black-cockatoo Conservation Guidelines for Southeastern Queensland and far North-Eastern New South Wales*. Glossy Black Conservancy.

Office of Environment and Heritage, NSW (2017). Glossy Black-Cockatoo. Available from: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10140> [Accessed 3 September 2018].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

Schodde, R., Mason, I.J. and Wood, J.T. (1993). Geographical differentiation in the glossy black-cockatoo *Calyptrorhynchus lathami* (Temminck) and its history. *Emu* 93, 156-166.

5.2 Major Mitchell's cockatoo (*Lophochroa leadbeateri*)

5.2.1 Status

EPBC Act – Not listed

NC Act – Vulnerable

5.2.2 Biology and ecology

5.2.2.1 Characteristic

Major Mitchell's cockatoo (*Lophochroa leadbeateri*) is smaller than the Sulphur-crested cockatoo but slightly larger than a Galah. It is salmon-pink below and white above with a large white-tipped crest that is banded in red and yellow. Its call is a distinctive stammering whinny (OEH 2017) (refer Photograph 5.2).



Photograph 5.2 Major Mitchell's cockatoo (*Lophochroa leadbeateri*)

Source: Montgomery (n.d.)

5.2.2.2 Known distribution

Major Mitchell's cockatoo is found across the arid and semi-arid inland areas of most states and territories. It has been recorded in southwestern Queensland and as far east as about Bourke and Griffith in NSW (refer Figure 5.3).



Figure 5.3 Distribution range of Major Mitchell's cockatoo

Source: ALA (2018)

5.2.2.3 Distribution in relation to project

Lophochroa leadbeateri has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicate the species is known from within 5 km to the east of the Project footprint at Pittsworth dated 1980 (refer Figure 5.4). A record from 2014 occurs to the west of the Project footprint between Millmerran and Bulli State Forest approximately 15 km from footprint. Few other records occur within a 50 km radius of the Project footprint with most historical occurrences inland of the Project.

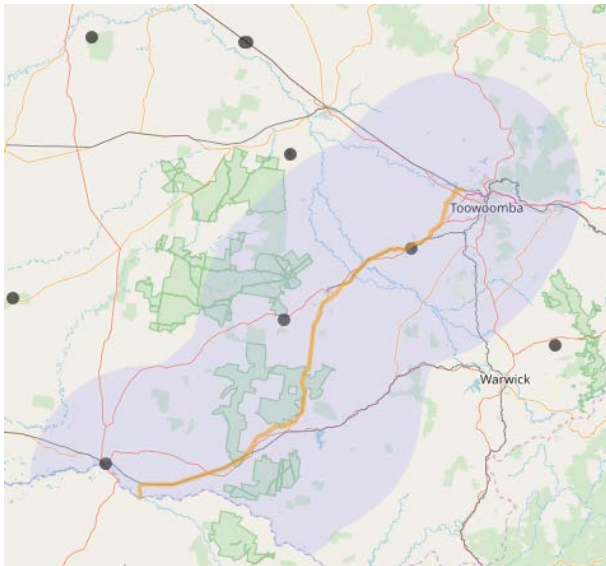


Figure 5.4 Distribution range of Major Mitchell's cockatoo in relation to the Project

Source: ALA (2020)

5.2.2.4 Biology and reproduction

Major Mitchell's cockatoo forages primarily on the ground, feeding on the seeds of native and exotic melons, saltbush, wattles and cypress pines (OEH 2017).

Major Mitchell's cockatoo typically breeds from May to August in Queensland. The nest is located within a tree hollow and is made of decayed debris, bark fragments and pebbles. On average, a clutch size is 2 to 4 eggs (Pizzey and Knight 2007).

5.2.3 Habitat

Major Mitchell's cockatoo inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. This includes timbered watercourses, grasslands, acacia forests, native cypress stands and large mallee eucalypt woodlands (Pizzey and Knight 2007).

5.2.4 Threatening processes

The following have been identified as potentially threatening processes to Major Mitchell's cockatoo:

- Clearing of woodlands
- Heavy grazing of feeding areas
- Loss of existing and future hollow-bearing trees (OEH 2017).

5.2.5 Threat abatement/recovery plans

The following threat abatement/recovery plan has been identified as being relevant for this species:

- Office of Environment and Heritage (2017). Saving our Species: Help save the Major Mitchell's Cockatoo. New South Wales Government. Available from:
<https://www.environment.nsw.gov.au/savingourspeciesapp/ViewFile.aspx?ReportProjectID=442&ReportProfileID=10116>.

5.2.6 Summary of threat abatement/recovery plan

Threats identified in the Saving our Species plan includes:

- Loss of existing and future hollow-bearing trees
- Heavy grazing of foraging areas by cattle resulting in the removal of grasses preventing the regeneration of food plants
- Illegal nest-robbing and trapping for the captive bird trade.

Management actions outline in the Saving our Species plan includes:

- Encourage landholders to enter into covenants or stewardship agreements that promote the retention of hollow-bearing trees, including paddock trees

Implement revegetation efforts choosing tree species that would be suitable as future tree bearing hollows focusing planting efforts in areas where the species is known to occur.

5.2.7 References

Atlas of Living Australia (2018). *Lophochroa leadbeateri*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:0217f06f-664c-4c64-bc59-1b54650fa23d#> [Accessed 3 September 2018].

Montgomery I. (n.d.). Major Mitchell's Cockatoo (Image) [Online] Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:0217f06f-664c-4c64-bc59-1b54650fa23d#> [Accessed 3 September 2018].

Office of Environment and Heritage, NSW (2017). Major Mitchell's Cockatoo. Available from:

<https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10116> [Accessed 3 September 2018].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6 Fauna species – Migratory species – Birds

6.1 Black-faced monarch (*Monarcha melanopsis*)

6.1.1 Status

EPBC Act – Marine and Migratory (Bonn)

NC Act – Special Least Concern

6.1.2 Biology and ecology

6.1.2.1 Characteristic

The Black-faced monarch (*Monarcha melanopsis*) is approximately 16.5 to 19 cm long weighing in at about 21 to 29 g. It has a pale bill with a black forehead and throat surrounding the bill. It has a grey upper breast that contrasts with the rich rufous underparts below and dark grey tail (refer Photograph 6.1). The immature form exhibits a darker bill lacking the black forehead and throat. The voice is a fussy, wheezy chattering with a main harsh call similar to 'Why-you, which-you' along with drawn out 'wheech you' and slurred 'r, r, rerr' or 'shsh-shsh-shirr' sounds (Pizzey and Knight 2007).



Photograph 6.1 Black-faced monarch (*Monarcha melanopsis*)

Source: Dew (2017)

6.1.2.2 Known distribution

The Black-faced monarch is widespread in eastern Australia (refer Figure 6.1) (Blakers et al. 1984). In Queensland, it is widespread from the islands of the Torres Strait and on Cape York Peninsula, south along the coasts and the eastern slopes of the Great Divide, to the NSW border (Beruldsen 1990; Blakers et al. 1984).

The Black-faced monarch is also recorded in Papua New Guinea and New Zealand (Coates 1990a).

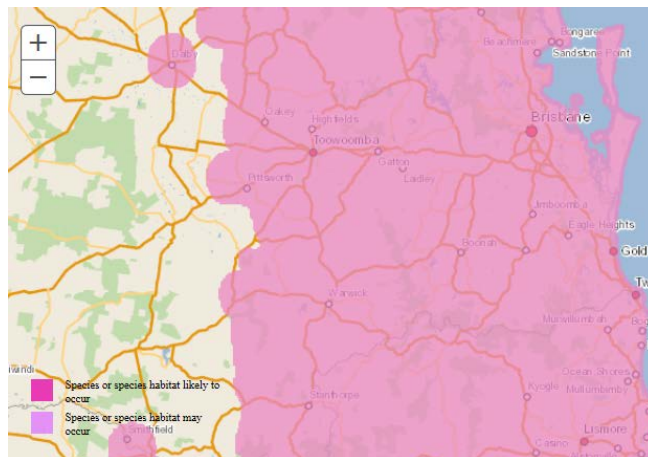


Figure 6.1 Distribution range of the Black-faced monarch

Source: ALA (2018), DotEE (2018)

6.1.2.3 Distribution in relation to project

Monarcha melanopsis has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicate this species occurs within the impact assessment area from 2003 at the northern end of the Project footprint north of the Warrego Highway (refer Figure 6.2). A record at Pittsworth from 1974 occurs within 5 km of the Project footprint. Other records occur within 50 km of the Project footprint mostly at the northern end of the Project. Many records exist outside of the Project footprint along eastern coastal areas.

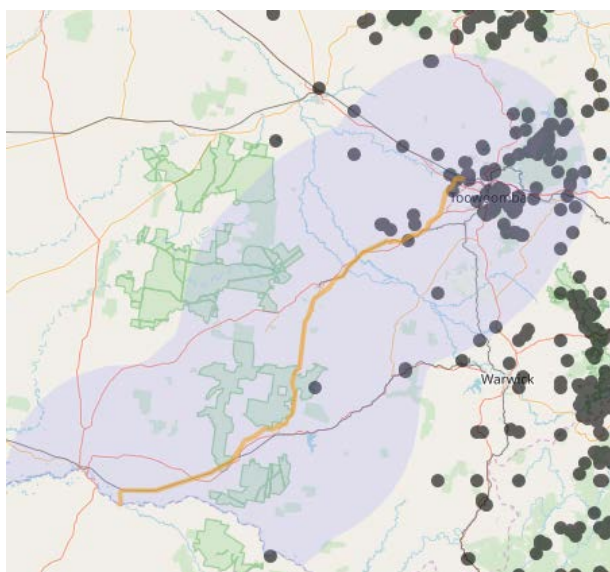


Figure 6.2 Distribution range of the Black-faced monarch in relation to the Project

Source: ALA (2020)

6.1.2.4 Biology and reproduction

The Black-faced monarch is known to eat a large variety of arthropods, including: spiders, beetles, grasshoppers, flies, moths etc. They forage at all vertical levels of the forest, though most often at low or middle levels, within 6 m of the ground (Blakers et al. 1984).

The Black-faced monarch breeds in rainforest habitat, and generally nests near the top of trees with large leaves, in the tops of small saplings, or in lower shrubs. They breed from October to March, with eggs recorded mostly from November to mid-January. There is a variation in egg-laying seasons with southeast Queensland eggs laid from October to December and possibly into January and in NSW eggs have been recorded from October to February. The incubation period is thought to be 13 to 15 days and the fledging period approximately 7 days or slightly more. The species appears to have a relatively high rate of fledging failure, with analyses of hatching and fledging success indicating that an average of 0.1 fledged young is yielded per nest per breeding event (BA NRS 2002, Marchant 1986).

6.1.3 Habitat

The Black-faced monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine-thickets, complex notophyll vine-forest, tropical rainforest, subtropical rainforest, mesophyll thicket/shrubland, warm temperate rainforest, dry rainforest and cool temperate rainforest (Blakers et al. 1984).

The species also occurs in selectively logged and 20 to 30 years old regrowth rainforest and 'marginal' habitats during winter or during migration. Other areas include gullies in mountain areas or coastal foothills, softwood scrub dominated by Brigalow and coastal scrub dominated by Coast Banksia (Blakers et al. 1984; Laurance et al. 1996).

6.1.4 Threatening processes

There are currently no known serious threatening processes that have been identified for the Black-faced monarch.

6.1.5 Threat abatement/recovery plans

The following Threat Abatement plan has been identified as being relevant for this species:

Department of the Environment (2015). Threat abatement plan for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Available from:

<http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.

6.1.6 Summary of threat abatement/recovery plan

Threats identified in the Threat abatement plan for predation by feral cats include:

- Predation on native species causing a critical decline in many species across animal groups
- Competition for food with species they share dietary overlap and disease transmission
- Contributed to the extinction of many ground nesting bird species and the decline of small mammals.

Threat abatement actions for feral cats include:

- Effectively control cats in different landscapes
- Improve effectiveness of existing control measures for feral cats
- Develop and maintain alternative strategies for the recovery of threatened species
- Gain public support for feral cat management and promote responsible cat ownership.

6.1.7 References

Atlas of Living Australia (2018). *Monarcha melanopsis*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:21ebd2d3-f706-4997-b04a-79e5d023dcb3#overview> [Accessed 27 August 2018].

- BA NRS (2002). *Birds Australia Nest Record Scheme*. Available from: <http://birdlife.org.au/projects/atlas-and-birddata/nest-record-scheme>
- Beruldsen, G.R. (1990). Cape York in the wet. *Australian Bird Watcher*. 13:209-217.
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- Coates, B.J. (1990). *The Birds of Papua New Guinea Including the Bismarck Archipelago and Bougainville. Volume 2 Passerines*. Alderley, Queensland: Dove Publications.
- Department of the Environment and Energy (2018). *Monarcha melanopsis* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: <http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies>. [Accessed 24 August 2018].
- Dew, S. (2017). Black-faced monarch (*Monarcha melanopsis*). [image] [online] Available from: <https://images.ala.org.au/image/details?imageId=84afdeb1-d20e-4b85-b6b1-d3a2e56416c3>. [17 September 2019].
- Laurance, W.F., Gordon C.E. and Perry E. (1996). Structure of breeding bird communities in rainforest and regrowth forest in tropical Queensland. *Sunbird*. 26:1-15.
- Mansfield N. (2016). *Monarcha melanopsis* (Image) [Online] Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:21ebd2d3-f706-4997-b04a-79e5d023dcb3#gallery> [Accessed 27 August 2018].
- Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.2 Common sandpiper (*Actitis hypoleucos*)

6.2.1 Status

EPBC Act – Marine and Migratory (Bonn, CAMBA, JAMBA, ROKAMBA)

NC Act – Special Least Concern

6.2.2 Biology and ecology

6.2.2.1 Characteristic

The Common sandpiper (*Actitis hypoleucos*) is approximately 19 to 22cm long. It has a fine, brown bill with a buff base and whitish eyebrows and eye-rings. The legs are grey-green and tinged yellow. It is bronze-brown to grey-brown above with fine dark barring and distinct white hook around the bend of the closed wing leading to a white underside. The sides of the upper breast are washed brown (refer Photograph 6.2). Immature individuals have more distinct darker barring on the upper parts (Pizzey and Knight 2007).



Photograph 6.2 Common sandpiper (*Actitis hypoleucos*)

Source: Shah (2018)

6.2.2.2 Known distribution

The Common Sandpiper breeds in Europe and Asia. In Australasia it visits New Guinea and Australia. In Australia, the species is most commonly found in the north, east and west from August to May (refer Figure 6.3) (Pizzey and Knight 2007).

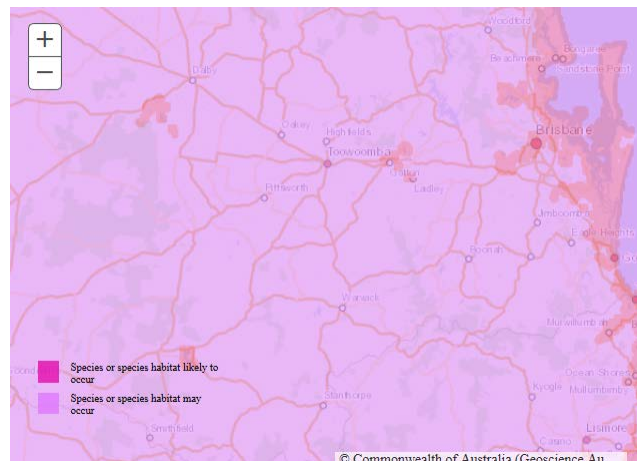


Figure 6.3 Distribution range of the Common sandpiper

Source: ALA (2018), DotEE (2018)

6.2.2.3 Distribution in relation to project

Actitis hypoleucos has been predicted to occur within the region and associated habitat within the impact assessment area. Database records (i.e. AoLA, WildNet) indicate this species occurs from within 50 km of the Project footprint. The closest record from 2013 is within approximately 20 km of the Project footprint at Lake Coolmunda (refer Figure 6.4). Records for this species occur in all directions around the Project with most recorded in coastal regions.

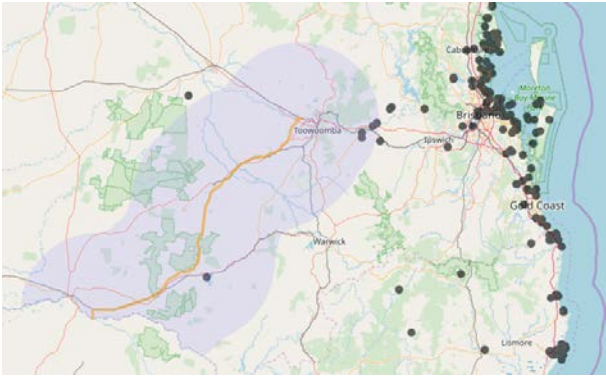


Figure 6.4 Distribution range of the Common sandpiper in relation to the Project

Source: ALA (2020)

6.2.2.4 Distribution in relation to project

No current records for this species within 50 km of the temporary and permanent project footprint.

6.2.2.5 Biology and reproduction

In Australia, the Common sandpiper is typically carnivorous, eating molluscs such as bivalves, crustaceans and a variety of insects (Higgins & Davies 1996).

This species does not breed in Australia. Breeding mostly occurs in the British Isles, Japan and eastern Siberia (Pizzey and Knight 2007).

6.2.3 Habitat

In Australia, Common sandpipers are found in shallow, pebbly, muddy or sandy edges of rivers and streams. They are found in coastal to inland areas, recorded in dams, lakes, sewage ponds, margins of tidal rivers, mangrove forests, saltmarshes, mudflats, beaches and drains (Pizzey and Knight 2007).

6.2.4 Threatening processes

The following have been identified as potentially threatening processes to the Common sandpiper:

- Habitat changes
- Regulation of rivers
- Pollution
- Use of pesticides (reducing prey abundance, especially in breeding periods) (Cramp & Simmons 1983).

6.2.5 Threat abatement/recovery plans

No recovery plan has been identified as being relevant for this species.

The following Wildlife Conservation Plan has been identified as being relevant for this species:

- Commonwealth of Australia (2015). Wildlife Conservation Plan for Migratory Shorebirds. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.

6.2.6 Summary of threat abatement/recovery plan

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes
- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting.

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

6.2.7 References

Atlas of Living Australia (2018). *Actitis hypoleucos*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:920b5569-aa29-4311-9f33-13bac4512b1d#overview> [Accessed 23 August 2018].

Cramp, S. & Simmons, K.E.L. eds. (1983). *Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of the Western Palearctic*. Volume 3, Waders to Gulls. Oxford: Oxford University Press.

Department of the Environment and Energy (2018). *Actitis hypoleucos* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: <http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies>. [Accessed 24 August 2018].

Higgins, P.J. & Davies, S.J.J.F. eds (1996). *Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons*. Melbourne, Victoria: Oxford University Press.

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

Shah, I. (2018). Common sandpiper (*Actitis hypoleucos*). [image] [online] Available from:

<https://www.flickr.com/photos/gilgit2/44427278065/in/photolist-2aFTpWR-S9gWPs-2aSZehq-2eKVLL5-85TnUf-RfxdT5-YpXXvf-SLFbCB-QcrBtn-bm2SeN-28JMeEo-To7Lst-2cJqu5M-GvCTMA-QutaHL-Hy1FDZ-pW5YFs-2d8KdLY-NoZnXa-pW6tZg-22EbXfG-DEzSa6-S6Uk1M-29Nd1Mq-3QaZXx-RW7xjq-2746P1J-pgZU8n-2aD4XR5-22nLAZA-22uEGMr-2dRNodA-JysctG-S3vetQ-ER6wWe-JmtKc2-J8ivDE-HnP01u-22K5cBK-aBkJUf-29FQYN1-3Qf9yq-bEpLdv-qXHuc5-4F82Ew-dnX7JA-dJT6hG-JSqDBp-8CYi8j-i861hQ>. [17 September 2019].

6.3 Eastern osprey (*Pandion haliaetus*)

6.3.1 Status

EPBC Act – Marine and Migratory (Bonn)

NC Act – Special Least Concern

6.3.2 Biology and ecology

6.3.2.1 Characteristic

The Eastern osprey (*Pandion haliaetus*) is a medium-sized raptor with a total length of 50 to 65 cm and wingspan 145 to 170 cm. It should be noted that two species of *Pandion* have recently been identified based on distribution. The Eastern osprey occurring in Australasia is now *P. cristatus* while the Western osprey occurring in Europe, Asia and the Americas is *P. haliaetus*. Typically, adults are mainly dark-brown to blackish-brown above and white below with a white head and neck, streaked blackish-brown, a dark-brown to blackish-brown crest, a black stripe across the eye and ear, a band of reddish-brown, brown or dark-brown streaking across the breast (sparse or absent in males), a white and pale greyish-brown underwing with black carpal patches and black trim, a white to pale greyish-brown undertail, yellow irides, a black bill and white to pale grey legs and feet (refer Photograph 6.3). The sexes are similar but females are typically larger than males (DotEE 2018; Marchant and Higgins 1993).



Photograph 6.3 Eastern osprey (*Pandion haliaetus*)

Source: Knight (2013)

6.3.2.2 Known distribution

The total species range (breeding plus non-breeding) around the northern coast of Australia, extending from Esperance in Western Australia to NSW, is more widespread than southern areas where records become scarcer (i.e. Victoria and Tasmania), where the species is a rare vagrant (refer Figure 6.5). The distribution of the species around the northern coast appears continuous except for a possible gap at Eighty Mile Beach (DotEE 2018).

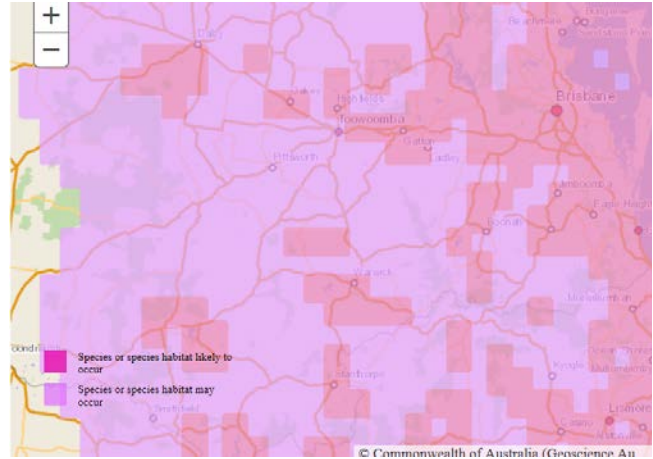


Figure 6.5 Distribution range of the Eastern osprey

Source: ALA (2018), DotEE (2018)

6.3.2.3 Distribution in relation to project

Pandion haliaetus has been predicted to occur within the region and associated habitat within the impact assessment area. Database records (i.e. AoLA, WildNet) do not indicate that this species occurs from within the impact assessment area however has been recorded from within a 50 km buffer of the Project footprint. These records exist from Lake Coolmunda east of Inglewood from 2013 and the north and east of Toowoomba (refer Figure 6.6). Outside of the 50 km buffer this species occurs mostly to the south, south-east, east, north-east and north of the Project.

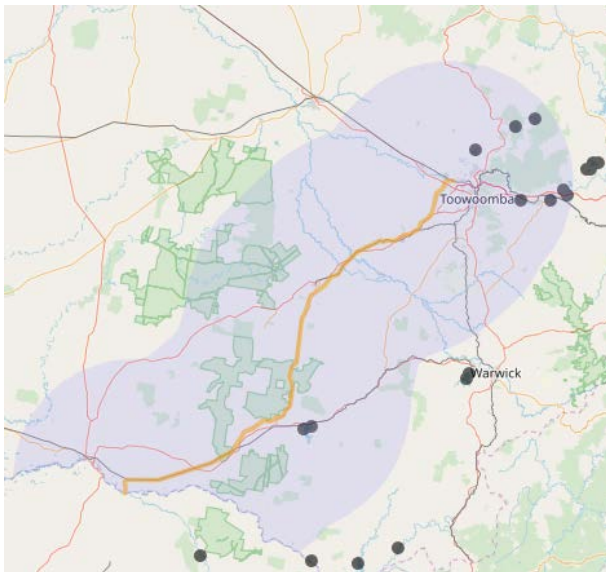


Figure 6.6 Distribution range of the Eastern osprey in relation to the Project

Source: ALA (2020)

6.3.2.4 Distribution in relation to project

No current records for this species within 50 km of the temporary and permanent project footprint.

6.3.2.5 Biology and reproduction

Eastern ospreys mainly feed on fish, especially mullet where available, and occasionally take molluscs, crustaceans, insects, reptiles, birds and mammals (DotEE 2018).

The Eastern osprey breeds from April to February in Australia and form monogamous pairs. Eastern osprey nests vary in size and shape but they are generally large and are mostly composed of sticks. They are constructed in a variety of natural and artificial sites. Nest sites may be used over many years by one or more pairs. Females lay clutches of one to four eggs which are incubated by both sexes, but mainly by the female, for a period of 33 to 38 days. The nestlings are generally brooded by the female but the male will take over when the female is absent from the nest. Pairs usually rear one brood but are capable of rearing two broods per season. Breeding attempts may be separated by periods of up to three years, as pairs do not typically breed each year (DotEE 2018; Hollands 2003; Marchant and Higgins 1993).

6.3.3 Habitat

Eastern ospreys occur in coastal habitats and terrestrial wetlands of tropical and temperate Australia. Typically, they are found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia. They frequent a variety of wetland habitats including inshore waters, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes. They may occur over atypical habitats such as heath, woodland or forest when travelling to and from foraging sites (DotEE 2018; Marchant and Higgins 1993).

6.3.4 Threatening processes

The following have been identified as potentially threatening processes to the Eastern osprey:

- Loss, degradation or alteration of habitat for urban or tourism development (DotEE 2018)
- Other lesser threats include ingestion of pollutants such as pesticides, heavy metals or fishing tackle as well as competition for food with commercial and recreational fisheries (DotEE 2018).

6.3.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.3.6 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat

Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline.

6.3.7 References

- Atlas of Living Australia (2018). *Pandion cristatus*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:21464fca-984c-4103-ab72-5f6e9e7d5a2b> [Accessed 24 August 2018].
- Department of the Environment and Energy (2018). *Pandion cristatus* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82411 [Accessed 24 August 2018].
- Hollands, D. (2003). *Eagles, Hawks and Falcons of Australia*. Second Edition. Melbourne: Bloomings Books.
- Knight, R. (2013). Eastern osprey (*Pandion haliaetus*). [image] [online] Available from: <https://www.flickr.com/photos/sussexbirder/8778696941/in/photolist-enK7KP-9hWNtc-aouBmJ-9RsuDd-dzKesi-9R61Xp-iE14S1-dBiSM-iDaE8n-oyB33n-4ugJxT-iE1rPh-aELgbv-dDqrFF-8Pxjk1-2edNt5z-2evJAXo-2fBH4T-SAqUqL-254PDWy-djfbQd-a7hjEW-dJPZxh-nmVNJC-6TJYVT-9Px6AN-bfw5Sp-829kc8-nDqo6k-nhik9y-2fBHw3P-owPjqu-4oz3ih-2fM4g4h-2fBHxyp-dxov4j-9qKBqk-9t9A66-e81uDd-9RpAGn-9QHiEa-9QLaGq-4ukMH5-9R5P8c-E9b1dS-dD6vDL-9tcziS-9t9A8v-2ecw8QY-9YJfwN>. [17 September 2019].
- Marchant, S. and Higgins P.J., eds. (1993). *Handbook of Australian, New Zealand and Antarctic Birds*. Volume 2 - Raptors to Lapwings. Melbourne, Victoria: Oxford University Press.

6.4 Glossy ibis (*Plegadis falcinellus*)

6.4.1 Status

EPBC Act – Marine and Migratory (Bonn)

NC Act – Special Least Concern

6.4.2 Biology and ecology

6.4.2.1 Characteristic

The Glossy ibis (*Plegadis falcinellus*) is the smallest Australian ibis. On average, the Glossy ibis is 55 to 65 cm long, with a wingspan of 80 to 95 cm and weighs approximately 500-800 g. The male is typically larger. It is characterised by a reddish-brown neck, a bronze-brown body and wings with a metallic, iridescent sheen. The Glossy ibis exhibits a distinctive long, downwards curved, bill. The facial skin is blue-grey that exhibits a white line, extending around the eyes (refer Photograph 6.4). Plumage in both sexes is similar, intensifying to a rich chestnut on the neck, mantle, shoulders and under parts during the breeding period. A purple-green sheen appears on the head, upperparts, tail and wings during this time. During the non-breeding period, Juveniles are characterised by a similar dark plumage to adults (DotEE 2018; Marchant and Higgins 1990).

6.4.2.2 Known distribution

Outside of its Australian distribution, the Glossy ibis is known from the eastern region of North America, Caribbean, Europe, Russia, Siberia, central Asia, sub-Saharan Africa, Pakistan, India, and Papua New Guinea. In Australia, it is found in all states and territories, but typically east of the Kimberley in Western Australia, and east of the Eyre Peninsula in South Australia (refer Figure 6.7). The Glossy ibis is known to have a patchy distribution in Western Australia and is considered a transient visitor to Tasmania (DotEE 2018; Marchant and Higgins 1990).



Photograph 6.4 Glossy ibis (*Plegadis falcinellus*)

Source: Keats (2013)



Figure 6.7 Distribution range of the Glossy ibis

Source: ALA (2018)

6.4.2.3 Distribution in relation to project

Plegadis falcinellus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicate that the species is known from within the impact assessment area with records dated from 2018 at Yelarbon (refer Figure 6.8). A database record exists within the impact assessment area from 1999 to the west of Whetstone State Forest and from 2018 at Cremascos Road. Other records occur within a 50 km buffer of the Project footprint at Goondiwindi, Inglewood, Pittsworth, Oakey and Toowoomba. At a broader scale occurrences exist in all directions around the Project.

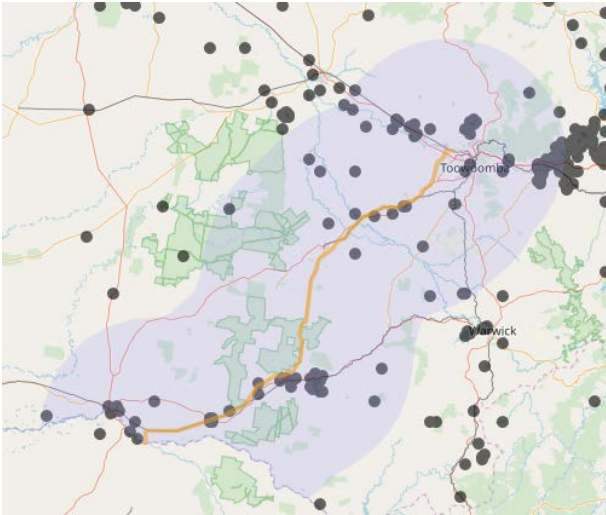


Figure 6.8 Distribution range of the Glossy ibis in relation to the Project

Source: ALA (2020)

6.4.2.4 Biology and reproduction

Glossy ibis typically feeds on a variety of aquatic invertebrates/insects. They may also eat fish, frogs, reptiles, and nestling birds (Marchant and Higgins, 1990).

Glossy ibis are known to live for approximately eight years and mature by one or two years of age. Breeding season for Glossy ibis typically occurs mid-spring to the end of summer, though reproduction may extend from September to April, during favourable conditions (i.e. where there is plentiful food) at breeding sites. Breeding seasons have been recorded as coinciding with annual rain periods in some areas. The Glossy ibis builds a nest platform from twigs and aquatic vegetation. The nest is usually positioned less than one metre above water, in tall dense stands of vegetation. Three to six eggs are laid and both adults care for the young who fledge in approximately 25 to 28 days. Once fledged, adults remain feeding young for several weeks. The Glossy Ibis breeds at only a limited number of locations within Australia, including the Murray Darling Basin in northern NSW and Channel Country of Queensland/South Australia (wetlands of the Bulloo, Diamantina and Georgina River systems, occasionally also Cooper Creek) (Birds Australia 2010; DotEE 2018; Marchant and Higgins 1990; Scott 1997).

6.4.3 Habitat

Glossy ibis typically prefer aquatic habitats including water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields, and cultivated land with irrigation. Occasionally, Glossy ibis occur in coastal habitats (e.g. estuaries, deltas, saltmarshes and lagoons), and has been recorded within mangroves during breeding periods. During periods of drought, this species may retreat to permanent wetlands and/or coastal areas. Glossy ibis typically roost in canopy or shrubs, typically nearby water bodies (Marchant and Higgins 1990).

6.4.4 Threatening processes

Human disturbance is a potential threat but there are currently no known serious threatening processes that have been identified for the Glossy ibis (DotEE 2018).

6.4.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species.

6.4.6 References

- Atlas of Living Australia (2018). *Plegadis falcinellus*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:fd74a66c-2566-4a49-b46a-8a2a1699f594> [Accessed 29 August 2018].
- Birds Australia (2010). *Birds in Backyards- Glossy Ibis factsheet*. Available from: <http://birdsinyard.net/species/Plegadis-falcinellus> [Accessed 29 August 2018].
- Department of the Environment and Energy (2018). *Plegadis falcinellus* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=991 [Accessed 29 August 2018].
- Keats, D. (2013). Glossy ibis (*Plegadis falcinellus*). [image] [online] Available from: <https://www.flickr.com/photos/dkeats/9720123258/in/photolist-fNWb13-ebqrMa-mGjEjT-bB1XN7-ebqrM-mGjNHB-dqTHsD-bPVAZR-dhuXNM-9LWLFp-ebrrsvZ-cWQy7N-FWQBQw-BTiGgV-s2bYDZ-redkpM-PURHsP-cWQzDo-cWQA1s-bPVB46-ebrrt4-qjG5h-9sc2Eu-9d32Y5-6Xf9C3-ebx4gE-mGkHBy-cWQhws-pSxcVc-ebx3Ys-mGjvUr-dhuXvb-cWQgVw-9LWLaz-21sj6PA-ebrr1a-mGhB5x-cWQz53-mGhLJx-S46UqS-ebrr3g-7Vr7TN-9KhdHp-EFLoL-sCtBB-ebrrAc-9o4X41-Y63kfc-ebrrCr-FHfZvC>. [17 September 2019].
- Marchant, S. and Higgins P.J. (1990). *Handbook of Australian, New Zealand and Antarctic Birds. Volume One - Ratites to Ducks*. Melbourne, Victoria: Oxford University Press.
- Scott, A. (1997). *Relationships between waterbird ecology and river flows in the Murray-Darling Basin*. CSIRO Technical report No. 5/97. Available from: <http://www.clw.csiro.au/publications/technical97/tr5-97.pdf>. [Accessed 29 August 2018].

6.5 Latham's snipe (*Gallinago hardwickii*)

6.5.1 Status

EPBC Act – Marine and Migratory (Bonn, JAMBA, ROKAMBA)

NC Act – Special Least Concern

6.5.2 Biology and ecology

6.5.2.1 Characteristic

Latham's snipe (*Gallinago hardwickii*) is a medium sized wader, and the largest snipe in Australia. This species typically measures 29 to 33 cm in length, and a 50 to 54 cm wingspan. It has a long straight bill, short broad pointed wings, a long tail, and short legs (DotEE 2018; Higgins and Davies 1996) (refer Photograph 6.5).

The Latham's snipe's plumage is intricately marked, with barring and chevrons of buff, black and various shades of brown. Blackish-brown stripes occur across the crown, and cream streaks occur down the back. The belly and parts of the head are white, and the tail is rufous, with a white tip. The sexes are similar in appearance, with no seasonal variation in the plumage. Non-breeding Latham's snipe have a plainer, less contrast colouring (Higgins and Davies 1996; Pizzey and Knight 1997).



Photograph 6.5 Latham's snipe (*Gallinago hardwickii*)

Source: Dunens (2018)

6.5.2.2 Known distribution

Latham's snipe breeds in Japan and far eastern Russia during the summer months of the northern hemisphere. It migrates south after the breeding season, travelling across Papua New Guinea to winter in eastern Australia. Latham's snipe has also been recorded as vagrant in New Zealand (DotEE 2018).

Latham's snipe is a non-breeding visitor to southeastern Australia (refer Figure 6.9). It is a passage migrant through northern Australia i.e. it travels through northern Australia to reach non-breeding areas located further south. The species has been recorded along the east coast of Australia from Cape York Peninsula, through to southeastern South Australia. Its range extends inland over the eastern tablelands in southeastern Queensland, and to west of the Great Dividing Range in NSW (Barrett et al. 2003; Blakers et al. 1984; DotEE 2018; Higgins and Davies 1996).

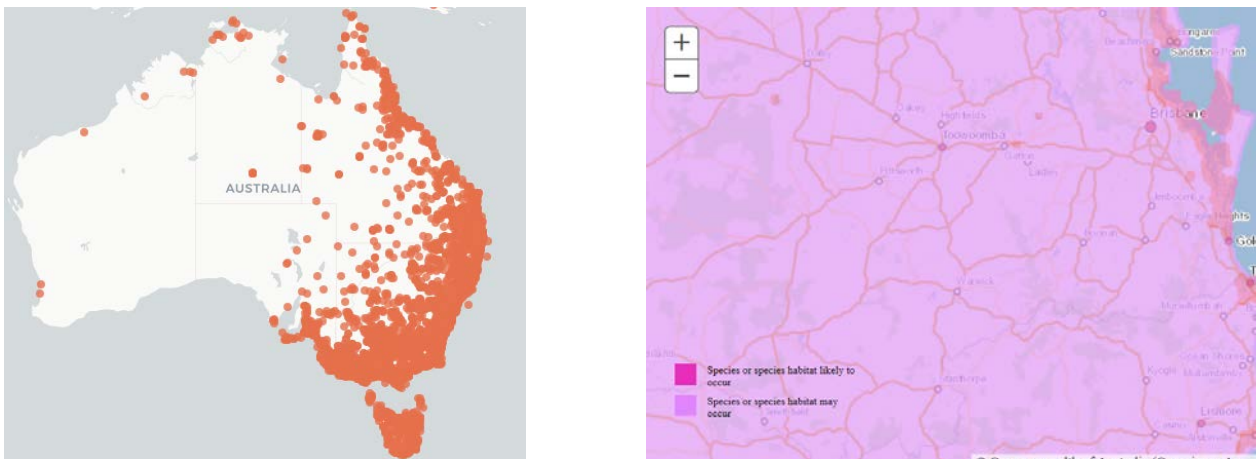


Figure 6.9 Distribution range of the Latham's snipe

Source: ALA (2018), DotEE (2018)

6.5.2.3 Distribution in relation to project

Gallinago hardwickii has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicate that this species is known to occur from within the impact assessment area where the Project intersects Yalarbon with records dated from 2015-2019 (refer Figure 6.10). Other records exist within approximately 5 km to the north of the Project footprint between Millmerran and Pittsworth between 1977-2011. This species has been recorded in all directions around the Project footprint with most records occurring to the east.

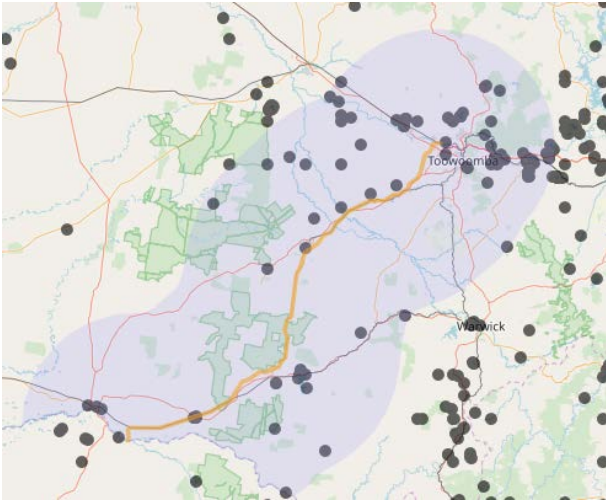


Figure 6.10 Distribution range of the Latham's snipe in relation to the Project

Source: ALA (2020)

6.5.2.4 Biology and reproduction

Latham's snipe is an omnivorous species. It typically feeds on seeds and other plant material (mainly from *Cyperaceae*, *Poaceae*, *Juncaceae*, *Polygonaceae*, *Ranunculaceae* and *Fabaceae* families), and on invertebrates, including insects (mainly flies and beetles), earthworms and spiders, and occasionally molluscs, isopods and centipedes (DotEE 2018).

Latham's snipe does not breed in Australia. It breeds in Japan and eastern Russia (DotEE 2018).

6.5.3 Habitat

In Australia, Latham's snipe occurs in permanent and ephemeral wetlands up to 2,000 m above sea- level. They typically inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they are also known to occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity (DotEE 2018).

The foraging habitats of Latham's snipe are typically characterised by areas of mud (either exposed or beneath a very shallow covering of water), and some form of cover (e.g. low, dense vegetation) (DotEE 2018).

The Latham's snipe roosts on the ground near (or sometimes in) their foraging areas, usually in sites that provide some degree of shelter (e.g. beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable) (DotEE 2018).

Latham's snipe could potentially occur in Bluegrass (*Dichanthium*) dominant grasslands of the Brigalow Belt Bioregions (north and south), if this community is subject to flooding (DotEE 2018).

6.5.4 Threatening processes

The following have been identified as potentially threatening processes to the Latham's snipe:

- Loss of habitat caused by the drainage, modification of wetlands, agriculture and development of land (DotEE 2018)
- Easily disturbed by the intrusion of humans or cattle into their habitats (DotEE 2018)
- Pollution of wetlands.

6.5.5 Threat abatement/recovery plans

The following threat abatement plan and Wildlife Conservation Plan have been identified as being relevant for this species:

- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). Threat abatement plan for predation by the European red fox. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008.
- Commonwealth of Australia (2015). Wildlife Conservation Plan for Migratory Shorebirds. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.

6.5.6 Summary of threat abatement/recovery plan

Threats identified in the Threat abatement plan for predation by the European red fox include:

- Predation on native species causing a critical decline in many species across animal groups
- Competition for food with species they share dietary overlap and disease transmission
- Contributed to the extinction of many ground nesting bird species and the decline of small mammals.

Threat abatement actions for the European red fox include:

- Baiting
- Biological control
- Barriers
- Habitat management
- Shooting and bounties.

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes
- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

6.5.7 References

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6.6 Oriental cuckoo (*Cuculus optatus*)

6.6.1 Status

EPBC Act – Migratory (CAMBA)

NC Act – Special Least Concern

6.6.2 Biology and ecology

6.6.2.1 Characteristic

The Oriental cuckoo (*Cuculus optatus*) measures approximately 28 to 34 cm in length. The sexes are similar in appearance, the male being slightly larger than the female. The upper parts of the bird are grey, with a bronze gloss, and the tail is dark grey and black, spotted, and tipped white (refer Photograph 6.6). The flight feathers are grey, with pale bars. The chin, throat and upper breast is grey, and strongly barred with black (Schodde and Tiedemann 2010).



Photograph 6.6 Oriental cuckoo (*Cuculus optatus*)

Source: eBird Australia (2015)

6.6.2.2 Known distribution

Oriental cuckoos are non-breeding migrants from Asia, wintering across northern Australia from the Kimberley region in Western Australia, to Brisbane in Queensland, and occasionally south to Narooma, NSW (Schodde and Tidemann 2010) (refer Figure 6.11).

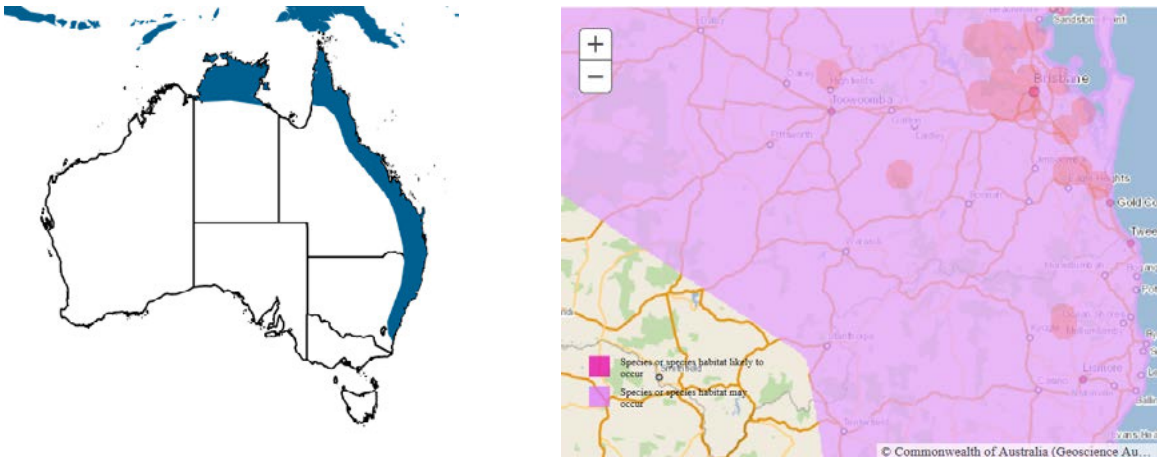


Figure 6.11 Distribution range of the Oriental cuckoo

Source: ALA (2018), DotEE (2018)

6.6.2.3 Distribution in relation to project

Cuculus optatus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicate that this species occurs within the impact assessment area near Pittsworth although the record has no date (refer Figure 6.12). Other records to the south of the impact assessment area in Pittsworth occur from 1976. Records from within 50 km of the Project footprint occur from around Toowoomba to the east of the northern section of the Project. Records outside of a 50 km buffer occur to the south-east, east, north-east, north and north-west of the Project footprint.

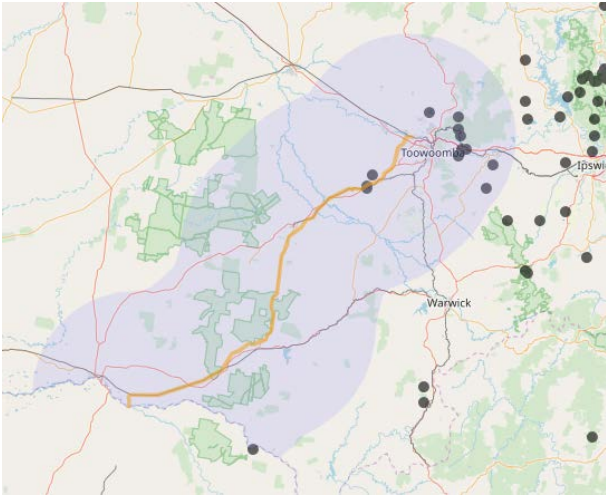


Figure 6.12 Distribution range of the Oriental cuckoo in relation to the Project

Source: ALA (2020)

6.6.2.4 Biology and reproduction

Oriental cuckoos feed predominately on caterpillars, stick insects, ants and beetles. They forage in trees, bushes, and the ground. Once the prey has been captured, this species typically flies to a tree branch to batter and consume its prey (Schodde and Tidemann 2010).

The Oriental cuckoo migrates from its breeding grounds in Eurasia each Autumn, to non-breeding winter grounds in southern Asia, Indonesia, New Guinea and Australia. It arrives along the northern Australian coast in November to -December, departing again in April (Schodde, and Tidemann, 2010).

6.6.3 Habitat

Oriental cuckoos inhabit monsoon forests, wet sclerophylla forests, paperbark swamps, dense open forests, scrubby gullies, and mangroves and is also known to use rainforest edges, leafy trees in paddocks, river flats and roadsides. This species prefers dense vegetation with a closed canopy (Pizzey and Knight 2007; Schodde and Tidemann 2010).

6.6.4 Threatening processes

Currently no known serious threatening processes have been identified for the Oriental cuckoo.

6.6.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.6.6 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat

Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline.

6.6.7 References

Atlas of Living Australia (2018). *Cuculus optatus*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:b34cd2f6-79b3-4eee-9cf3-18a489d5d5fc> [Accessed 24 August 2018].

Department of the Environment and Energy (2018). *Cuculus optatus* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: <http://www.environment.gov.au/sprat>. Accessed: 23 August 2018

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<https://images.ala.org.au/image/details?imageId=983936d2-2ee7-4e8b-b913-8e7ab2943edd>. [17 September 2019].

Schodde, R and Tidemann, S, eds. (2010). *Complete book of Australian Birds*. Reader's Digest, Sydney.

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.7 Pectoral sandpiper (*Calidris melanotos*)

6.7.1 Status

EPBC Act – Marine and Migratory (Bonn, JAMBA, ROKAMBA)
NC Act – Special Least Concern

6.7.2 Biology and ecology

6.7.2.1 Characteristic

The Pectoral sandpiper (*Calidris melanotos*) has a length of approximately 19 to 23 cm and males tend to be larger. They are similar to Sharp-tailed sandpiper (*Calidris acuminata*) (refer Section 6.10) but plainer, browner and with a longer neck. It has a straight or slightly decurved bill that is only just longer than its head. The legs are dull olive-yellow, yellow or olive-grey, that are usually brighter than the Sharp-tailed sandpiper. The long feathers of the upperparts have pointed dark centres with pale brown margins. The underparts are whitish buff and sparsely streaked with dark brown or black streaking/mottling on the neck and breast (refer Photograph 6.7). (Pizzey and Knight 2007).



Photograph 6.7 Pectoral sandpiper (*Calidris melanotos*)

Source: Cannizzaro (2016)

6.7.2.2 Known distribution

The Pectoral sandpiper breeds in northern Russia and North America. During the non-breeding season the species migrates south from August to May. In Australia, it is widespread but most common in eastern Queensland and southeastern Australia (refer Figure 6.13) (Pizzey and Knight 2007).

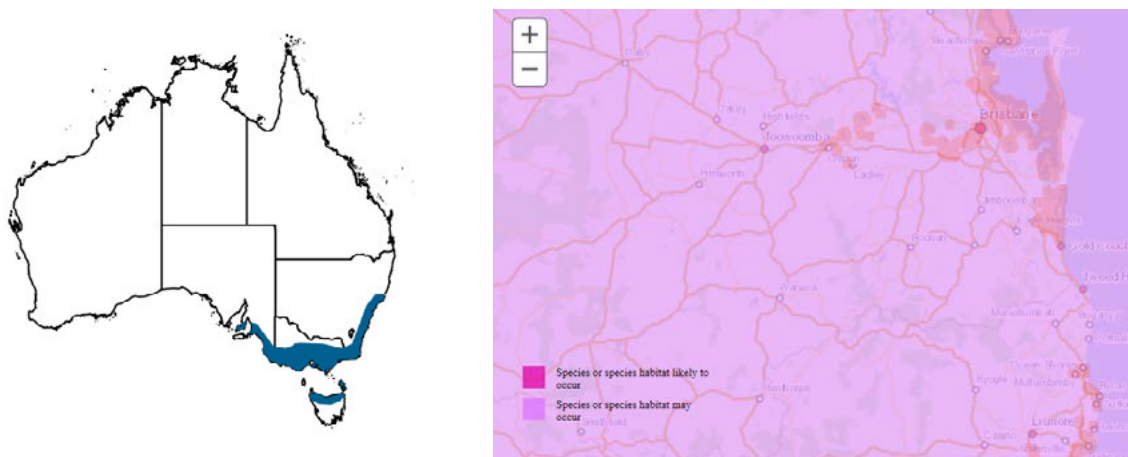


Figure 6.13 Distribution range of the Pectoral sandpiper

Source: ALA (2018), DotEE 2018

6.7.2.3 Distribution in relation to project

Calidris melanotos has been predicted to occur within the region and associated habitat within the impact assessment area. Database records (i.e. ALA, WildNet) indicate that this species occurs from within approximately 15 km of the Project footprint near Oakey with a record dated from 1979 (refer Figure 6.14). Few other reliable records exist for this species within a 50 km buffer of the Project footprint with the most recent recorded in 2014. Other records occur outside of a 50 km buffer to the south-east, east and north-east.

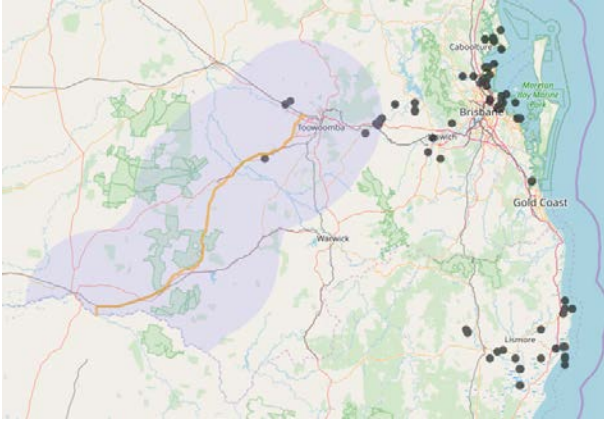


Figure 6.14 Distribution range of the Pectoral sandpiper in relation to the Project

Source: ALA (2020)

6.7.2.4 Biology and reproduction

In Australia, the Pectoral sandpiper is omnivorous, consuming algae, seeds, crustaceans, arachnids and insects (Higgins and Davies 1996).

This species does not breed in Australia and they migrate to northeastern Siberia and North America to breed and nest (Higgins and Davies 1996).

6.7.3 Habitat

In Australia, the Pectoral sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. It is occasionally found further inland within wetlands and inundated vegetation (Higgins & Davies 1996).

6.7.4 Threatening processes

The following have been identified as potentially threatening processes to the Pectoral sandpiper:

- Habitat loss reducing the availability of foraging and roosting sites
- Habitat degradation including loss of marine or estuarine vegetation, invasion of intertidal mudflats by weeds, water pollution and changes to the hydrological regime and exposure of acid sulphate soils
- Disturbance from residential and recreational activities (DEWHA 2009).

6.7.5 Threat abatement/recovery plans

No abatement/recovery plan has been identified as being relevant for this species.

The following Wildlife Conservation Plan and marine bioregional plan have been identified as relevant for the species:

- Commonwealth of Australia (2015). *Wildlife Conservation Plan for Migratory Shorebirds*. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.

6.7.6 Summary of threat abatement/recovery plans

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes
- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting.

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

6.7.7 References

Atlas of Living Australia (2018). *Calidris melanotos*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:186ec2cd-8267-4162-8c0a-7c6bc51262c2> [Accessed 20 September 2018].

Cannizzaro, A. (2016). Pectoral sandpiper (*Calidris melanotos*). [image] [online] Available from: <https://www.flickr.com/photos/acryptozoo/29119997223/in/photolist-qSpBqG-BhZinu-cRHTMG-pHjnZN-g1AAkj-g1APDA-oL5iJU-oNv7pC-LneADD-au69FW-eUyr8Q-UTHojX-cXywrQ-Uxjt8E-rDgqWE-bBcp48-VH3Z3A-p84mDi-vYJU2Y>. [17 September 2019].

Department of the Environment and Energy (2018). *Calidris melanotos* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=858. [Accessed 24 August 2018].

Department of the Environment, Water, Heritage and the Arts (2009). Draft Significant impact guidelines for 36 migratory shorebirds Draft EPBC Act Policy Statement 3.21. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/epbc/publications/migratory-shorebirds.html>.

Higgins, P.J. and Davies S.J.J.F. eds (1996). *Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons*. Melbourne, Victoria: Oxford University Press.

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.8 Rufous fantail (*Rhipidura rufifrons*)

6.8.1 Status

EPBC Act – Marine and Migratory (Bonn)

NC Act – Special Least Concern

6.8.2 Biology and ecology

6.8.2.1 Characteristic

Adult Rufous fantail (*Rhipidura rufifrons*) are medium sized birds, typically ranging in size from 14.5 to 18.5 cm in length, with a wingspan averaging of 21 cm. Both male and female specimens appear identical except for size, with males being slightly larger than females. The forehead is a rich reddish-brown colour across the eyes. The eyes have a white arc underneath. The top of the head, back of the neck and the upper back, transition from an olive to reddish-brown colour, which then blends into a blackish-brown, long, fan-shaped tail. This blackish-brown tail, contrasts with the base of the tail, which is tipped with a paler colour, often white (DotEE 2018; Higgins et al. 2006) (refer Photograph 6.8).

The Rufous fantail has black feathers over the ears and the throat is white. A black bar is present across the upper breast, below which the lower breast is off-white with black scale-like spots which transitions into an off-white colour towards the centre of the abdomen. The eyes, bill and feet of the bird are all a brown colour. The plumage in the immature birds is similar to that of adults. Adults moult annually prior to the breeding season, and this basic plumage does not vary (Higgins et al. 2006).



Photograph 6.8 Rufous fantail (*Rhipidura rufifrons*)

Source: Lostandcold (2009)

6.8.2.2 Known distribution

The Rufous fantail occurs in coastal and near coastal districts of northern and eastern Australia. They also migrate north into much of SE Asia (Lindsey 1992) (refer Figure 6.15).

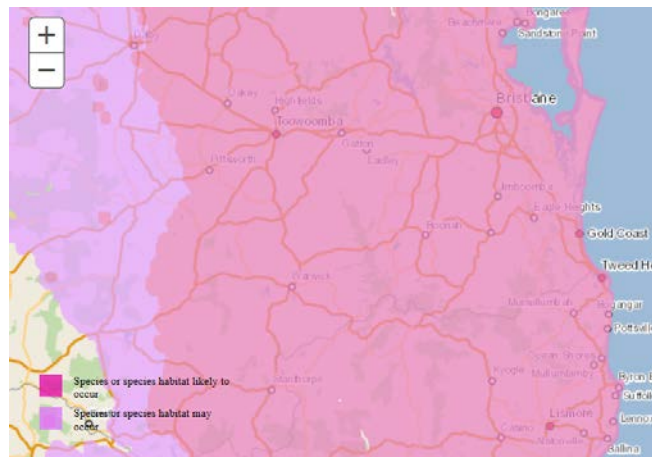


Figure 6.15 Distribution range of the Rufous fantail

Source: ALA (2018), DotEE (2018)

6.8.2.3 Distribution in relation to project

Rhipidura rufifrons has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicate that this species is known to occur from within 10 km to the north and south of the Project footprint from 1973-2018 near Pittsworth (refer Figure 6.16). Other records occur from within 5 km of the northern end of the Project footprint from 2018. Occurrence records for this species exists in all directions around the Project footprint although most of these occur to the south-east, east and north-east.

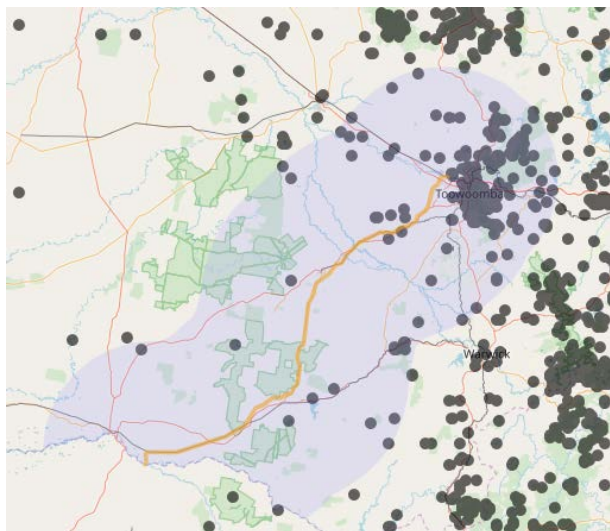


Figure 6.16 Distribution range of the Rufous fantail in relation to the Project

Source: ALA (2020)

6.8.2.4 Biology and reproduction

The Rufous fantail is an insectivorous species and typically gleaning and sallying in the low to middle strata of forests (Higgins et al., 2006).

The Rufous fantail is usually seen singly or in pairs, but occasionally in small groups. On winter passage, they have been observed in small flocks. The Rufous fantail generally breeds between September to February, with most individuals producing clutches between November to December. Clutch size approximates between two or three eggs, but as many as four have been recorded. Eggs are laid in a small cup-shaped nest which is usually constructed from grass, roots, fine strips of bark, plant-fibre, decayed wood, moss and spider web. The nest is placed in a tree, shrub or vine about 1.6 m above the ground (Higgins et al. 2006).

6.8.3 Habitat

In east and southeast Australia, the Rufous fantail typically inhabits wet sclerophyll forests, often in gullies dominated by Eucalypts such as Tallowwood (*Eucalyptus microcorys*), Mountain grey gum (*E. cypellocarpa*), Narrow-leaved peppermint (*E. radiata*), Mountain ash (*E. regnans*), Alpine ash (*E. delegatensis*), Blackbutt (*E. pilularis*) or Red mahogany (*E. resinifera*). These areas usually have a dense shrubby understorey often including ferns. The species also occasionally occurs in secondary regrowth, following logging or disturbance in forests or rainforests. This species has also been recorded from parks and gardens during movement events (DotEE 2018).

6.8.4 Threatening processes

The following have been identified as potentially threatening processes to the Rufous fantail:

6.8.5 Fragmentation

Loss of core moist forest breeding habitat through land clearing and urbanisation; especially forest remnants and corridors along the species' migration routes.

6.8.6 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.8.7 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat
- Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline.

6.8.8 References

Atlas of Living Australia (2018). *Rhipidura rufifrons*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:025b08d1-0e50-4723-b581-9be91d8d09ed> [Accessed 27 August 2018].

Department of the Environment and Energy (2018). *Rhipidura rufifrons* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=592 [Accessed 27 August 2018].

Higgins, P.J. Peter J.M. and Cowling S.J. (2006). Handbook of Australian, New Zealand and Antarctic Birds. In: Part A. Boatbill to Larks. Volume 7. Melbourne, Victoria: Oxford University Press.

Lindsey, T.R. (1992). Encyclopedia of Australian Animals: Birds. Page(s) 313. Collins-Angus and Robertson Publishers Pty Ltd.

Lostandcold. (2009). Rufous fantail (*Rhipidura rufifrons*). [image] [online] Available from: <https://www.flickr.com/photos/lostandcold/4065996836/in/photolist-7ciicJ-bzzXAH-RGE7Zm-Hi6Ykc>. [17 September 2019].

Pizzey, G. and Knight, F. (2007). The Field Guide to the Birds of Australia. Harper Collins publishing, Sydney.

6.9 Satin flycatcher (*Myiagra cyanoleuca*)

6.9.1 Status

EPBC Act – Marine and Migratory (Bonn)

NC Act – Special Least Concern

6.9.2 Biology and ecology

6.9.2.1 Characteristic

The Satin flycatcher (*Myiagra cyanoleuca*) ranges in size from 15 to 17 cm. This species is blue-black and white bird with a small crest. The sexes are dimorphic. Males are glossy blue-black dorsally, with a blue-black chest and white below. Females are dusky blue-black dorsally, with an orange-red chin, throat and breast, and white underparts and pale-edged wing and tail feathers. Immature birds are dark brown-grey above, with pale streaks and buff edges to the wing feathers, and a mottled brown-orange throat and chest (DotEE 2018; Pizzey and Knight 2007) (refer Photograph 6.9).



Photograph 6.9 Satin flycatcher (*Myiagra cyanoleuca*)

Source: Musser (2014), Harris (2016)

6.9.2.2 Known distribution

The Satin flycatcher occurs along the east coast of Australia from far northern Queensland to Tasmania, including southeastern South Australia (refer Figure 6.17). In Queensland, it is widespread but scattered in the east. The Satin flycatcher is a migratory species, moving northwards in winter to northern Queensland and Papua New Guinea, returning south to breed in spring (BirdLife Australia 2012; Pizzey and Knight 2007).

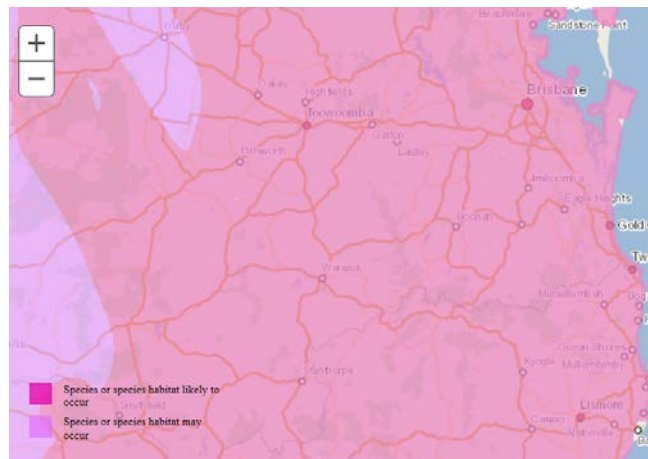


Figure 6.17 Distribution range of the Satin flycatcher

Source: ALA (2018), DotEE (2018)

6.9.2.3 Distribution in relation to project

Myiagra cyanoleuca has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicate that this species occurs from within 1 km of the impact assessment area to the west of the Project footprint at Bringalily State Forest (refer Figure 6.18). Other records occur from within 5 km of the Project footprint between Millmerran and Pittsworth from as recent as 2018. There are a number of occurrence records for this species in all directions around the Project with fewer to the west.

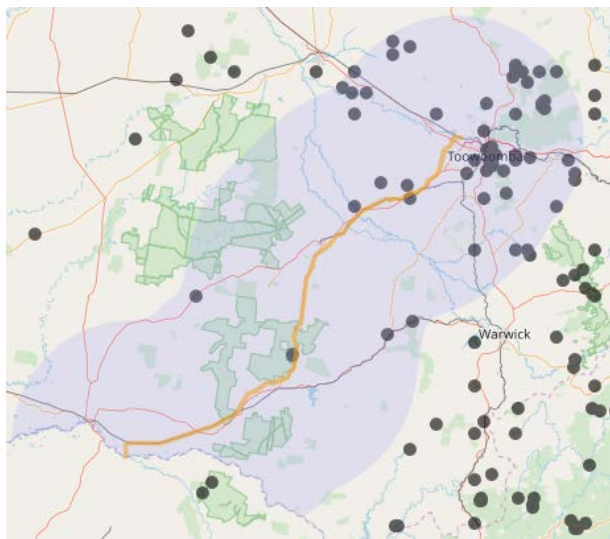


Figure 6.18 Distribution range of the Satin flycatcher in relation to the Project

Source: ALA (2020)

6.9.2.4 Biology and reproduction

Satin flycatchers are mainly insectivorous although very occasionally they will also eat seeds.

The Satin flycatcher builds a neat cup of bark strips, moss and spiders webs on a horizontal dead branch located 5 to 25 m above the ground under living foliage. This species has been reported to nest in loose groups with each individual pair spaced between 20 to 50 m apart. Both sexes build the nest, incubate the eggs and feed the young. Clutch size ranges from two to three eggs and breeding occurs between October and February (Pizzey and Knight 2007).

6.9.3 Habitat

The Satin flycatcher is found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests. This species is known to inhabit heavily vegetated gullies in Eucalypt dominated forests and taller woodlands usually above the shrub layer. On migration, this species occurs in coastal forests, woodlands, mangroves and drier woodlands and open forests as well as trees in open country and gardens (BirdLife Australia 2012; Blakers et al. 1984; Pizzey and Knight 2007).

6.9.4 Threatening processes

The following have been identified as potentially threatening processes to the Satin flycatcher (Blakers et al. 1984):

- Clearing and logging of forests, particularly mature forests, in southeastern Australia (Blakers et al. 1984).

6.9.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.9.6 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat

Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline.

6.9.7 References

Atlas of Living Australia (2018). *Myiagra cyanoleuca*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:77929aae-e7de-48dd-aac9-ba1080d28783> [Accessed 27 August 2018].

BirdLife Australia (2012). BirdLife Australia Database, Available: <http://BirdLife.org.au/> [Accessed 27 August 2018].

Birds Australia (2010). *Birds in Backyards- Satin flycatcher factsheet*. [Online]. Available from: <http://www.birdsinbackyards.net/species/Myiagra-cyanoleuca>

Blakers, M., Davies S.J.J.F. and Reilly P.N. (1984). *The Atlas of Australian Birds*. Melbourne, Victoria: Melbourne University Press.

Department of the Environment and Energy (2018). *Myiagra cyanoleuca* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82411 [Accessed 27 August 2018].

Harris, K. (2016). Satin flycatcher (*Myiagra cyanoleuca*). [image] [online] Available from: <https://images.ala.org.au/image/details?imageId=e294aee2-7cf5-4d47-af1d-0e8740369565>. [17 September 2019].

Musser, A. (2017). Satin flycatcher (*Myiagra cyanoleuca*). [image] [online] Available from: <https://images.ala.org.au/image/details?imageId=c6460cde-1d8a-4cca-95de-f0450bf2963d>. [17 September 2019].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.10 Sharp-tailed sandpiper (*Calidris acuminata*)

6.10.1 Status

EPBC Act – Marine and Migratory (Bonn, CAMBA, JAMBA, ROKAMBA)

NC Act – Special Least Concern

6.10.2 Biology and ecology

6.10.2.1 Characteristic

The Sharp-tailed sandpiper (*Calidris acuminata*) grow to 17 to 21 cm long, with males being usually larger. It has a small straight or slightly decurved bill that is longer than its head. The legs are dull olive-yellow, yellow or olive-grey. It has a dull chestnut crown with dark eyelines that becomes browner on ear-coverts. The long feathers of the upperparts have pointed dark centres with pale brown margins. The underparts are whitish buff and sparsely streaked (refer Photograph 6.10). During the breeding season the upperparts are rufous with buff-white edges and they have an upperbreast which is buffish and heavily streaked on the flanks (Pizzey and Knight 2007).



Photograph 6.10 Sharp-tailed sandpiper (*Calidris acuminata*)

Source: Kavanagh (2019)

6.10.2.2 Known distribution

The Common sandpiper breeds in northern Siberia, from the delta of the Lena River, east to Chaun Gulf and east of the Kolyma River delta. It visits Australia from August to May and commonly found in the south-east but widespread across Australia in both inland and coastal locations (refer Figure 6.19) (Higgins & Davies 1996).



Figure 6.19 Distribution range of the Sharp-tailed sandpiper

Source: ALA (2018), DotEE (2018)

6.10.2.3 Distribution in relation to project

Calidris acuminata has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicate that the species is known from within 10 km of the Project footprint to the north and south of the alignment between Millmerran and Pittsworth however no dates occur for these records and they are not spatially reliable (refer Figure 6.20). A number of more reliable and recent records exist for this species from within a 50 km buffer from a number of locations including Goondiwindi, Yelarbon State Forest, Lake Coolmunda, Oakey and to the north and east of Toowoomba.

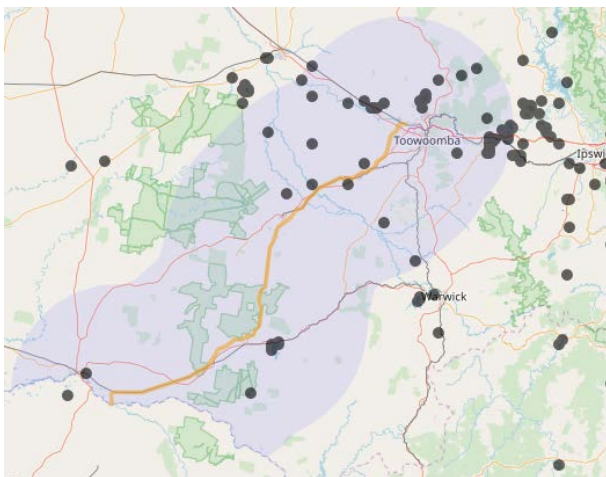


Figure 6.20 Distribution range of the Sharp-tailed sandpiper in relation to the Project

Source: ALA (2020)

6.10.2.4 Biology and reproduction

In Australia, the Sharp-tailed sandpiper forages on seeds, worms, molluscs, crustaceans and insects (Higgins & Davies 1996).

This species does not breed in Australia and they migrate to northern Siberia to breed and nest (Higgins & Davies 1996).

6.10.3 Habitat

In Australia, the Sharp-tailed sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation including lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They use flooded paddocks, sedgeland and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets and estuaries or seashores (Higgins & Davies 1996).

6.10.4 Threatening processes

The following have been identified as potentially threatening processes to the Sharp-tailed sandpiper:

- Habitat loss reducing the availability of foraging and roosting sites
- Habitat degradation including loss of marine or estuarine vegetation, invasion of intertidal mudflats by weeds, water pollution and changes to the hydrological regime and exposure of acid sulphate soils (DEWHA 2009).

6.10.5 Threat abatement/recovery plans

No recovery plan has been identified as being relevant for this species.

The following Wildlife Conservation Plan and marine bioregional plan have been identified as relevant for the species:

- Commonwealth of Australia (2015). *Wildlife Conservation Plan for Migratory Shorebirds*. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.

6.10.6 Summary of threat abatement/recovery plans

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes
- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting.

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

6.10.7 References

- Atlas of Living Australia (2018). *Calidris acuminata*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:75106fa7-7d65-4724-814d-dce6306c79d9> [Accessed 20 September 2018].
- Department of the Environment and Energy (2018). *Calidris acuminata* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=874 [Accessed 27 August 2018].
- Department of the Environment, Water, Heritage and the Arts (2009). Draft Significant impact guidelines for 36 migratory shorebirds Draft EPBC Act Policy Statement 3.21. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/epbc/publications/migratory-shorebirds.html>.
- Higgins, P.J. and Davies S.J.J.F. eds (1996). *Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons*. Melbourne, Victoria: Oxford University Press.
- Kavanagh, P. (2019). Sharp-tailed sandpiper (*Calidris acuminata*). [image] [online] Available from: https://www.flickr.com/photos/patrick_k59/46301707304/in/photolist-2dxwmsm-2f7Wpc2-2cRpB6V-2fzddoG-254uhk9-21RS3AD-J5pVor-Dnv4mM-RPUPCq-21Wxs4h-DnvAzZ-J5q4k8-2327Qcz-21xdmw8-XKp6ZK-DpvVqo-21usDbS-XFVjNK-DTHCUp-bDBKME-21xeae-Zs78j9-21usx2Y-21xdLZX-21si5af-21Fxx46-2ghF6bq-RGryGt-23uUAdu-21usrf7-21xd7sg. [17 September 2019].
- Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.11 Red-necked stint (*Calidris ruficollis*)

6.11.1 Status

EPBC Act – Marine and Migratory (Bonn, CAMBA, JAMBA, ROKAMBA)

NC Act – Special least concern

BC Act – Not listed

6.11.2 Biology and ecology

6.11.2.1 Characteristic

The Red-necked stint (*Calidris ruficollis*) is approximately 13 to 16 cm in length, weighs 25 g and has a wingspan between 29 and 33 cm. The legs are short and dark and the bill is straight or slightly decurved, with a bulbous tip. In non-breeding plumage, the upper parts are brown and grey-brown, with most feathers pale-edged, giving a mottled effect (refer Photograph 6.11). It also has a pale eye-stripe. The rump and tail are black and the outer tail-feathers and sides of the rump are white. The underparts are white with some grey on the sides of the breast. In breeding plumage, it has a deep salmon-pink on the head and nape suffusing into pink on the mantle and wing-coverts. Immature birds are similar to non-breeding adults but browner and the crown is dull rufous (Birdlife Australia 2018).



Photograph 6.11 Red-necked stint (*Calidris ruficollis*)

Source: Nicolson (2018)

6.11.2.2 Known distribution

The Red-necked stint breeds in Siberia and sporadically in north and west Alaska. During the nonbreeding season they are found in Southeast Asia and Australasia (refer Figure 6.21). It is distributed along most of the Australian coastline and is found inland in all states when conditions are suitable (Watkins 1993).

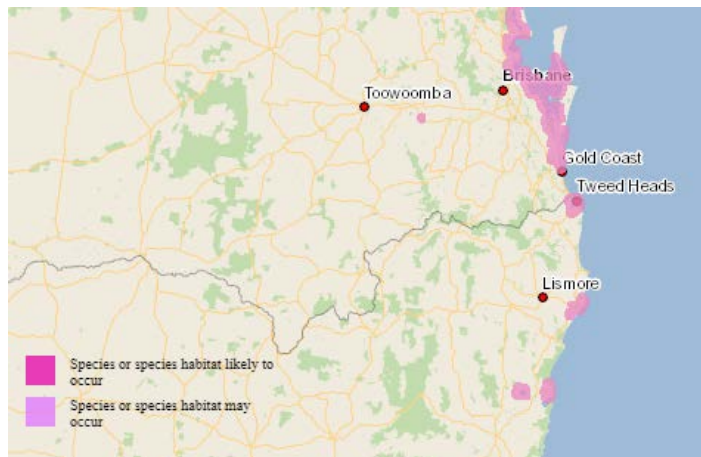


Figure 6.21 Distribution range of the Red-necked stint

Source: ALA (2018); DOEE (2018)

6.11.2.3 Distribution in relation to project

Calidris ruficollis has been predicted to occur within the region and associated habitat within the impact assessment area. Database records (i.e. AoLA, WildNet) dated from 2019 indicate that this species occurs from within approximately 20 km to the east of the Project footprint at Lake Coolmunda (refer Figure 6.22). Other records occur to the north-west of the Project from 1980 near Oakey. Other records outside of a 50 km buffer exist for this species in all directions with most occurring along the eastern coastline.

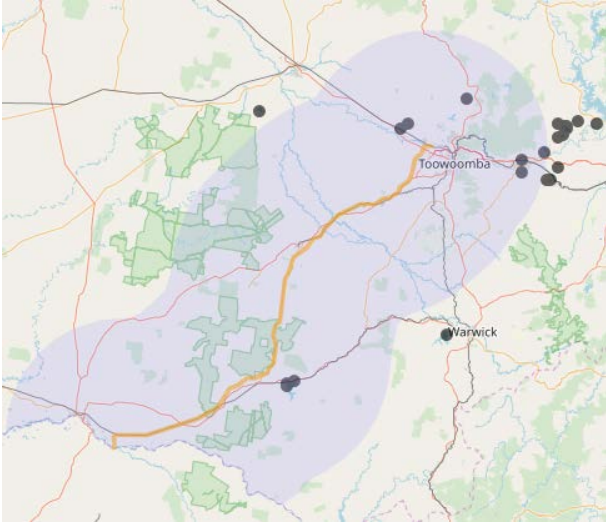


Figure 6.22 Distribution range of the Red-necked stint in relation to the Project

Source: ALA (2020)

6.11.2.4 Biology and reproduction

The Red-necked stint forages on plant seeds (such as from *Ruppia* spp. and *Polygonum* spp.) and on a range of invertebrates such as marine worms, molluscs, shrimps, spiders, insects. It will also eat grit (Higgins and Davies 1996).

Red-necked stints do not breed in Australia. They breed in Siberia and west Alaska, laying eggs in June. They migrate to Australia from August to April (Pizzey and Knight 2007).

6.11.3 Habitat

In Australasia, the Red-necked stint is mostly found in coastal areas, including sheltered inlets, bays, lagoons and estuaries with intertidal mudflats. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland (Higgins & Davies 1996).

6.11.4 Threatening processes

The following have been identified as potentially threatening processes to the Red-necked phalarope:

- Habitat loss (i.e.- land clearing, inundation and infilling or draining)
- Habitat degradation (i.e.- loss of marine or estuarine vegetation, invasion of intertidal mudflats by weeds such as cord grass, water pollution and changes to the water regime, changes to the hydrological regime and exposure of acid sulphate soils)
- Disturbance - (i.e. fishing, power boating, four wheel driving, walking dogs, noise and night lighting)
- Direct mortality (DEWHA 2009).

6.11.5 Threat abatement/recovery plans

No threat abatement/recovery plans were identified as being relevant for this species.

The following Wildlife Conservation Plan and marine bioregional plan were identified as being relevant for this species:

- Commonwealth of Australia (2015). *Wildlife Conservation Plan for Migratory Shorebirds*. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.

- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2012). *Marine bioregional plan for the North-west Marine Region*. Prepared under the *Environment Protection and Biodiversity Conservation Act 1999*. Available from: <http://www.environment.gov.au/topics/marine/marine-bioregional-plans/north-west>. In effect under the EPBC Act from 27-Aug-2012.

6.11.6 Summary of threat abatement/recovery plans

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes
- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting.

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

In terms of the Marine bioregional plan for the North-west Marine Region, the relevant management strategies for Red-necked stint include:

- Increase the support from research organization
- Establish and manage a Commonwealth marine reserve network to provide protection and conservation of the biodiversity
- Provide regional advice determining the significance of potential impact
- Develop targeted collaborative programs to coordinate species recovery and environmental protection efforts
- Improve monitoring, evaluation and reporting on ecosystem health.

6.11.7 References

Atlas of Living Australia (2018). *Calidris ruficollis*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:ba624e08-5847-4c34-96cf-c3b414f00117> [Accessed 16 October 2018].

Birdlife Australia (2018). Red-necked Stint. Available from: <http://www.birdlife.org.au/bird-profile/red-necked-stint> [Accessed 16 October 2018].

Department of the Environment and Energy (2018). *Calidris ruficollis* (Red-necked Stint) in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=860. [Accessed 24 August 2018].

Department of the Environment, Water, Heritage and the Arts (2009). *Draft Significant impact guidelines for 36 migratory shorebirds Draft EPBC Act Policy Statement 3.21*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/epbc/publications/migratory-shorebirds.html> [Accessed 16 October 2018].

Higgins, P.J. and Davies S.J.J.F. eds (1996). *Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons*. Melbourne, Victoria: Oxford University Press.

Nicolson, K. (2018). *Calidris ruficollis* (Image) [Online] Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:ba624e08-5847-4c34-96cf-c3b414f00117> [Accessed 16 October 2018].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

Watkins, D. (1993). A national plan for shorebird conservation in Australia. RAOU Report Series. 90.

6.12 Spectacled monarch (*Symposiachrus trivirgatus*)

6.12.1 Status

EPBC Act – Migratory (Bonn)

NC Act – Special Least Concern

6.12.2 Biology and ecology

6.12.2.1 Characteristic

The Spectacled monarch (*Symposiachrus trivirgatus*) approximates 15 cm in size and is blue-grey above, with a black face mask that extends across both eyes. The breast is rufous in colour and the underparts are pale. The tail is black with white outer tips. Immature birds lack the black face and have a grey throat (Pizzey and Knight 2007) (refer Photograph 6.12).



Photograph 6.12 Spectacled monarch (*Symposiachrus trivirgatus*)

Source: Mike's Birds (2017)

6.12.2.2 Known distribution

The Black-faced monarch migrates between Australia and New Guinea. During the summer breeding months this species is found along the eastern coastal region of Australia, during winter the species retreats to the north overwintering in New Guinea. Rather than making the full migration north to New Guinea a portion of the population remains in northern Australia during winter usually consisting of younger birds (DAWE 2020). This species utilises rainforest as breeding habitat selecting trees with large leaves as nesting sites where they construct a nest at the top of the tree, in smaller saplings or in low shrubs. The species is known to breed from the Atherton region of Queensland's wet tropics, south-east Queensland and near Lake Entrance in south-east Victoria (DAWE 2020) (refer Figure 6.23).



Figure 6.23 Distribution range of the Spectacled monarch

6.12.2.3 Distribution in relation to project

Symposiachrus trivirgatus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA, WildNet) indicated that the species is known from within 10 km of the temporary and permanent project footprint. The nearest database record for this species is from 2019 and occurs from Highfields located approximately 10 km to the east of the northern section of the Project footprint (refer Figure 6.24). Other records are from a similar distance from the Project footprint to the east near Toowoomba. No records for this species occur within the impact assessment area. Most records for this species occur to the south-east, east and north-east.

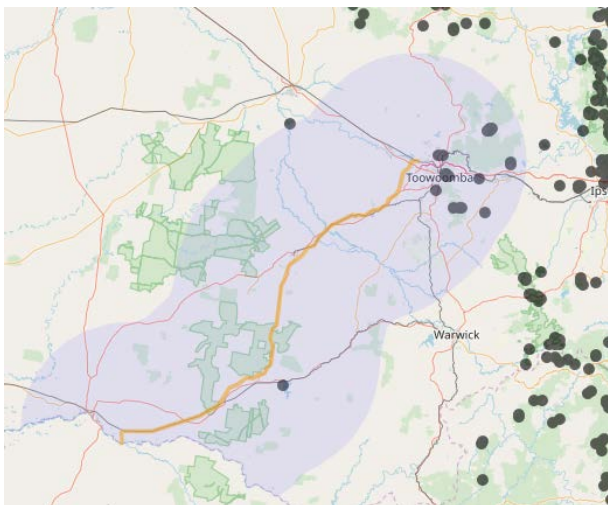


Figure 6.24 Distribution range of the Spectacled monarch in relation to the Project

Source: ALA (2020)

6.12.2.4 Biology and reproduction

The Spectacled monarch forages for insects among foliage or catches flying insects on the wing (Pizzey and Knight 2007).

The Spectacled monarch is a resident in the north of its range (i.e. from Rockhampton in QLD northward) but is a summer breeding migrant to coastal southeastern Australia, arriving in September and returning northwards in March. It may also migrate to Papua New Guinea in autumn and winter. The Spectacled monarch builds a small cup nest of fine bark, plant fibres, moss and spider web generally in a tree fork or in hanging vine 1 to 6 m above the ground. Nests are often located near water. Only the female builds the nest, but both sexes incubate the eggs and feed the young. Clutch size consists of two eggs. Reproduction occurs between October and February (DotEE 2018; Pizzey and Knight 2007).

6.12.3 Habitat

The Spectacled monarch inhabits both dense low vegetation and habitats with fairly open understoreys. The species prefers the understorey of mountain and lowland rainforests, thickly wooded gullies and waterside vegetation (Pizzey and Knight 2007).

6.12.4 Threatening processes

There are currently no known serious threatening processes that have been identified for the Spectacled monarch.

6.12.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.12.6 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat
- Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline.

6.12.7 References

Atlas of Living Australia (2018). *Symposiachrus trivirgatus*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:025b08d1-0e50-4723-b581-9be91d8d09ed> [Accessed 27 August 2018].

Blakers, M., Davies S.J.J.F. and Reilly P.N. (1984). *The Atlas of Australian Birds*. Melbourne, Victoria: Melbourne University Press.

Department of the Environment and Energy (2018). *Symposiachrus trivirgatus* in Species Profile and Threats Database, Department of the Environment and Energy, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=592 [Accessed 27 August 2018].

Mike's Birds. (2017). Spectacled monarch (*Symposiachrus trivirgatus*). [image] [online] Available from: <https://www.flickr.com/photos/pazzani/32674373086/in/photolist-cbDuRN-248Bv1h-RMjGL7-p2uuuJ-7ubegy-LDPfDX-rARt3W-2hczLX3-XAz8D2-QnWzZW>. [17 September 2019].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.13 Yellow wagtail (*Motacilla flava*)

6.13.1 Status

EPBC Act – Marine and Migratory (CAMBA, JAMBA, ROKAMBA)

NC Act – Special Least Concern

6.13.2 Biology and ecology

6.13.2.1 Characteristic

The Yellow wagtail (*Motacilla flava*) is approximately 16.4 to 18 cm long with dark legs and uniform grey-green rump. In the nonbreeding season adults have greyish brown upperparts with white or yellowish eyebrows, dark ear-coverts and a buff-white breast. They have dark wings with white or yellow margins in a netted pattern on the upper wings (refer Photograph 6.13). In breeding plumage, they have bright yellow underparts from breast to vent. Juvenile forms are browner than the nonbreeding form with bolder spotted necklaces or yellow patches. They also make a high pitched 'sweet' or 'tzeep' sound (Pizzey and Knight 2007).



Photograph 6.13 Yellow wagtail (*Motacilla flava*)

Source: Pestana (2011)

6.13.2.2 Known distribution

They breed from Europe to Siberia and migrate south to Africa, SE Asia and Australia. In Australia, they are found in mostly coastal northern areas but also further south in NSW and southern WA Western Australia from November to April (Pizzey and Knight 2007) (refer Figure 6.25).

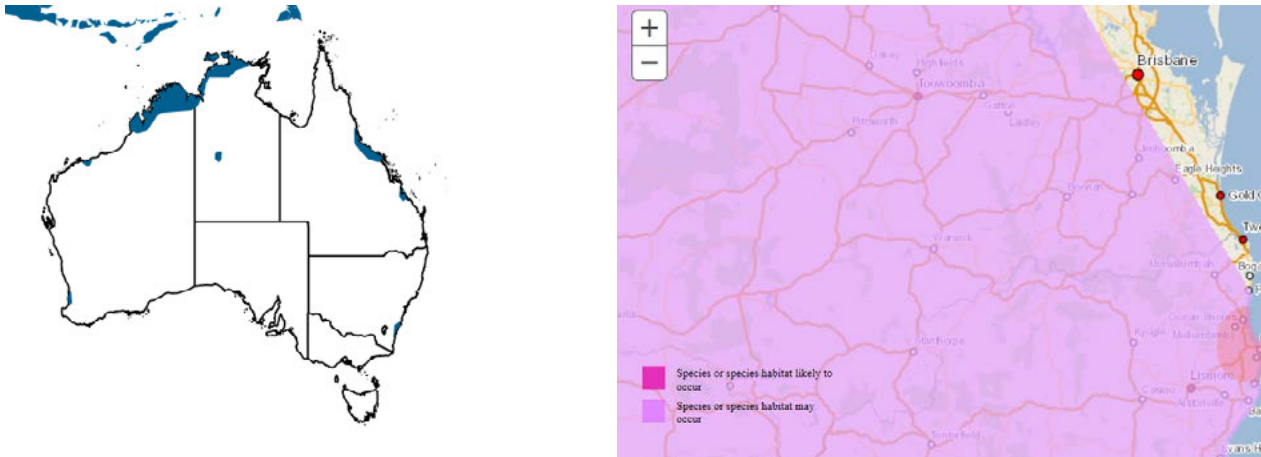


Figure 6.25 Distribution range of the Yellow wagtail

Source: ALA (2018), DotEE (2018)

6.13.2.3 Distribution in relation to project

Motacilla flava has been predicted to occur within the region and associated habitat within the impact assessment area. However, there are no current database records (i.e. AoLA, WildNet) for this species within 50 km of the temporary and permanent project footprint. The nearest record is from 2013 near east Brisbane more than 100 km from the Project footprint with several records in the area (refer Figure 6.26). Other records occur to the south-east of the Project footprint near Lismore and to the north-east on Fraser Island.

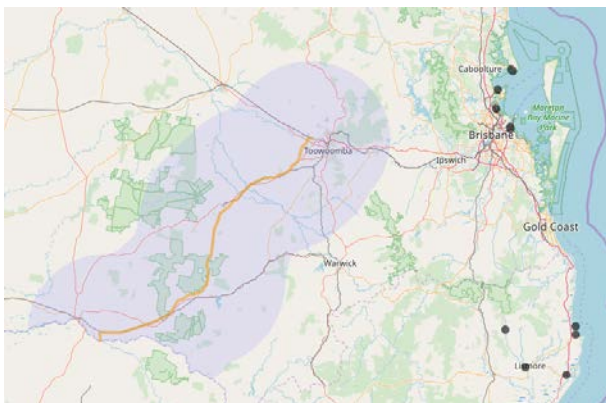


Figure 6.26 Distribution range of the Yellow wagtail in relation to the Project

Source: ALA (2020)

6.13.2.4 Biology and reproduction

It feeds on a wide variety of terrestrial and aquatic invertebrates as well as some plant material, particularly seeds (BirdLife International (2017).

Yellow wagtails do not breed in Australia and migrate north from April to August (Pizzey and Knight 2007).

6.13.3 Habitat

Yellow wagtails can be found in and around short grass, bare ground, swamp margins, sewage ponds, saltmarshes, sports fields, airfields, ploughed land and urban lawns (Pizzey and Knight 2007).

6.13.4 Threatening processes

The following have been identified as potentially threatening processes to the Yellow wagtail (BirdLife International (2017):

- Agricultural intensification
- Wetland drainage
- Use of pesticides (BirdLife International 2017).

6.13.5 Threat abatement/recovery plans

No threat abatement/recovery plan has been identified as being relevant for this species. The following referral guideline has been identified for this species:

- Referral guideline for 14 birds listed as migratory species under the EPBC Act.

6.13.6 Summary of threat abatement/recovery plans

The actions considered to have a significant impact on migratory birds include:

- Substantial loss or modification of important habitat for the species
- Actions that cause serious disruptions to an ecologically significant proportion of a population impacting annual mortality rates or the breeding cycles of individuals
- Establishment of invasive species harmful to migratory species in areas of important habitat.

Objectives and actions outlined in the referral guideline include:

- Retain the necessary habitats and resources required for the listed migratory birds to successfully migrate and, where appropriate successfully breed throughout their natural range in Australia
- Provide parameters for assessing the significant impacts based on actions that are likely to seriously disrupt the lifecycle of an ecologically significant portion of any migratory species' population or an action that will result in invasive species harmful to migratory species becoming established in an area of important habitat
- Upper thresholds have been outlined for the impact related to the disruption of habitat or to an ecologically significant proportion of the population for each species listed in the referral guideline

The Yellow wagtail is one of the five non-breeding species outlined in the referral guideline. As they are considered to be extremely uncommon migrants the number of individuals at any one site are so small relative to their global population that no small group of individuals is likely to be significant for the species in Australia or the ecological attributes for a site. For these species it is sufficient to lodge records with the Commonwealth to satisfy the recommendation.

6.13.7 References

Atlas of Living Australia (2018). *Motacilla flava*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:5b193d88-79d6-4a38-9c11-1385bace84c8#overview> [Accessed 29 August 2018].

BirdLife International (2017). *Motacilla flava* (amended version of 2017 assessment). The IUCN Red List of Threatened Species 2017: e.T103822349A119286241. Available from:

<http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103822349A119286241.en>. [Accessed 29 August 2018]

OZ Animals (n.d.). *Motacilla flava* (Image) [Online] Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:5b193d88-79d6-4a38-9c11-1385bace84c8#gallery> [Accessed 29 August 2018].

Pestana, F. (2011). Yellow wagtail (*Motacilla flava*). [image] [online] Available from: <https://www.flickr.com/photos/ferranp/5652899418/in/photolist-9BwA45-HRgKqh-gR7PEB-fqKQ16-o1PHy5-fqKQjV-gR7PRD-fqKQdF-nmAZEj-QJYupF-o1PHxd-nsA7DR-nYSZa3-29bQGxw-QPEsnm-RkvQME-J6aFCJ-4Gy77j-k732Zo-RxsJbL-eKmW48-nuDpMn-nqQ8ZW-2dXB6Bd-s7mLvg-9T9Y7S-9T7afH-2nhuTx-9JQHOM-o1PHD5-cSUaUY-9T9ZRQ-aLjuZe-9Ec8xC-o1CfSD-qbdTXd-nhXMG3-gR6SDW-gUkByF-o1PHKC-aD92DN-o1CfKK-nJr6Eq-DRXEbo-9T9Z4W-p9jAnR-nYSZqy-9E3tPb-eujvUb-dJQUtZ>. [17 September 2019].

Pizzey, G. and Knight, F. (2007). *The Field Guide to the Birds of Australia*. Harper Collins publishing, Sydney.

6.14 Common greenshank (*Tringa nebularia*)

6.14.1 Status

EPBC Act – Marine and Migratory (Bonn/CAMBA/JAMBA/ROKAMBA)

NC Act – Special Least Concern

6.14.2 Biology and ecology

6.14.2.1 Characteristic

The Common greenshank (*Tringa nebularia*) is a heavily built, elegant wader, 30 to 35 cm in length, with a wingspan of 55 to 65 cm and weight up to 190 g for both males and females (refer Photograph 6.14). During the nonbreeding period, the bill is long and slightly upturned and the legs are long and yellowish-green. In flight, all plumages show uniformly dark upperwing and contrasting white rump extending in a white wedge up the back. The sexes are alike. During the breeding season their head and neck is white with heavy black streaking and the interwing coverts are mostly brownish-grey with white fringes. The underbody is white with fine black streaks on chin and throat and there are bold black chevrons on the breast and flank. The underwing is white with faint brownish barring on the covers and the bill is bluish-greenish grey. The juvenile is like the adult non-breeding form but the head and neck are slightly darker with heavier, darker streaking (Higgins and Davies 1996).



Photograph 6.14 Common greenshank (*Tringa nebularia*)

Source: Matos (2017)

6.14.2.2 Known distribution

During the breeding season they are found in Eurasia, the northern British Isles, Scandinavia, east Estonia, northeast Belarus and Russia. In the nonbreeding season the species is widespread and found in Europe, Africa, Asia, Melanesia and Australasia. The species is found in most states and territories of Australia (refer Figure 6.27). In Queensland, it has been recorded in most coastal regions, possibly with a gap between north Cape York Peninsula and Cooktown. Inland, there have been a few records south of a line from near Dalby to Mt Guide, and sparsely scattered records elsewhere. In NSW, the species has been recorded in most coastal regions. It is widespread west of the Great Dividing Range, especially between the Lachlan and Murray Rivers and the Darling River drainage basin, including the Macquarie Marshes, and northwest regions (Higgins and Davies 1996).

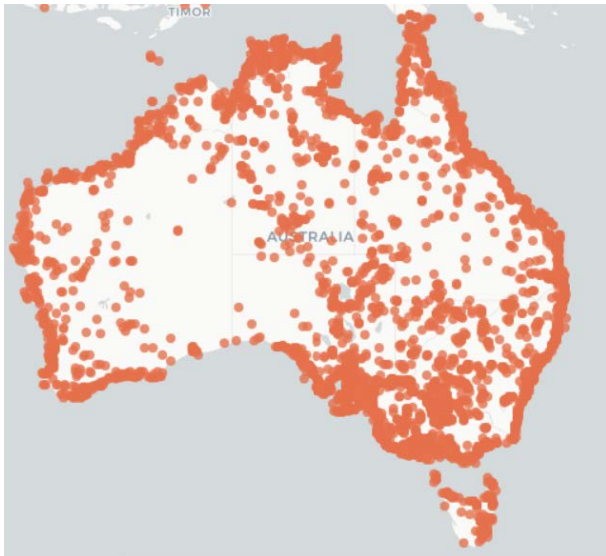


Figure 6.27 Distribution range of the Common greenshank

Source: ALA (2018)

6.14.2.3 Distribution in relation to project

Tringa nebularia has been predicted to occur within the region and associated habitat within the impact assessment area. However, there are no current database records (i.e. AoLA, WildNet) for this species within the impact assessment area. There is a single record from 1998 approximately 5 km south of the Project footprint between Whetstone State Forest and Yelarbon State Forest (refer Figure 6.28). Several records exist from Lake Coolmunda east of Inglewood and approximately 15 km south-east of the Project footprint from between 2001-2016. Other occurrence records exist for this species outside of a 50 km buffer in all directions although records to the west are more sparse.

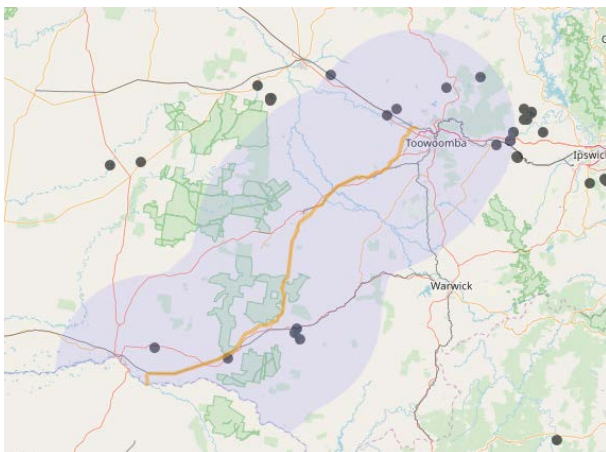


Figure 6.28 Distribution range of the Common greenshank in relation to the Project

Source: ALA (2020)

6.14.2.4 Biology and reproduction

The Common greenshank is carnivorous and has been recorded eating molluscs, crustaceans, insects, and occasionally fish and frogs.

The species does not breed in Australia. Common greenshanks migrate to breed in Eurasia, the northern British Isles, Scandinavia, east Estonia, northeast Belarus and Russia from April to June (Higgins and Davies 1996).

6.14.3 Habitat

The Common greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It is found around large mudflats, saltmarsh, mangroves and seagrass. Habitats include embayments, harbours, river estuaries, deltas, lagoons, tidal pools, rock-flats and rock platforms. The species uses both permanent and ephemeral terrestrial wetlands, including swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans and saltflats. It will also use artificial wetlands including sewage farms, saltworks, dams, inundated rice crops and bores (Higgins and Davies 1996).

6.14.4 Threatening processes

The following have been identified as potentially threatening processes to the Common greenshank:

- Loss/modification of habitat (i.e.- residential, farming, industrial and aquaculture/fishing activities) (Straw 1992)
- Increased silt in the water, pollution and weed or pest invasion of habitats can change the quality or quantity of food available from the sites or modify important biophysical aspects (Straw 1992)
- Disturbance (i.e.- fishing, power boating, four wheel driving, walking dogs, noise and night lighting) (DEH 2005).

6.14.5 Threat abatement/recovery plans

No threat abatement/recovery plans have been identified as being relevant for this species.

The following Wildlife Conservation Plan and Marine Bioregional Plans have been identified as being relevant for this species:

- Commonwealth of Australia (2015). *Wildlife Conservation Plan for Migratory Shorebirds*. Canberra, ACT: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/publications/wildlife-conservation-plan-migratory-shorebirds-2016>. In effect under the EPBC Act from 15-Jan-2016.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPoC) (2012). *Marine bioregional plan for the North-west Marine Region*. Prepared under the *Environment Protection and Biodiversity Conservation Act 1999*. Available from: <http://www.environment.gov.au/topics/marine/marine-bioregional-plans/north-west>. In effect under the EPBC Act from 27-Aug-2012.

6.14.6 Summary of threat abatement/recovery plan

The threats to migratory shorebirds outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Habitat loss as a result of infrastructure and coastal development in Australia
- Modification of important habitat through chronic and acute pollution, invasive species and altered hydrological regimes

- Anthropogenic disturbance
- Climate variability and change
- Harvesting of shorebird prey
- Fisheries by-catch
- Hunting.

Objectives and actions outlined in the Wildlife Conservation Plan for Migratory Shorebirds include:

- Protection of important habitat for migratory shorebirds that occurs throughout the East Asia-Australasian Flyway
- Protect and conserve wetland habitats on which migratory shorebirds are dependent upon
- Minimise or eliminate anthropogenic impacts to migratory shorebirds in Australia
- Identify and address knowledge gaps in migratory shorebird ecology to better inform decision makers, land managers and the public.

In terms of the Marine bioregional plan for the North-west Marine Region, the relevant management strategies for the Pacific golden plover include:

- Increase the support from research organization
- Establish and manage a Commonwealth marine reserve network to provide protection and conservation of biodiversity
- Provide regional advice determining the significance of potential impacts
- Develop targeted collaborative programs to coordinate species recovery and environmental protection efforts
- Improve monitoring, evaluation and reporting on ecosystem health.

6.14.7 References

Atlas of Living Australia (2018). *Tringa glareola*. Available from:

<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:93f685e8-331a-4853-8cc2-792525e4c717#overview> [Accessed 29 August 2018].

Department of the Environment and Heritage (DEH) (2005). *Background Paper to the Wildlife Conservation Plan for Migratory Shorebirds*. Canberra, ACT: Department of the Environment and Heritage. Available from: <http://www.environment.gov.au/biodiversity/migratory/publications/pubs/shorebird-plan-background.pdf>.

Department of the Environment, Water, Heritage and the Arts (2009). Draft Significant impact guidelines for 36 migratory shorebirds Draft EPBC Act Policy Statement 3.21. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/epbc/publications/migratory-shorebirds.html>.

Higgins, P.J. and Davies S.J.J.F. (eds) 1996, *Handbook of Australian, New Zealand and Antarctic Birds*. Volume Three - Snipe to Pigeons. Melbourne, Victoria: Oxford University Press.

Matos, H. (2017). Common greenshank (*Tringa nebularia*). [image] [online] Available from:

<https://www.flickr.com/photos/145880133@N04/33210877622/in/photolist-SAJqSj-dJUAsX-7QBXDR-dJUDfp-qmyqQv-ExLPX6-EfWAAv-dJRkeU-278Vob5-V6GR9D-RVaMiZ-dJKUP2-dJRgfb-dJRmcC-dK14DE-dJRhj9-dJRj6Q-9H13Mz-U4MNNi-3ZFrhe-dJKTYn-oTCiPi-fY2cd4-3c7eCV-7dr6zo-oTmA5x-neQUm-4nUdQ1-Eubada-L7xRE8-q59v8z-f5vPxs-6x9orw-TTHgv9-ababct-6x5cXZ-rdQnrz-6x5dbM-222u7Q4-5Ks4m7-5wdtPT-EDeVEK-rhBHGT-rAQvwC-3cbEsE-dK15UC-dJUCE4-dhQSMh-g5RCgS-ayGuF4>. [17 September 2019].

Straw, P. (1992). *Relocation of Shorebirds. A Feasibility Study and Management Options*. Sydney, NSW: Unpublished report by the Royal Australasian Ornithologists Union for the Federal Airports Corporation.

6.15 Fork-tailed swift (*Apus pacificus*)

6.15.1 Status

EPBC Act – Marine and Migratory (Bonn/CAMBA/JAMBA/ROKAMBA)

NC Act – Special Least Concern

6.15.2 Biology and ecology

6.15.2.1 Characteristic

The Fork-tailed swift (*Apus pacificus*) is a medium to large bird (30 to 40 g), with an approximate length of 18 to 21 cm, and a wingspan of 40 to 42 cm. It has a slim body, with long sickle-shaped wings that taper to finely pointed tips (refer Photograph 6.15). It is characterised by a long and deeply forked tail. The Fork-tailed swift is predominately blackish, with a white band across the rump, and a white patch on the chin and throat. The body, tail and upperwings are black-brown and they have a faint pale scaling to the saddle, and white scalloping to the underbody. The sexes are alike with no seasonal variation, juveniles are also indistinguishable in the field (DotEE 2018, Higgins 1999).



Photograph 6.15 Fork-tailed swift (*Apus pacificus*)

Source: Nicolson (2018)

6.15.2.2 Known distribution

The Fork-tailed swift is a non-breeding visitor to all states and territories of Australia (Higgins 1999) (refer Figure 6.29).

In Queensland, there are scattered records of the Fork-tailed swift in the Gulf Country, and a few records on Cape York Peninsula. In the northeast region there are many records east of the Great Divide from near Cooktown and south to Townsville. They are also widespread in much of the south southeastern region, more so west of the Great Divide, and are commonly found west of the line joining Chinchilla and Hughenden (DotEE 2018).



Figure 6.29 Distribution range of the Fork-tailed swift

Source: ALA (2018)

6.15.2.3 Distribution in relation to project

Apus pacificus has been identified as potentially occurring within the impact assessment area. Database records (i.e. AoLA) indicated the species is known from within the impact assessment area to the south of the Project footprint at Pittsworth (refer Figure 6.30). Whilst this record is not dated a nearby record was from 1972. Two records from more recently (2018) occur from within the impact assessment area at Yelarbon. Other occurrences exist for this species in all directions around the alignment.

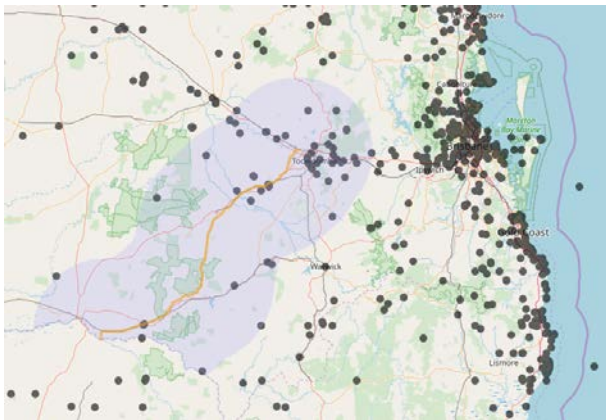


Figure 6.30 Distribution range of the Fork-tailed swift in relation to the Project

Source: ALA (2020)

6.15.2.4 Biology and reproduction

The Fork-tailed swift's diet is not well known within Australia. It is known, however, that this species is insectivorous. Studies have recorded the Fork-tailed swift eating small bees, wasps, termites and moths (DotEE 2018).

The Fork-tailed swift does not breed in Australia. It departs its breeding grounds in Siberia from August to – September, typically arriving in Australia in October. In April/May, the Fork-tailed swifts depart Australia, to continue its return trip to the breeding sites in Siberia (DotEE 2018).

6.15.3 Habitat

The Fork-tailed swift is an almost exclusively aerial species, flying from less than 1 m to at least 300 m above ground, and probably much higher. In Australia, Fork-tailed swifts predominately occur over inland plains, but sometimes occur above foothills, or in coastal areas. They often occur over cliffs, beaches, islands, and sometimes far out to sea. This species is also known to occur in the skies above settled areas, including urban areas and cities. Sometimes, Fork-tailed swifts may feed among tree-tops in open forests (DotEE 2018, Higgins 1999).

6.15.4 Threatening processes

There are no significant threats to the Fork-tailed swift in Australia, but potential threats include habitat destruction and predation by feral animals (Birdlife International 2009).

6.15.5 Threat abatement/recovery plans

The following threat abatement plan has been identified as being relevant for this species:

- Department of the Environment (2015). Threat abatement plan for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.

6.15.6 Summary of threat abatement/recovery plan

Threats identified in the Threat abatement plan for predation by feral cats include:

- Predation on native species causing a critical decline in many species across animal groups
- Competition for food with species they share dietary overlap and disease transmission
- Contributed to the extinction of many ground nesting bird species and the decline of small mammals.

Threat abatement actions for feral cats include:

- Effectively control cats in different landscapes
- Improve effectiveness of existing control measures for feral cats
- Develop and maintain alternative strategies for the recovery of threatened species
- Gain public support for feral cat management and promote responsible cat ownership.

6.15.7 References

- Atlas of Living Australia (2018). *Apus pacificus*. Available from: <https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:698f5cfc-4b81-4ed3-aebd-750d1f86a573> [Accessed 24 August 2018].
- BirdLife International (2009). *Apus pacificus* In: IUCN 2009. IUCN Red List of Threatened Species. Version 2009.2. *Apus pacificus*. IUCN Red List.
- Department of the Environment and Energy (2018). *Apus pacificus* in Species Profile and Threats Database, Department of the Environment & Energy, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=678 [Accessed 24 August 2018].
- Higgins, P.J. (ed.) (1999). Handbook of Australian, New Zealand and Antarctic Birds. Volume Four - Parrots to Dollarbird. Melbourne: Oxford University Press.
- Nicolson, K. (2018). Fork-tailed swift (*Apus pacificus*). [image] [online] Available from: <https://images.ala.org.au/image/details?imageId=64c6d1c6-cbac-456e-9566-fd84d70cfa2b>. [17 September 2019].

Pudwill, R 2008, Photograph: *Apus pacificus*, Available from:
<https://upload.wikimedia.org/wikipedia/commons/b/b5/ApusPacificus.jpg> [Accessed 24 August 2018].

APPENDIX

J

Terrestrial Ecology Technical Report

Appendix C Herbarium Verification Letter

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix C

Herbarium verification letter

Queensland Herbarium

Brisbane Botanic Gardens Mt Coot-tha • Toowong 4066 Queensland • Australia
Telephone +61 7 3896 9326 • Facsimile +61 7 3896 9624
e-mail Queensland.Herbarium@qld.gov.au
<http://www.qld.gov.au/herbarium>

Enquiries	Tony Bean
Telephone	07 3896 9318
Your reference	
Our reference	ARB:mh 340/18

1 May 2018

Chris Schell
Aurecon Australia
Locked Bag 331
BRISBANE Qld 4001

Dear Chris

The botanical specimens received by the Queensland Herbarium on 24 April 2018 have been identified as:

#Picris barbarorum. This species is listed as Vulnerable under Queensland's *Nature Conservation Act 1992*.

Acacia polybotrya

Dodonaea sp., fertile material needed for identification.

#Digitaria porrecta, confirmed. This species is listed as Near Threatened under Queensland's *Nature Conservation Act 1992*.

#Homopholis belsonii, confirmed. This species is listed as Endangered under Queensland's *Nature Conservation Act 1992*.

Bothriochloa erianthoides

These specimens have been kept for incorporation into the Herbarium collection, with thanks.

There is a charge of \$110.55 (minimum charge 1hr) for these identifications. A tax invoice and receipt are enclosed.

Yours sincerely

G.P. Guymer
Director

APPENDIX

J

Terrestrial Ecology Technical Report

Appendix D Database Search Results

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix D

Database Search Results



EPBC Act Protected Matters Report

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

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

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 26/02/20 12:14:00

[Summary](#)

[Details](#)

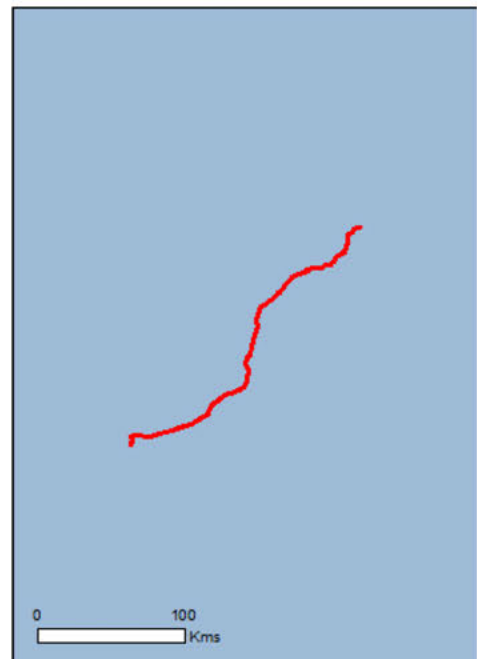
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

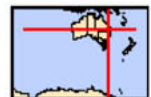
[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia
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[Coordinates](#)

Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	7
Listed Threatened Species:	44
Listed Migratory Species:	15

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

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.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	40
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	1100 - 1200km
Narran lake nature reserve	400 - 500km upstream
Riverland	1000 - 1100km
The coorong, and lakes alexandrina and albert wetland	1200 - 1300km

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to 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
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	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 likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
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 known to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat known to occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Other		
Adclarkia cameroni Brigalow Woodland Snail [83886]	Endangered	Species or species habitat likely to occur within area
Adclarkia dulacca Dulacca Woodland Snail [83885]	Endangered	Species or species habitat may occur within area
Plants		
Acacia lauta Tara Wattle [4165]	Vulnerable	Species or species habitat may occur within area
Androcalva procumbens [87153]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Clematis fawcettii Stream Clematis [4311]	Vulnerable	Species or species habitat may occur within area
Dichanthium queenslandicum King Blue-grass [5481]	Endangered	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus virens [10181]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area
Macrozamia machinii [64583]	Vulnerable	Species or species habitat likely to occur within area
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat likely to occur within area
Rhaponticum australe Austral Cornflower, Native Thistle [22647]	Vulnerable	Species or species habitat likely to occur within area
Sarcophilus weinthalii Blotched Sarcophilus, Weinthals Sarcanth [12673]	Vulnerable	Species or species habitat likely to occur within area
Sophora fraseri [8836]	Vulnerable	Species or species habitat known to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Tylophora linearis [55231]	Endangered	Species or species habitat may occur within area
Westringia parvifolia [4822]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat known to occur within area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area

Name		
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Tymppanocryptis condaminensis		
Condamine Earless Dragon [87888]	Endangered	Species or species habitat likely to occur within area
Uvidicolus sphyrurus		
Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
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Migratory Marine Birds

[Apus pacificus](#)

Fork-tailed Swift [678]		Species or species habitat likely to occur within area
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Migratory Terrestrial Species

[Cuculus optatus](#)

Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
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[Hirundapus caudacutus](#)

White-throated Needle-tail [682]	Vulnerable	Species or species habitat known to occur within area
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[Monarcha melanopsis](#)

Black-faced Monarch [609]		Species or species habitat known to occur within area
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[Monarcha trivirgatus](#)

Spectacled Monarch [610]		Species or species habitat may occur within area
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[Motacilla flava](#)

Yellow Wagtail [644]		Species or species habitat may occur within area
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[Myiagra cyano-leuca](#)

Satin Flycatcher [612]		Species or species habitat known to occur within area
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[Rhipidura rufifrons](#)

Rufous Fantail [592]		Species or species habitat likely to occur within area
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Migratory Wetlands Species

[Actitis hypoleucos](#)

Common Sandpiper [59309]		Species or species habitat may occur within area
--------------------------	--	--

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
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[Calidris ferruginea](#)

Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
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[Calidris melanotos](#)

Pectoral Sandpiper [858]		Species or species habitat may occur within area
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[Gallinago hardwickii](#)

Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
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Name	Threatened	Type of Presence
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to 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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to 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]	Vulnerable	Species or species

Name	Threatened	Type of Presence
Lathamus discolor Swift Parrot [744]	Critically Endangered	habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]	Endangered*	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to 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 Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		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

Name	Status	Type of Presence habitat likely to occur within area
Plants		
Anredera cordifolia		
Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus africanus		
Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Asparagus asparagoides		
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana		
Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large- leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum		
African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana		
Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Opuntia spp.		
Prickly Pears [82753]		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
Pinus radiata		
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate		
Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
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
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium		
Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
Tamarix aphylla		
Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering		Species or species habitat likely to occur

Name	Status	Type of Presence
Cypress, Salt Cedar [16018] Vachellia nilotica		within area
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area

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 and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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.

Coordinates

-28.665005 150.452522,-28.64045 150.458702,-28.619808 150.455269,-28.613027 150.467457,-28.616342 150.583328,-28.616192 150.598091,-28.606095 150.631222,-28.583486 150.710186,-28.572482 150.751385,-28.552279 150.822624,-28.528301 150.864338,-28.514274 150.901074,-28.497982 150.926995,-28.468258 150.932144,-28.436262 150.96373,-28.431431 150.982613,-28.422977 150.988449,-28.404105 151.014542,-28.399424 151.025528,-28.389608 151.048874,-28.385984 151.072563,-28.379943 151.084751,-28.37375 151.112045,-28.354415 151.141228,-28.344293 151.155304,-28.316793 151.159424,-28.264644 151.167835,-28.232132 151.154274,-28.198249 151.161141,-28.182968 151.182083,-28.142106 151.187576,-28.106983 151.194271,-28.081239 151.209721,-28.029278 151.224655,-27.996543 151.217961,-27.972895 151.225342,-27.945603 151.234097,-27.926494 151.243195,-27.910264 151.267571,-27.891452 151.30362,-27.877645 151.320442,-27.849873 151.34499,-27.845927 151.359581,-27.836819 151.369023,-27.814351 151.38327,-27.7937 151.40902,-27.766818 151.436485,-27.756489 151.456055,-27.726559 151.527981,-27.723064 151.531071,-27.718505 151.541542,-27.712426 151.570381,-27.71501 151.611752,-27.69738 151.640763,-27.699508 151.65501,-27.69434 151.671147,-27.68522 151.680588,-27.6799 151.691145,-27.664469 151.701016,-27.658539 151.703934,-27.650557 151.721787,-27.632841 151.746248,-27.626377 151.755947,-27.609418 151.762985,-27.579599 151.770367,-27.563926 151.773113,-27.560274 151.7738,-27.548099 151.772083,-27.544522 151.770796,-27.536759 151.775774,-27.527093 151.782211,-27.521232 151.798691,-27.503571 151.816029,-27.493522 151.829075,-27.493522 151.849331,-27.493369 151.849674

Acknowledgements

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- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
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- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- 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.



Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



Table of Contents

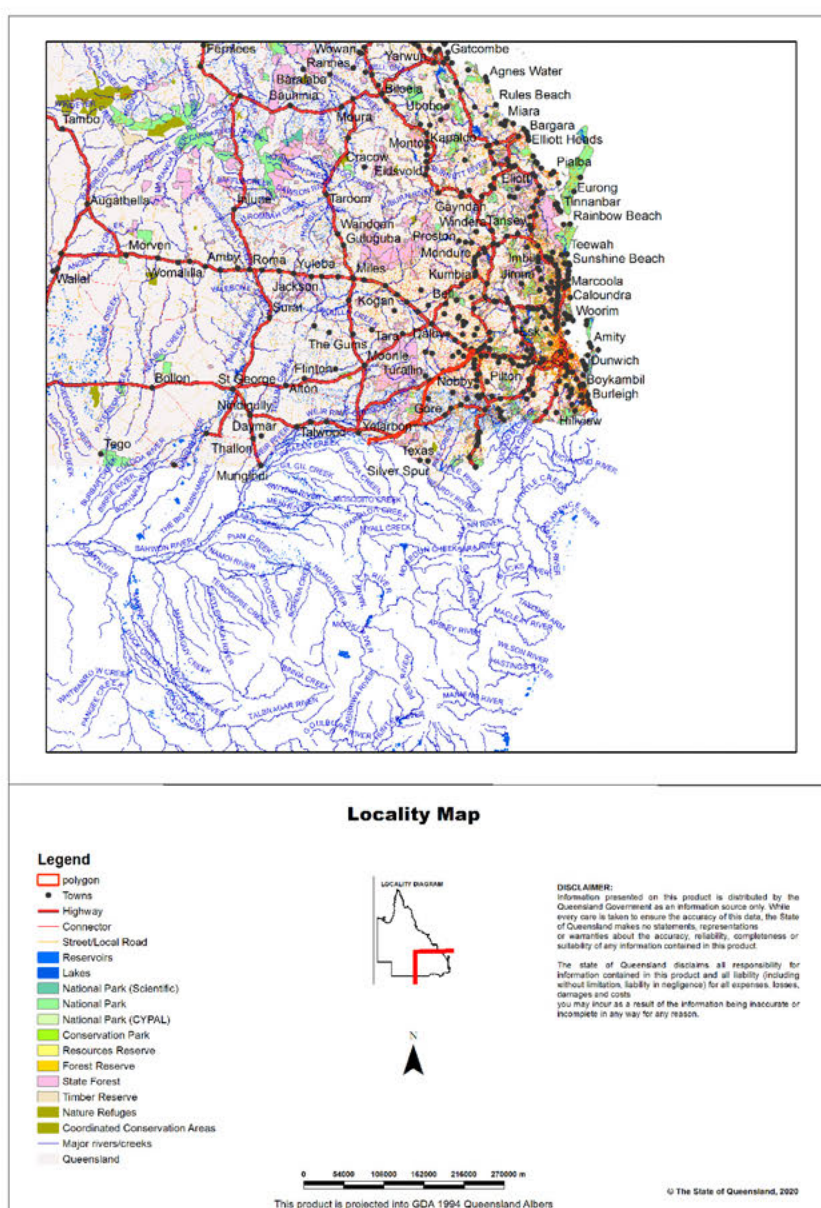
Assessment Area Details.....	4
Matters of State Environmental Significance (MSES)	5
MSES Categories	5
MSES Values Present	6
Additional Information with Respect to MSES Values Present	7
MSES - State Conservation Areas	7
MSES - Wetlands and Waterways	7
MSES - Species	7
MSES - Regulated Vegetation	9
Map 1 - MSES - State Conservation Areas	12
Map 2 - MSES - Wetlands and Waterways	13
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals	14
Map 3b - MSES - Species - Koala habitat area (SEQ).....	15
Map 4 - MSES - Regulated Vegetation	16
Map 5 - MSES - Offset Areas	17
Appendices	18
Appendix 1 - Matters of State Environmental Significance (MSES) methodology	18
Appendix 2 - Source Data	19
Appendix 3 - Acronyms and Abbreviations	20

Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine



Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992* ;
- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004* ;
- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;
- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;
- Regulated vegetation under the *Vegetation Management Act 1999* that is:
 - Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;
 - Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;
 - Category R areas on the regulated vegetation management map;
 - Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;
 - Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;
- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;
- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;
- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;
- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0.0 ha	0.0 %
1b Protected Areas- nature refuges	0.0 ha	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	10.95 ha	0.0%
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %
6b High Ecological Value (HEV) waterways **	0.0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	1201.34 ha	2.7%
7b Special least concern animals	106.25 ha	0.2%
7c i Koala habitat area - core (SEQ)	149.83 ha	0.3%
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	2937.2 ha	6.6%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	427.56 ha	1.0%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.0 ha	0.0 %
8d Regulated Vegetation - Essential habitat	1244.03 ha	2.8%
8e Regulated Vegetation - intersecting a watercourse **	379.2 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	107.9 ha	0.2%
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(no results)

1b. Protected Areas - nature refuges

(no results)

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

Natural wetlands that are 'High Ecological Significance' (HES) on the Map of Queensland Wetland Environmental Values are present.

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Values are present

7b. Special least concern animals

Values are present

7c i. Koala habitat area - core (SEQ)

Values are present

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

<i>Boronia keysii</i>		V	None
<i>Calyptorhynchus lathami</i>	Glossy black cockatoo	V	None
<i>Casuarus casuarus johnsonii</i>	Sthn population cassowary	E	None
<i>Crinia tinnula</i>	Wallum froglet	V	None
<i>Denisonia maculata</i>	Ornamental snake	V	None
<i>Litoria freycineti</i>	Wallum rocketfrog	V	None
<i>Litoria olongburensis</i>	Wallum sedgefrog	V	None
<i>Melaleuca irbyana</i>		E	None
<i>Petaurus gracilis</i>	Mahogany Glider	E	None
<i>Petrogale persephone</i>	Proserpine rock-wallaby	E	None
<i>Phascolarctos cinereus</i>	Koala - outside SEQ*	V	None
<i>Pezoporus wallicus wallicus</i>	Eastern ground parrot	V	None
<i>Taudactylus Pleione</i>	Kroombit tinkertoad	E	None
<i>Xeromys myoides</i>	Water Mouse	V	None

*For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.

Threatened (endangered or vulnerable) wildlife species records

Scientific name	Common name	NCA status	EPBC status	Migratory status
<i>Phascolarctos cinereus</i>	koala	V	V	
<i>Acanthopis antarcticus</i>	common death adder	V		
<i>Furina dunmalli</i>	Dunmall's snake	V	V	
<i>Jalmenus eubulus</i>	pale imperial hairstreak	V		
<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	
<i>Homopholis belsonii</i>		E	V	
<i>Nyctophilus corbeni</i>	eastern long-eared bat	V	V	
<i>Prostanthera</i> sp. (Dunmore D.M.Gordon 8A)		V	V	
<i>Rhaponticum australe</i>		V	V	
<i>Picris barbarorum</i>		V		
<i>Dichanthium queenslandicum</i>		V	E	
<i>Cyperus clarus</i>		V		
<i>Picris evae</i>		V	V	

Scientific name	Common name	NCA status	EPBC status	Migratory status
<i>Anomalopus mackayi</i>	long-legged worm-skink	E	V	

Special least concern animal species records

Scientific name	Common name	Migratory status
<i>Tachyglossus aculeatus</i>	short-beaked echidna	
<i>Ornithorhynchus anatinus</i>	platypus	
<i>Calidris melanotos</i>	pectoral sandpiper	M-J/R/B/E

*Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:

<https://www.qld.gov.au/environment/plants-animals/species-list/>

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals** and **Map 3b - MSES - Species - Koala habitat area (SEQ)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/>

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:

<https://environment.ehp.qld.gov.au/regional-ecosystems/>

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.3.25/11.3.2	O-subdom	rem_oc
11.3.2	O-dom	rem_oc
11.3.2/11.3.25	O-dom	rem_oc
11.3.2/11.3.4/11.3.25	O-dom	rem_oc
11.5.20/11.9.5	E-subdom	rem_end
11.4.3	E-dom	rem_end
11.9.7/11.3.4	O-dom	rem_oc
11.3.25/11.3.2/11.3.4	O-subdom	rem_oc
11.9.5/11.9.7/11.3.25	E-dom	rem_end
11.3.25/11.3.4/11.3.27b	O-subdom	rem_oc
11.3.14/11.3.4	O-subdom	rem_oc
11.3.2/11.9.5	E-subdom	rem_end
11.5.1/11.3.2/11.5.20	O-subdom	rem_oc

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.8.3	O-dom	rem_oc
11.3.14/11.3.2/11.3.25	O-subdom	rem_oc
11.3.2/11.3.4	O-dom	rem_oc
11.9.5	E-dom	rem_end
11.3.21	E-dom	rem_end
11.3.4	O-dom	rem_oc
11.8.11	O-dom	rem_oc
11.5.14	O-dom	rem_oc
11.3.4/11.5.1/11.3.25	O-dom	rem_oc

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.3.2/11.3.25	O-dom	hvr_oc
11.3.2	O-dom	hvr_oc
11.9.10	O-dom	hvr_oc
11.9.5/11.9.7/11.3.25	E-dom	hvr_end
11.3.2/11.3.4/11.3.25	O-dom	hvr_oc
11.9.5/11.3.18/11.3.4	E-dom	hvr_end
11.9.5	E-dom	hvr_end
11.4.3	E-dom	hvr_end
11.4.10	E-dom	hvr_end
11.3.2/11.3.4	O-dom	hvr_oc
11.5.1/11.3.2/11.5.20	O-subdom	hvr_oc
11.3.2/11.3.4/11.9.7	O-dom	hvr_oc
11.3.4/11.3.18/11.3.25	O-dom	hvr_oc

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Not applicable

8d. Regulated Vegetation - Essential habitat

Values are present

8e. Regulated Vegetation - intersecting a watercourse**

A vegetation management watercourse is mapped as present

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Regulated vegetation map category	Map number	RVM rule
B	9040	2
C	9040	3

Regulated vegetation map category	Map number	RVM rule
C	8940	3
B	8940	2

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

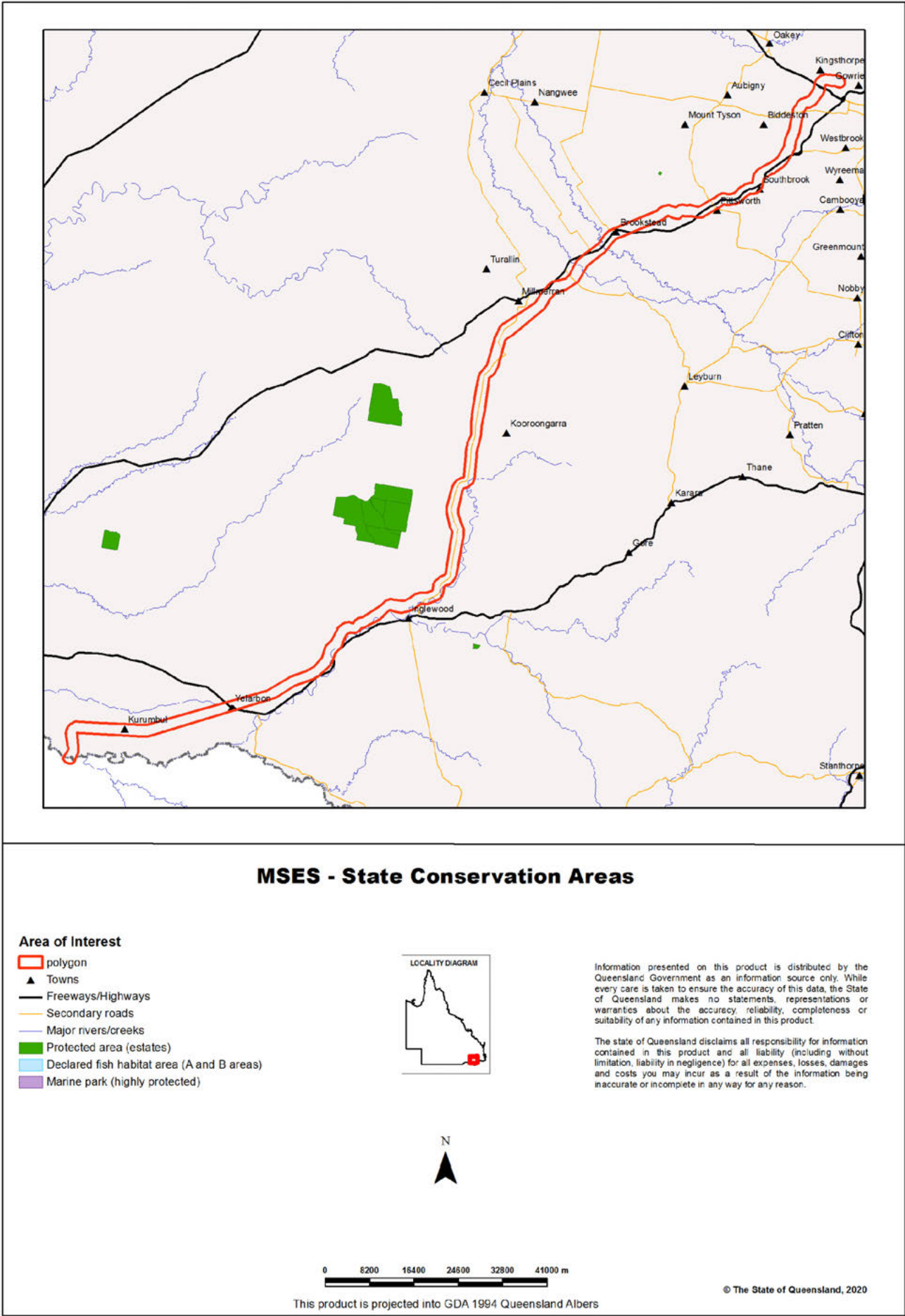
(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

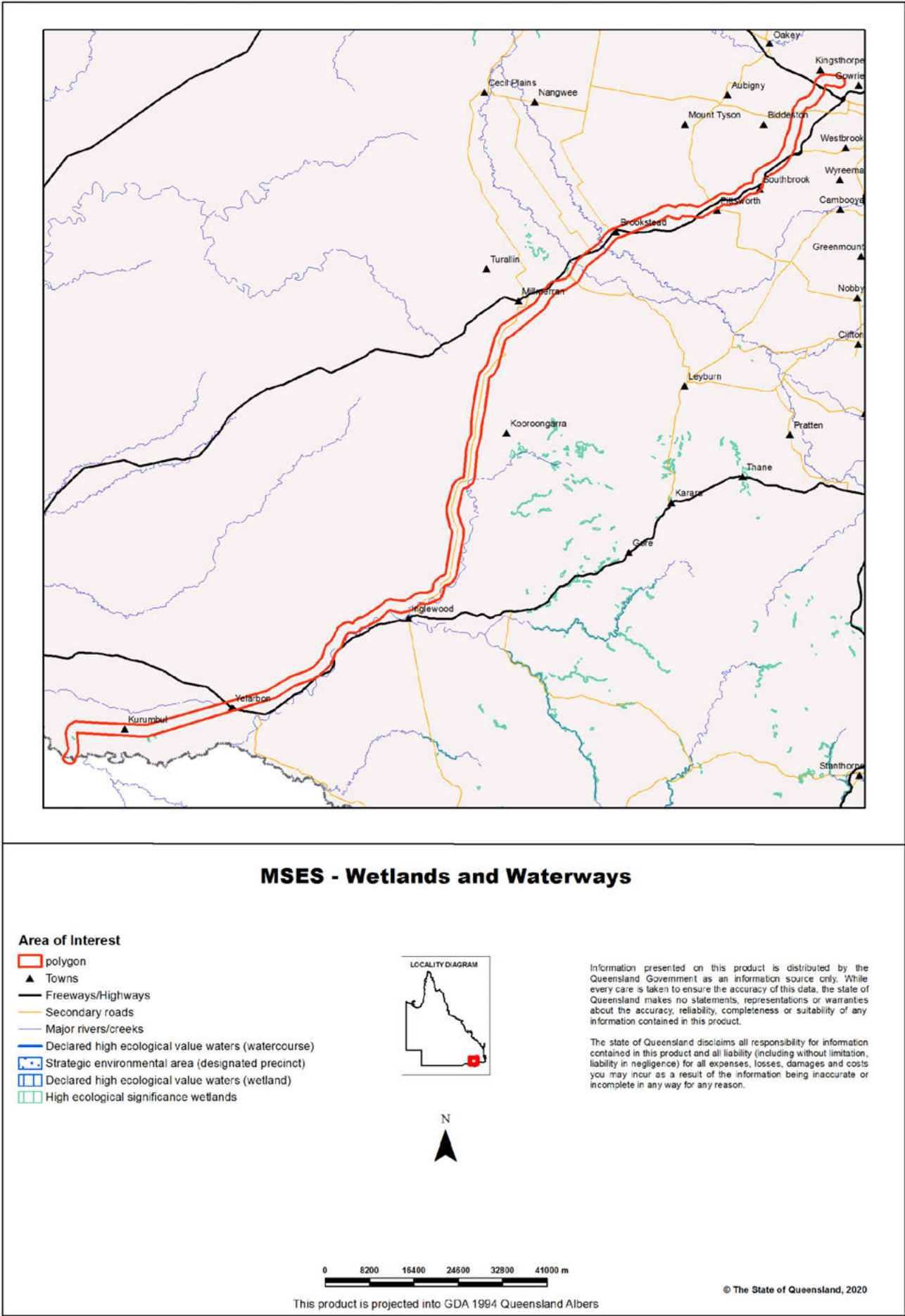
(no results)

Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

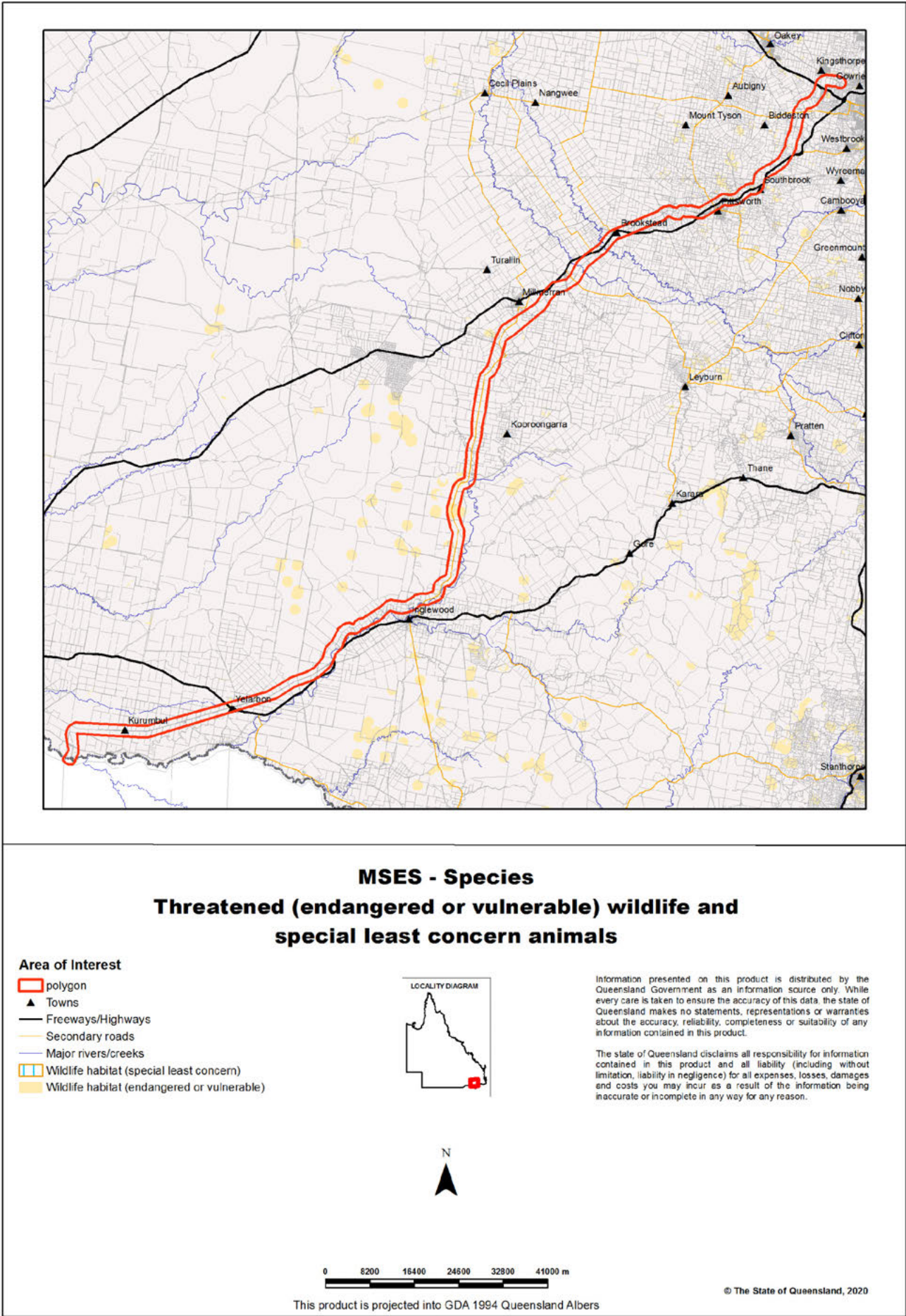
Map 1 - MSES - State Conservation Areas



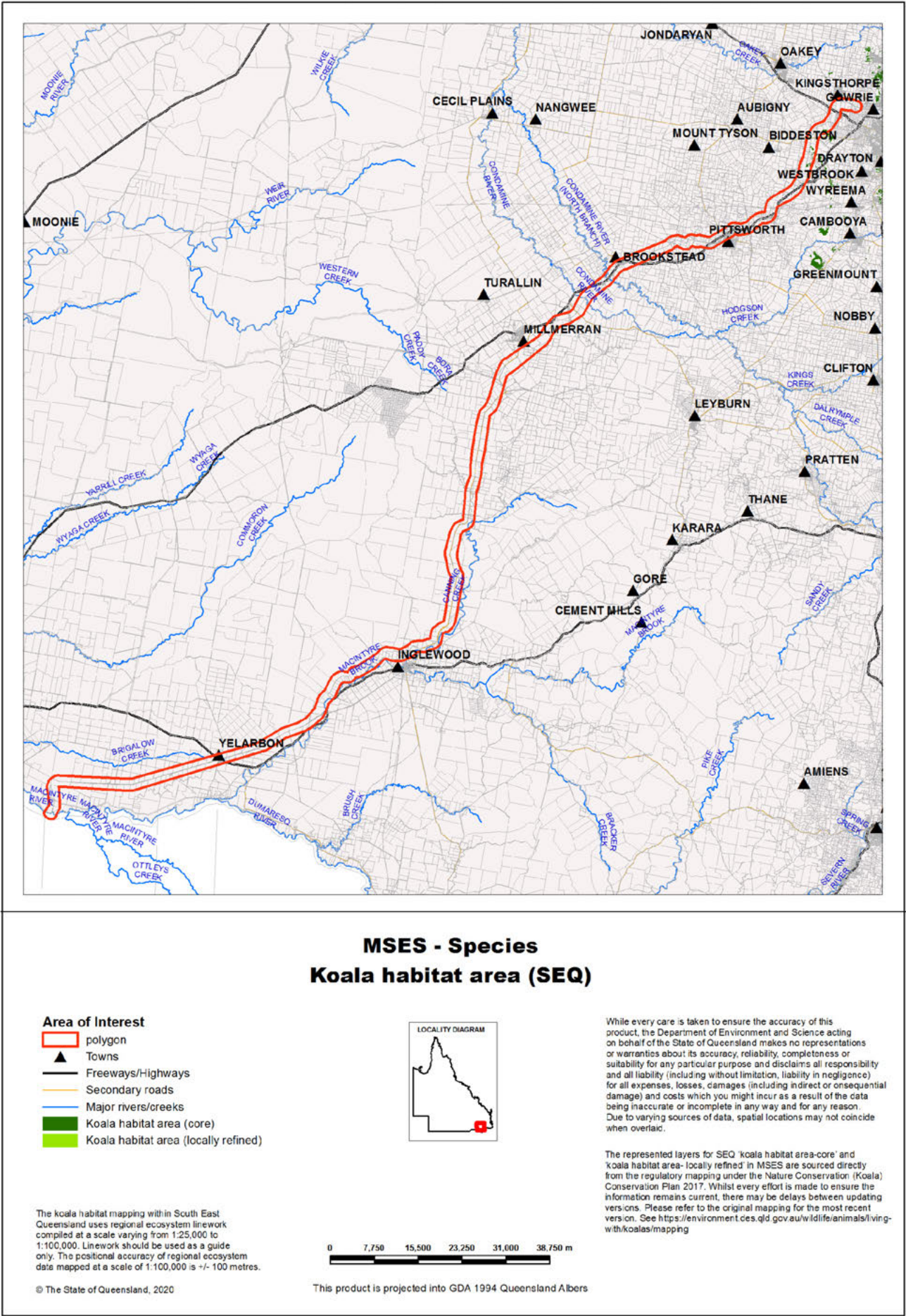
Map 2 - MSES - Wetlands and Waterways



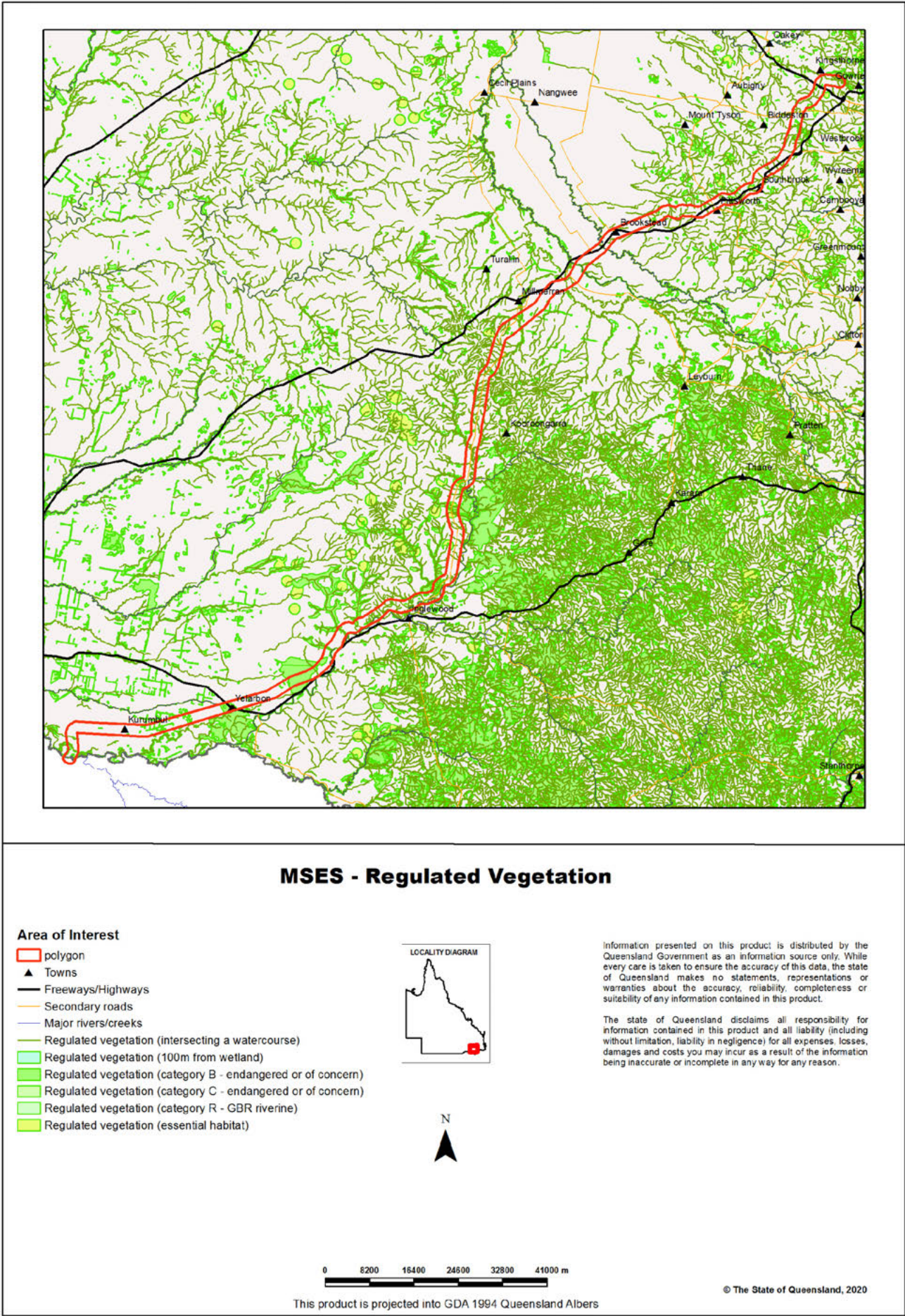
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals



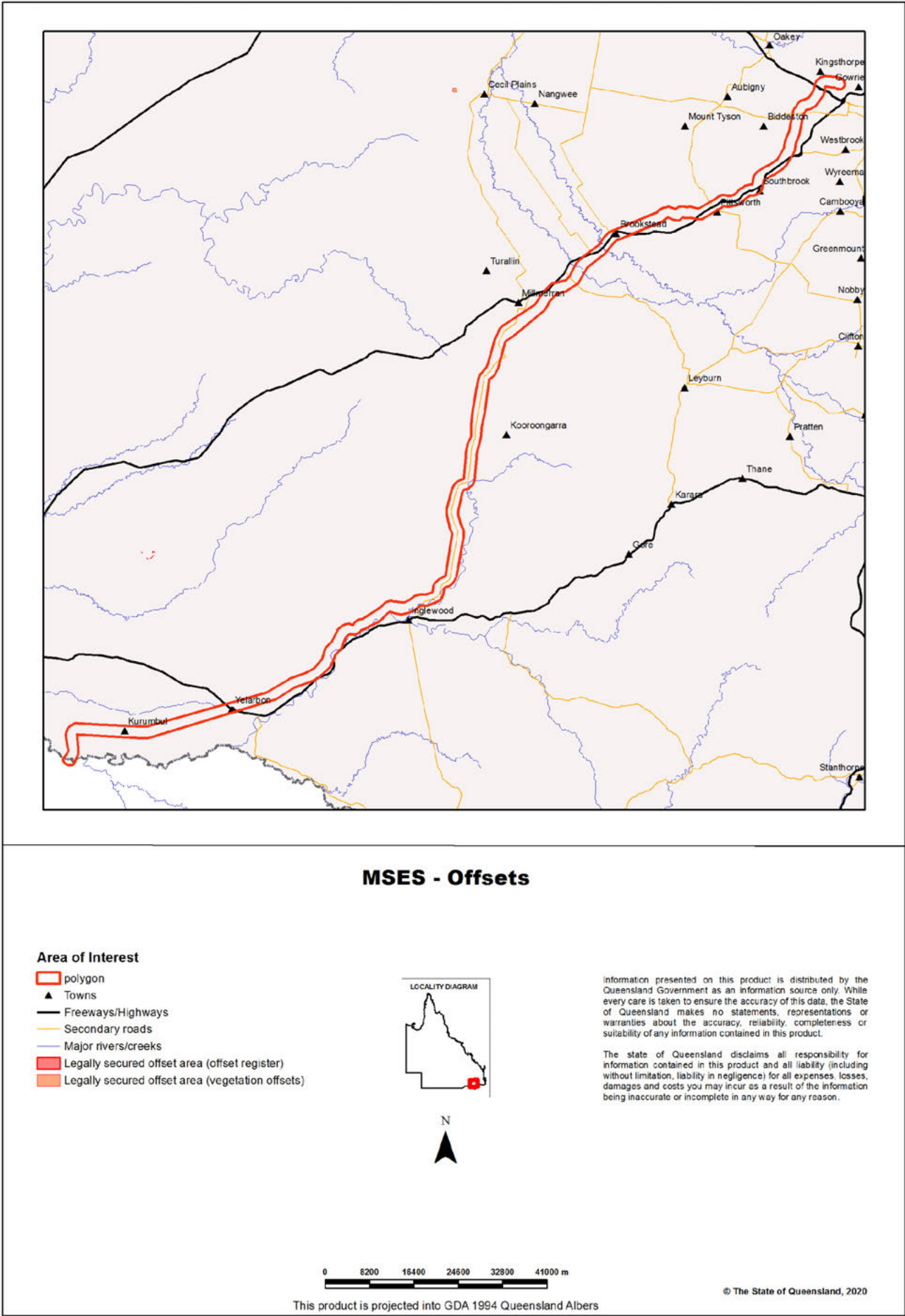
Map 3b - MSES - Species - Koala habitat area (SEQ)



Map 4 - MSES - Regulated Vegetation



Map 5 - MSES - Offset Areas



Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

<http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html> .

Appendix 2 - Source Data

The datasets listed below are available on request from:

<http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	current QSpatial data (http://qspatial.information.qld.gov.au)
Protected Areas-Estates and Nature Refuges	- Protected areas of Queensland - Nature Refuges - Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: - EPP Water (multiple locations) intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 4, 2015) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	-WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- <i>Environmental Protection Act 1994</i>
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- <i>Nature Conservation Act 1992</i>
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- <i>Vegetation Management Act 1999</i>

Atlas of Living Australia flora and fauna species records within the Ecology Study area

Accessed: 25th February 2020, 13:17 AEDT

Kingdom	Family	Species	Vernacular name	NCA_status	EPBC_status
Animalia	Acanthizidae	Aphelocephala leucopsis	Southern Whiteface	C	
Animalia	Acanthizidae	Chthonicola sagittata	Speckled Warbler		
Animalia	Acanthizidae	Gerygone fusca	Western Gerygone	C	
Animalia	Acanthizidae	Gerygone olivacea		C	
Animalia	Acanthizidae	Sericornis frontalis	White-browed Scrubwren	C	
Animalia	Acanthizidae	Smicronis brevirostris	Weebill	C	
Animalia	Accipitridae	Accipiter cirrocephalus	Collared Sparrowhawk	C	
Animalia	Accipitridae	Accipiter fasciatus	Brown Goshawk	C	
Animalia	Accipitridae	Accipiter novaehollandiae	Grey Goshawk	C	
Animalia	Accipitridae	Aquila audax	Wedge-tailed Eagle	C	
Animalia	Accipitridae	Aviceda subcristata	Pacific Baza	C	
Animalia	Accipitridae	Circus assimilis	Spotted Harrier	C	
Animalia	Accipitridae	Elanus axillaris	Black-shouldered Kite	C	
Animalia	Accipitridae	Haliastur indus	brahminy kite	C	
Animalia	Accipitridae	Haliastur sphenurus	Whistling Kite	C	
Animalia	Accipitridae	Hieraaetus morphnoides	Little Eagle	C	
Animalia	Accipitridae	Lophoictinia isura	Square-tailed Kite	C	
Animalia	Accipitridae	Milvus migrans	Black Kite	C	

Animalia	Acrocephalidae	Acrocephalus australis	Australian Reed Warbler	C	
Animalia	Actinopodidae	Missulena occatoria			
Animalia	Aegothelidae	Aegotheles cristatus	Australian Owlet-nightjar	C	
Animalia	Aeshnidae	Anax papuensis			
Animalia	Agamidae	Amphibolurus burnsi	Burns' Dragon	C	
Animalia	Agamidae	Lophognathus gilberti	Gilbert's Dragon	C	
Animalia	Agamidae	Pogona barbata	Bearded Dragon	C	
Animalia	Alaudidae	Mirafrja javanica	Horsfield's Bushlark	C	
Animalia	Alcedinidae	Ceyx azureus	Azure Kingfisher	C	
Animalia	Alcedinidae	Dacelo leachii	Blue-winged Kookaburra	C	
Animalia	Alcedinidae	Dacelo novaeguineae	Kookaburra	C	
Animalia	Alcedinidae	Todiramphus pyrrhopygius	Red-backed Kingfisher	C	
Animalia	Alcedinidae	Todiramphus sanctus	Sacred Kingfisher	C	
Animalia	Anatidae	Anas castanea	Chestnut Teal	C	
Animalia	Anatidae	Anas clypeata			
Animalia	Anatidae	Anas gracilis	Grey teal	C	
Animalia	Anatidae	Anas platyrhynchos	Mallard		
Animalia	Anatidae	Anas rhynchotis	Australasian Shoveler		
Animalia	Anatidae	Anas superciliosa	Grey duck	C	
Animalia	Anatidae	Anser anser			
Animalia	Anatidae	Aythya australis	Hardhead	C	
Animalia	Anatidae	Biziura lobata	Musk Duck	C	
Animalia	Anatidae	Chenonetta jubata	Maned Duck	C	
Animalia	Anatidae	Cygnus atratus	Black Swan	C	
Animalia	Anatidae	Dendrocygna eytoni	Grey Whistler	C	

Animalia	Anatidae	Malacorhynchus membranaceus	Pink-ear	C	
Animalia	Anseranatidae	Anseranas semipalmata	Magpie Goose	C	
Animalia	Apodidae	Hirundapus caudacutus	Spine-tailed swift	V	V
Animalia	Aradidae	Brachyrhynchus australis			
Animalia	Araneidae	Austracantha minax			
Animalia	Araneidae	Celaenia excavata			
Animalia	Araneidae	Eriophora transmarina			
Animalia	Ardeidae	Ardea alba			
Animalia	Ardeidae	Ardea ibis	Cattle Egret		
Animalia	Ardeidae	Ardea intermedia	Intermediate Egret	C	
Animalia	Ardeidae	Ardea modesta	Eastern Great Egret		
Animalia	Ardeidae	Ardea pacifica	White-necked Heron	C	
Animalia	Ardeidae	Egretta garzetta	Little Egret	C	
Animalia	Ardeidae	Egretta novaehollandiae	White-faced Heron	C	
Animalia	Ardeidae	Nycticorax caledonicus	Nankeen night heron	C	
Animalia	Artamidae	Artamus cyanopterus	Dusky Woodswallow	C	
Animalia	Artamidae	Artamus leucorhynchus	White-breasted Woodswallow	C	
Animalia	Artamidae	Artamus personatus	Masked Woodswallow	C	
Animalia	Artamidae	Artamus superciliosus	White-browed woodswallow	C	
Animalia	Artamidae	Cracticus nigrogularis	Pied Butcherbird	C	
Animalia	Artamidae	Cracticus torquatus	Grey Butcherbird	C	
Animalia	Artamidae	Gymnorhina tibicen	Australian Magpie	C	

Animalia	Artamidae	Strepera graculina	Pied Currawong		
Animalia	Asilidae	Dakinomyia secuta			
Animalia	Asilidae	Mauropteron farinum			
Animalia	Asilidae	Ommatius lema			
Animalia	Atherinidae	Craterocephalus stercusmuscarum	Flyspecked Hardyhead		
Animalia	Bovidae	Ovis aries			
Animalia	Buprestidae	Castiarina gracilior			
Animalia	Buprestidae	Castiarina minuta			
Animalia	Burhinidae	Burhinus grallarius	Bush Stone-curlew	C	
Animalia	Buthidae	Lychas variatus			
Animalia	Cacatuidae	Cacatua galerita	Sulphur-crested Cockatoo	C	
Animalia	Cacatuidae	Cacatua sanguinea	Little Corella	C	
Animalia	Cacatuidae	Calyptorhynchus banksii	Red-tailed Black Cockatoo		
Animalia	Cacatuidae	Calyptorhynchus lathami	Glossy Black-cockatoo		
Animalia	Cacatuidae	Eolophus roseicapilla	Galah	C	
Animalia	Cacatuidae	Nymphicus hollandicus	Cockatiel	C	
Animalia	Campephagidae	Coracina maxima	Ground Cuckoo-shrike	C	
Animalia	Campephagidae	Coracina novaehollandiae	Black-faced cuckoo-shrike	C	
Animalia	Campephagidae	Coracina papuensis	White-bellied Cuckoo-shrike	C	
Animalia	Campephagidae	Coracina tenuirostris	Cicadabird	C	
Animalia	Campephagidae	Lalage sueurii	White-winged Triller		
Animalia	Canidae	Canis lupus			
Animalia	Canidae	Vulpes vulpes	Fox		

Animalia	Caprimulgidae	Eurostopodus mystacalis	White-throated Nightjar	C	
Animalia	Castniidae	Synemon collecta			
Animalia	Castniidae	Synemon laeta			
Animalia	Casuariidae	Dromaius novaehollandiae	Emu	C	
Animalia	Centropodidae	Centropus phasianinus	Pheasant Coucal	C	
Animalia	Chelidae	Chelodina expansa	Broad-shelled Turtle	C	
Animalia	Chelidae	Chelodina longicollis	eastern snake-necked turtle	C	
Animalia	Chelidae	Emydura macquarii	Macquarie River Turtle		
Animalia	Ciconiidae	Ephippiorhynchus asiaticus	Black-necked Stork	C	
Animalia	Cisticolidae	Cisticola exilis	Golden-headed Cisticola	C	
Animalia	Climacteridae	Climacteris picumnus	Brown Treecreeper		
Animalia	Climacteridae	Cormobates leucophaea	White-throated Treecreeper		
Animalia	Coenagrionidae	Xanthagrion erythroneurum			
Animalia	Colubridae	Dendrelaphis punctulatus	Common Tree Snake	C	
Animalia	Columbidae	Chalcophaps indica	Emerald Dove	C	
Animalia	Columbidae	Columba livia	Rock Dove		
Animalia	Columbidae	Geopelia cuneata	Diamond Dove	C	
Animalia	Columbidae	Geopelia humeralis	Bar-shouldered Dove	C	
Animalia	Columbidae	Geopelia striata		C	
Animalia	Columbidae	Geophaps scripta	Squatter Pigeon		
Animalia	Columbidae	Leucosarcia melanoleuca	Wonga Pigeon	C	
Animalia	Columbidae	Ocyphaps lophotes	Crested Pigeon	C	

Animalia	Columbidae	Phaps chalcoptera	Common Bronzewing	C	
Animalia	Columbidae	Streptopelia chinensis	Spotted Turtle-dove		
Animalia	Conopidae	Australoconops splendidus			
Animalia	Conopidae	Australoconops uncinatus			
Animalia	Coraciidae	Eurystomus orientalis	Eastern broad-billed Roller	C	
Animalia	Corcoracidae	Corcorax melanorhamphos	White-winged Chough	C	
Animalia	Corcoracidae	Struthidea cinerea	Apostlebird	C	
Animalia	Corixidae	Agraptocorixa parvipunctata			
Animalia	Corvidae	Corvus coronoides	Australian Raven	C	
Animalia	Corvidae	Corvus orru	Torresian Crow	C	
Animalia	Crabronidae	Sericophorus relucens			
Animalia	Crabronidae	Sericophorus sericeus			
Animalia	Cuculidae	Cacomantis flabelliformis	Fan-tailed Cuckoo	C	
Animalia	Cuculidae	Cacomantis pallidus	Pallid Cuckoo	C	
Animalia	Cuculidae	Cacomantis variolosus	Brush Cuckoo	C	
Animalia	Cuculidae	Chalcites basalis	Horsfield's Bronze-cuckoo	C	
Animalia	Cuculidae	Chalcites lucidus	Shining Bronze-cuckoo	C	
Animalia	Cuculidae	Chalcites osculans	Black-eared Cuckoo	C	
Animalia	Cuculidae	Chrysococcyx lucidus	Pipiharauroa		
Animalia	Cuculidae	Cuculus optatus	Oriental Cuckoo	SL	

Animalia	Cuculidae	Eudynamys orientalis	Pacific Koel	C	
Animalia	Cuculidae	Scythrops novaehollandiae	Channel-billed Cuckoo	C	
Animalia	Culicidae	Aedes theobaldi			
Animalia	Curculionidae	Amycterus elongatus			
Animalia	Dasyuridae	Antechinus flavipes			
Animalia	Dasyuridae	Dasyurus maculatus			
Animalia	Dasyuridae	Planigale tenuirostris	Narrow-nosed Planigale	C	
Animalia	Diaspididae	Ancepaspis striata			
Animalia	Diaspididae	Myrtophila adnatae			
Animalia	Dicruridae	Dicrurus bracteatus	Spangled Drongo		
Animalia	Diplodactylidae	Amalosia jacovae	Clouded Gecko	C	
Animalia	Diplodactylidae	Diplodactylus vittatus	Wood Gecko	C	
Animalia	Diplodactylidae	Lucasium steindachneri	Box-patterned Gecko	C	
Animalia	Elapidae	Acanthophis antarcticus	Common Death Adder	V	
Animalia	Elapidae	Cryptophis boschmai	Carpentaria Snake	C	
Animalia	Elapidae	Denisonia devisi	De Vis' Banded Snake	C	
Animalia	Elapidae	Furina diadema	Red-naped Snake	C	
Animalia	Elapidae	Furina dunmalli	Dunmall's Snake	V	V
Animalia	Elapidae	Hoplocephalus bitorquatus	Pale-headed Snake	C	
Animalia	Elapidae	Parasuta dwyeri	Dwyer's Snake	C	
Animalia	Elapidae	Pseudechis guttatus	Spotted Black Snake	C	
Animalia	Elapidae	Pseudechis porphyriacus	Red-bellied Black Snake	C	
Animalia	Elapidae	Pseudonaja textilis	Eastern Brown Snake	C	

Animalia	Elapidae	Suta suta	Curl Snake	C	
Animalia	Elapidae	Vermicella annulata	Bandy-bandy	C	
Animalia	Eleotridae	Mogurnda adspersa	Trout Gudgeon		
Animalia	Equidae	Equus caballus	Horse		
Animalia	Estrildidae	Lonchura castaneothorax	Chestnut-breasted Munia	C	
Animalia	Estrildidae	Neochmia modesta	Plum-headed Finch	C	
Animalia	Estrildidae	Neochmia temporalis	Red-browed Finch	C	
Animalia	Estrildidae	Stagonopleura guttata	Diamond Firetail	C	
Animalia	Estrildidae	Stizoptera bichenovii	Double-barred Finch		
Animalia	Estrildidae	Taeniopygia guttata	Zebra Finch	C	
Animalia	Eutichuridae	Cheiracanthium mordax			
Animalia	Falconidae	Falco berigora	Brown Falcon	C	
Animalia	Falconidae	Falco cenchroides	Nankeen Kestrel	C	
Animalia	Falconidae	Falco longipennis	Australian Hobby	C	
Animalia	Falconidae	Falco peregrinus	Peregrine Falcon	C	
Animalia	Falconidae	Falco subniger	Black Falcon	C	
Animalia	Felidae	Felis catus	Cat		
Animalia	Fulgoridae	Desudaba maculata			
Animalia	Gekkonidae	Gehyra dubia	Dubious Dtella	C	
Animalia	Gekkonidae	Heteronotia binoei	Bynoe's Gecko	C	
Animalia	Gruidae	Grus rubicunda	Brolga		
Animalia	Halictidae	Homalictus caloundrensis			
Animalia	Halictidae	Homalictus dampieri			
Animalia	Halictidae	Homalictus urbanus			

Animalia	Halictidae	Lasioglossum appositum			
Animalia	Halictidae	Lasioglossum chapmani			
Animalia	Hesperiidae	Taractrocera ina	Ina Grassdart		
Animalia	Hesperiidae	Trapezites petalia	Black-ringed Ochre		
Animalia	Hirundinidae	Hirundo neoxena	Welcome Swallow	C	
Animalia	Hirundinidae	Petrochelidon ariel	Fairy Martin	C	
Animalia	Hirundinidae	Petrochelidon nigricans	Tree Martin	C	
Animalia	Hylidae	Cyclorana alboguttata	Striped Burrowing Frog	C	
Animalia	Hylidae	Cyclorana cultripes	Knife-footed Frog	C	
Animalia	Hylidae	Cyclorana novaehollandiae	New Holland Frog	C	
Animalia	Hylidae	Cyclorana platycephala	Water-holding Frog	C	
Animalia	Hylidae	Cyclorana verrucosa	Rough Frog	C	
Animalia	Hylidae	Litoria caerulea	Green Tree Frog	C	
Animalia	Hylidae	Litoria fallax	Eastern Dwarf Tree Frog	C	
Animalia	Hylidae	Litoria latopalmata	Gunther's Frog	C	
Animalia	Hylidae	Litoria peronii	Peron's Tree Frog	C	
Animalia	Hylidae	Litoria rubella	Red Tree Frog	C	
Animalia	Hylidae	Litoria verreauxii	Verreaux's Tree Frog	C	
Animalia	Iphinematidae	Xiphinema monohysterum			
Animalia	Laridae	Chlidonias hybrida	whiskered tern	C	
Animalia	Leporidae	Lepus capensis	Brown Hare		
Animalia	Leporidae	Oryctolagus cuniculus	Rabbit		

Animalia	Libellulidae	Diplacodes bipunctata			
Animalia	Libellulidae	Orthetrum caledonicum			
Animalia	Limnodynastidae	Limnodynastes dumerilii	Eastern Banjo Frog	C	
Animalia	Limnodynastidae	Limnodynastes fletcheri	Marsh Frog	C	
Animalia	Limnodynastidae	Limnodynastes salmini	Salmon Striped Frog	C	
Animalia	Limnodynastidae	Limnodynastes tasmaniensis	Spotted Grass Frog	C	
Animalia	Limnodynastidae	Limnodynastes terraereginae	Northern Banjo Frog	C	
Animalia	Limnodynastidae	Neobatrachus sudellae	Sudell's Frog	C	
Animalia	Limnodynastidae	Notaden bennettii	Crucifix Frog	C	
Animalia	Limnodynastidae	Platyplectrum ornatum	Ornate Burrowing Frog	C	
Animalia	Lycaenidae	Ogyris amaryllis	Satin Azure		
Animalia	Lycaenidae	Ogyris barnardi			
Animalia	Lycaenidae	Zizina otis	Grass Blue		
Animalia	Macropodidae	Macropus giganteus	Eastern Grey Kangaroo	C	
Animalia	Macropodidae	Macropus rufogriseus		C	
Animalia	Macropodidae	Notamacropus parryi	Whiptail Wallaby		
Animalia	Macropodidae	Osphranter robustus			
Animalia	Macropodidae	Petrogale penicillata	Brush-tailed Rock-wallaby	V	V
Animalia	Macropodidae	Wallabia bicolor	Swamp Wallaby	C	
Animalia	Maluridae	Malurus assimilis			
Animalia	Maluridae	Malurus cyaneus	Superb Fairy-wren	C	
Animalia	Maluridae	Malurus lamberti	Variegated Fairy-wren	C	

Animalia	Maluridae	Malurus leucopterus	White-winged Fairy-wren	C	
Animalia	Maluridae	Malurus melanocephalus	Red-backed Fairy-wren	C	
Animalia	Mantidae	Archimantis latistyla			
Animalia	Mantidae	Tenodera australasiae	Purplewinged Mantid		
Animalia	Mantispidae	Theristria nigra			
Animalia	Megachilidae	Coelioxys froggatti			
Animalia	Megachilidae	Megachile tosticauda			
Animalia	Megaluridae	Cincloramphus cruralis	Brown Songlark	C	
Animalia	Megaluridae	Cincloramphus mathewsi	Rufous Songlark	C	
Animalia	Melanotaeniidae	Melanotaenia fluviatilis	crimson-spotted rainbowfish		
Animalia	Meliphagidae	Acanthagenys rufogularis	Spiny-cheeked Honeyeater	C	
Animalia	Meliphagidae	Caligavis chrysops	Yellow-faced Honeyeater	C	
Animalia	Meliphagidae	Entomyzon cyanotis	Blue-faced Honeyeater	C	
Animalia	Meliphagidae	Gavicalis virescens	Singing Honeyeater	C	
Animalia	Meliphagidae	Lichmera indistincta	Brown Honeyeater	C	
Animalia	Meliphagidae	Manorina flavigula	Yellow-throated Miner	C	
Animalia	Meliphagidae	Manorina melanocephala	Noisy Miner	C	
Animalia	Meliphagidae	Meliphaga lewinii	Lewin's Honeyeater	C	
Animalia	Meliphagidae	Melithreptus brevirostris	Brown-headed Honeyeater	C	
Animalia	Meliphagidae	Nesoptilotis leucotis	White-eared Honeyeater	C	
Animalia	Meliphagidae	Philemon citreogularis	Little Friarbird	C	

Animalia	Meliphagidae	Philemon corniculatus	Noisy Friarbird	C	
Animalia	Meliphagidae	Ptilotula fusca	Fuscous Honeyeater	C	
Animalia	Meliphagidae	Ptilotula penicillata	White-plumed Honeyeater	C	
Animalia	Meropidae	Merops ornatus	Rainbow Bee-eater	C	
Animalia	Monarchidae	Grallina cyanoleuca	Magpie-lark	C	
Animalia	Monarchidae	Monarcha melanopsis	Black-faced Monarch	SL	
Animalia	Monarchidae	Myiagra inquieta	Restless Flycatcher	C	
Animalia	Monarchidae	Myiagra rubecula	Leaden Flycatcher	C	
Animalia	Motacillidae	Anthus novaeseelandiae	Australian Pipit	C	
Animalia	Muridae	Mus musculus	House Mouse		
Animalia	Muridae	Pseudomys delicatulus	Delicate Mouse	C	
Animalia	Muridae	Rattus rattus	Black Rat		
Animalia	Muridae	Rattus sordidus	Canefield Rat	C	
Animalia	Myobatrachidae	Crinia parinsignifera	Eastern Sign-bearing Froglet	C	
Animalia	Myobatrachidae	Crinia signifera	Common Froglet	C	
Animalia	Myobatrachidae	Uperoleia rugosa	Wrinkled Toadlet	C	
Animalia	Nectariniidae	Dicaeum hirundinaceum	Mistletoebird	C	
Animalia	Neosittidae	Daphoenositta chrysoptera	Varied Sittella	C	
Animalia	Noctuidae	Helicoverpa punctigera			
Animalia	Numididae	Numida meleagris	Helmeted Guineafowl		
Animalia	Nymphalidae	Acraea andromacha	Glasswing		
Animalia	Nymphalidae	Charaxes sempronius			

Animalia	Nymphalidae	Danaus petilia	Lesser Wanderer		
Animalia	Nymphalidae	Danaus plexippus	Monarch		
Animalia	Nymphalidae	Junonia villida	Meadow Argus		
Animalia	Nymphalidae	Tirumala hamata	Blue Tiger		
Animalia	Oreoididae	Oreoica gutturalis	Crested Bellbird	C	
Animalia	Oriolidae	Oriolus sagittatus	Olive-backed Oriole	C	
Animalia	Oriolidae	Sphecotheres vieilloti	Australasian Figbird	C	
Animalia	Otididae	Ardeotis australis	Wild Turkey	C	
Animalia	Pachycephalidae	Colluricincla harmonica	Grey Shrike-thrush	C	
Animalia	Pachycephalidae	Falcunculus frontatus	Crested Shrike-tit	C	
Animalia	Pachycephalidae	Pachycephala pectoralis	Golden Whistler		
Animalia	Pachycephalidae	Pachycephala rufiventris	Rufous Whistler	C	
Animalia	Papilionidae	Papilio aegeus			
Animalia	Pardalotidae	Pardalotus punctatus	Spotted Pardalote	C	
Animalia	Pardalotidae	Pardalotus striatus	Striated Pardalote	C	
Animalia	Passeridae	Passer domesticus	House sparrow		
Animalia	Percichthyidae	Macquaria ambigua	Golden Perch		
Animalia	Petauridae	Petaurus norfolcensis	Squirrel Glider	C	
Animalia	Petroicidae	Eopsaltria australis	Eastern Yellow Robin	C	
Animalia	Petroicidae	Melanodryas cucullata	Hooded Robin		
Animalia	Petroicidae	Microeca fascinans	Jacky Winter	C	
Animalia	Petroicidae	Petroica goodenovii	Red-capped Robin	C	
Animalia	Petroicidae	Petroica rosea	Rose Robin	C	

Animalia	Phascolarctidae	Phascolarctos cinereus	Koala	V	V
Animalia	Phasianidae	Coturnix pectoralis	Grey Quail	C	
Animalia	Phasianidae	Coturnix ypsilophora	Swamp Quail	C	
Animalia	Pieridae	Delias argenthona			
Animalia	Plotosidae	Tandanus tandanus	Cattie		
Animalia	Podargidae	Podargus strigoides	Tawny Frogmouth	C	
Animalia	Podicipedidae	Tachybaptus novaehollandiae	Australasian Little Grebe	C	
Animalia	Pomatostomidae	Pomatostomus superciliosus	White-browed Babbler	C	
Animalia	Pomatostomidae	Pomatostomus temporalis	Grey-crowned Babbler		
Animalia	Pratylenchidae	Pratylenchus thornei			
Animalia	Psittacidae	Alisterus scapularis	Australian King-parrot	C	
Animalia	Psittacidae	Aprosmictus erythropterus	Red-winged Parrot	C	
Animalia	Psittacidae	Barnardius zonarius	Australian Ringneck		
Animalia	Psittacidae	Melopsittacus undulatus	Budgerigar	C	
Animalia	Psittacidae	Neophema pulchella	Turquoise Parrot	C	
Animalia	Psittacidae	Northiella haematogaster	Bluebonnet		
Animalia	Psittacidae	Parvipsitta pusilla	Little Lorikeet	C	
Animalia	Psittacidae	Platycercus adscitus	Pale-headed Rosella		
Animalia	Psittacidae	Platycercus eximius	Eastern Rosella	C	
Animalia	Psittacidae	Psephotus haematotus	Red-rumped Parrot	C	
Animalia	Psittacidae	Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	C	
Animalia	Psittacidae	Trichoglossus haematodus	Rainbow Lorikeet		

Animalia	Pteropodidae	Pteropus alecto	Black Flying-fox	C	
Animalia	Pteropodidae	Pteropus scapulatus	Little Red Flying-fox	C	
Animalia	Ptilonorhynchidae	Ptilonorhynchus maculatus	Spotted Bowerbird	C	
Animalia	Pygopodidae	Delma inornata	Patternless Delma	C	
Animalia	Pygopodidae	Delma plebeia	Leaden Delma	C	
Animalia	Pygopodidae	Lialis burtonis	Burton's Snake-lizard	C	
Animalia	Pygopodidae	Paradelma orientalis	Brigalow Scaly-foot	C	
Animalia	Pythonidae	Morelia spilota	Carpet Python	C	
Animalia	Rallidae	Fulica atra	Eurasian Coot	C	
Animalia	Rallidae	Gallinula tenebrosa	Dusky Moorhen	C	
Animalia	Rallidae	Gallirallus philippensis		C	
Animalia	Rallidae	Porphyrio porphyrio	Purple Swamphen		
Animalia	Rallidae	Tribonyx ventralis	Black-tailed Native-hen	C	
Animalia	Recurvirostridae	Himantopus himantopus	Australasian pied stilt	C	
Animalia	Rhipiduridae	Rhipidura albiscapa	Grey Fantail	C	
Animalia	Rhipiduridae	Rhipidura fuliginosa	Piwakawaka		
Animalia	Rhipiduridae	Rhipidura leucophrys	Willie Wagtail		
Animalia	Scarabaeidae				
Animalia	Scarabaeidae	Anoplognathus boisduvalii			
Animalia	Scarabaeidae	Lyraphora bassii			
Animalia	Scarabaeidae	Lyraphora obliquata			
Animalia	Scarabaeidae	Metallesthes anneliesae			
Animalia	Scarabaeidae	Metanastes bicornis			

Animalia	Scarabaeidae	Mimadoretus leucothyreus			
Animalia	Scarabaeidae	Onthophagus blackburni			
Animalia	Scarabaeidae	Onthophagus compositus			
Animalia	Scarabaeidae	Onthophagus declivis			
Animalia	Scarabaeidae	Onthophagus laminatus			
Animalia	Scarabaeidae	Onthophagus quinquetuberculatus			
Animalia	Scarabaeidae	Proctophanes caldwellensis			
Animalia	Scarabaeidae	Semanopterus rectangulus			
Animalia	Scarabaeidae	Trissodon australasiae			
Animalia	Scincidae	Anomalopus mackayi	Five-clawed Worm-skink	E	V
Animalia	Scincidae	Carlia munda	Shaded-litter Rainbow-skink	C	
Animalia	Scincidae	Carlia pectoralis	Open-litter Rainbow-skink	C	
Animalia	Scincidae	Carlia tetradactyla	Southern Rainbow-skink	C	
Animalia	Scincidae	Cryptoblepharus pannosus	Ragged Snake-eyed Skink	C	
Animalia	Scincidae	Ctenotus spaldingi	Straight-browed Ctenotus	C	
Animalia	Scincidae	Egernia striolata	Tree Skink	C	
Animalia	Scincidae	Lerista fragilis	Eastern Mulch-slider	C	
Animalia	Scincidae	Liopholis modesta	Eastern Ranges Rock-skink	C	
Animalia	Scincidae	Lygisaurus foliorum	Tree-base Litter-skink	C	
Animalia	Scincidae	Menetia greyii	Common Dwarf Skink	C	

Animalia	Scincidae	Morethia boulengeri	South-eastern Morethia Skink	C	
Animalia	Scincidae	Pygmaeascincus timlowi	Dwarf Litter-skink	C	
Animalia	Scincidae	Saiphos equalis	Three-toed Skink	C	
Animalia	Scincidae	Tiliqua rugosa	Shingle-back	C	
Animalia	Scolopacidae	Gallinago hardwickii	Latham's Snipe	SL	
Animalia	Sparassidae	Holconia immanis			
Animalia	Sphaeriidae	Musculium tasmanicum			
Animalia	Sphecidae	Sceliphron formosum			
Animalia	Strigidae	Ninox novaeseelandiae			
Animalia	Sturnidae	Acridotheres tristis			
Animalia	Sturnidae	Sturnus vulgaris	Starling		
Animalia	Syrphidae	Simosyrphus grandicornis			
Animalia	Tachyglossidae	Tachyglossus aculeatus	Short-beaked Echidna	SL	
Animalia	Tenebrionidae	Ecnolagria rufescens			
Animalia	Tenebrionidae	Toxicum gracile			
Animalia	Tephritidae	Spathulina acroleuca			
Animalia	Termitidae	Microcerotermes serratus			
Animalia	Tessaratomidae	Musgraveia sulciventris	Bronze Orange Bug		
Animalia	Theridiidae	Nesticodes rufipes			
Animalia	Threskiornithidae	Plegadis falcinellus	Glossy Ibis	SL	
Animalia	Threskiornithidae	Threskiornis moluccus	Australian White Ibis		
Animalia	Threskiornithidae	Threskiornis spinicollis	Straw-necked Ibis	C	
Animalia	Thripidae	Frankliniella occidentalis	Western Flower Thrips		

Animalia	Timaliidae	Zosterops lateralis	Silvereye		
Animalia	Turdidae	Turdus merula	Blackbird	P	
Animalia	Turnicidae	Turnix maculosus	Red-backed Button-quail	C	
Animalia	Turnicidae	Turnix pyrrhothorax	Red-chested Button-quail	C	
Animalia	Turnicidae	Turnix varius	Painted Button-quail	C	
Animalia	Turnicidae	Turnix velox	Little Button-quail	C	
Animalia	Typhlopidae	Anilius ligatus	Robust Blind Snake	C	
Animalia	Typhlopidae	Anilius wiedii	Brown-snouted Blind Snake	C	
Animalia	Tytonidae	Tyto javanica	Eastern Barn Owl		
Animalia	Varanidae	Varanus panoptes	Yellow-spotted Monitor	C	
Animalia	Varanidae	Varanus varius	Lace Monitor	C	
Chromista	Peronosporaceae	Phytophthora medicaginis			
Fungi	Bolbitiaceae	Panaeolus antillarum		C	
Fungi	Geastraceae	Geastrum pectinatum		C	
Fungi	Graphidaceae	Platygramme arechavaletae		C	
Fungi	Lecanoraceae	Lecanora achroa		C	
Fungi	Lecanoraceae	Lecanora caesiorubella		C	
Fungi	Lecanoraceae	Lecanora flavidomarginata		C	
Fungi	Lecanoraceae	Lecanora helva		C	
Fungi	Lecideaceae	Lecidea ochroleuca		C	
Fungi	Parmeliaceae	Austroparmelina conlabrosa		C	
Fungi	Parmeliaceae	Austroparmelina pseudorelicina		C	

Fungi	Parmeliaceae	Canoparmelia texana		C	
Fungi	Parmeliaceae	Flavoparmelia rutidota		C	
Fungi	Parmeliaceae	Parmotrema austrosinense		C	
Fungi	Parmeliaceae	Parmotrema subsumptum		C	
Fungi	Parmeliaceae	Punctelia subflava		C	
Fungi	Parmeliaceae	Xanthoparmelia semiviridis		C	
Fungi	Pertusariaceae	Pertusaria thiospoda		C	
Fungi	Physciaceae	Pyxine subcinerea		C	
Fungi	Pleosporaceae	Bipolaris australis			
Fungi	Pleosporaceae	Bipolaris urochloae			
Fungi	Pleosporaceae	Curvularia bothriochloae			
Fungi	Ramalinaceae	Ramalina inflata			
Fungi	Teloschistaceae	Teloschistes sieberianus		C	
Fungi	Verrucariaceae	Endocarpon simplicatum			
Plantae	Acanthaceae	Brunoniella australis		C	
Plantae	Acanthaceae	Rostellularia adscendens			
Plantae	Acanthaceae	Ruellia simplex			
Plantae	Aizoaceae	Carpobrotus aequilaterus			
Plantae	Aizoaceae	Disphyma crassifolium			
Plantae	Aizoaceae	Sarcozona praecox		C	
Plantae	Aizoaceae	Tetragonia tetragonoides	KĀ• kihi	C	
Plantae	Aizoaceae	Trianthema Coorabulka			
Plantae	Aizoaceae	Zaleya galericulata			
Plantae	Alismataceae	Damasonium minus		C	

Plantae	Amaranthaceae	Alternanthera denticulata			
Plantae	Amaranthaceae	Alternanthera nodiflora		C	
Plantae	Amaranthaceae	Alternanthera pungens			
Plantae	Amaranthaceae	Amaranthus mitchellii		C	
Plantae	Amaranthaceae	Amaranthus retroflexus			
Plantae	Amaranthaceae	Deeringia amaranthoides		C	
Plantae	Amaranthaceae	Gomphrena celosioides			
Plantae	Amaranthaceae	Nyssanthus erecta		C	
Plantae	Amaranthaceae	Ptilotus macrocephalus		C	
Plantae	Amaranthaceae	Ptilotus nobilis			
Plantae	Amaryllidaceae	Calostemma luteum		C	
Plantae	Amaryllidaceae	Crinum flaccidum		C	
Plantae	Apiaceae	Ammi majus			
Plantae	Apiaceae	Conium maculatum			
Plantae	Apiaceae	Coriandrum sativum			
Plantae	Apiaceae	Cyclospermum leptophyllum			
Plantae	Apiaceae	Daucus carota	wild carrot		
Plantae	Apiaceae	Daucus glochidiatus	Pinaki	C	
Plantae	Apiaceae	Eryngium paludosum		C	
Plantae	Apiaceae	Foeniculum vulgare			
Plantae	Apiaceae	Platysace ericoides		C	
Plantae	Apocynaceae	Alstonia constricta		C	
Plantae	Apocynaceae	Asclepias curassavica			
Plantae	Apocynaceae	Carissa spinarum			
Plantae	Apocynaceae	Gomphocarpus physocarpus			

Plantae	Apocynaceae	Orbea variegata			
Plantae	Apocynaceae	Parsonsia eucalyptophylla		C	
Plantae	Araliaceae	Trachymene incisa			
Plantae	Asparagaceae	Eustrephus latifolius			
Plantae	Asparagaceae	Lomandra leucocephala			
Plantae	Asparagaceae	Lomandra longifolia		C	
Plantae	Asparagaceae	Lomandra multiflora			
Plantae	Asphodelaceae	Bulbine bulbosa	Mountain Swamp Lily	C	
Plantae	Asphodelaceae	Bulbine semibarbata		C	
Plantae	Aspleniaceae	Pleurosorus rutifolius			
Plantae	Asteraceae	Actinobole uliginosum		C	
Plantae	Asteraceae	Angianthus brachypappus		C	
Plantae	Asteraceae	Arctotheca calendula			
Plantae	Asteraceae	Bidens pilosa			
Plantae	Asteraceae	Brachyscome chrysoglossa		C	
Plantae	Asteraceae	Brachyscome ciliaris		C	
Plantae	Asteraceae	Brachyscome dalbyensis		C	
Plantae	Asteraceae	Brachyscome dentata		C	
Plantae	Asteraceae	Brachyscome multifida		C	
Plantae	Asteraceae	Brachyscome nodosa		C	
Plantae	Asteraceae	Brachyscome paludicola		C	
Plantae	Asteraceae	Brachyscome watanabei		C	
Plantae	Asteraceae	Calendula arvensis			
Plantae	Asteraceae	Calocephalus citreus		C	
Plantae	Asteraceae	Calotis cuneifolia			

Plantae	Asteraceae	Calotis hispidula		C	
Plantae	Asteraceae	Calotis lappulacea		C	
Plantae	Asteraceae	Cassinia laevis		C	
Plantae	Asteraceae	Cassinia straminea		C	
Plantae	Asteraceae	Centaurea melitensis			
Plantae	Asteraceae	Centipeda minima			
Plantae	Asteraceae	Centipeda thespidioides		C	
Plantae	Asteraceae	Chrysocephalum apiculatum			
Plantae	Asteraceae	Cirsium vulgare	Boar thistle		
Plantae	Asteraceae	Eclipta platyglossa			
Plantae	Asteraceae	Erigeron bonariensis			
Plantae	Asteraceae	Erigeron primulifolius			
Plantae	Asteraceae	Flaveria trinervia			
Plantae	Asteraceae	Helianthus annuus	sunflower		
Plantae	Asteraceae	Hypochaeris albiflora			
Plantae	Asteraceae	Lactuca serriola			
Plantae	Asteraceae	Leiocarpa brevicompta		C	
Plantae	Asteraceae	Leiocarpa panaetioides		C	
Plantae	Asteraceae	Leiocarpa websteri		C	
Plantae	Asteraceae	Minuria integerrima		C	
Plantae	Asteraceae	Olearia canescens			
Plantae	Asteraceae	Olearia elliptica			
Plantae	Asteraceae	Olearia microphylla		C	
Plantae	Asteraceae	Olearia ramulosa		C	
Plantae	Asteraceae	Picris barbarorum		V	
Plantae	Asteraceae	Picris evae		V	V
Plantae	Asteraceae	Podolepis muelleri		C	
Plantae	Asteraceae	Pycnosorus globosus		C	

Plantae	Asteraceae	Rhaponticum australe		V	V
Plantae	Asteraceae	Rhaponticum repens			
Plantae	Asteraceae	Rhodanthe diffusa			
Plantae	Asteraceae	Senecio brigalowensis		C	
Plantae	Asteraceae	Senecio glossanthus		C	
Plantae	Asteraceae	Senecio pinnatifolius			
Plantae	Asteraceae	Senecio queenslandicus		C	
Plantae	Asteraceae	Silybum marianum			
Plantae	Asteraceae	Soliva anthemifolia			
Plantae	Asteraceae	Sonchus asper	Kautara		
Plantae	Asteraceae	Symphytotrichum subulatum			
Plantae	Asteraceae	Tragopogon porrifolius			
Plantae	Asteraceae	Triptilodiscus pygmaeus		C	
Plantae	Asteraceae	Verbesina encelioides			
Plantae	Asteraceae	Vittadinia cuneata			
Plantae	Asteraceae	Vittadinia pterochaeta		C	
Plantae	Asteraceae	Vittadinia pustulata		C	
Plantae	Asteraceae	Vittadinia sulcata		C	
Plantae	Asteraceae	Xanthium occidentale			
Plantae	Asteraceae	Xanthium spinosum			
Plantae	Asteraceae	Xerochrysum bracteatum			
Plantae	Asteraceae	Zinnia peruviana			
Plantae	Bignoniaceae	Tecoma stans			
Plantae	Boraginaceae	Cynoglossum australe		C	
Plantae	Boraginaceae	Heliotropium amplexicaule			

Plantae	Boraginaceae	Heliotropium europaeum			
Plantae	Brassicaceae	Capsella bursa-pastoris			
Plantae	Brassicaceae	Lepidium africanum	Peppercreess		
Plantae	Brassicaceae	Lepidium bonariense			
Plantae	Brassicaceae	Lepidium hypenanthion		C	
Plantae	Brassicaceae	Lepidium monolocoides		C	E
Plantae	Brassicaceae	Lepidium pseudohyssopifolium		C	
Plantae	Brassicaceae	Lepidium sagittulatum		C	
Plantae	Brassicaceae	Raphanus raphanistrum			
Plantae	Brassicaceae	Sisymbrium officinale			
Plantae	Brassicaceae	Sisymbrium orientale			
Plantae	Cactaceae	Cereus uruguayanus			
Plantae	Cactaceae	Harrisia martinii			
Plantae	Cactaceae	Opuntia stricta			
Plantae	Cactaceae	Opuntia tomentosa			
Plantae	Campanulaceae	Isotoma axillaris		C	
Plantae	Campanulaceae	Wahlenbergia capillaris		C	
Plantae	Campanulaceae	Wahlenbergia fluminalis		C	
Plantae	Campanulaceae	Wahlenbergia gracilis		C	
Plantae	Campanulaceae	Wahlenbergia graniticola		C	
Plantae	Capparaceae	Apophyllum anomalum			
Plantae	Caryophyllaceae	Spergularia brevifolia		C	
Plantae	Caryophyllaceae	Spergularia rubra			

Plantae	Casuarinaceae	Allocasuarina luehmannii		C	
Plantae	Casuarinaceae	Casuarina cristata		C	
Plantae	Chenopodiaceae	Atriplex leptocarpa		C	
Plantae	Chenopodiaceae	Atriplex muelleri		C	
Plantae	Chenopodiaceae	Atriplex semibaccata			
Plantae	Chenopodiaceae	Chenopodium album	Fat-hen		
Plantae	Chenopodiaceae	Dysphania ambrosioides			
Plantae	Chenopodiaceae	Dysphania carinata		C	
Plantae	Chenopodiaceae	Dysphania glomulifera			
Plantae	Chenopodiaceae	Einadia nutans			
Plantae	Chenopodiaceae	Enchylaena tomentosa			
Plantae	Chenopodiaceae	Maireana brevifolia		C	
Plantae	Chenopodiaceae	Maireana enchylaenoides		C	
Plantae	Chenopodiaceae	Maireana microphylla		C	
Plantae	Chenopodiaceae	Maireana pentagona		C	
Plantae	Chenopodiaceae	Salsola australis		C	
Plantae	Chenopodiaceae	Sclerolaena bicornis			
Plantae	Chenopodiaceae	Sclerolaena diacantha		C	
Plantae	Chenopodiaceae	Sclerolaena muricata			
Plantae	Chenopodiaceae	Sclerolaena stelligera		C	
Plantae	Chenopodiaceae	Sclerolaena tricuspis		C	
Plantae	Commelinaceae	Commelina diffusa		C	
Plantae	Commelinaceae	Commelina ensifolia		C	
Plantae	Commelinaceae	Murdannia graminea		C	
Plantae	Convolvulaceae	Convolvulus angustissimus			
Plantae	Convolvulaceae	Convolvulus arvensis			

Plantae	Convolvulaceae	Convolvulus erubescens		C	
Plantae	Convolvulaceae	Convolvulus graminetinus		C	
Plantae	Convolvulaceae	Cuscuta campestris			
Plantae	Convolvulaceae	Dichondra			
Plantae	Convolvulaceae	Dichondra Inglewood			
Plantae	Convolvulaceae	Evolvulus alsinoides			
Plantae	Convolvulaceae	Ipomoea lonchophylla		C	
Plantae	Convolvulaceae	Ipomoea purpurea			
Plantae	Crassulaceae	Bryophyllum delagoense			
Plantae	Crassulaceae	Crassula peduncularis		C	
Plantae	Crassulaceae	Crassula tetramera		C	
Plantae	Cupressaceae	Callitris endlicheri		C	
Plantae	Cupressaceae	Callitris glaucophylla		C	
Plantae	Cyperaceae	Carex inversa		C	
Plantae	Cyperaceae	Cyperus aggregatus			
Plantae	Cyperaceae	Cyperus betchei			
Plantae	Cyperaceae	Cyperus bifax		C	
Plantae	Cyperaceae	Cyperus bowmanni		C	
Plantae	Cyperaceae	Cyperus clarus		V	
Plantae	Cyperaceae	Cyperus concinnus		C	
Plantae	Cyperaceae	Cyperus difformis		C	
Plantae	Cyperaceae	Cyperus eragrostis	Puketangata		
Plantae	Cyperaceae	Cyperus fulvus		C	
Plantae	Cyperaceae	Cyperus gracilis		C	
Plantae	Cyperaceae	Cyperus gunnii			
Plantae	Cyperaceae	Cyperus leiocaulon		C	
Plantae	Cyperaceae	Cyperus polystachyos	Bunchy Flat-sedge		
Plantae	Cyperaceae	Cyperus rigidellus		C	

Plantae	Cyperaceae	Eleocharis blakeana		C	
Plantae	Cyperaceae	Eleocharis cylindrostachys		C	
Plantae	Cyperaceae	Eleocharis plana		C	
Plantae	Cyperaceae	Eleocharis pusilla		C	
Plantae	Cyperaceae	Fimbristylis dichotoma		C	
Plantae	Cyperaceae	Scleria mackaviensis			
Plantae	Droseraceae	Drosera burmanni	condominium plant	C	
Plantae	Ericaceae	Leucopogon leptospermoides		C	
Plantae	Ericaceae	Leucopogon muticus		C	
Plantae	Ericaceae	Melichrus urceolatus		C	
Plantae	Euphorbiaceae	Euphorbia dallachyana		C	
Plantae	Euphorbiaceae	Manihot grahamii			
Plantae	Fabaceae	Acacia amblygona		C	
Plantae	Fabaceae	Acacia aulacocarpa		C	
Plantae	Fabaceae	Acacia burrowii		C	
Plantae	Fabaceae	Acacia calamifolia			
Plantae	Fabaceae	Acacia concurrens		C	
Plantae	Fabaceae	Acacia conferta		C	
Plantae	Fabaceae	Acacia crassa			
Plantae	Fabaceae	Acacia cultriformis		C	
Plantae	Fabaceae	Acacia deanei	Black Wattle	C	
Plantae	Fabaceae	Acacia decora		C	
Plantae	Fabaceae	Acacia excelsa			
Plantae	Fabaceae	Acacia granitica		C	
Plantae	Fabaceae	Acacia hakeoides		C	
Plantae	Fabaceae	Acacia harpophylla		C	
Plantae	Fabaceae	Acacia homalophylla			
Plantae	Fabaceae	Acacia ixiophylla		C	
Plantae	Fabaceae	Acacia jucunda		C	

Plantae	Fabaceae	Acacia juncifolia		C	
Plantae	Fabaceae	Acacia leiocalyx			
Plantae	Fabaceae	Acacia maidenii		C	
Plantae	Fabaceae	Acacia melanoxylon		C	
Plantae	Fabaceae	Acacia neriifolia		C	
Plantae	Fabaceae	Acacia pendula		C	
Plantae	Fabaceae	Acacia polybotrya		C	
Plantae	Fabaceae	Acacia retinodes			
Plantae	Fabaceae	Acacia salicina		C	
Plantae	Fabaceae	Acacia semilunata		C	
Plantae	Fabaceae	Acacia sparsiflora		C	
Plantae	Fabaceae	Acacia spectabilis		C	
Plantae	Fabaceae	Acacia stenophylla		C	
Plantae	Fabaceae	Acacia triptera		C	
Plantae	Fabaceae	Ceratonia siliqua			
Plantae	Fabaceae	Cullen tenax		C	
Plantae	Fabaceae	Dillwynia sericea		C	
Plantae	Fabaceae	Glycine clandestina			
Plantae	Fabaceae	Hardenbergia violacea	purple coral-pea	C	
Plantae	Fabaceae	Jacksonia scoparia		C	
Plantae	Fabaceae	Lespedeza juncea			
Plantae	Fabaceae	Lotononis bainesii			
Plantae	Fabaceae	Medicago arborea	Moon trefoil		
Plantae	Fabaceae	Medicago lupulina	Hop clover		
Plantae	Fabaceae	Melilotus albus			
Plantae	Fabaceae	Melilotus indicus			
Plantae	Fabaceae	Senna artemisioides			
Plantae	Fabaceae	Senna coronilloides		C	
Plantae	Fabaceae	Sesbania cannabina			
Plantae	Fabaceae	Swainsona galegifolia		C	

Plantae	Fabaceae	Swainsona procumbens		C	
Plantae	Fabaceae	Swainsona queenslandica		C	
Plantae	Fabaceae	Trifolium arvense			
Plantae	Fabaceae	Vachellia farnesiana			
Plantae	Fabaceae	Vicia monantha			
Plantae	Fabaceae	Vigna suberecta		C	
Plantae	Gentianaceae	Schenkia australis		C	
Plantae	Geraniaceae	Erodium crinitum		C	
Plantae	Geraniaceae	Geranium solanderi	Austral Crane's-bill		
Plantae	Goodeniaceae	Brunonia australis		C	
Plantae	Goodeniaceae	Goodenia glabra		C	
Plantae	Goodeniaceae	Goodenia gracilis		C	
Plantae	Goodeniaceae	Goodenia heteromera		C	
Plantae	Goodeniaceae	Goodenia pinnatifida		C	
Plantae	Goodeniaceae	Velleia paradoxa		C	
Plantae	Haloragaceae	Haloragis heterophylla		C	
Plantae	Haloragaceae	Myriophyllum gracile			
Plantae	Haloragaceae	Myriophyllum verrucosum	Red water milfoil	C	
Plantae	Hemerocallidaceae	Caesia parviflora			
Plantae	Hemerocallidaceae	Dianella longifolia	Flax-lily		
Plantae	Hemerocallidaceae	Stypandra glauca		C	
Plantae	Hemerocallidaceae	Tricoryne elatior		C	
Plantae	Heterodeaceae	Heterodea muelleri			
Plantae	Hypericaceae	Hypericum gramineum		C	
Plantae	Hypoxidaceae	Hypoxis hygrometrica			
Plantae	Iridaceae	Sisyrinchium rosulatum			
Plantae	Juncaceae	Juncus aridicola		C	

Plantae	Juncaceae	Juncus flavidus		C	
Plantae	Juncaceae	Juncus polyanthemus		C	
Plantae	Juncaceae	Juncus psammophilus		C	
Plantae	Juncaceae	Juncus subsecundus		C	
Plantae	Lamiaceae	Ajuga australis		C	
Plantae	Lamiaceae	Marrubium vulgare			
Plantae	Lamiaceae	Mentha satuireioides		C	
Plantae	Lamiaceae	Moluccella laevis			
Plantae	Lamiaceae	Newcastelia interrupta		C	
Plantae	Lamiaceae	Plectranthus parviflorus			
Plantae	Lamiaceae	Prostanthera			
Plantae	Lamiaceae	Prostanthera nivea	Snowy Mint-bush	C	
Plantae	Lamiaceae	Salvia reflexa			
Plantae	Lamiaceae	Teucrium argutum		C	
Plantae	Lamiaceae	Teucrium daucoides		C	
Plantae	Lamiaceae	Teucrium junceum		C	
Plantae	Lamiaceae	Teucrium Pittsworth			
Plantae	Lamiaceae	Westringia parvifolia		V	V
Plantae	Loranthaceae	Amyema cambagei		C	
Plantae	Loranthaceae	Amyema congener			
Plantae	Loranthaceae	Amyema linophylla			
Plantae	Loranthaceae	Amyema miquelii		C	
Plantae	Loranthaceae	Amyema miraculosa			
Plantae	Loranthaceae	Dendrophthoe glabrescens		C	
Plantae	Loranthaceae	Lysiana exocarpi			
Plantae	Lythraceae	Lythrum salicaria		C	
Plantae	Malvaceae	Abutilon oxycarpum			
Plantae	Malvaceae	Anoda cristata			

Plantae	Malvaceae	Hibiscus tridactylites		C	
Plantae	Malvaceae	Malvastrum americanum			
Plantae	Malvaceae	Pavonia hastata			
Plantae	Malvaceae	Sida corrugata			
Plantae	Malvaceae	Sida hackettiana			
Plantae	Malvaceae	Sida rhombifolia			
Plantae	Malvaceae	Sida trichopoda		C	
Plantae	Marsileaceae	Marsilea drummondii		C	
Plantae	Marsileaceae	Marsilea hirsuta		C	
Plantae	Menyanthaceae	Nymphoides crenata		C	
Plantae	Myrtaceae	Angophora floribunda		C	
Plantae	Myrtaceae	Angophora leiocarpa		C	
Plantae	Myrtaceae	Calytrix longiflora		C	
Plantae	Myrtaceae	Calytrix tetragona		C	
Plantae	Myrtaceae	Corymbia citriodora			
Plantae	Myrtaceae	Corymbia clarksoniana		C	
Plantae	Myrtaceae	Corymbia tessellaris		C	
Plantae	Myrtaceae	Corymbia trachyphloia			
Plantae	Myrtaceae	Eucalyptus apothalassica		C	
Plantae	Myrtaceae	Eucalyptus camaldulensis			
Plantae	Myrtaceae	Eucalyptus chloroclada		C	
Plantae	Myrtaceae	Eucalyptus conica		C	
Plantae	Myrtaceae	Eucalyptus crebra		C	
Plantae	Myrtaceae	Eucalyptus dealbata		C	
Plantae	Myrtaceae	Eucalyptus exserta		C	
Plantae	Myrtaceae	Eucalyptus fibrosa			
Plantae	Myrtaceae	Eucalyptus melanophloia			

Plantae	Myrtaceae	Eucalyptus orgadophila		C	
Plantae	Myrtaceae	Eucalyptus populnea		C	
Plantae	Myrtaceae	Eucalyptus tereticornis			
Plantae	Myrtaceae	Eucalyptus terrica		C	
Plantae	Myrtaceae	Eucalyptus woollsiana		C	
Plantae	Myrtaceae	Leptospermum brevipes		C	
Plantae	Myrtaceae	Leptospermum polygalifolium		C	
Plantae	Myrtaceae	Lysicarpus angustifolius		C	
Plantae	Myrtaceae	Melaleuca densispicata		C	
Plantae	Myrtaceae	Melaleuca irbyana		E	
Plantae	Myrtaceae	Melaleuca lanceolata		C	
Plantae	Nyctaginaceae	Boerhavia dominii		C	
Plantae	Nymphaeaceae	Nymphaea gigantea		C	
Plantae	Oleaceae	Jasminum dianthifolium		C	
Plantae	Oleaceae	Jasminum suavissimum			
Plantae	Oleaceae	Notelaea microcarpa		C	
Plantae	Oleaceae	Olea europaea	African olive		
Plantae	Onagraceae	Epilobium billardioreanum			
Plantae	Onagraceae	Oenothera curtiflora			
Plantae	Onagraceae	Oenothera tetraptera			
Plantae	Orchidaceae	Hymenochilus bicolor			
Plantae	Orchidaceae	Pterostylis mitchellii		C	
Plantae	Orchidaceae	Pterostylis mutica		C	
Plantae	Oxalidaceae	Oxalis perennans		C	
Plantae	Oxalidaceae	Oxalis radicata		C	

Plantae	Papaveraceae	Fumaria muralis			
Plantae	Phrymaceae	Peplidium foecundum		C	
Plantae	Pittosporaceae	Pittosporum angustifolium		C	
Plantae	Plantaginaceae	Misopates orontium			
Plantae	Plantaginaceae	Plantago debilis		C	
Plantae	Plumbaginaceae	Plumbago zeylanica		C	
Plantae	Poaceae	Anthosachne scabra		C	
Plantae	Poaceae	Aristida calycina			
Plantae	Poaceae	Aristida caput-medusae		C	
Plantae	Poaceae	Aristida contorta		C	
Plantae	Poaceae	Aristida jerichoensis			
Plantae	Poaceae	Aristida latifolia		C	
Plantae	Poaceae	Aristida leichhardtiana		C	
Plantae	Poaceae	Aristida leptopoda		C	
Plantae	Poaceae	Aristida personata		C	
Plantae	Poaceae	Aristida ramosa			
Plantae	Poaceae	Arundinella nepalensis		C	
Plantae	Poaceae	Austrostipa aristiglumis		C	
Plantae	Poaceae	Austrostipa ramosissima		C	
Plantae	Poaceae	Austrostipa scabra	Needle grass		
Plantae	Poaceae	Austrostipa verticillata		C	
Plantae	Poaceae	Bothriochloa biloba		C	
Plantae	Poaceae	Bothriochloa bladhii			
Plantae	Poaceae	Bothriochloa decipiens			
Plantae	Poaceae	Bothriochloa erianthoides		C	
Plantae	Poaceae	Bothriochloa insculpta			

Plantae	Poaceae	Bromus catharticus			
Plantae	Poaceae	Cenchrus ciliaris	Buffel grass		
Plantae	Poaceae	Cenchrus longisetus			
Plantae	Poaceae	Cenchrus longispinus			
Plantae	Poaceae	Cenchrus spinifex			
Plantae	Poaceae	Chloris divaricata			
Plantae	Poaceae	Chloris truncata		C	
Plantae	Poaceae	Chloris ventricosa		C	
Plantae	Poaceae	Chrysopogon fallax		C	
Plantae	Poaceae	Cymbopogon oblectus		C	
Plantae	Poaceae	Cymbopogon refractus	Barb-wire grass	C	
Plantae	Poaceae	Cynodon dactylon			
Plantae	Poaceae	Dactyloctenium radulans		C	
Plantae	Poaceae	Dichanthium annulatum			
Plantae	Poaceae	Dichanthium queenslandicum		V	E
Plantae	Poaceae	Dichanthium sericeum			
Plantae	Poaceae	Digitaria ammophila			
Plantae	Poaceae	Digitaria brownii		C	
Plantae	Poaceae	Digitaria diffusa		C	
Plantae	Poaceae	Digitaria divaricatissima	Spider Grass		
Plantae	Poaceae	Digitaria eriantha			
Plantae	Poaceae	Digitaria porrecta		NT	
Plantae	Poaceae	Digitaria sanguinalis			
Plantae	Poaceae	Dinebra decipiens			
Plantae	Poaceae	Dinebra panicea			
Plantae	Poaceae	Diplachne fusca			
Plantae	Poaceae	Echinochloa colona			

Plantae	Poaceae	Echinochloa crus-galli	Barnyard millet		
Plantae	Poaceae	Ectrosia leporina			
Plantae	Poaceae	Eleusine indica			
Plantae	Poaceae	Enneapogon gracilis		C	
Plantae	Poaceae	Enteropogon acicularis		C	
Plantae	Poaceae	Enteropogon paucispiceus		C	
Plantae	Poaceae	Enteropogon ramosus		C	
Plantae	Poaceae	Eragrostis alveiformis		C	
Plantae	Poaceae	Eragrostis cilianensis			
Plantae	Poaceae	Eragrostis curvula			
Plantae	Poaceae	Eragrostis elongata		C	
Plantae	Poaceae	Eragrostis lacunaria		C	
Plantae	Poaceae	Eragrostis leptostachya		C	
Plantae	Poaceae	Eragrostis parviflora		C	
Plantae	Poaceae	Eragrostis sororia		C	
Plantae	Poaceae	Eragrostis speciosa		C	
Plantae	Poaceae	Eragrostis trichophora			
Plantae	Poaceae	Eriochloa crebra		C	
Plantae	Poaceae	Eriochloa procera		C	
Plantae	Poaceae	Eriochloa pseudoacrotricha		C	
Plantae	Poaceae	Eulalia aurea		C	
Plantae	Poaceae	Homopholis belsonii		E	V
Plantae	Poaceae	Hyparrhenia hirta			
Plantae	Poaceae	Lachnagrostis filiformis	Perehia	C	
Plantae	Poaceae	Leptochloa digitata		C	
Plantae	Poaceae	Megathyrsus maximus			

Plantae	Poaceae	Microlaena stipoides			
Plantae	Poaceae	Oxychloris scariosa		C	
Plantae	Poaceae	Panicum buncei		C	
Plantae	Poaceae	Panicum decompositum			
Plantae	Poaceae	Panicum effusum			
Plantae	Poaceae	Panicum queenslandicum			
Plantae	Poaceae	Paspalidium caespitosum		C	
Plantae	Poaceae	Paspalidium constrictum		C	
Plantae	Poaceae	Paspalidium distans		C	
Plantae	Poaceae	Paspalidium gracile		C	
Plantae	Poaceae	Perotis rara		C	
Plantae	Poaceae	Phalaris paradoxa			
Plantae	Poaceae	Poa fordeana		C	
Plantae	Poaceae	Rytidosperma bipartitum		C	
Plantae	Poaceae	Rytidosperma caespitosum			
Plantae	Poaceae	Rytidosperma racemosum			
Plantae	Poaceae	Setaria incrassata			
Plantae	Poaceae	Setaria parviflora			
Plantae	Poaceae	Setaria paspalidioides		C	
Plantae	Poaceae	Sorghum alnum	Columbus grass		
Plantae	Poaceae	Sporobolus caroli		C	
Plantae	Poaceae	Sporobolus contiguus		C	
Plantae	Poaceae	Sporobolus coromandelianus			
Plantae	Poaceae	Sporobolus creber		C	
Plantae	Poaceae	Sporobolus mitchellii		C	
Plantae	Poaceae	Themeda avenacea		C	

Plantae	Poaceae	Triodia scariosa		C	
Plantae	Poaceae	Triraphis mollis		C	
Plantae	Poaceae	Triticum aestivum			
Plantae	Poaceae	Urochloa mosambicensis			
Plantae	Poaceae	Vulpia muralis			
Plantae	Poaceae	Walwhalleya subxerophila		C	
Plantae	Polygonaceae	Fagopyrum esculentum			
Plantae	Polygonaceae	Fallopia convolvulus			
Plantae	Polygonaceae	Polygonum aviculare	MÄ• kÄ• kaka		
Plantae	Polygonaceae	Rumex brownii		C	
Plantae	Polygonaceae	Rumex crispus	Yellow dock		
Plantae	Polygonaceae	Rumex dumosus		C	
Plantae	Polygonaceae	Rumex tenax		C	
Plantae	Pontederiaceae	Eichhornia crassipes			
Plantae	Portulacaceae	Anacampseros australiana			
Plantae	Portulacaceae	Calandrinia balonensis		C	
Plantae	Portulacaceae	Calandrinia calyptata			
Plantae	Portulacaceae	Calandrinia eremaea		C	
Plantae	Portulacaceae	Calandrinia pickeringii		C	
Plantae	Portulacaceae	Calandrinia pleiopetala		C	
Plantae	Portulacaceae	Calandrinia stagnensis		C	
Plantae	Portulacaceae	Portulaca bicolor		C	
Plantae	Portulacaceae	Portulaca filifolia		C	
Plantae	Portulacaceae	Portulaca oleracea			
Plantae	Pottiaceae	Pseudocrossidium crinitum			
Plantae	Pottiaceae	Syntrichia pagorum			

Plantae	Proteaceae	Hakea actites		C	
Plantae	Proteaceae	Hakea lorea			
Plantae	Proteaceae	Persoonia sericea		C	
Plantae	Proteaceae	Persoonia terminalis			
Plantae	Proteaceae	Xylomelum cunninghamianum		C	
Plantae	Proteaceae	Xylomelum pyriforme			
Plantae	Pteridaceae	Cheilanthes distans		C	
Plantae	Pteridaceae	Cheilanthes sieberi			
Plantae	Pteridaceae	Cheilanthes tenuifolia		C	
Plantae	Pteridaceae	Platyzoma microphyllum		C	
Plantae	Ranunculaceae	Ranunculus muricatus			
Plantae	Ranunculaceae	Ranunculus pentandrus			
Plantae	Rhamnaceae	Ventilago viminalis		C	
Plantae	Rubiaceae	Asperula cunninghamii		C	
Plantae	Rubiaceae	Opercularia diphylla		C	
Plantae	Rutaceae	Boronia glabra		C	
Plantae	Rutaceae	Citrus glauca		C	
Plantae	Rutaceae	Geijera parviflora		C	
Plantae	Salviniaceae	Azolla rubra	Red water fern	C	
Plantae	Santalaceae	Exocarpos aphyllus		C	
Plantae	Santalaceae	Korthalsella taenioides			
Plantae	Sapindaceae	Dodonaea macrossanii		C	
Plantae	Sapindaceae	Dodonaea peduncularis		C	
Plantae	Sapindaceae	Dodonaea sinuolata			
Plantae	Sapindaceae	Dodonaea triangularis		C	
Plantae	Sapindaceae	Dodonaea viscosa			

Plantae	Scrophulariaceae	Eremophila debilis		C	
Plantae	Scrophulariaceae	Eremophila deserti		C	
Plantae	Scrophulariaceae	Eremophila glabra			
Plantae	Scrophulariaceae	Eremophila longifolia		C	
Plantae	Scrophulariaceae	Eremophila mitchellii		C	
Plantae	Scrophulariaceae	Myoporum acuminatum			
Plantae	Scrophulariaceae	Myoporum montanum	Boobialla		
Plantae	Scrophulariaceae	Verbascum virgatum			
Plantae	Solanaceae	Datura ferox			
Plantae	Solanaceae	Lycium barbarum	Duke of Argyll's tea plant		
Plantae	Solanaceae	Physalis longifolia			
Plantae	Solanaceae	Solanum amblymerum		C	
Plantae	Solanaceae	Solanum esuriale		C	
Plantae	Solanaceae	Solanum ferocissimum		C	
Plantae	Solanaceae	Solanum mitchellianum		C	
Plantae	Solanaceae	Solanum nigrum	Poroporo		
Plantae	Solanaceae	Solanum nodiflorum			
Plantae	Solanaceae	Solanum stupefactum		C	
Plantae	Thymelaeaceae	Pimelea neo-anglica			
Plantae	Verbenaceae	Glandularia aristigera			
Plantae	Verbenaceae	Phyla canescens			
Plantae	Verbenaceae	Phyla nodiflora		C	
Plantae	Verbenaceae	Verbena africana		C	
Plantae	Verbenaceae	Verbena bonariensis	South American vervain		
Plantae	Verbenaceae	Verbena gaudichaudii		C	

Plantae	Verbenaceae	Verbena litoralis			
Plantae	Verbenaceae	Verbena officinalis			
Plantae	Violaceae	Hybanthus monopetalus		C	
Plantae	Zamiaceae	Macrozamia plurinervia			
Plantae	Zygophyllaceae	Roepera apiculata			
Plantae	Zygophyllaceae	Tribulus micrococcus		C	

WildNet Records

Species List

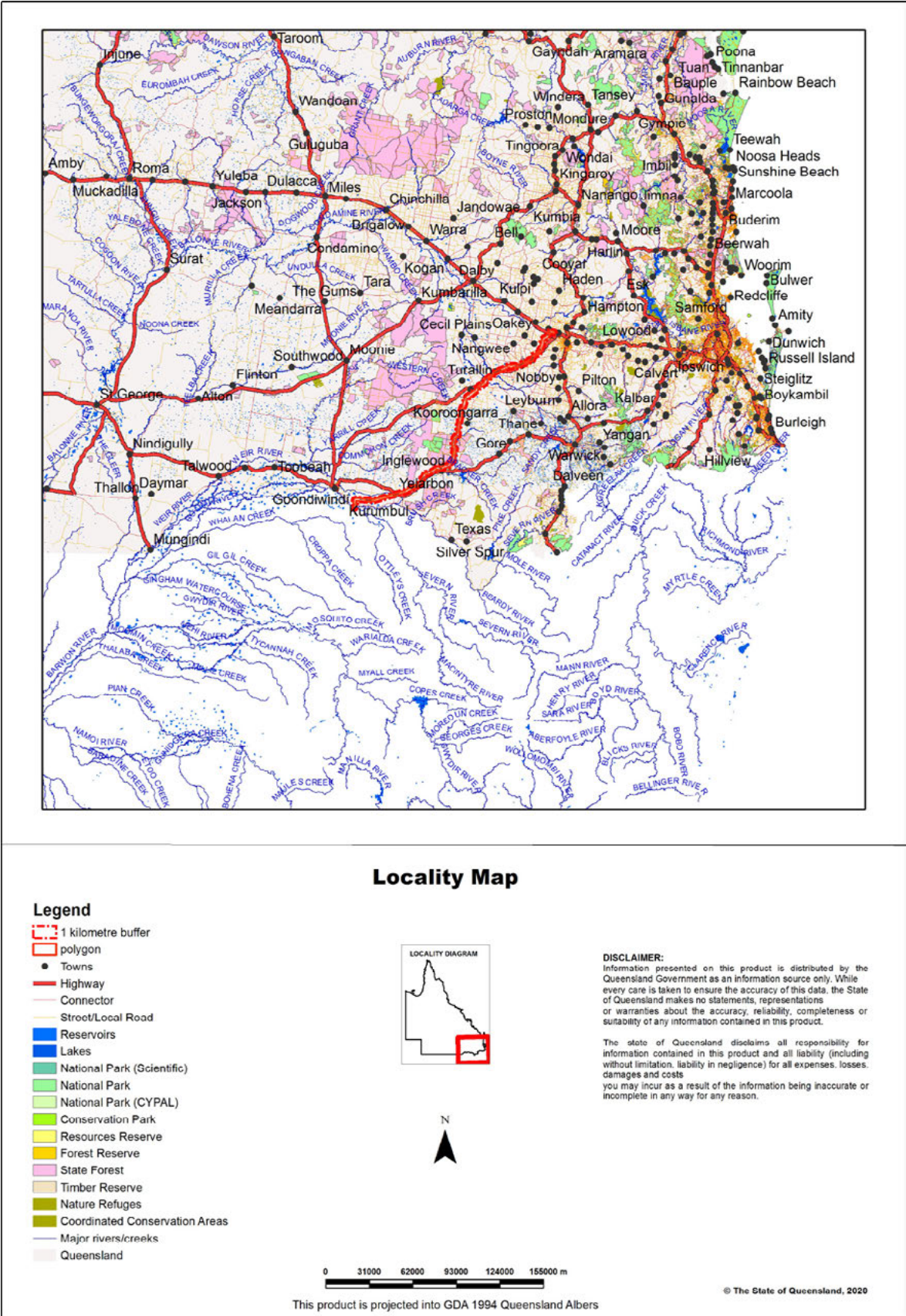


For the selected area of interest 44210.83ha

Current as at 25/02/2020

WildNetspecieslist

Map 1. Locality Map



Summary Information

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

Table 1. Area of interest details

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine

Protected Area(s)

The following estates and/or reserves are located in the area of interest:

Whetstone State
Forest

Bringalily State Forest

World Heritage Area(s)

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

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Species List

Introduction

This Species List report is derived only from records from the WildNet database managed by the Department of Environment and Science. Other data sources may provide additional information on species occurrence.

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species does not occur in the report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area.

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

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

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

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

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

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
26941	Actinopterygii	Clupeidae	<i>Nematalosa erebi</i>	bony bream	None	None	0	3	25/05/1998
26943	Actinopterygii	Cyprinidae	<i>Cyprinus carpio</i>	European carp	None	None	0	1	25/05/1998
26956	Actinopterygii	Eleotridae	<i>Hypseleotris klunzingeri</i>	western carp gudgeon	None	None	0	3	25/05/1998
27025	Actinopterygii	Melanotaeniidae	<i>Melanotaenia fluviatilis</i>	Murray River rainbowfish	None	None	0	1	25/05/1998
27042	Actinopterygii	Percichthyidae	<i>Macquaria ambigua</i>	golden perch	None	None	0	3	25/05/1998
27054	Actinopterygii	Plotosidae	<i>Tandanus tandanus</i>	freshwater catfish	None	None	0	2	25/05/1998

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
27055	Actinopterygii	Poeciliidae	<i>Gambusia holbrooki</i>	mosquitofish	None	None	0	3	25/05/1998
27089	Actinopterygii	Terapontidae	<i>Leiopotherapon unicolor</i>	spangled perch	None	None	0	1	25/05/1998
624	Amphibia	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog	C	None	0	16	17/02/2005
644	Amphibia	Hylidae	<i>Cyclorana cultripes</i>	grassland collared frog	C	None	3	3	06/01/2005
620	Amphibia	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog	C	None	0	5	22/02/2011
621	Amphibia	Hylidae	<i>Cyclorana platycephala</i>	water holding frog	C	None	2	3	06/01/2005
623	Amphibia	Hylidae	<i>Cyclorana verrucosa</i>	rough collared frog	C	None	6	7	17/02/2005
627	Amphibia	Hylidae	<i>Litoria caerulea</i>	common green treefrog	C	None	0	5	17/02/2005
608	Amphibia	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	C	None	0	2	06/10/2011
614	Amphibia	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	C	None	2	12	06/10/2011
596	Amphibia	Hylidae	<i>Litoria peronii</i>	emerald spotted treefrog	C	None	1	7	06/10/2011
600	Amphibia	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	C	None	0	15	06/10/2011
678	Amphibia	Limnodynastidae	<i>Limnodynastes dumerilii</i>	grey bellied pobblebonk	C	None	1	1	03/05/1964
679	Amphibia	Limnodynastidae	<i>Limnodynastes fletcheri</i>	barking frog	C	None	0	4	11/03/2011
681	Amphibia	Limnodynastidae	<i>Limnodynastes peronii</i>	striped marshfrog	C	None	0	1	07/03/2017
682	Amphibia	Limnodynastidae	<i>Limnodynastes salmini</i>	salmon striped frog	C	None	0	4	11/03/2006
684	Amphibia	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	C	None	0	13	06/10/2011
673	Amphibia	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	C	None	0	3	31/10/2006
667	Amphibia	Limnodynastidae	<i>Neobatrachus sudellae</i>	meeowing frog	C	None	0	2	08/03/2006
668	Amphibia	Limnodynastidae	<i>Notaden bennettii</i>	holy cross frog	C	None	0	2	06/01/2005
680	Amphibia	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog	C	None	0	10	10/03/2006
696	Amphibia	Myobatrachidae	<i>Crinia parinsignifera</i>	beeping froglet	C	None	0	3	06/10/2011
639	Amphibia	Myobatrachidae	<i>Uperoleia rugosa</i>	chubby gungan	C	None	0	1	06/10/2011
1418	Aves	Acanthizidae	<i>Acanthiza apicalis</i>	inland thornbill	C	None	0	5	30/03/2003
1419	Aves	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill	C	None	0	127	09/05/2019
1421	Aves	Acanthizidae	<i>Acanthiza lineata</i>	striated thornbill	C	None	0	1	30/07/1996
1422	Aves	Acanthizidae	<i>Acanthiza nana</i>	yellow thornbill	C	None	0	23	28/10/2006
1423	Aves	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill	C	None	0	9	08/08/2011
1425	Aves	Acanthizidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill	C	None	0	8	17/11/2000

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1400	Aves	Acanthizidae	<i>Aphelocephala leucopsis</i>	southern whiteface	C	None	0	1	08/03/2006
1407	Aves	Acanthizidae	<i>Gerygone fusca</i>	western gerygone	C	None	0	5	31/05/2006
1410	Aves	Acanthizidae	<i>Gerygone mouki</i>	brown gerygone	C	None	0	2	06/06/1999
1396	Aves	Acanthizidae	<i>Gerygone olivacea</i>	white-throated gerygone	C	None	0	80	04/07/2010
1403	Aves	Acanthizidae	<i>Pyrrholaemus sagittatus</i>	speckled warbler	C	None	0	9	24/04/2004
1382	Aves	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren	C	None	0	7	09/05/2019
1371	Aves	Acanthizidae	<i>Smicromis brevirostris</i>	weebill	C	None	0	98	20/12/2007
1742	Aves	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk	C	None	1	6	31/03/2007
1729	Aves	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk	C	None	0	10	04/07/2010
1730	Aves	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk	C	None	0	1	28/02/1973
1732	Aves	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle	C	None	0	20	10/02/2015
1721	Aves	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza	C	None	0	2	27/01/2001
1722	Aves	Accipitridae	<i>Circus approximans</i>	swamp harrier	C	None	0	1	31/07/2007
1723	Aves	Accipitridae	<i>Circus assimilis</i>	spotted harrier	C	None	0	5	30/06/2003
1725	Aves	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite	C	None	0	46	17/07/2018
1707	Aves	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite	C	None	0	5	26/06/2005
1710	Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	little eagle	C	None	0	2	31/07/1999
1714	Aves	Accipitridae	<i>Milvus migrans</i>	black kite	C	None	0	12	04/07/2010
1305	Aves	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler	C	None	0	4	31/05/2003
1973	Aves	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar	C	None	0	3	06/10/2011
1652	Aves	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark	C	None	1	10	13/10/2015
1776	Aves	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher	C	None	0	19	27/01/2001
1993	Aves	Anatidae	<i>Anas gracilis</i>	grey teal	C	None	0	57	20/12/2007
1994	Aves	Anatidae	<i>Anas platyrhynchos</i>	northern mallard	None	None	0	1	18/03/2007
1998	Aves	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	C	None	0	105	20/12/2007
1999	Aves	Anatidae	<i>Aythya australis</i>	hardhead	C	None	0	31	28/02/2007
2001	Aves	Anatidae	<i>Biziura lobata</i>	musk duck	C	None	0	2	23/11/1975
2003	Aves	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	C	None	0	137	20/12/2007
2005	Aves	Anatidae	<i>Cygnus atratus</i>	black swan	C	None	0	4	31/01/2006
1977	Aves	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck	C	None	0	1	27/06/2000
1978	Aves	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck	C	None	0	18	31/01/2007
1980	Aves	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck	C	None	0	12	30/09/2007

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1996	Aves	Anatidae	<i>Spatula rhynchotis</i>	Australasian shoveler	C	None	0	9	30/06/2007
1279	Aves	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter	C	None	0	19	30/05/2006
1963	Aves	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose	C	None	0	1	23/02/2002
1965	Aves	Apodidae	<i>Apus pacificus</i>	fork-tailed swift	SL	None	0	3	31/01/2006
1971	Aves	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail	V	V	0	3	15/12/2014
1829	Aves	Ardeidae	<i>Ardea alba modesta</i>	eastern great egret	C	None	0	18	20/12/2007
1831	Aves	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	C	None	0	3	31/03/2005
1832	Aves	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	C	None	0	26	31/01/2007
1830	Aves	Ardeidae	<i>Bubulcus ibis</i>	cattle egret	C	None	0	11	01/11/2000
1826	Aves	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	C	None	0	61	20/12/2007
1818	Aves	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron	C	None	0	2	01/04/2001
1658	Aves	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow	C	None	0	1	24/09/2001
1659	Aves	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow	C	None	0	2	18/01/1998
1660	Aves	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	C	None	0	6	15/10/2007
1646	Aves	Artamidae	<i>Artamus minor</i>	little woodswallow	C	None	0	2	18/01/1998
1647	Aves	Artamidae	<i>Artamus personatus</i>	masked woodswallow	C	None	0	2	29/03/2003
1649	Aves	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow	C	None	0	2	31/10/2006
1654	Aves	Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird	C	None	0	161	13/10/2015
1656	Aves	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	C	None	0	103	17/07/2018
1644	Aves	Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie	C	None	0	219	09/05/2019
1645	Aves	Artamidae	<i>Strepera graculina</i>	pied currawong	C	None	0	129	09/05/2019
1956	Aves	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	C	None	0	1	06/10/2011
1191	Aves	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	C	None	0	161	20/12/2007
1194	Aves	Cacatuidae	<i>Cacatua sanguinea</i>	little corella	C	None	0	69	14/11/2017
21967	Aves	Cacatuidae	<i>Cacatua tenuirostris</i>	long-billed corella	C	None	0	1	19/10/2019
1196	Aves	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo	C	None	0	2	29/03/2003
22494	Aves	Cacatuidae	<i>Calyptorhynchus lathami lathami</i>	glossy black-cockatoo (eastern)	V	None	0	3	28/02/2007
1193	Aves	Cacatuidae	<i>Eolophus roseicapilla</i>	galah	C	None	0	220	19/04/2019

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1192	Aves	Cacatuidae	<i>Lophochroa leadbeateri</i>	Major Mitchell's cockatoo	V	None	0	1	30/06/1980
1173	Aves	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel	C	None	0	144	05/05/2019
1635	Aves	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike	C	None	0	1	12/05/1974
1636	Aves	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	C	None	0	145	19/04/2019
1637	Aves	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	C	None	0	2	31/05/2006
1639	Aves	Campephagidae	<i>Coracina tenuirostris</i>	cicadabird	C	None	0	4	17/11/2000
1642	Aves	Campephagidae	<i>Lalage tricolor</i>	white-winged triller	C	None	0	18	20/12/2007
1089	Aves	Casuariidae	<i>Dromaius novaehollandiae</i>	emu	C	None	0	6	18/07/2003
1940	Aves	Charadriidae	<i>Elsayornis melanops</i>	black-fronted dotterel	C	None	0	24	30/06/2006
27774	Aves	Charadriidae	<i>Vanellus miles</i>	masked lapwing	C	None	0	40	20/12/2007
1933	Aves	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)	C	None	0	35	09/05/2019
18143	Aves	Charadriidae	<i>Vanellus tricolor</i>	banded lapwing	C	None	0	2	17/08/1975
1820	Aves	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork	C	None	0	2	31/12/1999
1294	Aves	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	C	None	0	38	13/10/2015
1628	Aves	Climacteridae	<i>Climacteris picumnus</i>	brown treecreeper	C	None	0	24	29/03/2003
1617	Aves	Climacteridae	<i>Cormobates leucophaea</i>	white-throated treecreeper	C	None	0	3	28/10/2006
18293	Aves	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated treecreeper (southern)	C	None	0	14	31/10/2006
1801	Aves	Columbidae	<i>Chalcophaps indica</i>	emerald dove	C	None	0	1	29/03/2003
1804	Aves	Columbidae	<i>Columba livia</i>	rock dove	None	None	0	103	06/01/2009
1809	Aves	Columbidae	<i>Geopelia cuneata</i>	diamond dove	C	None	0	3	11/03/2006
1810	Aves	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	C	None	0	32	09/05/2019
1797	Aves	Columbidae	<i>Geopelia striata</i>	peaceful dove	C	None	0	48	18/03/2007
1785	Aves	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	0	1	13/10/1996
1789	Aves	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon	C	None	0	1	20/05/2003
1791	Aves	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove	C	None	0	1	28/07/1999
1793	Aves	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	C	None	0	212	09/05/2019
1795	Aves	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing	C	None	0	6	08/03/2006
1774	Aves	Columbidae	<i>Streptopelia chinensis</i>	spotted dove	None	None	0	10	17/07/2018

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1779	Aves	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	C	None	0	41	20/12/2007
1603	Aves	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough	C	None	0	12	05/01/2014
1605	Aves	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird	C	None	0	44	09/10/2014
1608	Aves	Corvidae	<i>Corvus coronoides</i>	Australian raven	C	None	0	15	26/06/2005
1609	Aves	Corvidae	<i>Corvus orru</i>	Torresian crow	C	None	0	205	09/05/2019
1610	Aves	Corvidae	<i>Corvus sp.</i>	None	None	None	0	4	30/03/2003
1754	Aves	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo	C	None	0	7	09/05/2019
1750	Aves	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo	C	None	0	5	31/07/2007
1743	Aves	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo	C	None	0	3	31/10/2006
1751	Aves	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	C	None	0	7	31/01/2006
1744	Aves	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo	C	None	0	3	30/10/1998
1745	Aves	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo	C	None	0	4	31/10/2007
1747	Aves	Cuculidae	<i>Chalcites osculans</i>	black-eared cuckoo	C	None	0	5	18/07/2003
1736	Aves	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	SL	None	0	4	15/09/1976
1738	Aves	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel	C	None	0	45	20/12/2007
1740	Aves	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	C	None	1	5	31/01/2006
1601	Aves	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo	C	None	0	3	29/03/2003
1366	Aves	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin	C	None	0	7	13/10/2015
1369	Aves	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch	C	None	0	23	31/03/2007
1359	Aves	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch	C	None	0	2	29/03/2003
1355	Aves	Estrildidae	<i>Stagonopleura guttata</i>	diamond firetail	C	None	0	2	24/04/2000
1342	Aves	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	C	None	0	70	19/04/2019
1343	Aves	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch	C	None	0	38	17/07/2018
1716	Aves	Falconidae	<i>Falco berigora</i>	brown falcon	C	None	0	11	04/07/2010
1704	Aves	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	C	None	0	119	06/03/2012
1691	Aves	Falconidae	<i>Falco longipennis</i>	Australian hobby	C	None	0	29	26/10/2008
1692	Aves	Falconidae	<i>Falco peregrinus</i>	peregrine falcon	C	None	0	6	05/12/2011
1693	Aves	Falconidae	<i>Falco subniger</i>	black falcon	C	None	0	5	01/08/2017
1923	Aves	Glareolidae	<i>Stiltia isabella</i>	Australian pratincole	C	None	0	1	07/02/1978
1767	Aves	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	C	None	0	95	15/12/2014

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1762	Aves	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	C	None	0	25	06/03/2012
1583	Aves	Hirundinidae	<i>Cheramoeca leucosterna</i>	white-backed swallow	C	None	0	2	24/04/2000
1572	Aves	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	C	None	0	105	20/12/2007
1585	Aves	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin	C	None	0	19	06/01/2009
1573	Aves	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin	C	None	0	4	04/07/2010
1570	Aves	Maluridae	<i>Malurus cyaneus</i>	superb fairy-wren	C	None	0	108	17/07/2018
1556	Aves	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren	C	None	0	9	05/07/2006
1558	Aves	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	C	None	0	1	29/03/2003
1291	Aves	Megaluridae	<i>Cinchoramphus cruralis</i>	brown songlark	C	None	0	3	20/12/2007
1292	Aves	Megaluridae	<i>Cinchoramphus mathewsi</i>	rufous songlark	C	None	0	7	20/12/2007
1552	Aves	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater	C	None	0	106	17/07/2018
1542	Aves	Meliphagidae	<i>Anthochaera chrysoptera</i>	little wattlebird	C	None	0	1	30/05/1999
1523	Aves	Meliphagidae	<i>Caligavis chrysops</i>	yellow-faced honeyeater	C	None	0	23	09/10/2014
1539	Aves	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	C	None	0	42	30/09/2007
1521	Aves	Meliphagidae	<i>Grantiella picta</i>	painter honeyeater	V	V	0	1	31/10/2007
1497	Aves	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	C	None	0	27	17/07/2018
1499	Aves	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner	C	None	0	7	26/10/2008
1500	Aves	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	C	None	0	183	19/04/2019
1504	Aves	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	C	None	0	10	09/05/2019
1508	Aves	Meliphagidae	<i>Melithreptus brevirostris</i>	brown-headed honeyeater	C	None	0	7	28/10/2006
1489	Aves	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	C	None	0	3	10/02/2015
1516	Aves	Meliphagidae	<i>Nesoptilotis leucotis</i>	white-eared honeyeater	C	None	0	27	24/04/2004
1493	Aves	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	C	None	0	40	30/11/2007
1494	Aves	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	C	None	0	45	04/07/2010
1471	Aves	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater	C	None	0	122	17/07/2018
1513	Aves	Meliphagidae	<i>Ptilotula fusca</i>	fuscous honeyeater	C	None	0	4	24/04/2000
1518	Aves	Meliphagidae	<i>Ptilotula penicillata</i>	white-plumed honeyeater	C	None	0	23	05/07/2006
1764	Aves	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	C	None	0	17	09/10/2014
1589	Aves	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	C	None	0	217	17/07/2018

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1595	Aves	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch	SL	None	0	2	14/11/2003
1599	Aves	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher	SL	None	0	1	28/02/2001
1600	Aves	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher	C	None	0	35	14/11/2017
1586	Aves	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	C	None	0	4	14/11/2017
1455	Aves	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	C	None	0	6	04/07/2010
1611	Aves	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	C	None	0	48	17/07/2018
1453	Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella	C	None	0	3	28/10/2006
1442	Aves	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	C	None	0	38	30/11/2007
1444	Aves	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird	C	None	0	66	17/07/2018
1680	Aves	Otididae	<i>Ardeotis australis</i>	Australian bustard	C	None	1	1	01/11/1896
1449	Aves	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	C	None	0	36	28/10/2006
1429	Aves	Pachycephalidae	<i>Falcunculus frontatus</i>	crested shrike-tit	C	None	0	2	24/04/2000
1431	Aves	Pachycephalidae	<i>Oreoica gutturalis</i>	crested bellbird	C	None	0	1	24/08/1956
1436	Aves	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler	C	None	0	6	08/08/2011
1437	Aves	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	C	None	0	52	19/04/2019
1389	Aves	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote	C	None	0	13	10/02/2015
1392	Aves	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	C	None	0	154	19/04/2019
1360	Aves	Passeridae	<i>Passer domesticus</i>	house sparrow	None	None	0	113	04/07/2010
1284	Aves	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	C	None	0	31	06/03/2012
1347	Aves	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin	C	None	0	12	15/12/2014
1337	Aves	Petroicidae	<i>Melanodryas cucullata</i>	hooded robin	C	None	0	2	20/05/1999
1339	Aves	Petroicidae	<i>Microeca fascians</i>	jacky winter	C	None	0	20	31/10/2006
1329	Aves	Petroicidae	<i>Petroica goodenovii</i>	red-capped robin	C	None	0	7	30/06/2006
1332	Aves	Petroicidae	<i>Petroica rosea</i>	rose robin	C	None	0	1	31/05/2001
1261	Aves	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant	C	None	0	47	20/12/2007
1275	Aves	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant	C	None	0	7	30/05/2006
1263	Aves	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	C	None	0	15	30/05/2006
1264	Aves	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant	C	None	0	3	04/10/2002

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1699	Aves	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail	C	None	0	2	24/08/2007
1687	Aves	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail	C	None	0	21	10/02/2010
1955	Aves	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	C	None	0	22	31/07/2006
1271	Aves	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe	C	None	0	1	31/12/2003
1260	Aves	Podicipedidae	<i>Poliocephalus poliocephalus</i>	hoary-headed grebe	C	None	0	9	31/03/2007
1249	Aves	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe	C	None	0	93	30/11/2007
1318	Aves	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler	C	None	0	17	31/10/2006
1180	Aves	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot	C	None	0	5	29/03/2003
1182	Aves	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	C	None	0	72	29/07/2017
1157	Aves	Psittacidae	<i>Barnardius zonarius barnardi</i>	mallee ringneck	C	None	0	1	15/08/2016
1145	Aves	Psittacidae	<i>Glossopsitta concinna</i>	musk lorikeet	C	None	0	2	20/07/2002
1151	Aves	Psittacidae	<i>Melopsittacus undulatus</i>	budgerigar	C	None	0	6	31/01/2006
1154	Aves	Psittacidae	<i>Neophema pulchella</i>	turquoise parrot	C	None	0	3	24/04/2004
1130	Aves	Psittacidae	<i>Northiella haematogaster</i>	blue bonnet	C	None	0	2	23/09/2000
1147	Aves	Psittacidae	<i>Parvipsitta pusilla</i>	little lorikeet	C	None	0	7	28/10/2006
1136	Aves	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella	C	None	0	166	17/07/2018
1139	Aves	Psittacidae	<i>Platycercus eximius</i>	eastern rosella	C	None	0	3	27/06/2000
1118	Aves	Psittacidae	<i>Psephotus haematonotus</i>	red-rumped parrot	C	None	0	151	19/10/2019
1124	Aves	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet	C	None	0	107	19/04/2019
1125	Aves	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	C	None	0	25	17/07/2018
1623	Aves	Psophodidae	<i>Psophodes olivaceus</i>	eastern whipbird	C	None	0	1	08/06/2002
1160	Aves	Ptilonorhynchidae	<i>Ptilonorhynchus maculatus</i>	spotted bowerbird	C	None	0	6	07/01/2001
1686	Aves	Rallidae	<i>Fulica atra</i>	Eurasian coot	C	None	0	12	31/12/2006
1673	Aves	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen	C	None	0	7	31/12/2004
1662	Aves	Rallidae	<i>Porphyrio melanotus</i>	purple swamphen	C	None	0	3	15/10/2007
1893	Aves	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	C	None	0	23	20/12/2007

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1575	Aves	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail	C	None	0	43	17/07/2018
1576	Aves	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail	C	None	0	182	09/05/2019
1102	Aves	Strigidae	<i>Ninox boobook</i>	southern boobook	C	None	0	9	05/01/2015
1101	Aves	Strigidae	<i>Ninox connivens</i>	barking owl	C	None	0	1	28/02/1973
1314	Aves	Sturnidae	<i>Acridotheres tristis</i>	common myna	None	None	0	138	19/04/2019
1303	Aves	Sturnidae	<i>Sturnus vulgaris</i>	common starling	None	None	0	134	04/07/2010
1822	Aves	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill	C	None	0	30	28/02/2007
1823	Aves	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill	C	None	0	6	26/06/2005
1825	Aves	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	SL	None	0	3	31/01/2007
1812	Aves	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	C	None	0	54	20/12/2007
1800	Aves	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	C	None	0	110	20/12/2007
1276	Aves	Timaliidae	<i>Zosterops lateralis</i>	silvereye	C	None	0	67	19/04/2019
1091	Aves	Turnicidae	<i>Turnix maculosus</i>	red-backed button-quail	C	None	0	1	27/12/1974
1092	Aves	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail	V	V	0	3	31/12/1984
1094	Aves	Turnicidae	<i>Turnix pyrrhotorax</i>	red-chested button-quail	C	None	0	1	01/01/1975
1082	Aves	Turnicidae	<i>Turnix velox</i>	little button-quail	C	None	0	1	01/01/1975
1108	Aves	Tytonidae	<i>Tyto delicatula</i>	eastern barn owl	C	None	0	12	27/07/2013
35076	Insecta	Aeshnidae	<i>Adversaeschna brevistyla</i>	blue-spotted hawk	None	None	0	1	17/07/2018
35081	Insecta	Aeshnidae	<i>Anax papuensis</i>	Australian Emperor	None	None	0	2	15/12/2014
19011	Insecta	Hesperiidae	<i>Hesperilla malindeva</i>	two-spotted sedge-skipper	None	None	0	3	23/10/2004
20839	Insecta	Hesperiidae	<i>Hesperilla sp.</i>	None	None	None	0	1	25/10/2004
18993	Insecta	Hesperiidae	<i>Toxidia parvula</i>	banded grass-skipper	None	None	0	1	16/12/2014
19000	Insecta	Hesperiidae	<i>Toxidia peron</i>	dingy grass-skipper	None	None	0	1	16/12/2014
18980	Insecta	Hesperiidae	<i>Trapezites eliena</i>	orange ochre	None	None	0	2	16/12/2014
18978	Insecta	Hesperiidae	<i>Trapezites petalia</i>	black-ringed ochre	None	None	0	1	18/09/2004
35199	Insecta	Libellulidae	<i>Diplacodes bipunctata</i>	wandering percher	None	None	0	1	06/03/2012
35219	Insecta	Libellulidae	<i>Orthetrum caledonicum</i>	blue skimmer	None	None	0	3	10/02/2015
35844	Insecta	Lycaenidae	<i>Acrodipsas violacea</i>	None	None	None	0	5	25/10/2004
19950	Insecta	Lycaenidae	<i>Ogyris amaryllis</i>	None	None	None	0	1	09/10/2014
19241	Insecta	Lycaenidae	<i>Ogyris amaryllis hewitsoni</i>	satin azure (Queensland subspecies)	None	None	0	2	09/10/2004
19240	Insecta	Lycaenidae	<i>Ogyris amaryllis meridionalis</i>	satin azure (inland subspecies)	None	None	0	1	16/12/2014

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19951	Insecta	Lycaenidae	<i>Ogyris genoveva</i>	None	None	None	0	1	16/12/2014
19236	Insecta	Lycaenidae	<i>Ogyris ianthis</i>	golden azure	None	None	0	3	25/10/2004
19298	Insecta	Lycaenidae	<i>Theclinesstes miskini miskini</i>	wattle blue (Australian subspecies)	None	None	0	1	16/12/2014
19302	Insecta	Lycaenidae	<i>Theclinesstes serpentatus serpentatus</i>	salt-bush blue	None	None	0	1	16/12/2014
19316	Insecta	Lycaenidae	<i>Zizina otis labradus</i>	common grass-blue (Australian subspecies)	None	None	0	3	06/03/2012
19149	Insecta	Nymphalidae	<i>Acraea andromacha andromacha</i>	glasswing	None	None	0	3	19/04/2019
19147	Insecta	Nymphalidae	<i>Charaxes sempronius sempronius</i>	tailed emperor	None	None	0	2	10/02/2015
19179	Insecta	Nymphalidae	<i>Danaus petilia</i>	lesser wanderer	None	None	0	3	16/12/2014
19177	Insecta	Nymphalidae	<i>Danaus plexippus</i>	monarch	None	None	0	1	06/03/2012
19185	Insecta	Nymphalidae	<i>Euploea corinna</i>	common crow	None	None	0	5	19/04/2019
19132	Insecta	Nymphalidae	<i>Hypocysta pseudirius</i>	grey ringlet	None	None	0	1	16/12/2014
19172	Insecta	Nymphalidae	<i>Junonia villida villida</i>	meadow argus	None	None	0	5	19/04/2019
19176	Insecta	Nymphalidae	<i>Tirumala hamata hamata</i>	blue tiger	None	None	0	4	09/05/2019
19170	Insecta	Nymphalidae	<i>Vanessa itea</i>	yellow admiral	None	None	0	1	20/05/2003
19146	Insecta	Nymphalidae	<i>Ypthima arctous arctous</i>	dusky knight	None	None	0	1	20/05/2003
19075	Insecta	Papilionidae	<i>Cressida cressida cressida</i>	clearwing swallowtail	None	None	0	2	16/12/2014
19961	Insecta	Papilionidae	<i>Papilio aegaeus</i>	None	None	None	0	2	10/02/2010
19068	Insecta	Papilionidae	<i>Papilio aegaeus aegaeus</i>	orchard swallowtail (Australian subspecies)	None	None	0	2	16/12/2014
19067	Insecta	Papilionidae	<i>Papilio anactus</i>	dainty swallowtail	None	None	0	1	16/12/2014
19058	Insecta	Papilionidae	<i>Protographium leosthenes leosthenes</i>	four-barred swordtail	None	None	0	1	16/12/2014
19113	Insecta	Pieridae	<i>Appias paulina ega</i>	yellow albatross	None	None	0	1	16/12/2014
19110	Insecta	Pieridae	<i>Belenois java teutonia</i>	caper white	None	None	0	5	17/07/2018
19079	Insecta	Pieridae	<i>Catopsilia gorgophone gorgophone</i>	yellow migrant	None	None	0	1	16/12/2014
19078	Insecta	Pieridae	<i>Catopsilia pomona</i>	lemon migrant	None	None	0	1	10/02/2010
19778	Insecta	Pieridae	<i>Cepora perimale</i>	None	None	None	0	1	16/12/2014
19104	Insecta	Pieridae	<i>Delias aganippe</i>	spotted jezebel	None	None	0	1	16/12/2014
19098	Insecta	Pieridae	<i>Delias argenthona argenthona</i>	scarlet jezebel	None	None	0	4	19/04/2019
19107	Insecta	Pieridae	<i>Delias nigrina</i>	black jezebel	None	None	0	2	17/07/2018

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19108	Insecta	Pieridae	<i>Delias nysa nysa</i>	yellow-spotted jezebel (Australian subspecies)	None	None	0	1	16/12/2014
19089	Insecta	Pieridae	<i>Elodina padusa</i>	narrow-winged pearl-white	None	None	0	1	20/05/2003
19090	Insecta	Pieridae	<i>Elodina parthia</i>	striated pearl-white	None	None	0	2	16/12/2014
19086	Insecta	Pieridae	<i>Eurema hecabe</i>	large grass-yellow	None	None	0	1	20/05/2003
19084	Insecta	Pieridae	<i>Eurema smilax</i>	small grass-yellow	None	None	0	1	20/05/2003
19118	Insecta	Pieridae	<i>Pieris rapae</i>	cabbage white	None	None	0	1	20/05/2003
1068	Mammalia	Canidae	<i>Canis familiaris</i> (dingo)	dingo	None	None	0	1	10/05/2014
1071	Mammalia	Canidae	<i>Vulpes vulpes</i>	red fox	None	None	0	2	17/02/2005
22485	Mammalia	Dasyuridae	<i>Antechinus</i> <i>flavipes flavipes</i>	yellow-footed antechinus (south-east Queensland)	C	None	0	1	31/12/1997
803	Mammalia	Dasyuridae	<i>Dasyurus</i> <i>maculatus</i> <i>maculatus</i>	spotted-tailed quoll (southern subspecies)	V	E	0	1	31/12/1980
792	Mammalia	Dasyuridae	<i>Sminthopsis</i> <i>macroura</i>	stripe-faced dunnart	C	None	0	1	08/03/2006
793	Mammalia	Dasyuridae	<i>Sminthopsis</i> <i>murina</i>	common dunnart	C	None	0	1	31/12/1997
1056	Mammalia	Felidae	<i>Felis catus</i>	cat	None	None	0	3	17/02/2005
832	Mammalia	Leporidae	<i>Lepus europaeus</i>	European brown hare	None	None	0	2	09/05/2019
834	Mammalia	Leporidae	<i>Oryctolagus</i> <i>cuniculus</i>	rabbit	None	None	0	2	31/12/1984
901	Mammalia	Macropodidae	<i>Macropus</i> <i>giganteus</i>	eastern grey kangaroo	C	None	0	3	10/02/2010
902	Mammalia	Macropodidae	<i>Macropus parryi</i>	whiptail wallaby	C	None	0	1	19/04/2019
903	Mammalia	Macropodidae	<i>Macropus</i> <i>robustus</i>	common wallaroo	C	None	0	1	09/05/2014
904	Mammalia	Macropodidae	<i>Macropus</i> <i>rufogriseus</i>	red-necked wallaby	C	None	0	4	10/05/2014
885	Mammalia	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	C	None	0	5	09/05/2019
22060	Mammalia	Molossidae	<i>Mormopterus</i> <i>petersi</i>	inland free-tailed bat	C	None	0	1	24/09/1998
764	Mammalia	Muridae	<i>Mus musculus</i>	house mouse	None	None	2	9	10/03/2006
747	Mammalia	Muridae	<i>Pseudomys</i> <i>delicatus</i>	delicate mouse	C	None	1	1	31/12/1997
732	Mammalia	Muridae	<i>Rattus sordidus</i>	canefield rat	C	None	3	3	12/10/1992
836	Mammalia	Ornithorhynchidae	<i>Ornithorhynchus</i> <i>anatinus</i>	platypus	SL	None	0	1	31/12/2002
859	Mammalia	Phalangeridae	<i>Trichosurus</i> <i>vulpecula</i>	common brushtail possum	C	None	0	1	29/08/2016
860	Mammalia	Phascolarctidae	<i>Phascolarctos</i> <i>cinereus</i>	koala	V	V	0	13	01/10/2015
984	Mammalia	Pteropodidae	<i>Pteropus alecto</i>	black flying-fox	C	None	0	1	19/03/2010
963	Mammalia	Pteropodidae	<i>Pteropus</i> <i>scapulatus</i>	little red flying-fox	C	None	0	1	04/01/2014
1080	Mammalia	Suidae	<i>Sus scrofa</i>	pig	None	None	0	2	15/12/2014

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
838	Mammalia	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SL	None	0	3	26/08/2003
948	Mammalia	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat	C	None	0	1	24/09/1998
939	Mammalia	Vespertilionidae	<i>Nyctophilus corbeni</i>	eastern long-eared bat	V	V	0	1	23/09/1998
935	Mammalia	Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat	C	None	0	3	24/09/1998
936	Mammalia	Vespertilionidae	<i>Nyctophilus gouldi</i>	Gould's long-eared bat	C	None	0	1	23/09/1998
931	Mammalia	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat	C	None	0	1	24/09/1998
19464	Mammalia	Vespertilionidae	<i>Scotorepens orion</i>	south-eastern broad-nosed bat	C	None	0	1	05/03/1984
929	Mammalia	Vespertilionidae	<i>Vespadelus vultumus</i>	little forest bat	C	None	0	1	24/09/1998
18847	Reptilia	Agamidae	<i>Amphibolurus burnsi</i>	Burns's dragon	C	None	0	3	05/01/2005
561	Reptilia	Agamidae	<i>Diporiphora nobbi</i>	nobbi	C	None	0	1	17/02/2005
558	Reptilia	Agamidae	<i>Lophognathus gilberti sensu lato</i>	Gilbert's dragon	C	None	0	1	31/12/1996
556	Reptilia	Agamidae	<i>Pogona barbata</i>	bearded dragon	C	None	0	3	23/02/2011
18390	Reptilia	Agamidae	<i>Tympanocryptis condaminensis</i>	Condamine earless dragon	E	E	0	2	21/02/2009
519	Reptilia	Boidae	<i>Morelia spilota</i>	carpet python	C	None	1	1	31/12/1996
62	Reptilia	Chelidae	<i>Chelodina expansa</i>	broad-shelled river turtle	C	None	0	1	18/02/2010
63	Reptilia	Chelidae	<i>Chelodina longicollis</i>	eastern snake-necked turtle	C	None	0	2	11/03/2011
512	Reptilia	Colubridae	<i>Dendrelaphis punctulatus</i>	green tree snake	C	None	0	2	05/01/2014
429	Reptilia	Diplodactylidae	<i>Diplodactylus vittatus</i>	wood gecko	C	None	0	4	25/02/2010
426	Reptilia	Diplodactylidae	<i>Lucasium steindachneri</i>	Steindachner's gecko	C	None	1	2	31/12/1996
391	Reptilia	Diplodactylidae	<i>Nebulifera robusta</i>	robust velvet gecko	C	None	0	5	11/07/2017
369	Reptilia	Diplodactylidae	<i>Strophurus williamsi</i>	soft-spined gecko	C	None	0	2	12/03/2006
511	Reptilia	Elapidae	<i>Acanthophis antarcticus</i>	common death adder	V	None	0	5	22/04/2012
493	Reptilia	Elapidae	<i>Demansia psammophis</i>	yellow-faced whipsnake	C	None	0	1	07/03/2017
482	Reptilia	Elapidae	<i>Denisonia devisi</i>	De Vis' banded snake	C	None	2	4	05/01/2005
487	Reptilia	Elapidae	<i>Furina dunmali</i>	Dunmall's snake	V	V	0	1	11/03/2011
479	Reptilia	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake	C	None	1	2	31/12/1996
438	Reptilia	Elapidae	<i>Parasuta dwyeri</i>	Dwyer's snake	C	None	1	2	22/02/2011
474	Reptilia	Elapidae	<i>Pseudechis guttatus</i>	spotted black snake	C	None	1	10	11/03/2011

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
452	Reptilia	Elapidae	<i>Pseudonaja nuchalis sensu lato</i>	western brown snake	C	None	0	1	31/12/1950
454	Reptilia	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake	C	None	0	2	31/10/2016
444	Reptilia	Elapidae	<i>Vermicella annulata</i>	bandy-bandy	C	None	2	3	16/10/2013
420	Reptilia	Gekkonidae	<i>Gehyra dubia</i>	dubious dtella	C	None	0	2	17/02/2005
413	Reptilia	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	C	None	0	5	11/03/2006
323	Reptilia	Pygopodidae	<i>Delma tincta</i>	excitable delma	C	None	0	1	07/03/2017
325	Reptilia	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard	C	None	1	3	11/03/2011
327	Reptilia	Pygopodidae	<i>Paradelma orientalis</i>	brigalow scaly-foot	C	None	0	1	11/03/2011
304	Reptilia	Scincidae	<i>Anomalopus leuckartii</i>	two-clawed worm-skink	C	None	2	2	17/01/2003
305	Reptilia	Scincidae	<i>Anomalopus mackayi</i>	long-legged worm-skink	E	V	0	3	10/04/2009
308	Reptilia	Scincidae	<i>Anomalopus verreauxii</i>	three-clawed worm-skink	C	None	0	3	25/02/2010
294	Reptilia	Scincidae	<i>Carlia munda</i>	shaded-litter rainbow-skink	C	None	1	1	31/12/1996
297	Reptilia	Scincidae	<i>Carlia pectoralis sensu lato</i>	None	C	None	0	1	31/12/1996
277	Reptilia	Scincidae	<i>Carlia vivax</i>	tussock rainbow-skink	C	None	0	1	10/11/2016
193	Reptilia	Scincidae	<i>Concinnia tenuis</i>	bar-sided skink	C	None	0	1	31/12/2003
283	Reptilia	Scincidae	<i>Cryptoblepharus pannosus</i>	ragged snake-eyed skink	C	None	1	2	31/12/1996
240	Reptilia	Scincidae	<i>Ctenotus spaldingi</i>	straight-browed ctenotus	C	None	0	7	06/03/2012
220	Reptilia	Scincidae	<i>Egernia cunninghami</i>	Cunningham's skink	C	None	0	1	29/08/2016
201	Reptilia	Scincidae	<i>Egernia striolata</i>	tree skink	C	None	1	2	31/12/1996
167	Reptilia	Scincidae	<i>Lerista fragilis</i>	eastern mulch slider	C	None	0	2	06/03/2012
155	Reptilia	Scincidae	<i>Lerista timida</i>	timid slider	C	None	0	1	27/02/2001
226	Reptilia	Scincidae	<i>Liopholis modesta</i>	eastern ranges rock-skink	C	None	5	6	24/09/1998
150	Reptilia	Scincidae	<i>Lygisaurus foliorum</i>	tree-base litter-skink	C	None	1	2	31/12/1996
127	Reptilia	Scincidae	<i>Menetia greyii</i>	common dwarf skink	C	None	0	1	10/04/2009
134	Reptilia	Scincidae	<i>Morethia boulengeri</i>	south-eastern morethia skink	C	None	1	2	31/12/1996
138	Reptilia	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink	C	None	0	2	19/04/2019
132	Reptilia	Scincidae	<i>Pygmaeascincus timlowi</i>	dwarf litter-skink	C	None	1	2	31/12/1996
120	Reptilia	Scincidae	<i>Saiphos equalis</i>	three-toed skink	C	None	1	1	31/12/1996
103	Reptilia	Scincidae	<i>Tiliqua rugosa</i>	shingle-back	C	None	0	2	26/10/2018
91	Reptilia	Typhlopidae	<i>Anilius ligatus</i>	robust blind snake	C	None	1	2	11/03/2011
94	Reptilia	Typhlopidae	<i>Anilius proximus</i>	proximus blind snake	C	None	3	3	17/01/2003

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
61	Reptilia	Varanidae	<i>Varanus varius</i>	lace monitor	C	None	0	2	15/12/2014

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

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17767	Equisetopsida	Acanthaceae	<i>Brunoniella australis</i>	blue trumpet	C	None	1	1	20/03/2013
16262	Equisetopsida	Acanthaceae	<i>Rostellularia adscendens</i>	None	C	None	1	1	25/10/2006
33640	Equisetopsida	Acanthaceae	<i>Ruellia simplex</i>	None	None	None	1	1	07/04/2011
11724	Equisetopsida	Agavaceae	<i>Furcraea foetida</i>	None	None	None	0	1	19/04/2019
11755	Equisetopsida	Aizoaceae	<i>Carpobrotus aequilaterus</i>	None	None	None	1	1	03/09/2007
19834	Equisetopsida	Aizoaceae	<i>Disphyma crassifolium</i>	None	C	None	0	1	07/03/2006
11714	Equisetopsida	Aizoaceae	<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>	None	C	None	1	1	22/09/2011
11631	Equisetopsida	Aizoaceae	<i>Sarcocolla praecox</i>	None	C	None	1	2	22/09/2011
18751	Equisetopsida	Aizoaceae	<i>Trianthema</i>	None	None	None	1	1	14/05/2015
21884	Equisetopsida	Aizoaceae	<i>Trianthema</i> sp. (<i>Coorabulka</i> R.W.Purdie 1404)	None	C	None	1	1	20/02/1996
9086	Equisetopsida	Aizoaceae	<i>Zaleya galericulata</i> subsp. <i>galericulata</i>	None	C	None	1	1	24/03/1969
18026	Equisetopsida	Amaranthaceae	<i>Alternanthera denticulata</i>	lesser joyweed	C	None	1	1	06/03/2006
32728	Equisetopsida	Amaranthaceae	<i>Alternanthera denticulata</i> var. <i>denticulata</i>	None	C	None	2	2	06/03/2006
17978	Equisetopsida	Amaranthaceae	<i>Alternanthera nodiflora</i>	joyweed	C	None	1	1	05/02/1981
11851	Equisetopsida	Amaranthaceae	<i>Amaranthus mitchellii</i>	Boggabri weed	C	None	1	1	20/01/2002
22741	Equisetopsida	Amaranthaceae	<i>Amaranthus retroflexus</i>	None	None	None	2	2	03/12/2007
17499	Equisetopsida	Amaranthaceae	<i>Deeringia amaranthoides</i>	redberry	C	None	1	1	24/03/2010
11797	Equisetopsida	Amaranthaceae	<i>Nyssanthus diffusa</i>	barbed-wire weed	C	None	1	1	24/03/2010
16587	Equisetopsida	Amaranthaceae	<i>Nyssanthus erecta</i>	None	C	None	2	2	20/03/2013
36670	Equisetopsida	Amaranthaceae	<i>Ptilotus semilanatus</i>	None	C	None	2	2	25/10/2006
11753	Equisetopsida	Amaryllidaceae	<i>Calostemma luteum</i>	None	C	None	1	1	07/02/1997
15674	Equisetopsida	Apiaceae	<i>Ammi majus</i>	bishop's weed	None	None	1	1	13/12/2001
15504	Equisetopsida	Apiaceae	<i>Conium maculatum</i>	poison hemlock	None	None	2	2	23/10/1947
12613	Equisetopsida	Apiaceae	<i>Coriandrum sativum</i>	None	None	None	1	1	08/09/1988
15495	Equisetopsida	Apiaceae	<i>Cyclospermum leptophyllum</i>	None	None	None	2	2	25/10/2006
12626	Equisetopsida	Apiaceae	<i>Foeniculum vulgare</i>	fennel	None	None	1	1	31/10/1950
9698	Equisetopsida	Apocynaceae	<i>Carissa ovata</i>	currantbush	C	None	1	2	20/03/2013

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17050	Equisetopsida	Apocynaceae	<i>Gomphocarpus physocarpus</i>	balloon cottonbush	None	None	1	1	28/02/1986
16519	Equisetopsida	Apocynaceae	<i>Parsonia eucalyptophylla</i>	gargaloo	C	None	1	1	20/03/2013
16279	Equisetopsida	Araceae	<i>Rhaphidophora australasica</i>	None	C	None	0	2	25/02/2010
16234	Equisetopsida	Araliaceae	<i>Schefflera actinophylla</i>	umbrella tree	C	None	0	1	10/02/2016
11504	Equisetopsida	Asteraceae	<i>Actinobole uliginosum</i>	flannel cudweed	C	None	1	1	10/10/1983
15644	Equisetopsida	Asteraceae	<i>Arctotheca calendula</i>	Cape weed	None	None	1	1	03/10/1998
7691	Equisetopsida	Asteraceae	<i>Bidens pilosa</i>	None	None	None	1	1	29/04/1994
10098	Equisetopsida	Asteraceae	<i>Brachyscome basaltica</i>	None	C	None	2	2	03/10/1998
35566	Equisetopsida	Asteraceae	<i>Brachyscome chrysoglossa</i>	None	C	None	1	1	03/05/1994
10100	Equisetopsida	Asteraceae	<i>Brachyscome ciliaris</i>	None	C	None	1	1	20/02/1996
35555	Equisetopsida	Asteraceae	<i>Brachyscome dalbyensis</i>	None	C	None	1	1	03/05/1994
14793	Equisetopsida	Asteraceae	<i>Brachyscome dentata</i>	None	C	None	2	2	31/08/2011
9570	Equisetopsida	Asteraceae	<i>Brachyscome multifida</i>	None	C	None	1	1	31/08/2011
7468	Equisetopsida	Asteraceae	<i>Brachyscome nodosa</i>	None	C	None	1	1	29/09/1992
35757	Equisetopsida	Asteraceae	<i>Brachyscome paludicola</i>	None	C	None	4	4	14/05/2015
35710	Equisetopsida	Asteraceae	<i>Brachyscome watanabei</i>	None	C	None	2	2	17/12/2005
10059	Equisetopsida	Asteraceae	<i>Calendula arvensis</i>	field marigold	None	None	1	1	14/09/2002
10061	Equisetopsida	Asteraceae	<i>Calocephalus sonderi</i>	palebeauty heads	C	None	1	1	07/10/2007
15565	Equisetopsida	Asteraceae	<i>Calotis cuneifolia</i>	burr daisy	C	None	2	2	06/03/2006
15567	Equisetopsida	Asteraceae	<i>Calotis hispidula</i>	bogan flea	C	None	1	1	08/09/2001
15568	Equisetopsida	Asteraceae	<i>Calotis lappulacea</i>	yellow burr daisy	C	None	3	3	20/03/2013
15572	Equisetopsida	Asteraceae	<i>Camptacra barbata</i>	None	C	None	1	1	03/10/1998
14781	Equisetopsida	Asteraceae	<i>Carthamus lanatus</i>	saffron thistle	None	None	1	1	07/12/2001
14738	Equisetopsida	Asteraceae	<i>Cassinia laevis</i>	None	C	None	2	2	20/03/2013
29878	Equisetopsida	Asteraceae	<i>Cassinia straminea</i>	None	C	None	1	1	05/02/1981
15546	Equisetopsida	Asteraceae	<i>Centipeda minima</i> subsp. <i>minima</i>	None	C	None	1	1	06/03/2006
12295	Equisetopsida	Asteraceae	<i>Centipeda thespidioides</i>	desert sneezeweed	C	None	1	1	17/12/2005
8398	Equisetopsida	Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons	C	None	2	2	20/03/2013
15532	Equisetopsida	Asteraceae	<i>Cichorium intybus</i>	chicory	None	None	1	1	07/12/2001
14001	Equisetopsida	Asteraceae	<i>Cirsium vulgare</i>	spear thistle	None	None	0	1	10/02/2010
22237	Equisetopsida	Asteraceae	<i>Cyanthillium cinereum</i>	None	C	None	1	1	20/03/2013
11069	Equisetopsida	Asteraceae	<i>Eclipta platyglossa</i>	None	C	None	1	1	06/03/2006
35896	Equisetopsida	Asteraceae	<i>Erigeron bonariensis</i>	None	None	None	3	3	06/03/2006
35901	Equisetopsida	Asteraceae	<i>Erigeron primulifolius</i>	None	None	None	1	1	30/11/1987
35905	Equisetopsida	Asteraceae	<i>Erigeron sumatrensis</i>	None	None	None	1	1	20/03/2013
9092	Equisetopsida	Asteraceae	<i>Glossocardia bidens</i>	native cobbler's pegs	C	None	1	1	20/03/2013
31935	Equisetopsida	Asteraceae	<i>Hypochaeris albiflora</i>	None	None	None	3	3	07/12/2001

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29504	Equisetopsida	Asteraceae	<i>Lactuca serriola forma serriola</i>	None	None	None	1	1	07/12/2001
26774	Equisetopsida	Asteraceae	<i>Leiocarpa brevicompta</i>	None	C	None	1	1	07/04/2011
27379	Equisetopsida	Asteraceae	<i>Leiocarpa websteri</i>	None	C	None	3	3	25/10/2006
34801	Equisetopsida	Asteraceae	<i>Leontodon rhagadioloides</i>	None	None	None	2	2	07/12/2001
15212	Equisetopsida	Asteraceae	<i>Olearia elliptica subsp. elliptica</i>	sticky daisy bush	C	None	1	1	20/03/2013
14332	Equisetopsida	Asteraceae	<i>Olearia microphylla</i>	None	C	None	1	1	31/08/1985
10465	Equisetopsida	Asteraceae	<i>Olearia ramosissima</i>	None	C	None	0	1	12/09/2000
6922	Equisetopsida	Asteraceae	<i>Picris barbarorum</i>	None	V	None	4	4	24/04/2018
10604	Equisetopsida	Asteraceae	<i>Picris evae</i>	None	V	V	4	5	12/01/2016
27236	Equisetopsida	Asteraceae	<i>Podolepis muelleri</i>	None	C	None	2	2	12/10/2006
31135	Equisetopsida	Asteraceae	<i>Rhaponticum australe</i>	None	V	V	5	7	13/10/2015
31134	Equisetopsida	Asteraceae	<i>Rhaponticum repens</i>	None	None	None	2	2	03/02/2015
8413	Equisetopsida	Asteraceae	<i>Rhodanthe diffusa subsp. leucactina</i>	None	C	None	1	1	17/09/1968
20003	Equisetopsida	Asteraceae	<i>Schkuhria pinnata</i>	None	None	None	1	1	07/12/2001
30179	Equisetopsida	Asteraceae	<i>Senecio pinnatifolius var. pinnatifolius</i>	None	C	None	1	1	21/11/2015
29334	Equisetopsida	Asteraceae	<i>Senecio queenslandicus</i>	None	C	None	1	1	01/12/2007
12208	Equisetopsida	Asteraceae	<i>Sigesbeckia orientalis</i>	Indian weed	C	None	1	1	20/03/2013
10443	Equisetopsida	Asteraceae	<i>Soliva anthemifolia</i>	dwarf jo jo weed	None	None	1	1	08/09/2001
22236	Equisetopsida	Asteraceae	<i>Soliva sessilis</i>	None	None	None	1	1	03/10/1998
15038	Equisetopsida	Asteraceae	<i>Sonchus asper</i>	rough sowthistle	None	None	1	1	23/10/1947
16008	Equisetopsida	Asteraceae	<i>Tragopogon porrifolius</i>	salsify	None	None	4	5	13/10/2015
9562	Equisetopsida	Asteraceae	<i>Triptilodiscus pygmaeus</i>	None	C	None	1	1	13/10/2006
36235	Equisetopsida	Asteraceae	<i>Verbesina encelioides var. encelioides</i>	None	None	None	2	2	28/03/2010
10456	Equisetopsida	Asteraceae	<i>Vittadinia cuneata var. hirsuta</i>	None	C	None	2	2	07/03/2006
14957	Equisetopsida	Asteraceae	<i>Vittadinia dissecta var. hirta</i>	None	C	None	1	1	20/03/2013
10458	Equisetopsida	Asteraceae	<i>Vittadinia muelleri</i>	None	C	None	1	1	07/12/2001
12899	Equisetopsida	Asteraceae	<i>Vittadinia pterochaeta</i>	rough fuzzweed	C	None	3	3	25/10/2006
14958	Equisetopsida	Asteraceae	<i>Vittadinia pustulata</i>	None	C	None	2	2	06/03/2006
14959	Equisetopsida	Asteraceae	<i>Vittadinia sulcata</i>	native daisy	C	None	1	1	18/03/1990
13514	Equisetopsida	Asteraceae	<i>Vittadinia tenuissima</i>	western New Holland daisy	C	None	1	1	20/03/2013
22235	Equisetopsida	Asteraceae	<i>Xanthium occidentale</i>	None	None	None	1	1	06/03/2006
14967	Equisetopsida	Asteraceae	<i>Xanthium spinosum</i>	Bathurst burr	None	None	1	1	12/12/2001
31609	Equisetopsida	Bignoniaceae	<i>Tecoma stans var. stans</i>	None	None	None	1	4	15/10/2015
15600	Equisetopsida	Boraginaceae	<i>Buglossoides arvensis</i>	corn cromwell	None	None	1	1	19/08/1968
36287	Equisetopsida	Boraginaceae	<i>Cynoglossum torvum</i>	None	C	None	2	2	07/04/2011
11191	Equisetopsida	Boraginaceae	<i>Echium plantagineum</i>	Paterson's curse	None	None	0	1	13/10/2015

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
11193	Equisetopsida	Boraginaceae	<i>Heliotropium amplexicaule</i>	blue heliotrope	None	None	1	1	25/10/2006
10507	Equisetopsida	Brassicaceae	<i>Lepidium</i>	None	None	None	1	1	27/10/2007
10854	Equisetopsida	Brassicaceae	<i>Lepidium africanum</i>	common peppergrass	None	None	2	2	05/08/2003
34138	Equisetopsida	Brassicaceae	<i>Lepidium hypenanthum</i>	None	C	None	1	1	27/10/2007
10986	Equisetopsida	Brassicaceae	<i>Lepidium monoplacoides</i>	winged peppergrass	C	E	1	1	17/12/2005
9515	Equisetopsida	Brassicaceae	<i>Lepidium pseudohyssopifolium</i>	None	C	None	1	1	08/09/2001
15098	Equisetopsida	Brassicaceae	<i>Raphanus raphanistrum</i>	wild radish	None	None	3	3	03/12/2007
10617	Equisetopsida	Brassicaceae	<i>Sisymbrium officinale</i>	hedge mustard	None	None	1	1	23/10/1947
15036	Equisetopsida	Brassicaceae	<i>Sisymbrium orientale</i>	Indian hedge mustard	None	None	1	1	05/08/2003
18389	Equisetopsida	Cactaceae	<i>Cereus uruguayanus</i>	None	None	None	1	4	14/11/2017
26344	Equisetopsida	Cactaceae	<i>Harrisia martinii</i>	None	None	None	1	8	08/10/2015
16549	Equisetopsida	Cactaceae	<i>Opuntia aurantiaca</i>	tiger pear	None	None	0	4	08/10/2015
9011	Equisetopsida	Cactaceae	<i>Opuntia ficus-indica</i>	Indian fig	None	None	1	2	14/11/2017
19352	Equisetopsida	Cactaceae	<i>Opuntia stricta</i>	None	None	None	1	8	15/10/2015
9535	Equisetopsida	Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear	None	None	1	68	04/06/2018
36114	Equisetopsida	Caesalpiniaceae	<i>Erythrostemon gilliesii</i>	None	None	None	1	1	24/10/1999
15070	Equisetopsida	Caesalpiniaceae	<i>Senna coronilloides</i>	None	C	None	1	1	31/10/1974
16873	Equisetopsida	Campanulaceae	<i>Isotoma axillaris</i>	australian harebell	C	None	1	1	31/08/2011
36488	Equisetopsida	Campanulaceae	<i>Wahlenbergia capillaris</i>	None	C	None	2	2	26/11/2005
13727	Equisetopsida	Campanulaceae	<i>Wahlenbergia fluminalis</i>	river bluebell	C	None	1	1	20/02/1996
8345	Equisetopsida	Campanulaceae	<i>Wahlenbergia glabra</i>	native bluebell	C	None	1	1	07/04/2011
15918	Equisetopsida	Campanulaceae	<i>Wahlenbergia gracilis</i>	sprawling bluebell	C	None	2	2	20/03/2013
41207	Equisetopsida	Capparaceae	<i>Capparis anomala</i>	None	C	None	2	2	25/10/2006
32458	Equisetopsida	Caryophyllaceae	<i>Spergularia brevifolia</i>	None	C	None	2	2	17/12/2005
14214	Equisetopsida	Caryophyllaceae	<i>Spergularia rubra</i>	sand spurry	None	None	1	1	07/12/2001
18012	Equisetopsida	Casuarinaceae	<i>Allocasuarina littoralis</i>	None	C	None	0	1	12/09/2000
18013	Equisetopsida	Casuarinaceae	<i>Allocasuarina luehmannii</i>	bull oak	C	None	1	2	31/01/2002
17707	Equisetopsida	Casuarinaceae	<i>Casuarina cristata</i>	belah	C	None	2	4	13/09/2000
22225	Equisetopsida	Celastraceae	<i>Elaeodendron australe</i> var. <i>integrifolium</i>	None	C	None	1	1	20/03/2013
17911	Equisetopsida	Chenopodiaceae	<i>Atriplex leptocarpa</i>	slender fruit saltbush	C	None	2	2	14/05/2015

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17916	Equisetopsida	Chenopodiaceae	<i>Atriplex semibaccata</i>	creeping saltbush	C	None	1	1	06/03/2006
17684	Equisetopsida	Chenopodiaceae	<i>Chenopodium album</i>	fat-hen	None	None	2	2	05/08/2003
33810	Equisetopsida	Chenopodiaceae	<i>Dysphania carinata</i>	None	C	None	2	2	20/03/2013
17371	Equisetopsida	Chenopodiaceae	<i>Einadia hastata</i>	None	C	None	1	1	20/03/2013
17372	Equisetopsida	Chenopodiaceae	<i>Einadia nutans subsp. linifolia</i>	None	C	None	1	1	25/10/2006
11398	Equisetopsida	Chenopodiaceae	<i>Maireana brevifolia</i>	None	C	None	1	1	14/05/2015
10018	Equisetopsida	Chenopodiaceae	<i>Maireana enchylaenoides</i>	None	C	None	1	1	25/10/2006
31022	Equisetopsida	Chenopodiaceae	<i>Maireana pentagona</i>	None	C	None	2	2	06/03/2006
14253	Equisetopsida	Chenopodiaceae	<i>Rhagodia parabolica</i>	None	C	None	1	1	20/03/2013
16331	Equisetopsida	Chenopodiaceae	<i>Rhagodia spinescens</i>	thorny saltbush	C	None	1	2	06/03/2006
33924	Equisetopsida	Chenopodiaceae	<i>Salsola australis</i>	None	C	None	1	1	06/03/2006
9730	Equisetopsida	Chenopodiaceae	<i>Sclerolaena bicornis</i>	None	C	None	1	1	06/03/2006
11392	Equisetopsida	Chenopodiaceae	<i>Sclerolaena diacantha</i>	grey copper burr	C	None	1	1	14/05/2015
16179	Equisetopsida	Chenopodiaceae	<i>Sclerolaena tricuspis</i>	giant red burr	C	None	2	2	14/05/2015
15283	Equisetopsida	Clusiaceae	<i>Hypericum gramineum</i>	None	C	None	2	2	06/03/2006
10033	Equisetopsida	Commelinaceae	<i>Commelina diffusa</i>	wandering jew	C	None	2	2	20/03/2013
16599	Equisetopsida	Commelinaceae	<i>Murdannia graminea</i>	murdannia	C	None	1	1	07/03/2006
17598	Equisetopsida	Convolvulaceae	<i>Convolvulus arvensis</i>	None	None	None	1	1	11/04/1972
14649	Equisetopsida	Convolvulaceae	<i>Cuscuta campestris</i>	dodder	None	None	4	4	14/05/2015
7047	Equisetopsida	Convolvulaceae	<i>Dichondra</i> sp. (Inglewood J.M.Dalby 86/93)	None	C	None	1	1	30/12/1981
14468	Equisetopsida	Convolvulaceae	<i>Ipomoea lonchophylla</i>	None	C	None	1	1	06/01/1971
21934	Equisetopsida	Crassulaceae	<i>Bryophyllum delagoense</i>	None	None	None	1	5	22/02/2016
8221	Equisetopsida	Cupressaceae	<i>Callitris glaucophylla</i>	white cypress pine	C	None	1	4	20/03/2013
17686	Equisetopsida	Cyperaceae	<i>Carex appressa</i>	None	C	None	1	1	06/03/2006
14779	Equisetopsida	Cyperaceae	<i>Carex inversa</i>	knob sedge	C	None	2	2	06/03/2006
6780	Equisetopsida	Cyperaceae	<i>Cyperus aggregatus</i>	None	None	None	1	1	30/12/1981
9750	Equisetopsida	Cyperaceae	<i>Cyperus betchei subsp. betchei</i>	None	C	None	1	1	06/03/2006
13965	Equisetopsida	Cyperaceae	<i>Cyperus bowmanni</i>	None	C	None	1	1	28/03/2010

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9855	Equisetopsida	Cyperaceae	<i>Cyperus clarus</i>	None	V	None	1	1	06/01/1976
17515	Equisetopsida	Cyperaceae	<i>Cyperus difformis</i>	rice sedge	C	None	1	1	08/02/1968
14662	Equisetopsida	Cyperaceae	<i>Cyperus eragrostis</i>	None	None	None	1	1	07/04/2011
17519	Equisetopsida	Cyperaceae	<i>Cyperus fulvus</i>	None	C	None	1	1	30/12/1981
17521	Equisetopsida	Cyperaceae	<i>Cyperus gracilis</i>	None	C	None	1	1	20/03/2013
17528	Equisetopsida	Cyperaceae	<i>Cyperus leiocaulon</i>	None	C	None	1	1	06/03/2006
17475	Equisetopsida	Cyperaceae	<i>Cyperus polystachyos</i> var. <i>polystachyos</i>	None	C	None	1	1	20/01/2015
11454	Equisetopsida	Cyperaceae	<i>Cyperus rigidellus</i>	None	C	None	2	2	06/03/2006
11467	Equisetopsida	Cyperaceae	<i>Eleocharis pusilla</i>	small spikerush	C	None	2	2	08/03/2006
17107	Equisetopsida	Cyperaceae	<i>Fimbristylis dichotoma</i>	common fringe-rush	C	None	2	2	17/12/2005
17078	Equisetopsida	Cyperaceae	<i>Gahnia aspera</i>	None	C	None	1	1	20/03/2013
14228	Equisetopsida	Cyperaceae	<i>Scleria mackaviensis</i>	None	C	None	1	1	20/03/2013
13593	Equisetopsida	Ericaceae	<i>Melichrus adpressus</i>	None	C	None	1	1	20/10/2017
11569	Equisetopsida	Ericaceae	<i>Styphelia triflora</i>	None	C	None	1	1	20/10/2017
6732	Equisetopsida	Euphorbiaceae	<i>Manihot grahamii</i>	None	None	None	1	1	01/12/2007
11288	Equisetopsida	Euphorbiaceae	<i>Ricinus communis</i>	castor oil bush	None	None	0	1	15/10/2015
13642	Equisetopsida	Fabaceae	<i>Desmodium brachypodium</i>	large ticktrefoil	C	None	2	2	20/03/2013
15457	Equisetopsida	Fabaceae	<i>Desmodium gunnii</i>	None	C	None	1	1	20/03/2013
15352	Equisetopsida	Fabaceae	<i>Glycine clandestina</i> var. <i>clandestina</i>	None	C	None	2	2	06/03/2006
15356	Equisetopsida	Fabaceae	<i>Glycine tabacina</i>	glycine pea	C	None	1	1	20/03/2013
15357	Equisetopsida	Fabaceae	<i>Glycine tomentella</i>	woolly glycine	C	None	1	1	09/03/2006
15327	Equisetopsida	Fabaceae	<i>Hovea longipes</i>	brush hovea	C	None	1	1	21/09/1956
15260	Equisetopsida	Fabaceae	<i>Jacksonia scoparia</i>	None	C	None	1	2	31/01/2002
15228	Equisetopsida	Fabaceae	<i>Lotononis bainesii</i>	lotononis	None	None	1	1	09/05/2011
15229	Equisetopsida	Fabaceae	<i>Lotus australis</i>	Australian trefoil	C	None	1	1	24/10/1999
15240	Equisetopsida	Fabaceae	<i>Melilotus albus</i>	sweet clover	None	None	1	1	13/12/2001
10791	Equisetopsida	Fabaceae	<i>Sophora fraseri</i>	brush sophora	V	V	1	2	08/08/2011
15014	Equisetopsida	Fabaceae	<i>Swainsona galegifolia</i>	smooth Darling pea	C	None	1	1	20/03/2013
8254	Equisetopsida	Fabaceae	<i>Swainsona queenslandica</i>	None	C	None	2	2	19/09/2008
7573	Equisetopsida	Fabaceae	<i>Swainsona reticulata</i>	None	C	None	1	1	05/10/2006
11358	Equisetopsida	Fabaceae	<i>Trifolium arvense</i> var. <i>arvense</i>	None	None	None	1	1	01/12/2007
9201	Equisetopsida	Fabaceae	<i>Trifolium campestre</i> var. <i>campestre</i>	None	None	None	1	1	07/12/2001
33172	Equisetopsida	Fabaceae	<i>Vigna suberecta</i>	None	C	None	1	1	31/01/1992
14743	Equisetopsida	Gentianaceae	<i>Centaurium erythraea</i>	common centaury	None	None	0	1	13/10/2015
17059	Equisetopsida	Goodeniaceae	<i>Goodenia fascicularis</i>	None	C	None	1	1	05/02/1981
17060	Equisetopsida	Goodeniaceae	<i>Goodenia glabra</i>	None	C	None	1	1	10/10/1983

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
9913	Equisetopsida	Goodeniaceae	<i>Goodenia heteromera</i>	None	C	None	1	1	21/01/1970
11360	Equisetopsida	Goodeniaceae	<i>Velleia paradoxa</i>	spur velleia	C	None	1	1	01/12/2007
17017	Equisetopsida	Haloragaceae	<i>Haloragis heterophylla</i>	rough raspweed	C	None	1	1	06/03/2006
9218	Equisetopsida	Haloragaceae	<i>Myriophyllum gracile</i>	None	C	None	1	1	03/04/2007
17464	Equisetopsida	Hemerocallidaceae	<i>Dianella caerulea</i>	None	C	None	1	1	07/04/2011
10281	Equisetopsida	Hemerocallidaceae	<i>Dianella longifolia</i>	None	C	None	2	2	07/04/2011
14594	Equisetopsida	Hemerocallidaceae	<i>Dianella revoluta</i>	None	C	None	1	1	07/04/2011
12119	Equisetopsida	Hypoxidaceae	<i>Hypoxis hygrometrica</i> var. <i>villosisepala</i>	None	C	None	1	1	07/03/2006
36343	Equisetopsida	Iridaceae	<i>Sisyrinchium rosulatum</i>	None	None	None	1	1	10/10/1983
9363	Equisetopsida	Johnsoniaceae	<i>Caesia parviflora</i>	None	C	None	1	1	07/04/2011
15974	Equisetopsida	Johnsoniaceae	<i>Tricoryne elatior</i>	yellow autumn lily	C	None	1	1	06/03/2006
14473	Equisetopsida	Juncaceae	<i>Juncus aridicola</i>	tussock rush	C	None	2	2	07/02/2003
12132	Equisetopsida	Juncaceae	<i>Juncus subsecundus</i>	None	C	None	1	1	06/03/2006
15667	Equisetopsida	Lamiaceae	<i>Ajuga australis</i>	Australian bugle	C	None	1	1	24/03/2010
8220	Equisetopsida	Lamiaceae	<i>Ajuga sinuata</i>	None	C	None	1	1	07/04/2011
37295	Equisetopsida	Lamiaceae	<i>Coleus</i>	None	None	None	1	1	20/02/1996
41035	Equisetopsida	Lamiaceae	<i>Coleus australis</i>	None	C	None	2	2	20/03/2013
15237	Equisetopsida	Lamiaceae	<i>Marrubium vulgare</i>	white horehound	None	None	1	1	07/12/2001
15243	Equisetopsida	Lamiaceae	<i>Mentha satereioides</i>	native pennyroyal	C	None	5	5	07/04/2011
7445	Equisetopsida	Lamiaceae	<i>Prostanthera</i> sp. (Dunmore D.M.Gordon & A)	None	V	V	1	1	21/10/1953
15106	Equisetopsida	Lamiaceae	<i>Salvia reflexa</i>	None	None	None	1	1	25/10/2006
11767	Equisetopsida	Lamiaceae	<i>Salvia verbenaca</i>	wild sage	None	None	1	1	24/10/1999
11770	Equisetopsida	Lamiaceae	<i>Scutellaria humilis</i>	dwarf skullcap	C	None	1	1	20/03/2013
11773	Equisetopsida	Lamiaceae	<i>Stachys arvensis</i>	stagger weed	None	None	0	1	13/10/2015
36562	Equisetopsida	Lamiaceae	<i>Teucrium daucoides</i>	None	C	None	1	1	20/01/2002
36200	Equisetopsida	Lamiaceae	<i>Teucrium junceum</i>	None	C	None	1	1	25/10/2006
15339	Equisetopsida	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry	C	None	1	1	20/03/2013
16774	Equisetopsida	Laxmanniaceae	<i>Lomandra leucocephala</i> subsp. <i>leucocephala</i>	None	C	None	1	1	09/03/2006
16776	Equisetopsida	Laxmanniaceae	<i>Lomandra longifolia</i>	None	C	None	1	1	10/10/1983
16777	Equisetopsida	Laxmanniaceae	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	None	C	None	1	1	06/03/2006
14847	Equisetopsida	Loranthaceae	<i>Amyema cambagei</i>	None	C	None	2	2	20/02/1996
13053	Equisetopsida	Loranthaceae	<i>Amyema congener</i> subsp. <i>congener</i>	None	C	None	2	2	20/03/2013

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
14057	Equisetopsida	Loranthaceae	<i>Amyema linophylla</i> subsp. <i>orientalis</i>	None	C	None	1	1	05/02/1963
17991	Equisetopsida	Loranthaceae	<i>Amyema miquelii</i>	None	C	None	1	1	08/03/2006
13060	Equisetopsida	Loranthaceae	<i>Amyema miraculosa</i> subsp. <i>boormanii</i>	None	C	None	1	1	20/02/1996
14848	Equisetopsida	Loranthaceae	<i>Amyema pendula</i> subsp. <i>longifolia</i>	None	C	None	1	1	05/02/1963
12936	Equisetopsida	Loranthaceae	<i>Lysiana exocarpi</i> subsp. <i>tenuis</i>	None	C	None	1	1	20/02/1996
8340	Equisetopsida	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>oxycarpum</i>	None	C	None	1	1	20/03/2013
33995	Equisetopsida	Malvaceae	<i>Hibiscus tridactylites</i>	None	C	None	1	1	07/04/2011
12939	Equisetopsida	Malvaceae	<i>Malva parviflora</i>	small-flowered mallow	None	None	1	1	07/12/2001
16718	Equisetopsida	Malvaceae	<i>Malvastrum americanum</i> var. <i>americanum</i>	None	None	None	1	1	20/02/1996
12943	Equisetopsida	Malvaceae	<i>Malvastrum americanum</i> var. <i>stellatum</i>	None	C	None	1	1	05/08/2003
31326	Equisetopsida	Malvaceae	<i>Malvastrum coromandelianum</i> subsp. <i>coromandelianum</i>	None	None	None	1	1	05/08/2003
14347	Equisetopsida	Malvaceae	<i>Pavonia hastata</i>	pink pavonia	None	None	1	1	01/12/2007
16196	Equisetopsida	Malvaceae	<i>Sida corrugata</i>	None	C	None	1	1	29/04/1994
22197	Equisetopsida	Malvaceae	<i>Sida hackettiana</i>	None	C	None	1	1	20/03/2013
16146	Equisetopsida	Malvaceae	<i>Sida rhombifolia</i>	None	None	None	1	1	29/04/1994
11689	Equisetopsida	Marsileaceae	<i>Marsilea drummondii</i>	common nardoo	C	None	1	1	22/02/1995
14386	Equisetopsida	Marsileaceae	<i>Marsilea hirsuta</i>	hairy nardoo	C	None	1	1	17/12/2005
15987	Equisetopsida	Meliaceae	<i>Turraea pubescens</i>	native honeysuckle	C	None	1	1	13/11/2001
13307	Equisetopsida	Menyanthaceae	<i>Nymphoides crenata</i>	wavy marshwort	C	None	1	1	06/03/2006
15827	Equisetopsida	Mimosaceae	<i>Acacia aulacocarpa</i>	None	C	None	0	1	31/01/2002
14932	Equisetopsida	Mimosaceae	<i>Acacia conferta</i>	None	C	None	0	1	12/09/2000
18780	Equisetopsida	Mimosaceae	<i>Acacia deanei</i>	None	C	None	1	1	06/05/2006
15752	Equisetopsida	Mimosaceae	<i>Acacia harpophylla</i>	brigalow	C	None	1	4	06/01/2005
15733	Equisetopsida	Mimosaceae	<i>Acacia oswaldii</i>	miljee	C	None	1	1	11/11/1989
14872	Equisetopsida	Mimosaceae	<i>Acacia polybotrya</i>	western silver wattle	C	None	2	2	24/10/2006
15694	Equisetopsida	Mimosaceae	<i>Acacia salicina</i>	doolan	C	None	2	2	20/03/2013
34114	Equisetopsida	Mimosaceae	<i>Vachellia farnesiana</i>	None	None	None	0	7	10/02/2016
29872	Equisetopsida	Moraceae	<i>Morus</i>	None	None	None	1	1	06/11/2003
13303	Equisetopsida	Moraceae	<i>Morus alba</i>	white mulberry	None	None	1	1	07/12/2001
17998	Equisetopsida	Myrtaceae	<i>Angophora floribunda</i>	rough-barked apple	C	None	1	2	20/03/2013
17999	Equisetopsida	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum	C	None	0	1	31/01/2002
6534	Equisetopsida	Myrtaceae	<i>Corymbia clarksoniana</i>	None	C	None	2	2	20/03/2013

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
6574	Equisetopsida	Myrtaceae	<i>Corymbia erythrophloia</i>	variable-barke d bloodwood	C	None	0	1	12/09/2000
6445	Equisetopsida	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood	C	None	0	1	10/02/2010
6443	Equisetopsida	Myrtaceae	<i>Corymbia trachyphloia</i> <i>subsp. trachyphloia</i>	None	C	None	0	1	31/01/2002
9309	Equisetopsida	Myrtaceae	<i>Eucalyptus apothalassica</i>	None	C	None	0	1	12/09/2000
32975	Equisetopsida	Myrtaceae	<i>Eucalyptus camaldulensis</i> <i>subsp. camaldulensis</i>	None	C	None	2	2	30/11/1968
17249	Equisetopsida	Myrtaceae	<i>Eucalyptus chloroclada</i>	Baradine red gum	C	None	2	3	06/03/2006
17252	Equisetopsida	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark	C	None	2	3	12/09/2000
17253	Equisetopsida	Myrtaceae	<i>Eucalyptus crebra</i> x <i>Eucalyptus melanophloia</i>	None	C	None	2	2	24/03/1971
34185	Equisetopsida	Myrtaceae	<i>Eucalyptus melanophloia</i> <i>subsp. melanophloia</i>	None	C	None	2	2	30/10/2006
17223	Equisetopsida	Myrtaceae	<i>Eucalyptus melliodora</i>	yellow box	C	None	0	1	12/09/2000
17234	Equisetopsida	Myrtaceae	<i>Eucalyptus orgadophila</i>	mountain coolibah	C	None	1	1	24/03/2010
17188	Equisetopsida	Myrtaceae	<i>Eucalyptus populnea</i>	poplar box	C	None	2	2	12/05/1994
26471	Equisetopsida	Myrtaceae	<i>Eucalyptus tereticornis</i> <i>subsp. tereticornis</i>	None	C	None	1	1	25/10/2006
31943	Equisetopsida	Myrtaceae	<i>Eucalyptus woollsiana</i>	None	C	None	3	3	28/03/2008
13465	Equisetopsida	Myrtaceae	<i>Leptospermum brevipes</i>	None	C	None	1	1	22/06/1994
14441	Equisetopsida	Myrtaceae	<i>Leptospermum</i> <i>polygalifolium</i>	tantoon	C	None	1	1	11/10/1971
16685	Equisetopsida	Myrtaceae	<i>Melaleuca densispicata</i>	None	C	None	6	6	17/12/2005
13423	Equisetopsida	Myrtaceae	<i>Melaleuca lanceolata</i>	None	C	None	1	1	20/02/1996
5505	Equisetopsida	Myrtaceae	<i>Melaleuca trichostachya</i>	None	C	None	1	1	28/03/2008
17826	Equisetopsida	Nyctaginaceae	<i>Boerhavia</i>	None	None	None	1	1	07/12/2001
12869	Equisetopsida	Nyctaginaceae	<i>Boerhavia dominii</i>	None	C	None	1	1	25/10/2006
8219	Equisetopsida	Nyctaginaceae	<i>Boerhavia pubescens</i>	None	C	None	1	1	20/03/2013
29765	Equisetopsida	Nymphaeaceae	<i>Nymphaea gigantea</i>	None	C	None	1	1	01/04/2005
33129	Equisetopsida	Oleaceae	<i>Jasminum dianthifolium</i>	None	C	None	1	1	25/10/2006
16837	Equisetopsida	Oleaceae	<i>Jasminum didymum subsp.</i> <i>lineare</i>	None	C	None	1	1	03/11/2016
16840	Equisetopsida	Oleaceae	<i>Jasminum simplicifolium</i> <i>subsp. australiense</i>	None	C	None	1	1	20/03/2013
13417	Equisetopsida	Oleaceae	<i>Ligustrum lucidum</i>	large-leaved privet	None	None	0	2	29/01/2016
13835	Equisetopsida	Oleaceae	<i>Notelaea microcarpa</i>	None	C	None	2	3	20/03/2013
36258	Equisetopsida	Oleaceae	<i>Olea europaea subsp.</i> <i>cuspidata</i>	None	None	None	3	3	16/04/2001
14586	Equisetopsida	Onagraceae	<i>Epilobium billardierianum</i> <i>subsp. cinereum</i>	None	C	None	1	1	02/05/1994
32785	Equisetopsida	Onagraceae	<i>Oenothera curtiflora</i>	None	None	None	4	4	03/12/2007

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
11001	Equisetopsida	Ophioglossaceae	<i>Ophioglossum reticulatum</i>	None	C	None	1	1	07/04/2011
8247	Equisetopsida	Orchidaceae	<i>Caladenia fuscata</i>	None	C	None	1	1	21/09/1992
8142	Equisetopsida	Orchidaceae	<i>Pterostylis bicolor</i>	None	C	None	1	1	21/09/1992
9598	Equisetopsida	Oxalidaceae	<i>Oxalis radicata</i>	None	C	None	1	1	15/07/1981
12804	Equisetopsida	Papaveraceae	<i>Fumaria muralis</i> subsp. <i>muralis</i>	wall fumitory	None	None	1	1	23/10/1947
13596	Equisetopsida	Phrymaceae	<i>Mimulus gracilis</i>	slender monkey flower	C	None	1	1	03/10/1998
8630	Equisetopsida	Phrymaceae	<i>Peplidium foecundum</i>	None	C	None	1	1	07/03/2006
17808	Equisetopsida	Phyllanthaceae	<i>Breynia oblongifolia</i>	None	C	None	1	1	20/03/2013
16479	Equisetopsida	Phytolaccaceae	<i>Phytolacca octandra</i>	inkweed	None	None	1	1	20/03/2013
22219	Equisetopsida	Pittosporaceae	<i>Auranticarpa rhombifolia</i>	None	C	None	1	1	20/03/2013
22227	Equisetopsida	Pittosporaceae	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	None	C	None	0	1	12/09/2000
26012	Equisetopsida	Pittosporaceae	<i>Pittosporum angustifolium</i>	None	C	None	2	2	20/10/2018
22387	Equisetopsida	Pittosporaceae	<i>Pittosporum spinescens</i>	None	C	None	1	1	20/03/2013
14357	Equisetopsida	Plantaginaceae	<i>Misopates orontium</i>	lesser snapdragon	None	None	2	2	16/12/2011
12727	Equisetopsida	Plantaginaceae	<i>Plantago debilis</i>	shade plantain	C	None	3	3	20/03/2013
15954	Equisetopsida	Plantaginaceae	<i>Veronica plebeia</i>	trailing speedwell	C	None	1	1	20/03/2013
16427	Equisetopsida	Plumbaginaceae	<i>Plumbago zeylanica</i>	native plumbago	C	None	2	2	11/06/1986
15670	Equisetopsida	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass	C	None	1	1	10/12/1997
15675	Equisetopsida	Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass	C	None	1	1	20/03/2013
33882	Equisetopsida	Poaceae	<i>Anthosachne plurinervis</i>	None	C	None	1	1	24/10/1999
8864	Equisetopsida	Poaceae	<i>Aristida echinata</i>	None	C	None	1	1	06/03/2006
11121	Equisetopsida	Poaceae	<i>Aristida gracilipes</i>	None	C	None	2	2	20/03/2013
15655	Equisetopsida	Poaceae	<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>	None	C	None	1	1	06/03/2006
9957	Equisetopsida	Poaceae	<i>Aristida leichhardtiana</i>	None	C	None	1	1	09/03/2006
14810	Equisetopsida	Poaceae	<i>Aristida lignosa</i>	None	C	None	1	1	20/03/2013
9661	Equisetopsida	Poaceae	<i>Aristida ramosa</i>	purple wiregrass	C	None	0	1	12/09/2000
5953	Equisetopsida	Poaceae	<i>Austrostipa aristiglumis</i>	plains grass	C	None	1	1	07/02/1949
5965	Equisetopsida	Poaceae	<i>Austrostipa verticillata</i>	slender bamboo grass	C	None	3	3	07/12/2001
9971	Equisetopsida	Poaceae	<i>Avena fatua</i> x <i>Avena sativa</i>	None	None	None	1	1	14/09/1950
10316	Equisetopsida	Poaceae	<i>Bothriochloa decipiens</i> var. <i>decipiens</i>	None	C	None	3	3	20/03/2013
10919	Equisetopsida	Poaceae	<i>Bothriochloa insculpta</i>	None	None	None	1	1	13/06/2009
15540	Equisetopsida	Poaceae	<i>Cenchrus ciliaris</i>	None	None	None	1	1	17/12/2005
33864	Equisetopsida	Poaceae	<i>Cenchrus longisetus</i>	None	None	None	1	1	07/04/2011

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
33785	Equisetopsida	Poaceae	<i>Cenchrus spinifex</i>	None	None	None	1	1	28/03/2010
15550	Equisetopsida	Poaceae	<i>Chloris divaricata</i> var. <i>divaricata</i>	slender chloris	C	None	0	1	13/09/2000
14753	Equisetopsida	Poaceae	<i>Chloris truncata</i>	None	C	None	1	1	06/03/2006
15526	Equisetopsida	Poaceae	<i>Chloris ventricosa</i>	tall chloris	C	None	2	2	20/03/2013
15527	Equisetopsida	Poaceae	<i>Chloris virgata</i>	feathertop rhodes grass	None	None	0	1	12/09/2000
15531	Equisetopsida	Poaceae	<i>Chrysopogon fallax</i>	None	C	None	1	1	07/02/1997
15485	Equisetopsida	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass	C	None	1	2	20/03/2013
15490	Equisetopsida	Poaceae	<i>Dactyloctenium radulans</i>	button grass	C	None	2	2	28/03/2010
11064	Equisetopsida	Poaceae	<i>Dichanthium queenslandicum</i>	None	V	E	2	3	12/01/2016
15466	Equisetopsida	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>polystachyum</i>	None	C	None	1	1	27/02/2001
15467	Equisetopsida	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>	None	C	None	1	1	20/03/2013
11713	Equisetopsida	Poaceae	<i>Dichelachne rara</i>	None	C	None	1	1	20/03/2013
10410	Equisetopsida	Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass	C	None	1	1	06/03/2006
15423	Equisetopsida	Poaceae	<i>Digitaria diffusa</i>	None	C	None	1	1	06/03/2006
18913	Equisetopsida	Poaceae	<i>Digitaria eriantha</i>	None	None	None	1	1	28/03/2010
14599	Equisetopsida	Poaceae	<i>Digitaria porrecta</i>	None	NT	None	3	3	23/04/2018
33749	Equisetopsida	Poaceae	<i>Dimorphochloa rigida</i>	None	C	None	0	1	13/09/2000
34495	Equisetopsida	Poaceae	<i>Dinebra decipiens</i> var. <i>asthenes</i>	None	C	None	2	2	20/03/2013
34501	Equisetopsida	Poaceae	<i>Dinebra panicea</i> var. <i>brachiata</i>	None	None	None	1	1	08/03/1991
34499	Equisetopsida	Poaceae	<i>Diplachne fusca</i> var. <i>fusca</i>	None	C	None	2	2	08/02/1968
15403	Equisetopsida	Poaceae	<i>Enneapogon gracilis</i>	slender nineawn	C	None	3	3	20/03/2013
10340	Equisetopsida	Poaceae	<i>Enteropogon acicularis</i>	curly windmill grass	C	None	1	1	25/10/2006
10342	Equisetopsida	Poaceae	<i>Enteropogon paucispiceus</i>	None	C	None	1	1	09/12/1997
2138	Equisetopsida	Poaceae	<i>Eragrostis alveiformis</i>	None	C	None	2	2	12/12/2001
15391	Equisetopsida	Poaceae	<i>Eragrostis cilianensis</i>	None	None	None	1	1	21/03/2006
15359	Equisetopsida	Poaceae	<i>Eragrostis curvula</i>	None	None	None	2	2	16/12/2011
15364	Equisetopsida	Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass	C	None	1	1	06/03/2006
15367	Equisetopsida	Poaceae	<i>Eragrostis leptostachya</i>	None	C	None	1	1	02/05/1994
15368	Equisetopsida	Poaceae	<i>Eragrostis megalosperma</i>	None	C	None	1	2	20/03/2013
15371	Equisetopsida	Poaceae	<i>Eragrostis parviflora</i>	weeping lovegrass	C	None	1	1	17/12/2005
15373	Equisetopsida	Poaceae	<i>Eragrostis sororia</i>	None	C	None	1	1	06/03/2006
15375	Equisetopsida	Poaceae	<i>Eragrostis speciosa</i>	None	C	None	1	1	10/03/2006
32007	Equisetopsida	Poaceae	<i>Eragrostis trichophora</i>	None	None	None	1	1	21/03/2006
15380	Equisetopsida	Poaceae	<i>Eremochloa bimaculata</i>	poverty grass	C	None	1	1	10/12/1997

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
15330	Equisetopsida	Poaceae	<i>Eriochloa crebra</i>	spring grass	C	None	2	2	06/03/2006
15331	Equisetopsida	Poaceae	<i>Eriochloa procera</i>	slender cupgrass	C	None	1	1	17/12/2005
15336	Equisetopsida	Poaceae	<i>Eulalia aurea</i>	silky browntop	C	None	1	1	10/12/1997
10582	Equisetopsida	Poaceae	<i>Homopholis belsonii</i>	None	E	V	6	6	21/04/2018
15802	Equisetopsida	Poaceae	<i>Hyparrhenia hirta</i>	coolati grass	None	None	1	1	05/10/2006
10678	Equisetopsida	Poaceae	<i>Lolium perenne</i>	perennial ryegrass	None	None	1	1	07/12/2001
27900	Equisetopsida	Poaceae	<i>Megathyrsus maximus</i> var. <i>pubiglumis</i>	None	None	None	1	1	04/05/2003
9591	Equisetopsida	Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	None	C	None	2	2	20/03/2013
29956	Equisetopsida	Poaceae	<i>Moorochloa eruciformis</i>	None	None	None	1	1	20/04/2001
4207	Equisetopsida	Poaceae	<i>Oplismenus imbecillis</i>	None	C	None	1	1	20/03/2013
15169	Equisetopsida	Poaceae	<i>Oxychloris scariosa</i>	winged chloris	C	None	1	1	06/03/2006
10648	Equisetopsida	Poaceae	<i>Panicum buncei</i>	None	C	None	3	3	17/12/2006
15173	Equisetopsida	Poaceae	<i>Panicum decompositum</i> var. <i>decompositum</i>	None	C	None	2	2	07/04/2011
13607	Equisetopsida	Poaceae	<i>Panicum effusum</i>	None	C	None	1	1	31/05/1966
10870	Equisetopsida	Poaceae	<i>Panicum queenslandicum</i> var. <i>queenslandicum</i>	None	C	None	1	1	02/05/1994
14346	Equisetopsida	Poaceae	<i>Paspalidium albavillosum</i>	None	C	None	1	1	20/03/2013
15184	Equisetopsida	Poaceae	<i>Paspalidium caespitosum</i>	brigalow grass	C	None	3	3	06/03/2006
11417	Equisetopsida	Poaceae	<i>Paspalidium constrictum</i>	None	C	None	4	4	03/11/2016
14345	Equisetopsida	Poaceae	<i>Paspalidium distans</i>	shotgrass	C	None	1	1	06/03/2006
15134	Equisetopsida	Poaceae	<i>Paspalum dilatatum</i>	paspalum	None	None	1	1	06/03/2006
10818	Equisetopsida	Poaceae	<i>Paspalum distichum</i>	water couch	None	None	1	1	05/03/2006
33889	Equisetopsida	Poaceae	<i>Rytidosperma</i>	None	None	None	1	1	27/02/1930
33896	Equisetopsida	Poaceae	<i>Rytidosperma longifolium</i>	None	C	None	1	1	20/03/2013
33895	Equisetopsida	Poaceae	<i>Rytidosperma racemosum</i> var. <i>obtusatum</i>	None	C	None	2	2	02/05/1994
10240	Equisetopsida	Poaceae	<i>Setaria incrassata</i>	None	None	None	1	1	02/05/1994
10244	Equisetopsida	Poaceae	<i>Setaria paspalidioides</i>	None	C	None	1	1	06/03/2006
15032	Equisetopsida	Poaceae	<i>Setaria surgens</i>	None	C	None	1	1	09/03/2006
15041	Equisetopsida	Poaceae	<i>Sorghum x alnum</i>	None	None	None	1	1	05/12/1972
15055	Equisetopsida	Poaceae	<i>Sporobolus caroli</i>	fairly grass	C	None	1	2	20/03/2013
14220	Equisetopsida	Poaceae	<i>Sporobolus contiguus</i>	None	C	None	3	3	21/03/2006
15000	Equisetopsida	Poaceae	<i>Sporobolus coromandelianus</i>	None	None	None	2	2	06/03/2006
15001	Equisetopsida	Poaceae	<i>Sporobolus creber</i>	None	C	None	4	4	20/03/2013
14156	Equisetopsida	Poaceae	<i>Themeda avenacea</i>	None	C	None	1	1	12/12/2001
11356	Equisetopsida	Poaceae	<i>Tragus australianus</i>	small burr grass	C	None	1	1	20/03/2013
14995	Equisetopsida	Poaceae	<i>Tripogon loliiformis</i>	five minute grass	C	None	1	1	06/03/2006
10120	Equisetopsida	Poaceae	<i>Triticum aestivum</i>	wheat	None	None	1	1	04/08/2011

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
29242	Equisetopsida	Poaceae	<i>Urochloa foliosa</i>	None	C	None	1	1	20/03/2013
29199	Equisetopsida	Poaceae	<i>Urochloa piligera</i>	None	C	None	1	1	09/05/2006
26858	Equisetopsida	Poaceae	<i>Walwhalleya proluta</i>	None	C	None	0	1	13/10/2015
27672	Equisetopsida	Poaceae	<i>Walwhalleya subxerophila</i>	None	C	None	3	3	28/03/2008
14562	Equisetopsida	Polygonaceae	<i>Fallopia convolvulus</i>	black bindweed	None	None	2	2	16/12/2011
16271	Equisetopsida	Polygonaceae	<i>Rumex brownii</i>	swamp dock	C	None	1	1	03/12/2007
16272	Equisetopsida	Polygonaceae	<i>Rumex crispus</i>	curled dock	None	None	1	1	03/12/2007
13066	Equisetopsida	Polygonaceae	<i>Rumex dumosus</i>	wiry dock	C	None	1	1	03/05/1994
13064	Equisetopsida	Polygonaceae	<i>Rumex tenax</i>	None	C	None	2	2	17/12/2005
17793	Equisetopsida	Portulacaceae	<i>Calandrinia pickeringii</i>	None	C	None	2	2	06/03/2006
17740	Equisetopsida	Portulacaceae	<i>Calandrinia pleiopetala</i>	None	C	None	1	1	06/03/2006
13270	Equisetopsida	Portulacaceae	<i>Calandrinia stagnensis</i>	None	C	None	1	1	06/03/2006
6230	Equisetopsida	Portulacaceae	<i>Grahamia australiana</i>	None	C	None	1	1	06/03/2006
16358	Equisetopsida	Portulacaceae	<i>Portulaca filifolia</i>	None	C	None	2	2	07/03/2006
19434	Equisetopsida	Portulacaceae	<i>Portulaca pilosa</i>	None	None	None	3	3	20/03/2013
22354	Equisetopsida	Proteaceae	<i>Hakea lorea</i> subsp. <i>lorea</i>	None	C	None	1	1	20/03/2013
17682	Equisetopsida	Pteridaceae	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	None	C	None	1	1	10/10/1983
24905	Equisetopsida	Ptychomitriaceae	<i>Ptychomitrium australe</i>	None	C	None	1	1	29/03/2013
13111	Equisetopsida	Ranunculaceae	<i>Ranunculus muricatus</i>	sharp buttercup	None	None	1	1	14/09/1950
13108	Equisetopsida	Ranunculaceae	<i>Ranunculus pentandrus</i> var. <i>platycarpus</i>	None	C	None	1	1	08/09/2001
12281	Equisetopsida	Rubiaceae	<i>Asperula cunninghamii</i>	twining woodruff	C	None	1	1	10/10/1983
32446	Equisetopsida	Rubiaceae	<i>Galium leptogonium</i>	None	C	None	1	1	24/03/2010
16543	Equisetopsida	Rubiaceae	<i>Opercularia diphylla</i>	None	C	None	1	1	10/10/1983
16407	Equisetopsida	Rubiaceae	<i>Pomax umbellata</i>	None	C	None	0	1	12/09/2000
29838	Equisetopsida	Rubiaceae	<i>Psydrax odorata</i> forma <i>subnitida</i>	None	C	None	1	1	20/03/2013
18819	Equisetopsida	Rutaceae	<i>Citrus glauca</i>	None	C	None	1	1	25/10/2006
17085	Equisetopsida	Rutaceae	<i>Geijera parviflora</i>	wilga	C	None	2	4	25/10/2006
11945	Equisetopsida	Salicaceae	<i>Salix babylonica</i>	weeping willow	None	None	0	3	15/10/2015
13700	Equisetopsida	Sapindaceae	<i>Alectryon pubescens</i>	None	C	None	1	1	20/03/2013
13655	Equisetopsida	Sapindaceae	<i>Dodonaea macrossanii</i>	None	C	None	2	2	28/02/2001
17377	Equisetopsida	Sapindaceae	<i>Dodonaea peduncularis</i>	None	C	None	2	2	11/10/1971
8631	Equisetopsida	Scrophulariaceae	<i>Eremophila debilis</i>	winter apple	C	None	2	2	05/08/2003
3377	Equisetopsida	Scrophulariaceae	<i>Eremophila deserti</i>	None	C	None	1	3	13/09/2000
9278	Equisetopsida	Scrophulariaceae	<i>Eremophila glabra</i> subsp. <i>glabra</i>	None	C	None	1	1	12/10/2006
17275	Equisetopsida	Scrophulariaceae	<i>Eremophila longifolia</i>	berrigan	C	None	1	1	07/03/2006

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
16602	Equisetopsida	Scrophulariaceae	<i>Myoporum acuminatum</i>	coastal boobialla	C	None	1	1	25/10/2006
12529	Equisetopsida	Scrophulariaceae	<i>Verbascum virgatum</i>	twiggy mullein	None	None	1	1	30/10/1956
17493	Equisetopsida	Solanaceae	<i>Datura ferox</i>	fierce thornapple	None	None	1	1	17/01/1973
16736	Equisetopsida	Solanaceae	<i>Lycium ferocissimum</i>	African boxthorn	None	None	0	29	10/02/2016
16129	Equisetopsida	Solanaceae	<i>Solanum</i>	None	None	None	1	1	24/03/2010
22434	Equisetopsida	Solanaceae	<i>Solanum amblymerum</i>	None	C	None	1	1	04/10/1971
16157	Equisetopsida	Solanaceae	<i>Solanum americanum</i>	None	C	None	2	2	30/06/1993
6197	Equisetopsida	Solanaceae	<i>Solanum coracinum</i>	None	C	None	1	1	20/03/2013
16165	Equisetopsida	Solanaceae	<i>Solanum ellipticum</i>	potato bush	C	None	1	1	20/03/2013
13530	Equisetopsida	Solanaceae	<i>Solanum ferocissimum</i>	None	C	None	2	2	06/03/2006
29802	Equisetopsida	Solanaceae	<i>Solanum parvifolium</i> subsp. <i>parvifolium</i>	None	C	None	1	1	20/03/2013
6200	Equisetopsida	Solanaceae	<i>Solanum stupefactum</i>	None	C	None	2	2	24/03/2010
17802	Equisetopsida	Sterculiaceae	<i>Brachychiton populneus</i> subsp. <i>populneus</i>	None	C	None	0	1	12/09/2000
12645	Equisetopsida	Sterculiaceae	<i>Brachychiton populneus</i> subsp. <i>trilobus</i>	None	C	None	1	1	20/03/2013
16440	Equisetopsida	Thymelaeaceae	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>	None	C	None	1	1	29/08/1986
16441	Equisetopsida	Thymelaeaceae	<i>Pimelea neoanglica</i>	poison pimelea	C	None	2	2	25/10/2006
12598	Equisetopsida	Thymelaeaceae	<i>Pimelea strigosa</i>	None	C	None	1	1	05/08/2003
12654	Equisetopsida	Ulmaceae	<i>Celtis sinensis</i>	Chinese elm	None	None	0	7	10/02/2016
34284	Equisetopsida	Verbenaceae	<i>Glandularia aristigera</i>	None	None	None	1	1	07/12/2001
19905	Equisetopsida	Verbenaceae	<i>Lantana camara</i>	lantana	None	None	0	4	10/02/2016
7796	Equisetopsida	Verbenaceae	<i>Phyla canescens</i>	None	None	None	1	2	13/10/2015
25819	Equisetopsida	Verbenaceae	<i>Verbena africana</i>	None	C	None	1	1	31/12/1974
15951	Equisetopsida	Verbenaceae	<i>Verbena bonariensis</i>	purpletop	None	None	1	1	12/12/2001
27188	Equisetopsida	Verbenaceae	<i>Verbena gaudichaudii</i>	None	C	None	1	1	30/11/1987
27944	Equisetopsida	Verbenaceae	<i>Verbena litoralis</i> var. <i>litoralis</i>	None	None	None	2	2	25/10/2006
36152	Equisetopsida	Violaceae	<i>Afrohybanthus stellarioides</i>	None	C	None	1	1	20/03/2013
17662	Equisetopsida	Vitaceae	<i>Cayratia clematidea</i>	slender grape	C	None	1	1	20/03/2013
31727	Equisetopsida	Vitaceae	<i>Clematicissus opaca</i>	None	C	None	1	1	20/03/2013
6480	Equisetopsida	Zamiaceae	<i>Macrozamia machinii</i>	None	V	V	1	1	29/04/1993
14159	Equisetopsida	Zygophyllaceae	<i>Tribulus micrococcus</i>	yellow vine	C	None	1	1	05/02/1981
15911	Equisetopsida	Zygophyllaceae	<i>Zygophyllum apiculatum</i>	gall weed	C	None	2	2	31/12/2006

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

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
26124	Agaricomycetes	Agaricaceae	<i>Podaxis beringamensis</i>	None	C	None	0	1	06/01/2015
25755	Agaricomycetes	Geastraceae	<i>Geastrum pectinatum</i>	None	C	None	1	1	11/09/2008
25522	Agaricomycetes	Panaeolaceae	<i>Panaeolus antillarum</i>	None	C	None	1	1	01/04/1962
29414	Eurotiomycetes	Verrucariaceae	<i>Endocarpon simplicatum</i>	None	C	None	1	1	23/09/2004
34915	Lecanoromycetes	Caliciaceae	<i>Buellia epigaella</i>	None	C	None	1	1	23/09/2004
31952	Lecanoromycetes	Lecanoraceae	<i>Lecanora dissoluta</i>	None	C	None	1	1	08/05/2005
23215	Lecanoromycetes	Lecanoraceae	<i>Lecanora helva</i>	None	C	None	1	1	11/06/1986
23239	Lecanoromycetes	Lecideaceae	<i>Lecidea ochroleuca</i>	None	C	None	1	1	23/09/2004
26199	Lecanoromycetes	Parmeliaceae	<i>Usnea scabrada</i> subsp. <i>elegans</i>	None	C	None	2	2	01/09/1986
23553	Lecanoromycetes	Ramalinaceae	<i>Ramalina inflata</i> subsp. <i>perpusilla</i>	None	C	None	1	1	31/12/1986

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

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

Species table headings and codes

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

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

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

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

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- [Species profile search](#) - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- [Species lists](#) - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- [Biomaps](#) - view biodiversity information, including species information approved for publication, and generate reports
- [Qld wildlife data API](#) - access species information approved for publication such as notes, images and records etc.
- [WetlandMaps](#) - view species records, survey locations etc. approved for publication
- [WetlandSummary](#) - view wildlife statistics, species lists for a range of area types, and access species profiles
- [Generalised distribution and densities of Queensland wildlife](#) - Queensland species distributions and densities generalised to a 10 km grid resolution
- [Conservation status of Queensland wildlife](#) - access current lists of priority species for Queensland including nomenclature and status information
- [Queensland Confidential Species](#) - the list of species flagged as confidential in the WildNet database.

Other useful sites for accessing biodiversity data include:

- [Queensland Government Data](#)
- [Atlas of Living Australia](#)
- [OZCAM - Online Zoological Collections of Australian Museums](#)
- [AVH - Australia's Virtual Herbarium](#)
- [Protected Matters Search Tool](#)

Please direct queries about this report to the [WildNet Team](#).

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government, to the maximum extent permitted by law, makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



WildNet Records

Conservation Significant Species List

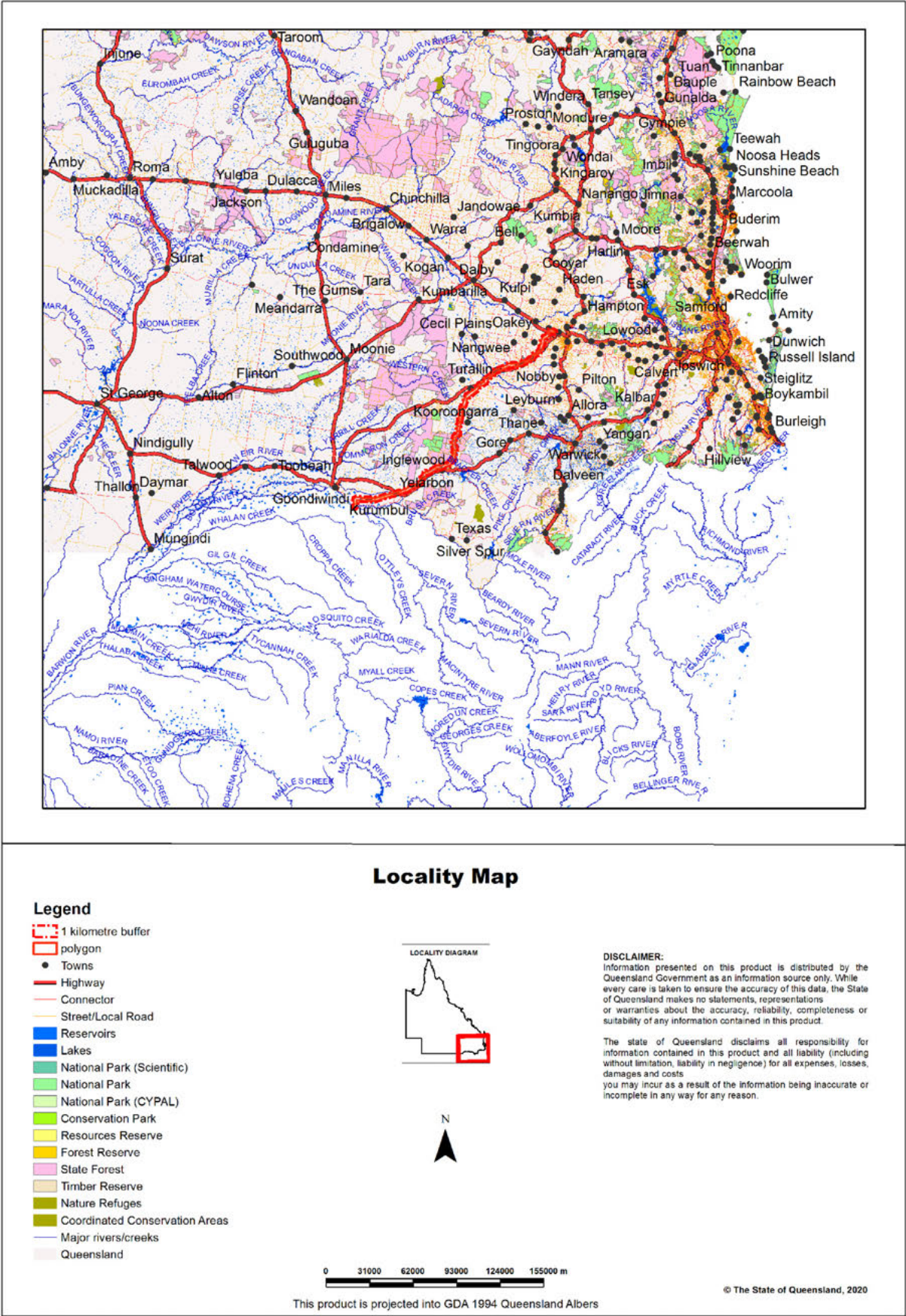


For the selected area of interest 44210.83ha

Current as at 25/02/2020

WildNetCSSpecieslist

Map 1. Locality Map



Summary Information

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

Table 1. Area of interest details

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine

Protected Area(s)

The following estates and/or reserves are located in the area of interest:

Whetstone State
Forest

Bringalily State Forest

World Heritage Area(s)

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

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

This Conservation Significant Species List report is derived only from records from the WildNet database managed by the Department of Environment and Science. Other data sources may provide additional information on species occurrence.

Conservation significant species are species listed:

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

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species does not occur in the report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area.

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

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

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1965	Animalia	Aves	Apodidae	<i>Apus pacificus</i>	fork-tailed swift	SL	None	0	3	31/01/2006
1971	Animalia	Aves	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail	V	V	0	3	15/12/2014
22494	Animalia	Aves	Cacatuidae	<i>Calyptorhynchus lathamii lathamii</i>	glossy black-cockatoo (eastern)	V	None	0	3	28/02/2007

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1192	Animalia	Aves	Cacatuidae	<i>Lophochroa leadbeateri</i>	Major Mitchell's cockatoo	V	None	0	1	30/06/1980
1785	Animalia	Aves	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	0	1	13/10/1996
1736	Animalia	Aves	Cuculidae	<i>Cuculus optatus</i>	oriental cuckoo	SL	None	0	4	15/09/1976
1521	Animalia	Aves	Meliphagidae	<i>Grantiella picta</i>	painted honeyeater	V	V	0	1	31/10/2007
1595	Animalia	Aves	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch	SL	None	0	2	14/11/2003
1599	Animalia	Aves	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher	SL	None	0	1	28/02/2001
1825	Animalia	Aves	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	SL	None	0	3	31/01/2007
1092	Animalia	Aves	Turnicidae	<i>Turnix melanogaster</i>	black-breasted button-quail	V	V	0	3	31/12/1984
19177	Animalia	Insecta	Nymphalidae	<i>Danaus plexippus</i>	monarch	None	None	0	1	06/03/2012
803	Animalia	Mammalia	Dasyuridae	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)	V	E	0	1	31/12/1980
836	Animalia	Mammalia	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus	SL	None	0	1	31/12/2002
860	Animalia	Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	V	V	0	13	01/10/2015
838	Animalia	Mammalia	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SL	None	0	3	26/08/2003
939	Animalia	Mammalia	Vespertilionidae	<i>Nyctophilus corbeni</i>	eastern long-eared bat	V	V	0	1	23/09/1998
18390	Animalia	Reptilia	Agamidae	<i>Tympanocryptis condaminensis</i>	Condamine earless dragon	E	E	0	2	21/02/2009
511	Animalia	Reptilia	Elapidae	<i>Acanthophis antarcticus</i>	common death adder	V	None	0	5	22/04/2012
487	Animalia	Reptilia	Elapidae	<i>Furina dunmalli</i>	Dunmall's snake	V	V	0	1	11/03/2011
305	Animalia	Reptilia	Scincidae	<i>Anomalopus mackayi</i>	long-legged worm-skink	E	V	0	3	10/04/2009
6922	Plantae	Equisetopsida	Asteraceae	<i>Picris barbarorum</i>	None	V	None	4	4	24/04/2018
10604	Plantae	Equisetopsida	Asteraceae	<i>Picris evae</i>	None	V	V	4	5	12/01/2016
31135	Plantae	Equisetopsida	Asteraceae	<i>Rhaponticum australe</i>	None	V	V	5	7	13/10/2015
10986	Plantae	Equisetopsida	Brassicaceae	<i>Lepidium monoplacoides</i>	winged peppergrass	C	E	1	1	17/12/2005
9855	Plantae	Equisetopsida	Cyperaceae	<i>Cyperus clarus</i>	None	V	None	1	1	06/01/1976
10791	Plantae	Equisetopsida	Fabaceae	<i>Sophora fraseri</i>	brush sophora	V	V	1	2	08/08/2011
7445	Plantae	Equisetopsida	Lamiaceae	<i>Prostanthera</i> sp. (Dunmore D.M.Gordon 8A)	None	V	V	1	1	21/10/1953

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
11064	Plantae	Equisetopsida	Poaceae	<i>Dichanthium queenslandicum</i>	None	V	E	2	3	12/01/2016
14599	Plantae	Equisetopsida	Poaceae	<i>Digitaria porrecta</i>	None	NT	None	3	3	23/04/2018
10582	Plantae	Equisetopsida	Poaceae	<i>Homopholis belsonii</i>	None	E	V	6	6	21/04/2018
6480	Plantae	Equisetopsida	Zamiaceae	<i>Macrozamia machinii</i>	None	V	V	1	1	29/04/1993

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

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

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

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

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- [Species profile search](#) - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- [Species lists](#) - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- [Biomaps](#) - view biodiversity information, including species information approved for publication, and generate reports
- [Qld wildlife data API](#) - access species information approved for publication such as notes, images and records etc.
- [WetlandMaps](#) - view species records, survey locations etc. approved for publication
- [WetlandSummary](#) - view wildlife statistics, species lists for a range of area types, and access species profiles
- [Generalised distribution and densities of Queensland wildlife](#) - Queensland species distributions and densities generalised to a 10 km grid resolution
- [Conservation status of Queensland wildlife](#) - access current lists of priority species for Queensland including nomenclature and status information
- [Queensland Confidential Species](#) - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the [WildNet Team](#).

Other useful sites for accessing biodiversity data include:

- [Queensland Government Data](#)
- [Atlas of Living Australia](#)
- [OZCAM - Online Zoological Collections of Australian Museums](#)
- [AVH - Australia's Virtual Herbarium](#)
- [Protected Matters Search Tool](#)

Disclaimer

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Queensland Government

Department of Environment and Science

Environmental Reports

Biodiversity and Conservation Values

Biodiversity Planning Assessments and Aquatic Conservation Assessments

For the selected area of interest

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or Area of Interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "Central co-ordinates" option, the resulting assessment area encompasses an area extending from 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: biodiversity.planning@des.qld.gov.au

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Table of Contents

Summary Information	4
Biodiversity Planning Assessments	7
Introduction.....	7
Diagnostic Criteria	7
Other Essential Criteria	10
Aquatic Conservation Assessments	19
Introduction.....	19
Explanation of Criteria	19
Riverine Wetlands	20
Non-riverine Wetlands.....	22
Threatened and Priority Species	24
Introduction.....	24
Threatened Species	24
BPA Priority Species	25
ACA Priority Species	26
Maps	28
Map 1 - Locality Map	28
Map 2 - Biodiversity Planning Assessment (BPA)	29
Map 3 - Corridors	30
Map 4 - Wetlands and waterways	31
Map 5 - Aquatic Conservation Assessment (ACA) - riverine	32
Map 6 - Aquatic Conservation Assessment (ACA) - non-riverine.....	33
References	34
Appendices	35
Appendix 1 - Source Data	35
Appendix 2 - Acronyms and Abbreviations	36

Summary Information

Tables 1 to 8 provide an overview of the AOI with respect to selected topographic and environmental values.

Table 1: Area of interest details:

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine

The following table identifies available Biodiversity Planning Assessments (BPAs) and Aquatic Conservation Assessments (ACAs) with respect to the AOI.

Table 2: Available Biodiversity Planning and Aquatic Conservation Assessments

Assessment Type	Assessment Area and Version
Biodiversity Planning Assessment(s)	Brigalow Belt v2.1
Aquatic Conservation Assessment(s) (riverine)	Queensland Murray Darling Basin v1.4
Aquatic Conservation Assessment(s) (non-riverine)	Queensland Murray Darling Basin v1.4

Table 3: Remnant regional ecosystems within the AOI as per the Qld Herbarium's 'biodiversity status'

Biodiversity Status	Area (Ha)	% of AOI
Endangered	327.15	0.74
Of concern	1,567.24	3.54
No concern at present	5,536.01	12.52

The following table identifies the extent and proportion of the user specified area of interest (AOI) which is mapped as being of "State", "Regional" or "Local" significance via application of the Queensland Department of Environment and Science's *Biodiversity Assessment and Mapping Methodology* (BAMM).

Table 4: Summary table, biodiversity significance

Biodiversity significance	Area (Ha)	% of AOI
State Habitat for EVNT taxa	431.97	0.98
State	5,746.30	13.0
Regional	1,226.52	2.77
Local or Other Values	111.6	0.25

Table 5: Non-riverine wetlands intersecting the AOI

Non-riverine wetland types intersecting the area of interest	#
Number of Palustrine wetlands	0
Number of Lacustrine wetlands	0

Non-riverine wetland types intersecting the area of interest	#
Total number of non-riverine wetlands	0

NB. The figures presented in the table above are derived from the relevant non-riverine Aquatic Conservation Assessment(s). Later releases of wetland mapping produced via the Queensland Wetland Mapping Program may provide more recent information in regards to wetland extent.

Table 6: Named waterways intersecting the AOI

Name	Permanency
BRIGALOW CREEK	Non-perennial
CANNING CREEK	Non-perennial
CATTLE CREEK	Non-perennial
CONDAMINE RIVER	Non-perennial
CONDAMINE RIVER (NORTH BRANCH)	Non-perennial
DRY CREEK	Non-perennial
GOWRIE CREEK	Non-perennial
GRASSTREE CREEK	Non-perennial
KIPPENBUNG CREEK	Non-perennial
MACINTYRE BROOK	Non-perennial
MACINTYRE RIVER	Perennial
NICOL CREEK	Non-perennial
PARIAGARA CREEK	Non-perennial
WESTBROOK CREEK	Non-perennial

Refer to **Map 1** for general locality information.

The following two tables identify the extent and proportion of the user specified AOI which is mapped as being of "Very High", "High", "Medium", "Low", or "Very Low" aquatic conservation value for riverine and non-riverine wetlands via application of the Queensland Department of Environment and Science's *Aquatic Biodiversity Assessment and Mapping Method* (AquaBAMM).

Table 7: Summary table, aquatic conservation significance (riverine)

Aquatic conservation significance (riverine wetlands)	Area (Ha)	% of AOI
Very High	8,368.40	18.93
High	5,491.74	12.42
Medium	26,443.50	59.81
Low	142.46	0.32
Very Low	3,763.97	8.51

Table 8: Summary table, aquatic conservation significance (non-riverine)

Aquatic conservation significance (non-riverine wetlands)	Area (Ha)	% of AOI
Very High	2.31	0.01
High	14.06	0.03
Medium	92.85	0.21

Aquatic conservation significance (non-riverine wetlands)	Area (Ha)	% of AOI
Low	0.0	0.0
Very Low	1.75	0.0

Biodiversity Planning Assessments

Introduction

The Department of Environment and Science (DES) attributes biodiversity significance on a bioregional scale through a Biodiversity Planning Assessment (BPA). A BPA involves the integration of ecological criteria using the *Biodiversity assessment and Mapping Methodology* (BAMM) and is developed in two stages: 1) **diagnostic criteria**, and 2) **expert panel criteria**. The diagnostic criteria are based on existing data which is reliable and uniformly available across a bioregion, while the expert panel criteria allows for the refinement of the mapped information from the diagnostic output by incorporating local knowledge and expert opinion.

The BAMM methodology has application for identifying areas with various levels of significance solely for biodiversity reasons. These include threatened ecosystems or taxa, large tracts of habitat in good condition, ecosystem diversity, landscape context and connection, and buffers to wetlands or other types of habitat important for the maintenance of biodiversity or ecological processes. While natural resource values such as dryland salinity, soil erosion potential or land capability are not dealt with explicitly, they are included to some extent within the biodiversity status of regional ecosystems recognised by the DES.

Biodiversity Planning Assessments (BPAs) assign three levels of overall biodiversity significance.

- **State significance** - areas assessed as being significant for biodiversity at the bioregional or state scales. They also include areas assessed by other studies/processes as being significant at national or international scales. In addition, areas flagged as being of State significance due to the presence of endangered, vulnerable and/or near threatened taxa, are identified as "State Habitat for EVNT taxa".
- **Regional significance** - areas assessed as being significant for biodiversity at the subregional scale. These areas have lower significance for biodiversity than areas assessed as being of State significance.
- **Local significance and/or other values** - areas assessed as not being significant for biodiversity at state or regional scales. Local values are of significance at the local government scale.

For further information on released BPAs and a copy of the underlying methodology, go to:

<http://www.qld.gov.au/environment/plants-animals/biodiversity/planning/>

The GIS results can be downloaded from the Queensland Spatial Catalogue at:

<http://qspatial.information.qld.gov.au/geoportal/>

The following table identifies the extent and proportion of the user specified AOI which is mapped as being of "State", "Regional" or "Local" significance via application of the BAMM.

Table 9: Summary table, biodiversity significance

Biodiversity significance	Area (Ha)	% of AOI
State Habitat for EVNT taxa	431.97	0.98
State	5,746.30	13.0
Regional	1,226.52	2.77
Local or Other Values	111.6	0.25

Refer to **Map 2** for further information.

Diagnostic Criteria

Diagnostic criteria are based on existing data which is reliable and uniformly available across a bioregion. These criteria are diagnostic in that they are used to filter the available data and provide a "first-cut" or initial determination of biodiversity significance. This initial assessment is then combined through a second group of other essential criteria.

A description of the individual diagnostic criteria is provided in the following sections.

Criteria A. Habitat for EVNT taxa: Classifies areas according to their significance based on the presence of endangered, vulnerable and/or rare (EVNT) taxa. EVNT taxa are those scheduled under the *Nature Conservation Act 1992* and/or the

Environment Protection and Biodiversity Conservation Act 1999. It excludes highly mobile fauna taxa which are instead considered in Criterion H and brings together information on EVNT taxa using buffering of recorded sites or habitat suitability models (HSM) where available.

Criteria B. Ecosystem value: Classifies on the basis of biodiversity status of regional ecosystems, their extent in protected areas (presence of poorly conserved regional ecosystems), the presence of significant wetlands; and areas of national importance such as the presence of Threatened Ecological Communities, World Heritage areas and Ramsar sites. Ecosystem value is applied at a bioregional (**B1**) and regional (**B2**) scale.

Criteria C. Tract size: Measures the relative size of tracts of vegetation in the landscape. The size of any tract is a major indicator of ecological significance, and is also strongly correlated with the long-term viability of biodiversity values. Larger tracts are less susceptible to ecological edge effects and are more likely to sustain viable populations of native flora and fauna than smaller tracts.

Criteria D. Relative size of regional ecosystems: Classifies the relative size of each regional ecosystem unit within its bioregion (**D1**) and its subregion (**D2**). Remnant units are compared with all other occurrences with the same regional ecosystem. Large examples of a regional ecosystem are more significant than smaller examples of the same regional ecosystem because they are more representative of the biodiversity values particular to the regional ecosystem, are more resilient to the effects of disturbance, and constitute a significant proportion of the total area of the regional ecosystem.

Criteria F. Ecosystem diversity: Is an indicator of the number of regional ecosystems occurring within an area. An area with high ecosystem diversity will have many regional ecosystems and ecotones relative to other areas within the bioregion.

Criteria G. Context and connection: Represents the extent to which a remnant unit incorporates, borders or buffers areas such as significant wetlands, endangered ecosystems; and the degree to which it is connected to other vegetation.

A summary of the biodiversity status based upon the diagnostic criteria is provided in the following table.

Table 10: Summary of biodiversity significance based upon diagnostic criteria with respect to the AOI

Biodiversity significance	Description	Area (Ha)	% of AOI
State	Nat. Threatened Ecol. Community (B1)	1,257.16	2.84
State	Nat. Threatened Ecol. Community (B1) & Remnant contains a RE that is one of the largest of its type in the subregion (D2)	22.97	0.05
State	Nat. Threatened Ecol. Community (B1) & Remnant contains at least one Of Concern RE (B1)	431.33	0.98
State	Nat. Threatened Ecol. Community (B1) & Remnant is part of a Tract that is one of the largest in the bioregion (C) & Remnant has Ecosystem diversity in the top quartile (F)	55.79	0.13
State	Nat. Threatened Ecol. Community (B1) & Remnant is part of a Tract that is one of the largest in the bioregion (C) & Remnant has high connectivity or buffers an endangered RE or Sig. Wetland (G)	29.34	0.07
State	Remnant contains at least 1 Endangered or 2 Vulnerable or Near Threatened species (A)	374.06	0.85
State	Remnant contains at least 1 Endangered or 2 Vulnerable or Near Threatened species (A) & Nat. Threatened Ecol. Community (B1)	57.91	0.13
State	Remnant contains at least 1 Endangered RE (B1) & Nat. Threatened Ecol. Community (B1)	285.61	0.65
State	Remnant contains at least 1 Vulnerable or Near Threatened species (A) & Nat. Threatened Ecol. Community (B1)	113.83	0.26
State	Remnant contains at least one Of Concern RE (B1) & Remnant contains an RE that is one of the largest of its type in the bioregion (D1)	304.76	0.69
Regional	Remnant contains at least 1 RE with <10 pc extent remaining or rare in subregion (B2)	41.27	0.09
Regional	Remnant contains at least 1 Vulnerable or Near Threatened species (A)	190.67	0.43
Regional	Remnant contains at least one Of Concern RE (B1)	419.32	0.95
Regional	Remnant is part of a Tract that is one of the largest in the bioregion (C) & Remnant has Ecosystem diversity in the top quartile (F)	617.18	1.4
Regional	Remnant is part of a Tract that is one of the largest in the bioregion (C) & Remnant has high connectivity or buffers an endangered RE or Significant Wetland (G)	17.46	0.04
Local or Other Values	Refer to diagnostic data for additional information	3,251.39	7.35

Assessment of diagnostic criteria with respect to the AOI

The following table reflects an assessment of the individual diagnostic criteria noted above in regards to the AOI.

Table 11: Assessment of individual diagnostic criteria with respect to the AOI

Diagnostic Criteria	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
A: Habitat for EVNT Taxa	431.96	1.0	304.49	0.7	3,288.21	7.4	3,445.41	7.8
B1: Ecosystem Value (Bioregion)	2,253.95	5.1	853.17	1.9	4,362.95	9.9		

Diagnostic Criteria	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
B2: Ecosystem Value (Subregion)	401.51	0.9	1,607.69	3.6	5,460.87	12.4		
C: Tract Size	5,252.82	11.9	52.15	0.1	247.53	0.6	1,917.57	4.3
D1: Relative RE Size (Bioregion)	324.83	0.7			2,178.27	4.9	4,966.97	11.2
D2: Relative RE Size (Subregion)	672.8	1.5	2,441.65	5.5	1,513.80	3.4	2,841.82	6.4
F: Ecosystem Diversity	1,050.66	2.4	4,134.33	9.4	508.74	1.2	1,776.34	4.0
G: Context and Connection	246.33	0.6	2,683.38	6.1	3,259.57	7.4	1,280.79	2.9

Other Essential Criteria

Other essential criteria (also known as expert panel criteria) are based on non-uniform information sources and which may rely more upon expert opinion than on quantitative data. These criteria are used to provide a "second-cut" determination of biodiversity significance, which is then combined with the diagnostic criteria for an overall assessment of relative biodiversity significance. A summary of the biodiversity status based upon the other essential criteria is provided in the following table.

Table 12: Summary of biodiversity significance based upon other essential criteria with respect to the AOI

Biodiversity significance	Description	Area (Ha)	% of AOI
State	Remnant contains Core Habitat for Priority Taxa (H) & Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I)	2.87	0.01
State	Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I)	3,983.41	9.01
State	Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I) & Remnant forms part of a bioregional corridor (J)	1,390.93	3.15
State	Remnant forms part of a bioregional corridor (J)	271.67	0.61
Regional	Remnant contains Core Habitat for Priority Taxa (H)	13.02	0.03
Regional	Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I)	1,132.00	2.56
Regional	Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I) & Remnant forms part of a bioregional corridor (J)	336.11	0.76
Regional	Remnant forms part of a bioregional corridor (J)	94.12	0.21
Local	Refer to Expert Panel data for additional information	11.1	0.03
Local	Remnant contains Special Biodiversity Values (view Expert Panel data for further information) (I)	19.79	0.04

A description of each of the other essential criteria and associated assessment in regards to the AOI is provided in the following sections.

Criteria H. Essential and general habitat for priority taxa: Priority taxa are those which are at risk or of management concern, taxa of scientific interest as relictual (ancient or primitive), endemic taxa or locally significant populations (such as a flying fox camp or heronry), highly specialised taxa whose habitat requirements are complex and distributions are not well correlated with any particular regional ecosystem, taxa important for maintaining genetic diversity (such as complex spatial patterns of genetic variation, geographic range limits, highly disjunct populations), taxa critical for management or monitoring of biodiversity (functionally important or ecological indicators), or economic and culturally important taxa.

Criteria I. Special biodiversity values: areas with special biodiversity values are important because they contain multiple taxa in a unique ecological and often highly biodiverse environment. Areas with special biodiversity values can include the following:

- Ia - centres of endemism - areas where concentrations of taxa are endemic to a bioregion or subregion are found.
- Ib - wildlife refugia (Morton *et al.* 1995), for example, islands, mound springs, caves, wetlands, gorges, mountain ranges and topographic isolates, ecological refuges, refuges from exotic animals, and refuges from clearing. The latter may include large areas that are not suitable for clearing because of land suitability/capability.
- Ic - areas with concentrations of disjunct populations.
- Id - areas with concentrations of taxa at the limits of their geographic ranges.
- Ie - areas with high species richness.
- If - areas with concentrations of relictual populations (ancient and primitive taxa).
- Ig - areas containing REs with distinct variation in species composition associated with geomorphology and other environmental variables.
- Ih - an artificial waterbody or managed/manipulated wetland considered by the panel/s to be of ecological significance.
- Ii - areas with a high density of hollow-bearing trees that provide habitat for animals.
- Ij - breeding or roosting sites used by a significant number of individuals.
- Ik - climate change refuge.

The following table identifies the value and extent area of the Other Essential Criteria H and I within the AOI.

Table 13: Relative importance of expert panel criteria (H and I) used to access overall biodiversity significance with respect to the AOI

Expert Panel	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
H: Core Habitat Priority Taxa	2.87		13.02		825.74	1.9		
Ia: Centres of Endemism	334.34	0.8	124.33	0.3				
Ib: Wildlife Refugia	3,043.74	6.9	1,600.02	3.6	19.79			
Ic: Disjunct Populations	9.51		118.36	0.3				
Id: Limits of Geographic Ranges	324.83	0.7	133.84	0.3				
Ie: High Species Richness	5,108.14	11.6	9.51					
If: Relictual Populations								
Ig: Variation in Species Composition	324.83	0.7	5.97					
Ih: Artificial Wetland								

Expert Panel	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
li: Hollow Bearing Trees								
lj: Breeding or Roosting Site	8.92							
lk: Climate Refugia	324.83	0.7						

NB. Whilst biodiversity values associated with Criteria I may be present within the site (refer to tables 12 and 15), for the New England Tableland and Central Queensland Coast BPAs, area and % area figures associated with Criteria Ia through to lj cannot be listed in the table above (due to slight variations in data formats between BPAs).

Criteria J. Corridors: areas identified under this criterion qualify either because they are existing vegetated corridors important for contiguity, or cleared areas that could serve this purpose if revegetated. Some examples of corridors include riparian habitats, transport corridors and "stepping stones".

Bioregional and subregional conservation corridors have been identified in the more developed bioregions of Queensland through the BPAs, using an intensive process involving expert panels. Map 3 displays the location of corridors as identified under the Statewide Corridor network. The Statewide Corridor network incorporates BPA derived corridors and for bioregions where no BPA has been assessed yet, corridors derived under other planning processes. *Note: as a result of updating and developing a statewide network, the alignment of corridors may differ slightly in some instances when compared to those used in individual BPAs.*

The functions of these corridors are:

- **Terrestrial** Bioregional corridors, in conjunction with large tracts of remnant vegetation, maintain ecological and evolutionary processes at a landscape scale, by:

- Maintaining long term evolutionary/genetic processes that allow the natural change in distributions of species and connectivity between populations of species over long periods of time;
- Maintaining landscape/ecosystems processes associated with geological, altitudinal and climatic gradients, to allow for ecological responses to climate change;
- Maintaining large scale seasonal/migratory species processes and movement of fauna;
- Maximising connectivity between large tracts/patches of remnant vegetation;
- Identifying key areas for rehabilitation and offsets; and

- **Riparian** Bioregional Corridors also maintain and encourage connectivity of riparian and associated ecosystems.

The location of the corridors is determined by the following principles:

- Terrestrial

- Complement riparian landscape corridors (i.e. minimise overlap and maximise connectivity);
- Follow major watershed/catchment and/or coastal boundaries;
- Incorporate major altitudinal/geological/climatic gradients;
- Include and maximise connectivity between large tracts/patches of remnant vegetation;
- Include and maximise connectivity between remnant vegetation in good condition; and

- Riparian

- Located on the major river or creek systems within the bioregion in question.

The total extent of remnant vegetation triggered as being of "State", "Regional" or "Local" significance due to the presence of an overlying BPA derived terrestrial or riparian corridor within the AOI, is provided in the following table. For further information on how remnant vegetation is triggered due to the presence of an overlying BPA derived corridor, refer to the relevant landscape BPA expert panel report(s).

Table 14: Extent of triggered remnant vegetation due to the presence of BPA derived corridors with respect to the AOI

Biodiversity Significance	Area (Ha)	% of AOI
State	1,638.17	3.71
Regional	454.66	1.03
Local	0.0	0.0

NB: area figures associated with the extent of corridor triggered remnant vegetation are only available for those bioregions where a BPA has been undertaken.

Refer to **Map 3** for further information.

Threatening process/condition (Criteria K) - areas identified by experts under this criterion may be used to amend (upgrade or downgrade) biodiversity significance arising from the "first-cut" analysis. The condition of remnant vegetation is affected by threatening processes such as weeds, ferals, grazing and burning regime, selective timber harvesting/removal, salinity, soil erosion, and climate change.

Assessment of Criteria K with respect to the AOI is not currently included in the "Biodiversity and Conservation Values" report, as it has not been applied to the majority of Queensland due to data/information limitations and availability.

Special Area Decisions

Expert panel derived "Special Area Decisions" are used to assign values to Other Essential Criteria. The specific decisions which relate to the AOI in question are listed in the table below.

Table 15: Expert panel decisions for assigning levels of biodiversity significance with respect to the AOI

Decision Number	Description	Panel Recommended Significance	Criteria Values
brbs_fa_69	Yelarbon and Bringalily State Forest Tracts.	State	1e (species richness): VH
brbs_fl_13	Poplar box Eucalyptus populnea open woodland on alluvium, Eastern Darling Downs	State	1a (endemic richness): H; 1b (refugia): VH; 1d (range limits): H; 1g (ecosystem variation): H
brbs_fl_16	Wondul Range and Inglewood Sandstone subregion remnants	Regional	1a (endemic richness): H; 1b (refugia): VH; 1c (disjunct populations): H; 1d (range limits): H
brbs_fl_36	Mountain coolibah remnants, Eastern Darling Downs	Regional	1b (refugia): H
brbs_fl_38	Yelarbon Desert	State	1a (endemic richness): VH; 1d (range limits): VH; 1e (species richness): H; 1g (ecosystem variation): VH
brbs_l_08	Relictual subregions - largest remaining examples of each regional ecosystem in a subregion.	State	1b (refugia): VH
brbs_l_09	Relictual subregions - stock-routes and associated reserves	State	1b (refugia): VH
brbs_l_15	Relictual subregions (less than 30% remnant vegetation) - remnant vegetation	Regional	1b (refugia): H
brbs_l_16	Core areas	State	1b (refugia): VH
brbs_l_17a	None	None	None
brbs_l_17b	None	None	None
brbs_l_18a	None	None	None
brbs_l_18b	None	None	None

Decision Number	Description	Panel Recommended Significance	Criteria Values
brbs_I_41	Remnant grasslands, Eastern Darling Downs	State	Ia (endemic richness): VH; Ib (refugia): VH; Ic (disjunct populations): VH; Id (range limits): H; Ie (species richness): H
brbs_I_43	Permanent groundwater dependant ecosystems	State	Ib (refugia): VH; Ie (species richness): VH; Ik (climate refugia): VH
brbs_I_47	Regionally significant natural palustrine & lacustrine wetlands	Regional	Ib (refugia): H
brbs_I_48	Locally significant natural palustrine & lacustrine wetlands	Local	Ib (refugia): M
brbs_I_49	Gilgai Remnants	State	Ib (refugia): VH; Ij (aggregation site): VH

Expert panel decision descriptions:

brbs_fa_69

Open eucalypt woodlands on either shallow soils (in areas of higher elevation) or sandy plains dominate. Diversity of terrestrial vertebrate taxa is very high with approximately 350 recorded. Among the threatened taxa known are Dunmall's snake *Furina dunmalli*, Major Mitchell's cockatoo *Lophochroa leadbeateri*, regent honeyeater *Anthochaera phrygia*, painted honeyeater *Grantiella picta*, spotted-tailed quoll *Dasyurus m. maculatus* and greater glider *Petauroides volans*. Priority taxa include both endemics such as brigalow scaly-foot *Paradelma orientalis*, and declining taxa, e.g. brown treecreeper *Climacteris picumnus*, speckled warbler *Chthonicola sagittata* and hooded robin *Melanodryas cucullata*.

brbs_fl_13

Within the Eastern Darling Downs subregion, the regional ecosystem "Eucalyptus populnea woodland on alluvial plains" (11.3.2) exhibits a distinct variation in terms of structure and presents a more open woodland community when compared to other examples of this ecosystem. Due to clearing, less than 10% of the pre-clear extent of this regional ecosystem remains within the subregion.

This ecosystem provides habitat for threatened or rare plant taxa including *Homopholis belsonii*, *Picris evae*, and *Digitaria porrecta*, as well as other priority taxa. Endemics present within the area include *Acacia loroloba*, *Kardomia jucunda*, *Melaleuca quercina* and *Rutidosia lanata*, whilst species such as *Acacia aneura* var. *major*, *Acacia aprepta*, *Homoranthus melanostictus* and *Jacksonia rhadinoclona* occur at or close to their known limit of range. In addition to the flora values, some areas of *Eucalyptus populnea* may also provide important faunal habitat through fostering high densities of hollows in a heavily modified landscape.

brbs_fl_16

Part of a large tract of remnant vegetation (11.7.5 and adjacent polygons of 11.9.5) containing perched heaths on sandstone with high species richness of *Ericaceae* (11) and concentrations of endemic or isolated taxa such as *Aristida forsteri* (endangered and endemic to Wondul Range), *Macrozamia machinii*, as well as disjunct populations of species or species considered close to or at their distributional range limits (*Caustis pentandra*, *Conospermum taxifolium*, *Styphelia viridis* subsp. *breviflora*, *Gonocarpus elatus* and *Micromyrtus striata* which is at the northern limit of its range). *Commersonia ingelewoodensis* an endangered and locally endemic species also occurs directly to the east.

brbs_fl_36

The Eastern Darling Downs subregion contains the southern limits of mountain coolibah *Eucalyptus orgadophila* woodlands on basalt hills (11.8.5). The community is considered to provide important habitat for several threatened plant species including: *Digitaria porrecta*, *Discaria pubescens*, *Picris evae* and *Thesium australe*.

brbs_fl_38

The Yelarbon Desert represents a unique landsystem, the soils of which have been strongly influenced by the upwelling of salt rich ground water (Biggs et al. 2010). Drainage patterns and soil pH have strongly influenced vegetation communities and as a result, a large number of salt tolerant species are present such as *Dysphania carinata*, *Einadia nutans*, *Enchylaena tomentosa*, succulents (*Portulaca bicolor*, *Rhagodia spinescens*, *Salsola australis*, *Sarcozona praecox* and *Tribulus terrestris*), chenopods, sedges and rushes.

Although under-sampled, the dominant vegetation community of spinifex grassland with scattered trees and shrubs supports a unique and relatively diverse range of flora (more than 150 species have been recorded). The particular ecosystem of the special area (11.5.14) is considered the largest and most representative example of this ecosystem type within the Brigalow Belt bioregion.

Examples of Brigalow Belt endemics present include *Myriophyllum gracile* var. *laeve* and *Westringia parvifolia* and *Triodia vella*. A substantial number of species are also considered to be at or close to their range limit (eastern limit: *Angianthus brachypappus*, *Centipeda thespidioides*, *Disphyma crassifolium* subsp. *clavellatum*, *Eremophila glabra*, *Maireana brevifolia*, *Maireana pentagona*, *Peplidium foecundum*, *Podolepis muelleri*, *Sclerolaena bicornis*, *Sclerolaena diacantha*, *Sclerolaena stelligera*, *Senecio glossanthus*, *Sida cunninghamii*, *Trianthema* sp. (Coorabulka R.W.Purdie 1404), and *Triodia scariosa*; southern limit: *Bothriochloa decipiens* var. *cloncurrensis*, and; northern limit: *Brachyscome watanabei*, *Lepidium hypenanthion* and *Lepidium monoplocoides*).

In addition to the floristic values noted above, after heavy rains lower parts and drainage lines of the area become inundated and attract numerous species and numbers of waterbirds.

brbs_l_08

A summary of research on landscape thresholds for remnant vegetation is provided by James Saunders (2001). The evidence suggests that once remnant vegetation falls below 30%, there are significant declines in biodiversity.

Relictual subregions (less than 30% remnant vegetation remaining) for the Brigalow Belt include the Upper Belyando Flood out (11.8), Isaac - Comet Downs (11.11), Callide Creek Downs (11.19), Dawson River Downs (11.21), Taroom Downs (11.25), Dulacca Downs (11.28), Weribone High (11.29), Tara Downs (11.30), Eastern Darling Downs (11.31), Moonie R. - Commoroon Creek Floodout (11.33), Moonie - Barwon Interfluvium (11.34), Warrambool - Moonie (11.35), Macintyre - Weir Fan (11.36), Narrandool (11.38).

The largest remaining examples of each regional ecosystem in a subregion represent important refuges from clearing in these fragmented landscapes.

Refer to brbn_l_87 for the northern BRB implementation of this decision.

brbs_l_09

A summary of research on landscape thresholds for remnant vegetation is provided by James Saunders (2001). The evidence suggests that once remnant vegetation falls below 30%, there are significant declines in biodiversity.

The following subregions have less than 30% remnant vegetation in the southern Brigalow Belt: Relictual subregions (less than 30% remnant vegetation remaining) for the Brigalow Belt include; Upper Belyando Flood out (11.8), Isaac - Comet Downs (11.11), Callide Creek Downs (11.19), Dawson River Downs (11.21), Taroom Downs (11.25), Dulacca Downs (11.28), Weribone High (11.29), Tara Downs (11.30), Eastern Darling Downs (11.31), Moonie R. - Commoroon Creek Floodout (11.33), Moonie - Barwon Interfluvium (11.34), Warrambool - Moonie (11.35), Macintyre - Weir Fan (11.36), Narrandool (11.38).

Stock-routes and associated camping and water reserves provide critical connectivity in a fragmented landscape. They also offer opportunities to restore habitat and connectivity in highly cleared landscapes.

Refer to brbn_l_88 for the northern BRB implementation of this decision.

brbs_I_15

A summary of research on landscape thresholds for remnant vegetation is provided by James Saunders (2001). The evidence suggests that once remnant vegetation falls below 30%, there are significant declines in biodiversity.

The following subregions have less than 30% remnant vegetation in the southern Brigalow Belt: Relictual subregions (less than 30% remnant vegetation remaining) for the Brigalow Belt include; Upper Belyando Flood out (11.8), Isaac - Comet Downs (11.11), Callide Creek Downs (11.19), Dawson River Downs (11.21), Taroom Downs (11.25), Dulacca Downs (11.28), Weribone High (11.29), Tara Downs (11.30), Eastern Darling Downs (11.31), Moonie R. - Commoroon Creek Floodout (11.33), Moonie - Barwon Interfluvium (11.34), Warramboole - Moonie (11.35), Macintyre - Weir Fan (11.36), Narrandool (11.38).

Remnant vegetation provides a refuge from clearing in fragmented subregions and should be retained to maintain biodiversity.

Refer to brbn_I_89 for the northern BRB implementation of this decision.

brbs_I_16

Tracts are defined as patches of continuous remnant vegetation. The size of any tract is a major indicator of ecological significance and is strongly correlated with the long-term viability of biodiversity values. Larger tracts are less susceptible to ecological edge effects and are more likely to sustain viable populations of native flora and fauna than smaller tracts. These areas can be considered core nodes/refugia in which a large proportion of the bioregions biodiversity is represented.

A modified tract size analysis (Criterion C) (EHP 2014) was used to identify and delineate discrete tracts of remnant vegetation at a bioregion scale. For the purpose of the assessment, a core area was identified as a relatively contiguous area of remnant vegetation (disregarding small perforations, or linear breaks) and which was generally greater than 5km in width (based upon the minimum width of the terrestrial corridor network). Tracts of greater than 10,000ha were included.

Refer to brbn_I_83 for the northern BRB implementation of this decision.

brbs_I_17a

None

brbs_I_17b

None

brbs_I_18a

None

brbs_I_18b

None

brbs_I_41

Remnants of once more extensive grasslands (less than 2% remains) dominated by *Dichanthium* spp. or *Astrelba* spp. within the Eastern Darling Downs subregion provide a refuge for a variety of threatened flora, e.g. *Digitaria porrecta*, *Rhaponticum australe*, *Thesium australe* and *Solanum papaverifolium*, many of which occur as disjunct populations or at the limit of their geographic range.

These areas are also recognised as being of important for reptile fauna including *Carlia tetradactyla*, shingle-back *Tiliqua rugosa*, spotted black snake *Pseudechis guttatus*, *Delma inornata*, common delma *D. plebeia* and threatened Condamine earless dragon *Tympanocryptis condaminensis*, the latter known to occur only from grasslands around Bongeen. Another notable fauna endemic is the only grassland snail found in Queensland, *Jimbouria rodhobsoni*. Disjunct populations of the endangered long-legged worm-skink *Anomalopus mackayi* are also found in similar habitat within the area.

Nb. In future panel reviews, the significance of all Brigalow Belt remnant natural grasslands should be reviewed.

brbs_I_43

This decision relates to all ecosystems that have a permanent / near permanent groundwater connection. The major threats to these ecosystems are coal seam gas extraction and water extraction industries. Groundwater dependant ecosystems provide an array of ecological benefits including provision of:

Habitat for flora and fauna, including rare and unique organisms;

Providing corridors for fauna;

Mitigating the effects of floods;

Reducing soil erosion;

Reducing sediment and nutrient loss;

Degrading pollutants and contaminants.

Given the expected increase in frequency of droughts and higher temperatures due to climate change, such areas may act as important drought refugia.

(Some of the information sourced from WetlandInfo, <https://wetlandinfo.des.qld.gov.au/wetlands/>).

brbs_I_47

The panel considered that relatively natural palustrine and lacustrine wetlands and waterbodies within the Brigalow Belt bioregion act as important refugia, especially during periods of drought.

Whilst State significant wetlands are captured under Criterion B1, the panel agreed that all such natural wetland complexes with a combined area of greater than or equal to 5ha in size should be classed as being of at least Regional significance.

Refer to brbn_I_92 for the northern BRB implementation of this decision.

brbs_I_48

The panel considered that relatively natural palustrine and lacustrine wetlands and waterbodies within the Brigalow Belt bioregion act as important refugia, especially during periods of drought.

Whilst State significant wetlands are captured under Criterion B1, and regionally significant wetlands under the decision brbn_I_47, the panel agreed that all remaining relatively natural wetland complexes of less than 5ha in size be classed as being of at least local significance.

Refer to brbn_I_93 for the northern BRB implementation of this decision.

brbs_I_49

The gilgai wetland systems in the Brigalow Belt tend to be dominated by acacia and casuarina (mostly brigalow *Acacia harpophylla* and *Casuarina cristata*). *Melaleuca*, *Corymbia* and *Eucalyptus* species are also common along with *Astrebla* or *Dichanthium* spp. grassland. Gilgai systems are widespread and some are in good condition while others are largely cleared. The range of threatened wildlife present may use inundated gilgai as a water source at some stage of their life or are closely associated with the cracking clay soil habitat and wetlands.

Gilgai reptiles include the death adder *Acanthophs antarcticus*, De Vis' banded snake *Denisonia devisi* and ornamental snake *D. maculata*. Amphibians that use gilgai include salmon striped frog *Limnodynastes salmini*, scarlet-sided pobblebonk *L. terraereginae* and striped burrowing frog *Cyclorana alboguttata*. Other fauna which may use gilgai habitat at various times include bridled nailtail wallaby *Onychogalea fraenata*, black-striped wallaby *Macropus dorsalis* and the glossy black cockatoo *Calyptorhynchus lathami*.

Refer to brbn_I_75 for the northern BRB implementation of this decision.

Aquatic Conservation Assessments

Introduction

The Aquatic Biodiversity Assessment and Mapping Method or AquaBAMM (Clayton *et al.* 2006), was developed to assess conservation values of wetlands in Queensland, and may also have application in broader geographical contexts. It is a comprehensive method that uses available data, including data resulting from expert opinion, to identify relative wetland conservation/ecological values within a specified study area (usually a catchment). The product of applying this method is an Aquatic Conservation Assessment (ACA) for the study area.

An ACA using AquaBAMM is non-social, non-economic and identifies the conservation/ecological values of wetlands at a user-defined scale. It provides a robust and objective conservation assessment using criteria, indicators and measures that are founded upon a large body of national and international literature. The criteria, each of which may have variable numbers of indicators and measures, are naturalness (aquatic), naturalness (catchment), diversity and richness, threatened species and ecosystems, priority species and ecosystems, special features, connectivity and representativeness. An ACA using AquaBAMM is a powerful decision support tool that is easily updated and simply interrogated through a geographic information system (GIS).

Where they have been conducted, ACAs can provide a source of baseline wetland conservation/ecological information to support natural resource management and planning processes. They are useful as an independent product or as an important foundation upon which a variety of additional environmental and socio-economic elements can be added and considered (i.e. an early input to broader 'triple-bottom-line' decision-making processes). An ACA can have application in:

- determining priorities for protection, regulation or rehabilitation of wetlands and other aquatic ecosystems
- on-ground investment in wetlands and other aquatic ecosystems
- contributing to impact assessment of large-scale development (e.g. dams)
- water resource and strategic regional planning processes

For a detailed explanation of the methodology please refer to the summary and expert panel reports relevant to the ACA utilised in this assessment. These reports can be accessed at Wetland Info:

<http://wetlandinfo.des.qld.gov.au/wetlands/assessment/assessment-methods/aca>

The GIS results can be downloaded from the Queensland Spatial Catalogue at:

<http://qspatial.information.qld.gov.au/geoportal/>

Explanation of Criteria

Under the AquaBAMM, eight criteria are assessed to derive an overall conservation value. Similar to the Biodiversity Assessment and Mapping Methodology, the criteria may be primarily diagnostic (quantitative) or primarily expert opinion (qualitative) in nature. The following sections provide a brief description of each of the 8 criteria.

Criteria 1. Naturalness - Aquatic: This attribute reflects the extent to which a wetland's (riverine, non-riverine, estuarine) aquatic state of naturalness is affected through relevant influencing indicators which include: presence of exotic flora and fauna; presence of aquatic communities; degree of habitat modification and degree of hydrological modification.

Criteria 2. Naturalness - Catchment: The naturalness of the terrestrial systems of a catchment can have an influence on many wetland characteristics including: natural ecological processes e.g. nutrient cycling, riparian vegetation, water chemistry, and flow. The indicators utilised to assess this criterion include: presence of exotic flora and/or fauna; riparian, catchment and flow modification.

Criteria 3. Naturalness - Diversity and Richness: This criterion is common to many ecological assessment methods and can include both physical and biological features. It includes such indicators as species richness, riparian ecosystem richness and geomorphological diversity.

Criteria 4. Threatened Species and Ecosystems: This criterion evaluates ecological rarity characteristics of a wetland. This includes both species rarity and rarity of communities / assemblages. The communities and assemblages are best represented by regional ecosystems. Species rarity is determined by NCA and EPBC status with Endangered, Vulnerable or Near-threatened species being included in the evaluation. Ecosystem rarity is determined by regional ecosystem biodiversity status i.e. Endangered, Of Concern, or Not of Concern.

Criteria 5. Priority Species and Ecosystems: Priority flora and fauna species lists are expert panel derived. These are aquatic, semi-aquatic and riparian species which exhibit at least 1 particular trait in order to be eligible for consideration. For

flora species the traits included:

- It forms significant macrophyte beds (in shallow or deep water).
- It is an important food source.
- It is important/critical habitat.
- It is implicated in spawning or reproduction for other fauna and/or flora species.
- It is at its distributional limit or is a disjunct population.
- It provides stream bank or bed stabilisation or has soil binding properties.
- It is a small population and subject to threatening processes.

Fauna species are included if they meet at least one of the following traits:

- It is endemic to the study area (>75 per cent of its distribution is in the study area/catchment).
- It has experienced, or is suspected of experiencing, a serious population decline.
- It has experienced a significant reduction in its distribution and has a naturally restricted distribution in the study area/catchment.
- It is currently a small population and threatened by loss of habitat.
- It is a significant disjunct population.
- It is a migratory species (other than birds).
- A significant proportion of the breeding population (>one per cent for waterbirds, >75 per cent other species) occurs in the waterbody (see Ramsar criterion 6 for waterbirds).
- Limit of species range.

See the individual expert panel reports for the priority species traits specific to an ACA.

Criteria 6. Special Features: Special features are areas identified by flora, fauna and ecology expert panels which exhibit characteristics beyond those identified in other criteria and which the expert panels consider to be of the highest ecological importance. Special feature traits can relate to, but are not solely restricted to geomorphic features, unique ecological processes, presence of unique or distinct habitat, presence of unique or special hydrological regimes e.g. spring-fed streams. Special features are rated on a 1 - 4 scale (4 being the highest).

Criteria 7. Connectivity: This criterion is based on the concept that appropriately connected aquatic ecosystems are healthy and resilient, with maximum potential biodiversity and delivery of ecosystem services.

Criteria 8. Representativeness: This criterion applies primarily to non-riverine assessments, evaluates the rarity and uniqueness of a wetland type in relation to specific geographic areas. Rarity is determined by the degree of wetland protection within "protected Areas" estate or within an area subject to the *Fisheries Act 1994*, *Coastal Protection and Management Act 1995*, or *Marine Parks Act 2004*. Wetland uniqueness evaluates the relative abundance and size of a wetland or wetland management group within geographic areas such as catchment and subcatchment.

Riverine Wetlands

Riverine wetlands are all wetlands and deepwater habitats within a channel. The channels are naturally or artificially created, periodically or continuously contain moving water, or connecting two bodies of standing water. AquaBAMM, when applied to riverine wetlands uses a discrete spatial unit termed subsections. A subsection can be considered as an area which encompasses discrete homogeneous stream sections in terms of their natural attributes (i.e. physical, chemical, biological and utilitarian values) and natural resources. Thus in an ACA, an aquatic conservation significance score is calculated for each subsection and applies to all streams within a subsection, rather than individual streams as such.

Please note, the area figures provided in Tables 16 and 17, are derived using the extent of riverine subsections within the AOI. Refer to **Map 5** for further information. A summary of the conservation significance of riverine wetlands within the AOI is provided in the following table.

Table 16: Overall level/s of riverine aquatic conservation significance

Aquatic conservation significance (riverine wetlands)	Area (Ha)	% of AOI
Very High	8,368.40	18.93

Aquatic conservation significance (riverine wetlands)	Area (Ha)	% of AOI
High	5,491.74	12.42
Medium	26,443.50	59.81
Low	142.46	0.32
Very Low	3,763.97	8.51

The individual aquatic conservation criteria ratings for riverine wetlands within the AOI are listed below.

Table 17: Level/s of riverine aquatic conservation significance based on selected criteria

Criteria	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
1. Naturalness aquatic	916.71	2.1	22,198.51	50.2	19,920.70	45.1	1,174.14	2.7
2. Naturalness catchment	6,372.49	14.4	17,700.91	40.0	20,136.66	45.5		
3. Diversity and richness			3,469.85	7.8	23,606.50	53.4	17,133.71	38.8
4. Threatened species and ecosystems	13,727.17	31.0	1,871.00	4.2	14,087.85	31.9	14,524.04	32.9
5. Priority species and ecosystems	19,390.49	43.9	18,903.38	42.8				
6. Special features	8,368.41	18.9	1,941.70	4.4			1,068.06	2.4
7. Connectivity	6,634.51	15.0	10,299.01	23.3	21,964.84	49.7	5,311.70	12.0
8. Representative-ness								

The table below lists and describes the relevant expert panel decisions used to assign conservation significance values to riverine wetlands within the AOI.

Table 18: Expert panel decisions for assigning overall levels of riverine aquatic conservation significance

Decision number	Special feature	Catchment	Criteria/Indicator/Measure	Conservation rating (1-4)
bd_r_ec_03	Riverine drought refugia	Border Rivers	6.3.1	4
bd_r_ec_10	Groundwater interactions with riverine systems in the Border Rivers	Border Rivers	7.2.1	4
cb_r_ec_06	Riverine drought refugia	Condamine-Balonne	6.3.1	4
cb_r_ec_17	GAR Rarity	Condamine-Balonne	6.1.1	4,3,1

4 is the highest rating/value

Expert panel decision descriptions:

bd_r_ec_03

Drought refugia are an important feature in a semi-arid landscape. The riverine permanent waterholes will be identified using the Wetland Mapping layer (WR3) and the SRA network. The presence of a weir and its impoundment will downgrade a

riverine wetland value (=3).

bd_r_ec_10

Several sections of rivers in the Border Rivers catchment were identified by the panel as having significant connectivity with groundwater. Modelling suggests that this connectivity is both inflow into surface waters and also discharge from surface waters into groundwater aquifers. These areas are:

1. upstream of Goondiwindi to Mingoola area
2. from Coolmunda Dam downstream on the Macintyre-Brook to the Dumaresq (from Keetar Bridge), and
3. upstream from Yelarbon to Mingoola area.

cb_r_ec_06

Drought refugia are an important feature in a semi-arid landscape. The riverine permanent waterholes will be identified using the wetland mapping layer (WR3) and the Sustainable Rivers Audit (SRA) network. The presence of weir and its impoundment will downgrade a riverine wetland value (=3).

cb_r_ec_17

Areas based on Geomorphic Assessment of Rivers (GAR) from original Condamine assessment

Non-riverine Wetlands

Non-riverine wetlands include both lacustrine and palustrine wetlands, however, do not currently incorporate estuarine, marine or subterranean wetland types. A summary of the conservation significance of non-riverine wetlands within the AOI is provided in the following table. Refer to **Map 6** for further information.

Table 19: Overall level/s of non-riverine aquatic conservation significance

Aquatic conservation significance (non-riverine wetlands)	Area (Ha)	% of AOI
Very High	2.31	0.01
High	14.06	0.03
Medium	92.85	0.21
Low	0.0	0.0
Very Low	1.75	0.0

The following table provides an assessment of non-riverine wetlands within the AOI and associated aquatic conservation criteria values.

Table 20: Level/s of non-riverine aquatic conservation significance based on selected criteria

Criteria	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
1. Naturalness aquatic	9.61		21.41		79.94	0.2		

Criteria	Very High Rating - Area (Ha)	Very High Rating - % of AOI	High Rating - Area (Ha)	High Rating - % of AOI	Medium Rating - Area (Ha)	Medium Rating - % of AOI	Low Rating - Area (Ha)	Low Rating - % of AOI
2. Naturalness catchment	79.62	0.2	30.34	0.1	1.0			
3. Diversity and richness	5.75		7.58		87.39	0.2	10.24	
4. Threatened species and ecosystems					88.08	0.2	22.88	0.1
5. Priority species and ecosystems	34.46	0.1	74.75	0.2				
6. Special features	2.31		14.05					
7. Connectivity								
8. Representative- ness	84.61	0.2	7.59		11.2		4.62	

The table below lists and describes the relevant expert panel decisions used to assign conservation significance values to non-riverine wetlands within the AOI.

Table 21: Expert panel decisions for assigning overall levels of non-riverine aquatic conservation significance.

Decision number	Special feature	Catchment	Criteria/Indicator/Measure	Conservation rating (1-4)
(No Records)				

4 is the highest rating/value

Expert panel decision descriptions:

(No Records)

Threatened and Priority Species

Introduction

This chapter contains a list of threatened and priority flora and/or fauna species that have been recorded on, or within 4km of the Assessment Area.

The information presented in this chapter with respect to species presence is derived from compiled databases developed primarily for the purpose of BPAs and ACAs. Data is collated from a number of sources and is updated periodically.

It is important to note that the list of species provided in this report, may differ when compared to other reports generated from other sources such as the State government's WildNet, HerbreCs or the federal government's EPBC database for a number of reasons.

Records for threatened and priority species are filtered and checked based on a number of rules including:

- Taxonomic nomenclature - current scientific names and status,
- Location - cross-check co-ordinates with location description,
- Taxon by location - requires good knowledge of the taxon and history of the record,
- Duplicate records - identify and remove,
- Expert panels - check records and provide new records,
- Flora cultivated records excluded,
- Use precise records less than or equal to 2000m,
- Use recent records greater than or equal to 1975 animals, greater than or equal to 1950 plants.

Threatened Species

Threatened species are those species classified as "Endangered" or "Vulnerable" under the *Environment Protection and Biodiversity Conservation Act 1999* or "Endangered", "Vulnerable" or "Near threatened" under the *Nature Conservation Act 1992*.

The following threatened species have been recorded on, or within approximately 4km of the AOI.

Table 22: Threatened species recorded on, or within 4km of the AOI

Species	Common name	NCA status	EPBC status	Back on Track rank	Migratory species*	Wetland species**	Identified flora/fauna
<i>Acanthopis antarcticus</i>	common death adder	V		Medium			FA
<i>Anomalopus mackayi</i>	long-legged worm-skink	E	V	High			FA
<i>Bidyanus bidyanus</i>	silver perch		CE	Medium		Y	FA
<i>Cyperus clarus</i>		V		Medium			FL
<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)	V	E	High			FA
<i>Dichanthium queenslandicum</i>		V	E	Low			FL
<i>Digitaria porrecta</i>		NT		Low			FL
<i>Furina dunmali</i>	Dunmall's snake	V	V	Medium			FA
<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	Medium			FA
<i>Grantiella picta</i>	painted honeyeater	V	V	High	Y		FA
<i>Homopholis belsonii</i>		E	V	Low			FL
<i>Jalmenus eubulus</i>	pale imperial hairstreak	V		Medium			FA
<i>Lepidium monoplacoides</i>	winged peppergrass	C	E	Low			FL
<i>Maccullochella peelii</i>	Murray cod		V	Critical		Y	FA

Species	Common name	NCA status	EPBC status	Back on Track rank	Migratory species*	Wetland species**	Identified flora/fauna
<i>Nyctophilus corbeni</i>	eastern long-eared bat	V	V	Medium			FA
<i>Phascolarctos cinereus</i>	koala	V	V	Low			FA
<i>Picris barbarorum</i>		V		Low			FL
<i>Picris evae</i>		V	V	High			FL
<i>Prostanthera</i> sp. (Dunmore D.M.Gordon 8A)		V	V	Low			FL
<i>Rhaponticum australe</i>		V	V	High			FL
<i>Sophora fraseri</i>	brush sophora	V	V	Low			FL
<i>Thesium australe</i>	toadflax	V	V	Medium			FL
<i>Turnix melanogaster</i>	black-breasted button-quail	V	V	Critical			FA
<i>Tympanocryptis condaminensis</i>	Condamine earless dragon	E	E	High			FA

NB. Please note that the threatened species listed in this section are based upon the most recently compiled DES internal state-wide threatened species dataset. This dataset may contain additional records that were not originally available for inclusion in the relevant individual BPAs and ACAs.

*JAMBA - Japan-Australia Migratory Bird Agreement; CAMBA - China-Australia Migratory Bird Agreement; ROKAMBA - Republic of Korea-Australia Migratory Bird Agreement; CMS - Convention on the Conservation of Migratory Species.

**Y - wetland indicator species.

BPA Priority Species

A list of BPA priority species that have been recorded on, or within approximately 4km of the AOI is contained in the following table.

Table 23: Priority species recorded on, or within 4km of the AOI

Species	Common name	Back on Track rank	Identified flora/fauna
<i>Acrodipsas violacea</i>	'Violet' Ant-blue		FA
<i>Bossiaea scortechinii</i>		Low	FL
<i>Chthonicola sagittata</i>	Speckled Warbler	Low	FA
<i>Chthonicola sagittata</i>	speckled warbler	Low	FA
<i>Climacteris picumnus</i>	Brown Treecreeper	Low	FA
<i>Climacteris picumnus</i>	brown treecreeper	Low	FA
<i>Cyclorana verrucosa</i>	Rough-collared Frog	Low	FA
<i>Eleocharis blakeana</i>		Medium	FL
<i>Enteropogon paucispiceus</i>			FL
<i>Eucalyptus apothalassica</i>			FL
<i>Macquaria ambigua</i>	Yellowbelly	Low	FA
<i>Melanodryas cucullata</i>	Hooded Robin	Low	FA
<i>Microeca fascinans</i>	jacky winter	Low	FA
<i>Mogurnda adspersa</i>	Southern Purplespotted Gudgeon	Low	FA
<i>Paradelma orientalis</i>	Brigalow Scaly-foot	Medium	FA

Species	Common name	Back on Track rank	Identified flora/fauna
<i>Pomatostomus temporalis</i>	grey-crowned babbler		FA
<i>Sclerolaena tetracuspis</i>	brigalow burr		FL
<i>Varanus varius</i>	Lace Monitor	Low	FA

NB. Please note that the list of priority species is based on those species identified in the BPAs, however records for these species may be more recent than the originals used. Furthermore, the BPA priority species databases are updated from time to time. At each update, the taxonomic details for all species are amended as necessary to reflect current taxonomic name and/or status changes.

ACA Priority Species

A list of ACA priority species used in riverine and non-riverine ACAs that have been recorded on, or within approximately 4km of the AOI are contained in the following tables.

Table 24: Priority species recorded on, or within 4 km of the AOI - riverine

Species	Common name	Back on Track rank	Identified flora/fauna
<i>Acrocephalus australis</i>	Australian Reed-Warbler	L	FA
<i>Ambassis agassizii</i>	Agassiz's Glassfish/olive perchlet	L	FA
<i>Ardea ibis</i>	Cattle Egret	Low	FA
<i>Ardea intermedia</i>	Intermediate Egret	L	FA
<i>Ardea modesta</i>	Eastern Great Egret	Low	FA
<i>Bidyanus bidyanus</i>	Silver Perch	M	FA
<i>Biziura lobata</i>	Musk Duck	L	FA
<i>Ceyx azureus</i>	Azure Kingfisher	L	FA
<i>Chelodina expansa</i>	broad-shelled river turtle	L	FA
<i>Damasonium minus</i>	starfruit		FL
<i>Dendrocygna arcuata</i>	Wandering Whistling-Duck	L	FA
<i>Intellagama lesueurii</i>	Eastern Water Dragon	L	FA
<i>Limnodynastes dumerilii</i>	Grey Bellied Pobblebonk	L	FA
<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	L	FA
<i>Melaleuca densispicata</i>			FL
<i>Melaleuca viminalis</i>	Weeping Bottlebrush	L	FL
<i>Mogurnda adspersa</i>	Southern Purplespotted Gudgeon	L	FA
<i>Ornithorhynchus anatinus</i>	Platypus	L	FA
<i>Plegadis falcinellus</i>	Glossy Ibis	L	FA
<i>Tandanus tandanus</i>	Freshwater Catfish	L	FA
<i>Tringa nebularia</i>	Common Greenshank	L	FA

Table 25: Priority species recorded on, or within 4 km of the AOI - non-riverine

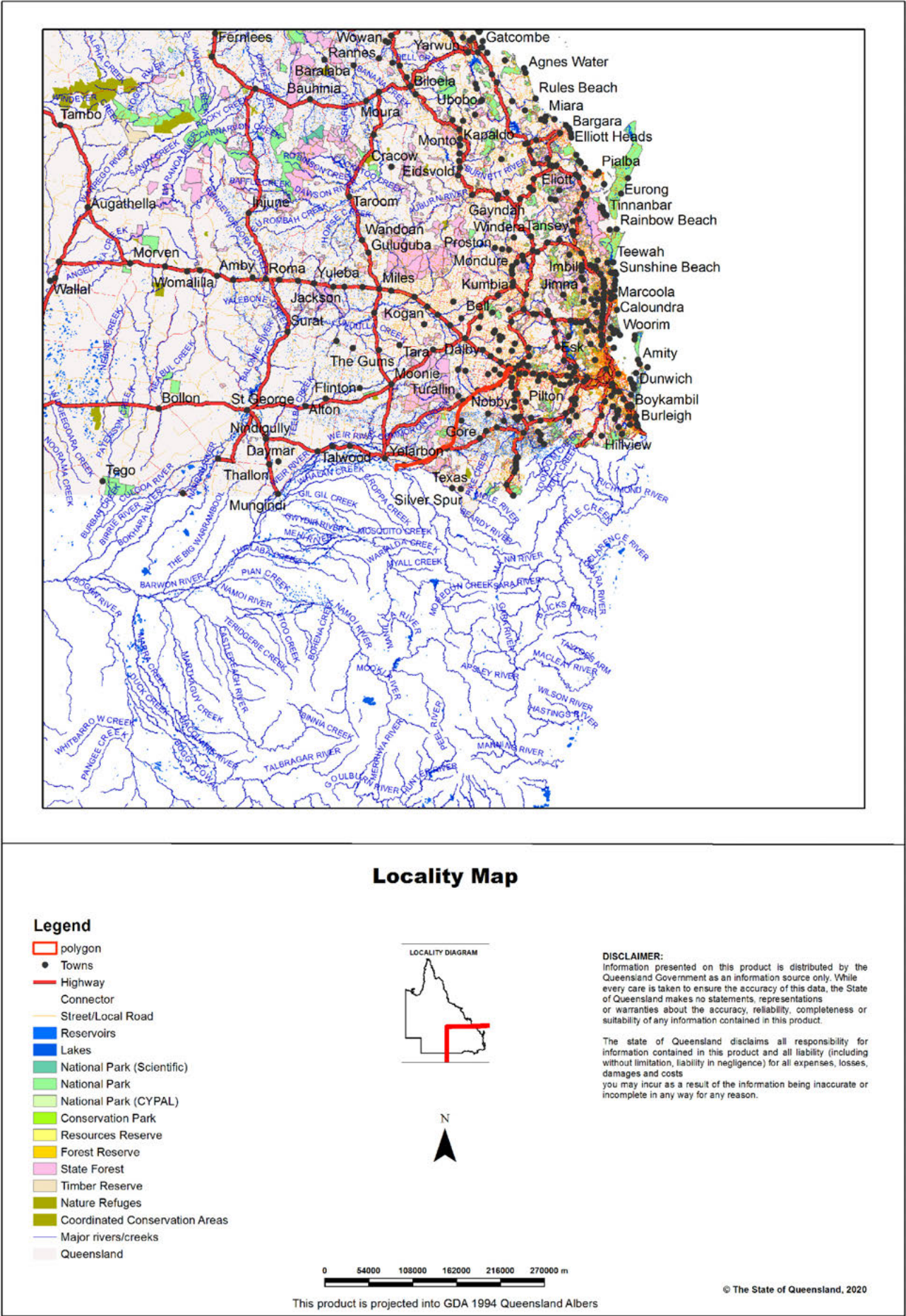
Species	Common name	Back on Track rank	Identified flora/fauna
<i>Acrocephalus australis</i>	Australian Reed-Warbler	L	FA
<i>Ambassis agassizii</i>	Agassiz's Glassfish/olive perchlet	L	FA

Species	Common name	Back on Track rank	Identified flora/fauna
<i>Anseranas semipalmata</i>	Magpie Goose	L	FA
<i>Ardea ibis</i>	Cattle Egret	Low	FA
<i>Ardea intermedia</i>	Intermediate Egret	L	FA
<i>Ardea modesta</i>	Eastern Great Egret	Low	FA
<i>Biziura lobata</i>	Musk Duck	L	FA
<i>Chelodina expansa</i>	broad-shelled river turtle	L	FA
<i>Cyclorana alboguttata</i>	Greenstripe Frog	L	FA
<i>Cyclorana cultripes</i>	Grassland Collared Frog	L	FA
<i>Cyclorana platycephala</i>	Water-holding Frog	L	FA
<i>Damasonium minus</i>	starfruit		FL
<i>Dendrocygna arcuata</i>	Wandering Whistling-Duck	L	FA
<i>Intellagama lesueurii</i>	Eastern Water Dragon	L	FA
<i>Limnodynastes dumerillii</i>	Grey Bellied Pobblebonk	L	FA
<i>Limnodynastes salmini</i>	salmon-striped frog	L	FA
<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	L	FA
<i>Marsilea drummondii</i>	common nardoo		FL
<i>Marsilea hirsuta</i>	hairy nardoo		FL
<i>Melaleuca densispicata</i>			FL
<i>Mogurnda adspersa</i>	Southern Purplespotted Gudgeon	L	FA
<i>Notaden bennettii</i>	Holy Cross Frog	M	FA
<i>Plegadis falcinellus</i>	Glossy Ibis	L	FA
<i>Tringa nebularia</i>	Common Greenshank	L	FA

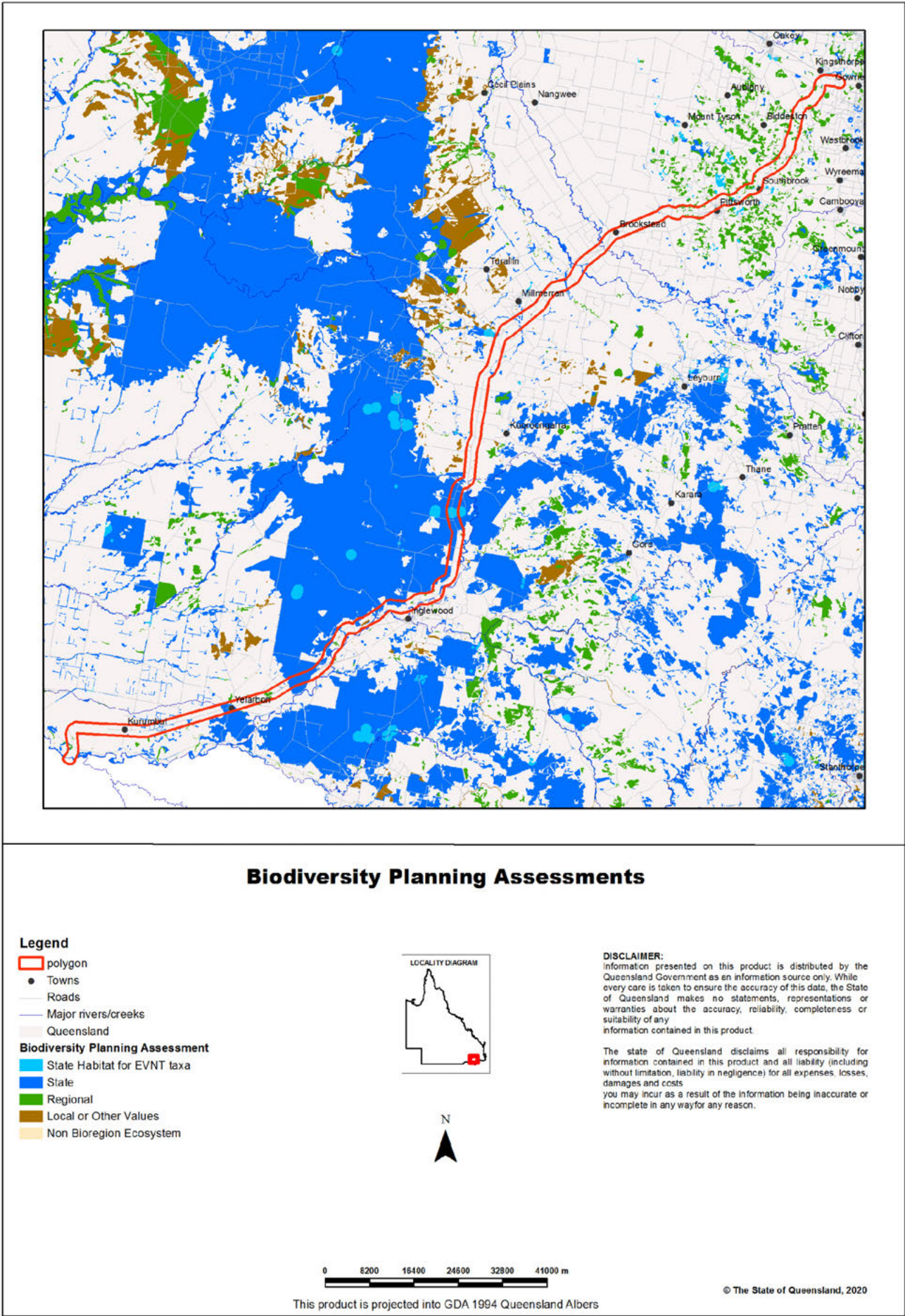
NB. Please note that the priority species records used in the above two tables are comprised of those adopted for the released individual ACAs. The ACA riverine and non-riverine priority species databases are updated from time to time to reflect new release of ACAs. At each update, the taxonomic details for all ACAs records are amended as necessary to reflect current taxonomic name and/or status changes.

Maps

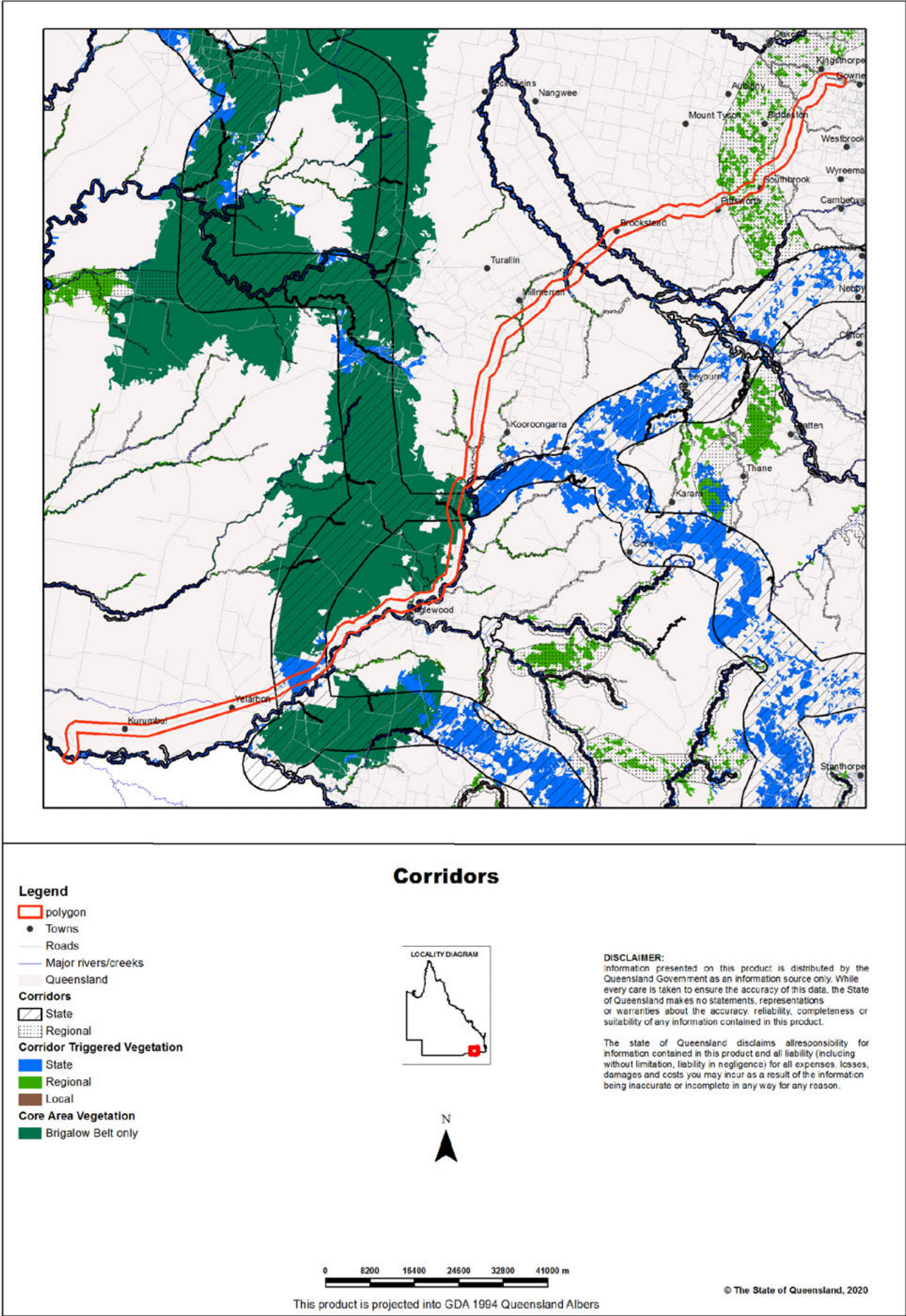
Map 1 - Locality Map



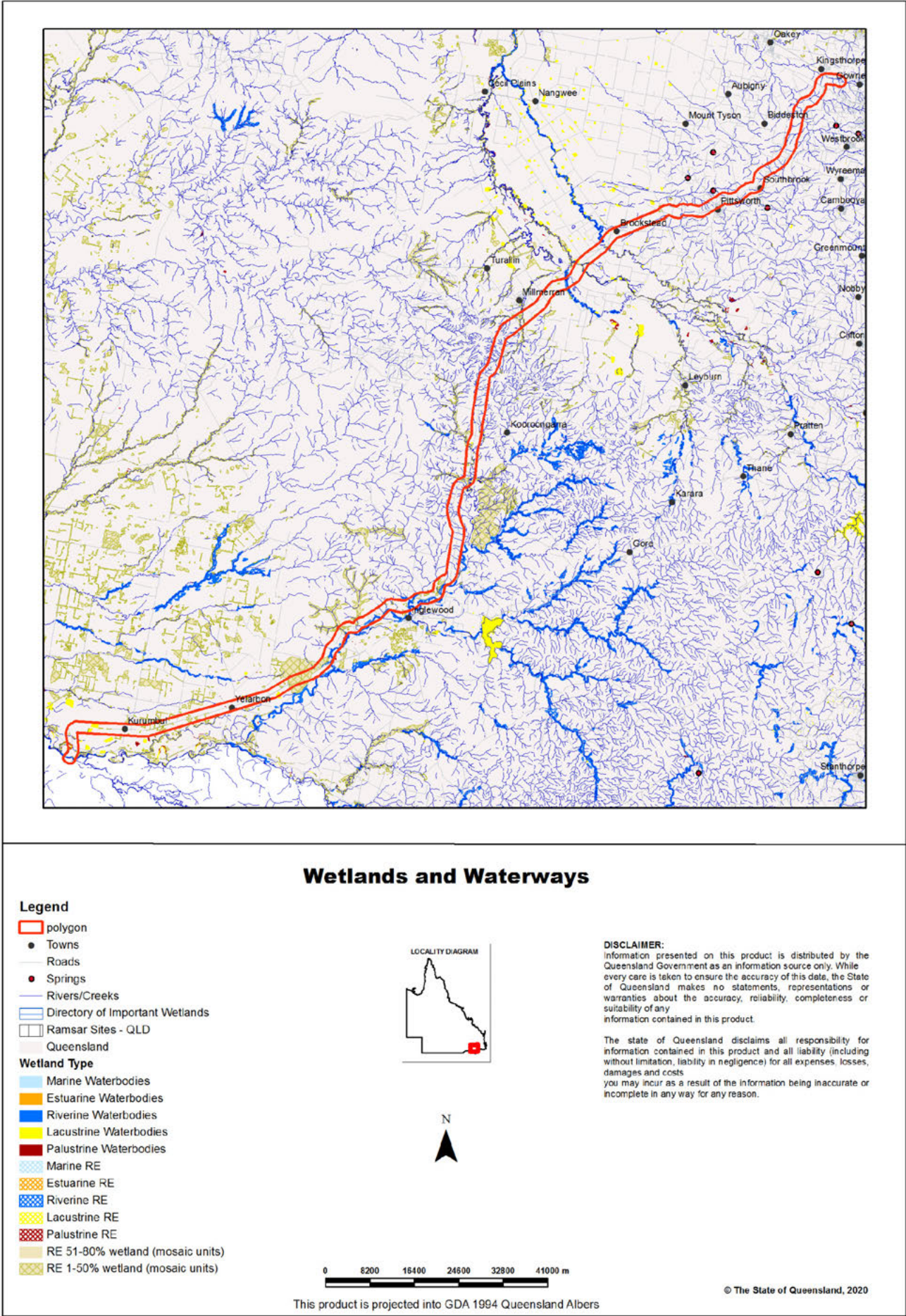
Map 2 - Biodiversity Planning Assessment (BPA)



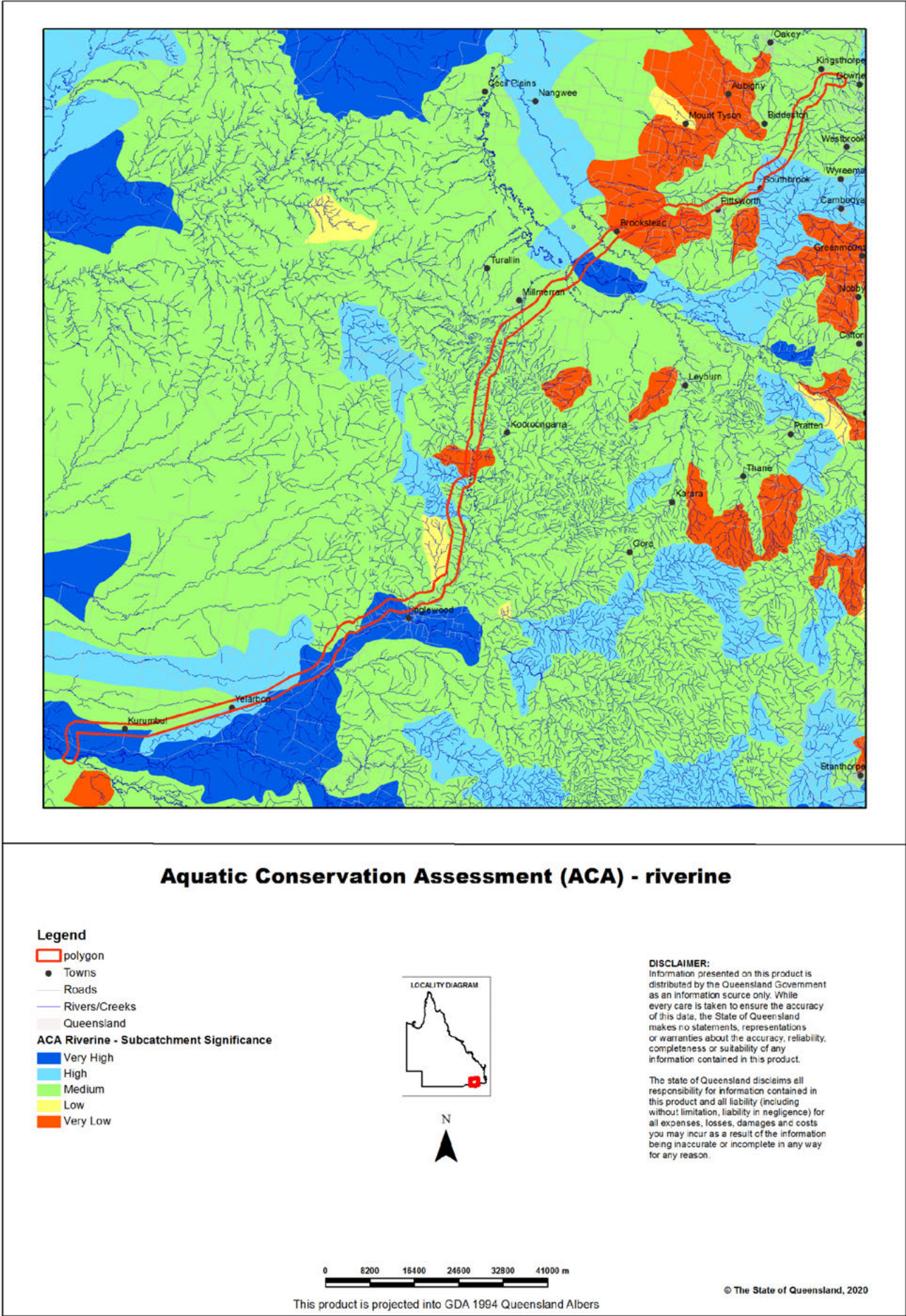
Map 3 - Corridors



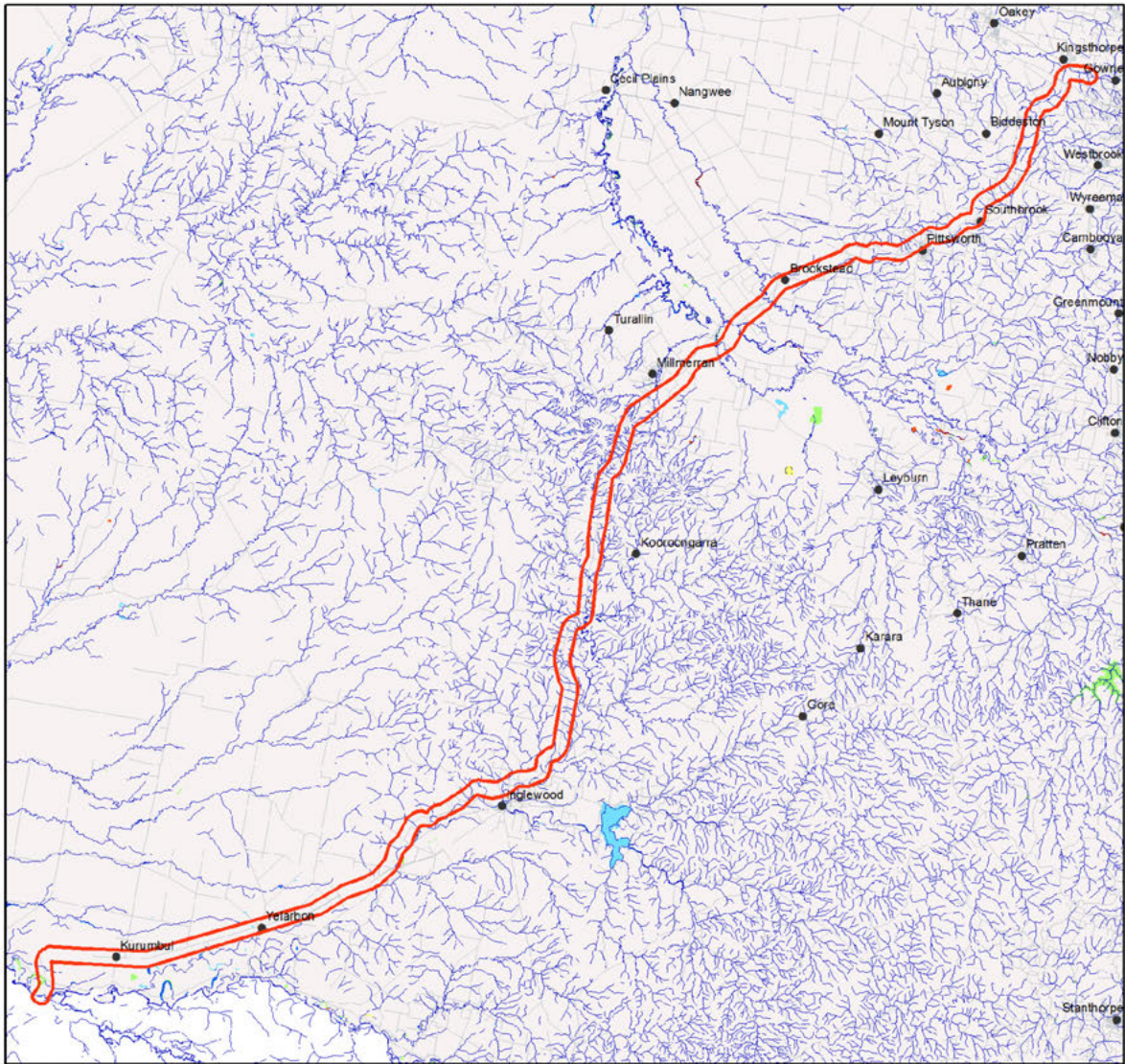
Map 4 - Wetlands and waterways



Map 5 - Aquatic Conservation Assessment (ACA) - riverine



Map 6 - Aquatic Conservation Assessment (ACA) - non-riverine



Aquatic Conservation Assessment (ACA) - nonriverine

- Legend**
- polygon
 - Towns
 - Roads
 - Rivers/Creeks
 - Queensland
- ACA Non-riverine**
- Very High
 - High
 - Medium
 - Low
 - Very Low



This product is projected into GDA 1994 Queensland Albers

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Sattler, P.S. and Williams, R.D. (eds) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems*. Environmental Protection Agency, Brisbane.

Appendices

Appendix 1 - Source Data

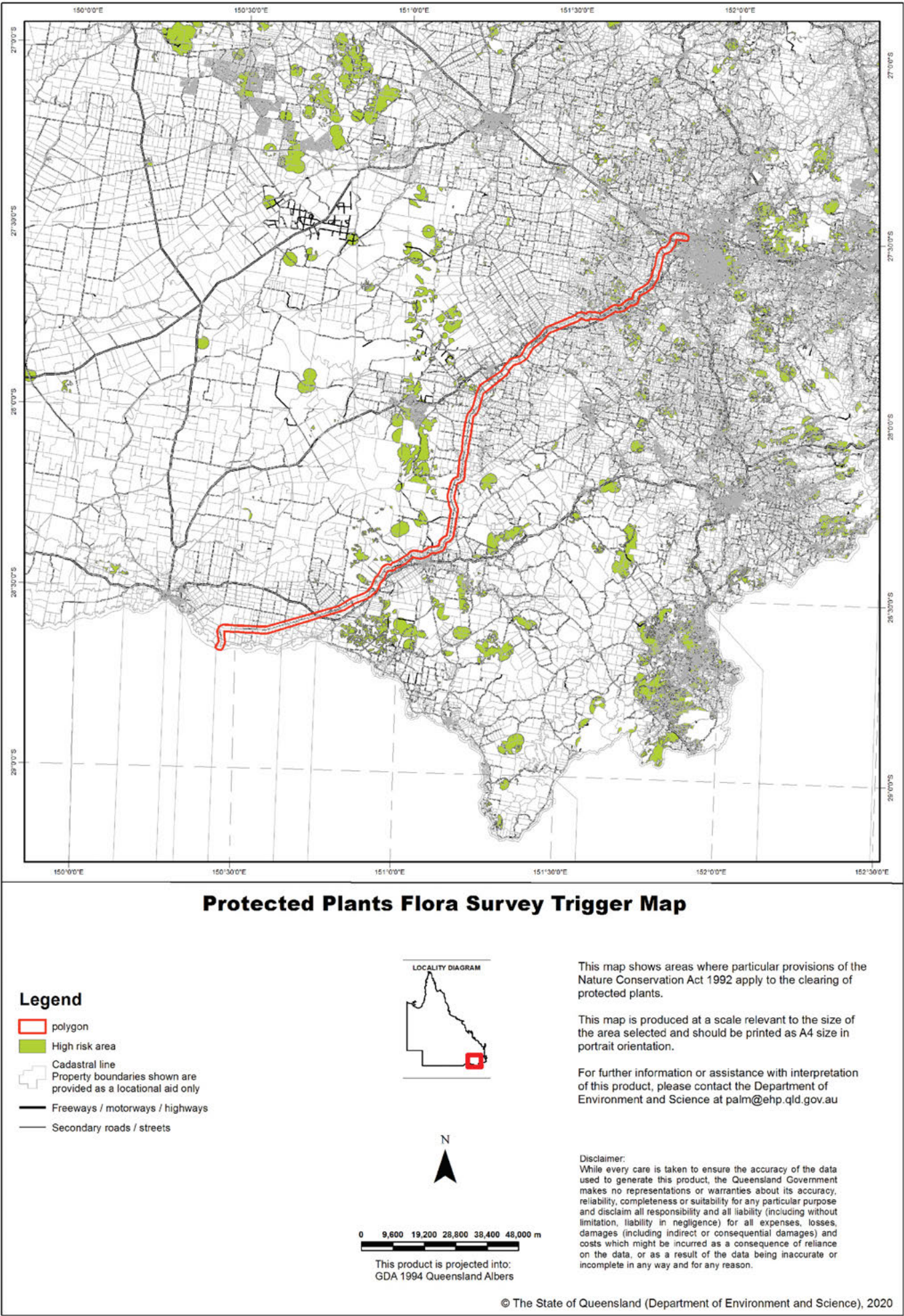
Theme	Datasets
Aquatic Conservation Assessments Non-riverine*	Combination of the following datasets: Cape York Peninsula Non-riverine v1.1 Eastern Gulf of Carpentaria v1.1 Great Barrier Reef Catchment Non-riverine v1.3 Lake Eyre and Bulloo Basins v1.1 QMDB Non-riverine ACA v1.4 Southeast Queensland ACA v1.1 WBB Non-riverine ACA v1.1
Aquatic Conservation Assessments Riverine*	Combination of the following datasets: Cape York Peninsula Riverine v1.1 Eastern Gulf of Carpentaria v1.1 Great Barrier Reef Catchment Riverine v1.1 Lake Eyre and Bulloo Basins v1.1 QMDB Riverine ACA v1.4 Southeast Queensland ACA v1.1 WBB Riverine ACA v1.1
Biodiversity Planning Assessments*	Combination of the following datasets: Brigalow Belt BPA v2.1 Cape York Peninsula BPA v1.1 Central Queensland Coast BPA v1.3 Channel Country BPA v1.1 Desert Uplands BPA v1.3 Einasleigh Uplands BPA v1.1 Gulf Plains BPA v1.1 Mitchell Grass Downs BPA v1.1 Mulga Lands BPA v1.4 New England Tableland v2.3 Southeast Queensland v4.1 Wet Tropics v1.1
Statewide BPA Corridors*	Statewide corridors v1.5
Threatened Species	An internal DES database compiled from Wildnet, Herbrecks, Corveg, the QLD Museum, as well as other incidental sources.
BPA Priority Species	An internal DES database compiled from Wildnet, Herbrecks, Corveg, the QLD Museum, as well as other incidental sources.
ACA Priority Species	An internal DES database compiled from Wildnet, Herbrecks, Corveg, the QLD Museum, as well as other incidental sources.

*These datasets are available at:

<http://dds.information.qld.gov.au/DDS>

Appendix 2 - Acronyms and Abbreviations

AOI	- Area of Interest
ACA	- Aquatic Conservation Assessment
AQUABAMM	- Aquatic Biodiversity Assessment and Mapping Methodology
BAMM	- Biodiversity Assessment and Mapping Methodology
BoT	- Back on Track
BPA	- Biodiversity Planning Assessment
CAMBA	- China-Australia Migratory Bird Agreement
DES	- Department of Environment and Science
EPBC	- <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVNT	- Endangered, Vulnerable, Near Threatened
GDA94	- Geocentric Datum of Australia 1994
GIS	- Geographic Information System
JAMBA	- Japan-Australia Migratory Bird Agreement
NCA	- <i>Nature Conservation Act 1992</i>
RE	- Regional Ecosystem
REDD	- Regional Ecosystem Description Database
ROKAMBA	- Republic of Korea-Australia Migratory Bird Agreement



Protected plants flora survey trigger map

The protected plants flora survey trigger map identifies 'high risk areas' where endangered, vulnerable or near threatened plants are known to exist or are likely to exist. Under the *Nature Conservation Act 1992* (the Act) it is an offence to clear protected plants that are 'in the wild' unless you are authorised or the clearing is exempt, for more information see [section 89](#) of the Act.

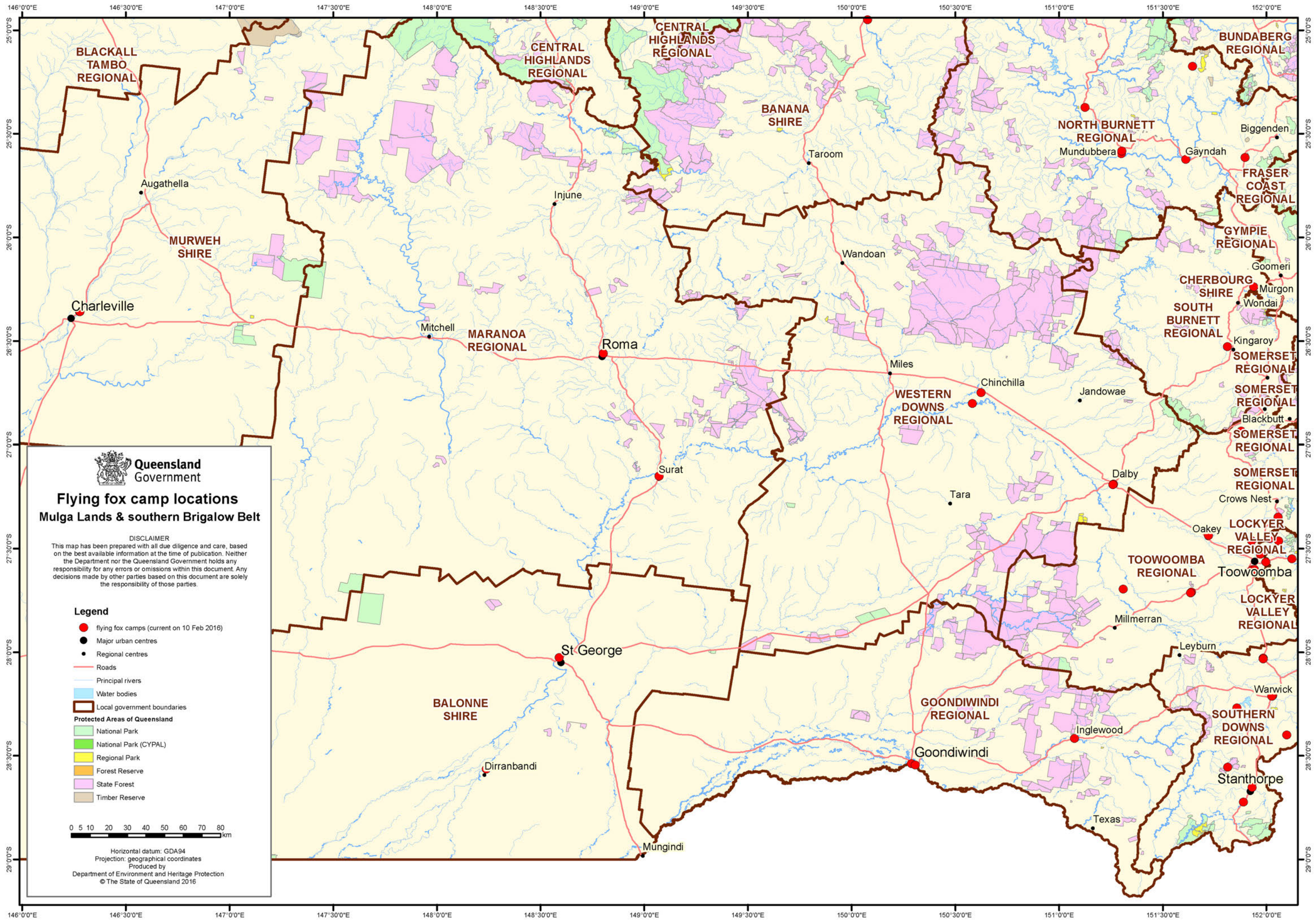
Please see the Department of Environment and Science webpage on the [clearing of protected plants](#) for information on what exemptions may apply in your circumstances, whether you may need to undertake a flora survey, and whether you may need a protected plants clearing permit.

Updates to the data informing the flora survey trigger map

The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the [Queensland Spatial Catalogue](#), the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the [clearing of protected plants](#) for more information.



140°0'0"E

145°0'0"E

150°0'0"E



Queensland
Government

Flying fox camp locations in Queensland

DISCLAIMER
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Legend

- Major urban centres
- Regional towns
- EHP monitored roosts
- Other camp locations
- Highways and main roads

0 25 50 100 150 200 250 km

Horizontal datum: GDA94
Projection: geographical coordinates
Produced by
Department of Environment and Heritage Protection
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10°0'0"S

15°0'0"S

20°0'0"S

25°0'0"S

30°0'0"S

10°0'0"S

15°0'0"S

20°0'0"S

25°0'0"S

30°0'0"S

140°0'0"E

145°0'0"E

150°0'0"E



Modelled potential habitat

For the selected area of interest 44210.83ha

Current as at 25/02/2020

Introduction

Species lists in this report are derived from Maxent pre-clear potential habitat models and buffered point coverages produced by the Queensland Herbarium for NCA listed 'endangered' or 'vulnerable' species, EPBC listed 'critically endangered', 'endangered' or 'vulnerable' species and other priority species.

The models utilise records of fauna species occurrence compiled for the purpose of Biodiversity Assessment by the Queensland Department of Environment and Resource Management (EPA 2002) and specimen backed flora records compiled from the Queensland Herbarium's HerbreCs database. All records have a location precision of better than 2000 m, and all fauna records are less than 50 years old. Models were constrained within an occurrence mask for each species, defined by a buffer of 200 km around a convex hull that encompasses all records. All models were based on seven environmental layers, annual mean temperature, temperature seasonality (coefficient of variation), annual precipitation, mean moisture index of the lowest quarter moisture index, pre-clearing broad vegetation group (1:1M), land zone and taxonomic ruggedness. Climate layers were modelled using Anuclim software on an 83 m digital elevation model. A mask of Queensland's road network was used to down-weight species records collected along roads. Model performance was assessed by comparing the area under the ROC curve (AUC) with the 95th percentile AUC from 1000 null models for each species created by randomly selecting locations from within the minimum convex hull of species presence records. For species with very restricted ranges, model performance was further tested using randomly selected locations from within the species mask. Thresholds were applied (either equal training sensitivity and specificity logistic threshold or 10th percentile training presence logistic threshold, whichever was highest) in order to convert model output to a prediction of potential habitat. Any presence records excluded by the threshold applied were incorporated into the output with a 1km buffer. The output was clipped to the species mask and simplified using a majority filter algorithm to remove outlying orphan cells in the model output. The resulting shapefile defines the modelled pre-clear potential habitat for selected threatened and priority species.

If a species is not listed in the report, it does not indicate that its habitat is absent from the queried location and conversely, species listed may not currently inhabit the area.

Threatened fauna species

Threatened fauna species modelled to have pre-clear potential habitat within the area of interest , with an area of 44210.83ha hectares

Threatened Species animals

Class	Scientific name	Common name	NCA Status	EPBC Status	Area (ha)
birds	<i>Calyptrorhynchus lathamii</i>	glossy black-cockatoo	V	None	458.67
birds	<i>Anthochaera phrygia</i>	regent honeyeater	E	CE	4104.23
birds	<i>Erythrotriorchis radiatus</i>	red goshawk	E	V	2290.51
birds	<i>Turnix melanogaster</i>	black-breasted button-quail	V	V	49.16
birds	<i>Lathamus discolor</i>	swift parrot	E	CE	6768.77
birds	<i>Grantiella picta</i>	painted honeyeater	V	V	43188.53
birds	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)	V	V	4293.12
birds	<i>Rostratula australis</i>	Australian painted snipe	V	E	1644.27
insects	<i>Jalmenus eubulus</i>	pale imperial hairstreak	V	None	20748.06
insects	<i>Hypochrysops piceata</i>	bullock jewel	E	None	2384.73
mammals	<i>Nyctophilus corbeni</i>	eastern long-eared bat	V	V	28092.35
mammals	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)	V	E	289.54
mammals	<i>Chalinolobus dwyeri</i>	large-eared pied bat	V	V	328.55
mammals	<i>Dasyurus hallucatus</i>	northern quoll	C	E	279.93
mammals	<i>Phascolarctos cinereus</i>	koala	V	V	1069.98
reptiles	<i>Hemiaspis damelii</i>	grey snake	E	None	13464.02
reptiles	<i>Anomalopus mackayi</i>	long-legged worm-skink	E	V	3785.37
reptiles	<i>Acanthophs antarcticus</i>	common death adder	V	None	575.96
reptiles	<i>Delma torquata</i>	collared delma	V	V	3736.98
reptiles	<i>Egernia rugosa</i>	yakka skink	V	V	28218.47
reptiles	<i>Tympanocryptis condaminensis</i>	Condamine earless dragon	E	E	2466.89

Threatened flora species

Threatened flora species modelled to have pre-clear potential habitat within the selected area

Threatened Species plants

Class	Scientific name	Common name	NCA Status	EPBC Status	Area (ha)
cycads	<i>Macrozamia machinii</i>	None	V	V	635.59
higher dicots	<i>Rutidosia lanata</i>	None	NT	None	17997.69
higher dicots	<i>Picris evae</i>	None	V	V	5492.92
higher dicots	<i>Pomaderris clivicola</i>	None	E	V	1.34
higher dicots	<i>Micromyrtus carinata</i>	Gurumundi heath-myrtle	E	None	7769.94
higher dicots	<i>Lepidium peregrinum</i>	None	C	E	16.98
higher dicots	<i>Lepidium monoplacoides</i>	winged peppergrass	C	E	132.45
higher dicots	<i>Haloragis exalata</i> subsp. <i>velutina</i>	None	V	V	5775.06
higher dicots	<i>Sophora fraseri</i>	brush sophora	V	V	101.39
higher dicots	<i>Pomaderris coomangalensis</i>	None	E	None	4413.22
higher dicots	<i>Picris barbarorum</i>	None	V	None	16538.24
higher dicots	<i>Eucalyptus virens</i>	shiny-leaved ironbark	V	V	6110.85
higher dicots	<i>Bertya oppositifolia</i>	None	C	V	12077.61
higher dicots	<i>Solanum papaverifolium</i>	None	E	None	8974.8
higher dicots	<i>Cadellia pentastylis</i>	ooline	V	V	5289.07
higher dicots	<i>Rhaponticum australe</i>	None	V	V	9728.65
higher dicots	<i>Thesium australe</i>	toadflax	V	V	19013.73
higher dicots	<i>Eucalyptus taurina</i>	Helidon ironbark	V	None	122.55
lower dicots	<i>Clematis fawcettii</i>	None	V	V	0.64
monocots	<i>Homopholis belsonii</i>	None	E	V	17911.92
monocots	<i>Bothriochloa bunyensis</i>	Bunya Mountains bluegrass	V	V	5267.93
monocots	<i>Arthraxon hispidus</i>	None	V	V	7032.35
monocots	<i>Diuris parviflora</i>	None	V	None	6730.63
monocots	<i>Dichanthium queenslandicum</i>	None	V	E	10037.99
monocots	<i>Cyperus clarus</i>	None	V	None	23022.94
monocots	<i>Dichanthium setosum</i>	None	C	V	8910.85
monocots	<i>Paspalum grandispiculatum</i>	None	V	V	794.25

Links and support

[Modelled potential habitat for selected threatened and priority species in Queensland](#) - access the geodatabase of modelled potential habitat for Queensland's threatened species.

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government, to the maximum extent permitted by law, makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



WetlandMaps Report



For selected area of interest

Current as at 25/02/2020

Environmental Reports - General Information

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the Area of Interest (AOI) (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no matters of interest have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Important Note to User

Information presented in this report is based upon the mapping of water bodies and wetland regional ecosystems across Queensland. The Queensland wetland mapping was produced using existing information including water body mapping derived from Landsat satellite imagery, regional ecosystem mapping, topographic data, and a springs database. The result is a consistent wetland map for the whole of Queensland.

Ancillary data, such as higher resolution imagery (for example SPOT and aerial photographs), other vegetation and wetland mapping, geology, soil and land system mapping was also used in attributing and assessing the derived Queensland Wetlands Program wetland mapping products.

The wetland mapping was done in accordance with a detailed peer reviewed methodology which included quality assurance measures for all steps in the process. For more detailed information on how the Queensland Wetlands Program wetland mapping was produced, please see the [Wetland Mapping and Classification Methodology](#).

Disclaimer

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Summary Information

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

Table 1. Area of interest details

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine
Drainage sub-basin	Macintyre & Weir Rivers, Macintyre Brook, Condamine River

NRM Regions

The following NRM region(s) are in the area of interest:

Southern Queensland Landscapes

Water Resource Plan Boundaries

The following Water Resource Plan(s) are in the area of interest:

Great Artesian Basin and Other Regional Aquifers

Border Rivers and Moonie

Condamine and Balonne

Learn more about how Wetlands are mapped in Queensland:

Queensland Wetlands Mapping Definitions

Wetlands are areas of permanent or periodic/intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres. To be a wetland the area must have one or more of the following attributes:

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

Examples under this definition **include**:

- those areas shown as a river, stream, creek, swamp, lake, marsh, waterhole, wetland, billabong, pool or spring on the latest Sunmap 1:25,000, 1:50,000, 1:100,000 or 1:250,000 topographic map
- areas defined as wetlands on local or regional maps prepared with the aim of mapping wetlands
- wetland regional ecosystems (REs) as defined by the Queensland Herbarium (Environmental Protection Agency 2005a)
- areas containing recognised hydrophytes as provided by the Queensland Herbarium
- saturated parts of the riparian zone
- artificial wetlands such as farm dams
- water bodies not connected to rivers or flowing water such as billabongs and rock pools.

Examples under this definition **exclude**:

- areas that may be covered by water but are not wetlands according to the definition
- floodplains that are intermittently covered by flowing water but do not meet the hydrophytes and soil criteria

- riparian zone above the saturation level.

Wetland Systems

Riverine wetlands are all wetlands and deepwater habitats within a channel. The channels are naturally or artificially created, periodically or continuously contain moving water, or connecting two bodies of standing water.

Palustrine wetlands are primarily vegetated non-channel environments of less than 8 hectares. They include billabongs, swamps, bogs, springs, soaks etc, and have more than 30% emergent vegetation.

Lacustrine wetlands are large, open, water-dominated systems (for example, lakes) larger than 8ha. This definition also applies to modified systems (for example, dams), which are similar to lacustrine systems (for example, deep, standing or slow-moving waters).

Marine wetlands include the area of ocean from the coastline or estuary, extending to the jurisdictional limits of Queensland waters (3 nautical mile limit). This definition differs from that in Ramsar, as it includes waters deeper than 6m below the lowest astronomical tide.

Estuarine wetlands are those with oceanic water sometimes diluted with freshwater run-off from the land.

Subterranean wetlands are wetlands occurring below the surface of the ground and that are fed by groundwater i.e. caves and aquifers. These wetlands provide water to groundwater dependent ecosystems.

Methodology and Wetland Classification: <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/wetland-background/>

Links and support

Other sites that deliver wetland related information include:

WetlandSummary tool: <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/>

Queensland Spatial Catalogue: <http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>

Queensland Globe: <https://qldglobe.information.qld.gov.au/>

Environmental reports online: <https://environment.ehp.qld.gov.au/report-request/environment/>

Wetland on-line education modules: <https://wetlandinfo.des.qld.gov.au/wetlands/resources/training/>

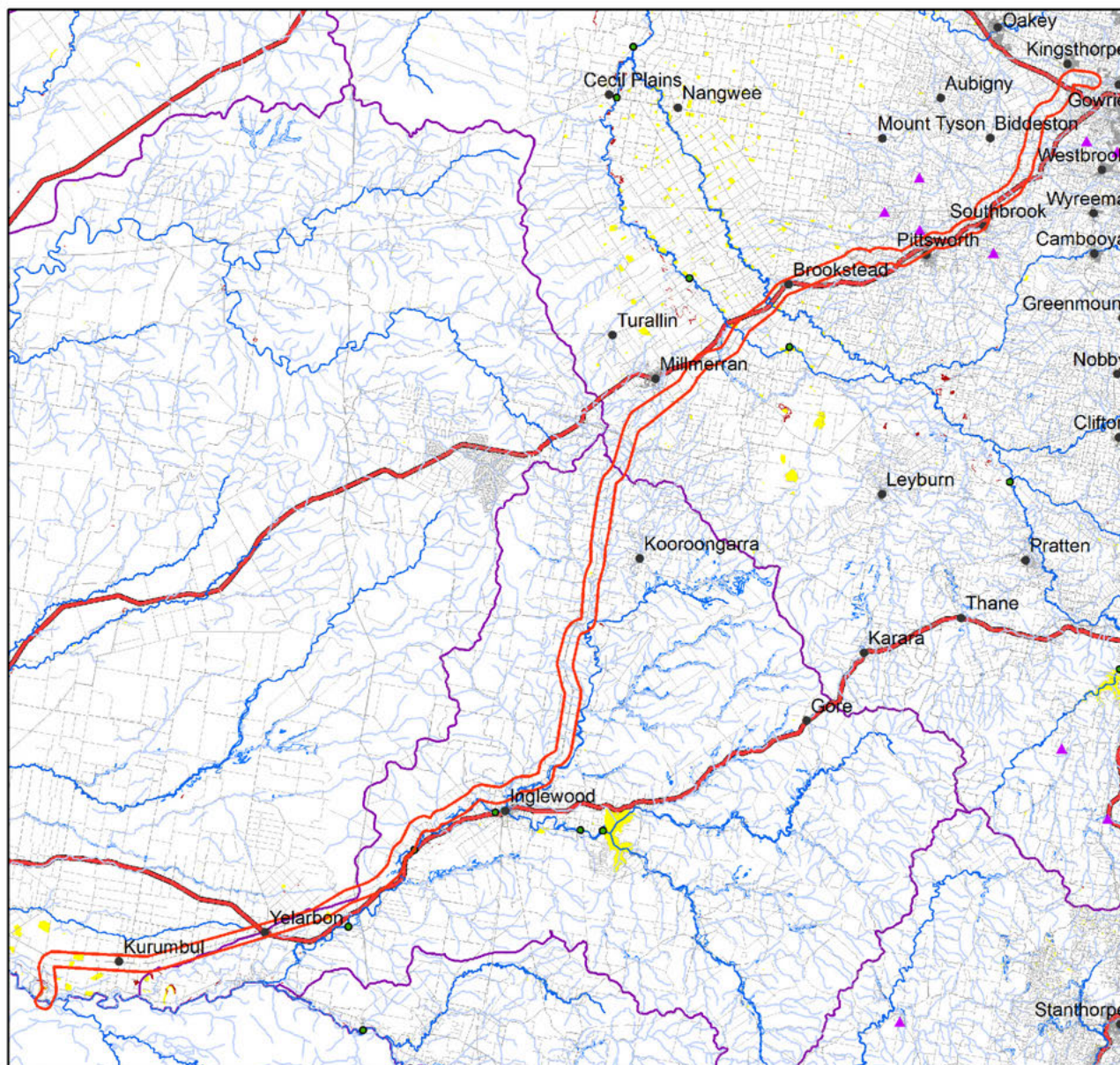
Regional Ecosystem Mapping information: :

<https://www.qld.gov.au/environment/plants-animals/plants/herbarium/mapping-ecosystems>

Aquatic Conservation Assessments: : <https://wetlandinfo.des.qld.gov.au/wetlands/assessment/assessment-methods/aca/>

Groundwater Dependant Ecosystems information:

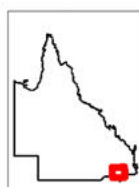
<https://wetlandinfo.des.qld.gov.au/wetlands/ecology/aquatic-ecosystems-natural/groundwater-dependent/>



Legend

- polygon
- ▲ Springs
- Dams and weirs
- Towns
- Highways
- Roads
- Cadastral boundaries
- Sub-basin
- Wetland Mapping**
- Wetland System - Water Bodies**
 - Marine Waterbodies
 - Estuarine Waterbodies
 - Riverine Waterbodies
 - Lacustrine Waterbodies
 - Palustrine Waterbodies
- Wetland System - Regional Ecosystems**
 - Marine RE
 - Estuarine RE
 - Riverine RE
 - Lacustrine RE
 - Palustrine RE
 - RE 51_80% wetland (mosaic units)
- Riverine System Drainage Lines**
 - Major
 - Minor

Queensland Wetland Map

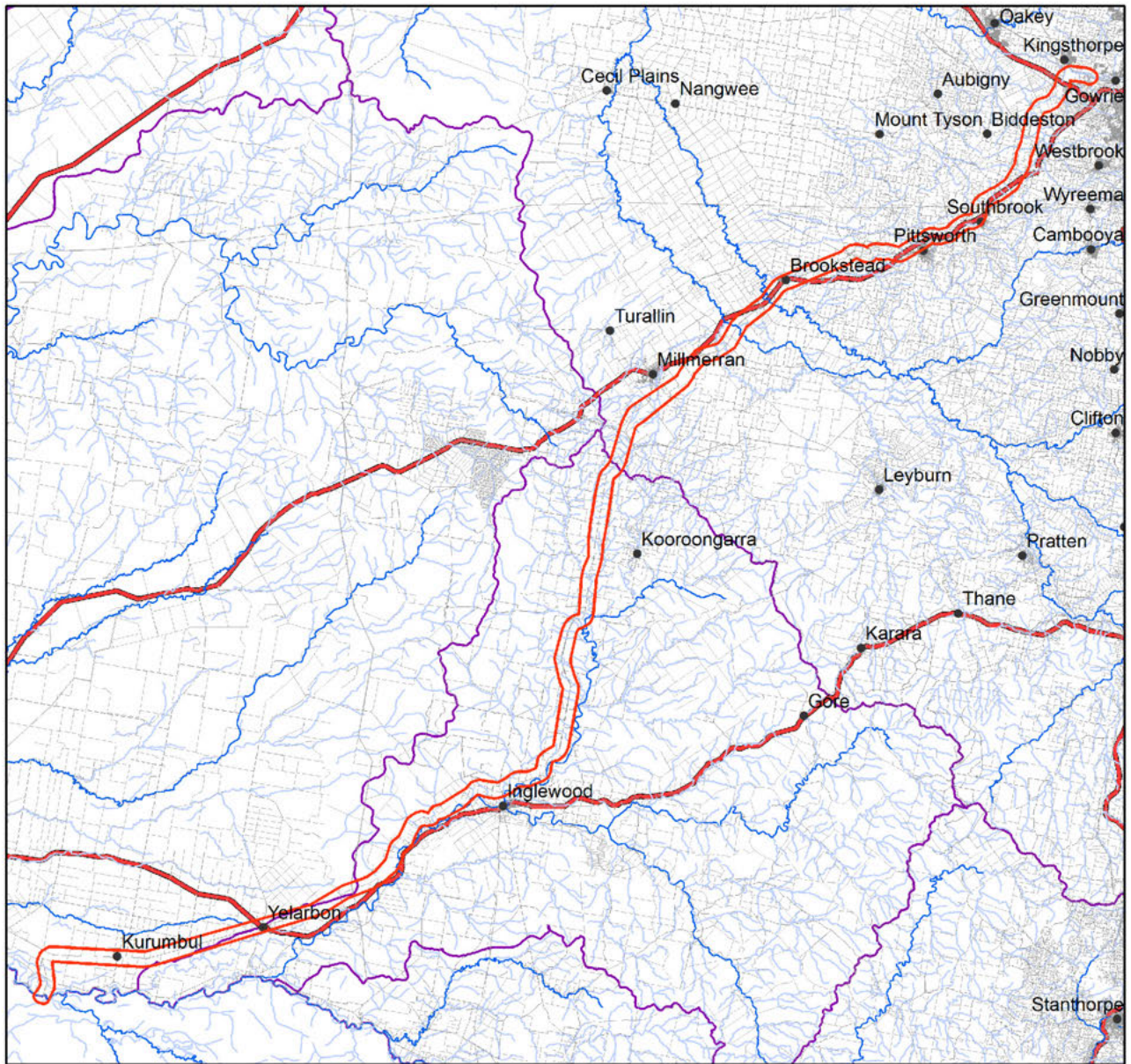


Horizontal Datum: Geographic Datum of Australia 1994 (GDA94)

This map was produced by the Queensland Wetlands Program, Department of Environment and Science, February 2020.

For further information contact: wetlands@des.qld.gov.au

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Queensland Wetlands of Importance Map

Legend

- polygon
- Towns
- Cadastral boundaries
- Highways
- Roads
- Sub-basin
- Directory of Important Wetlands
- Ramsar Wetlands
- Riverine System Drainage Lines**
 - Major
 - Minor

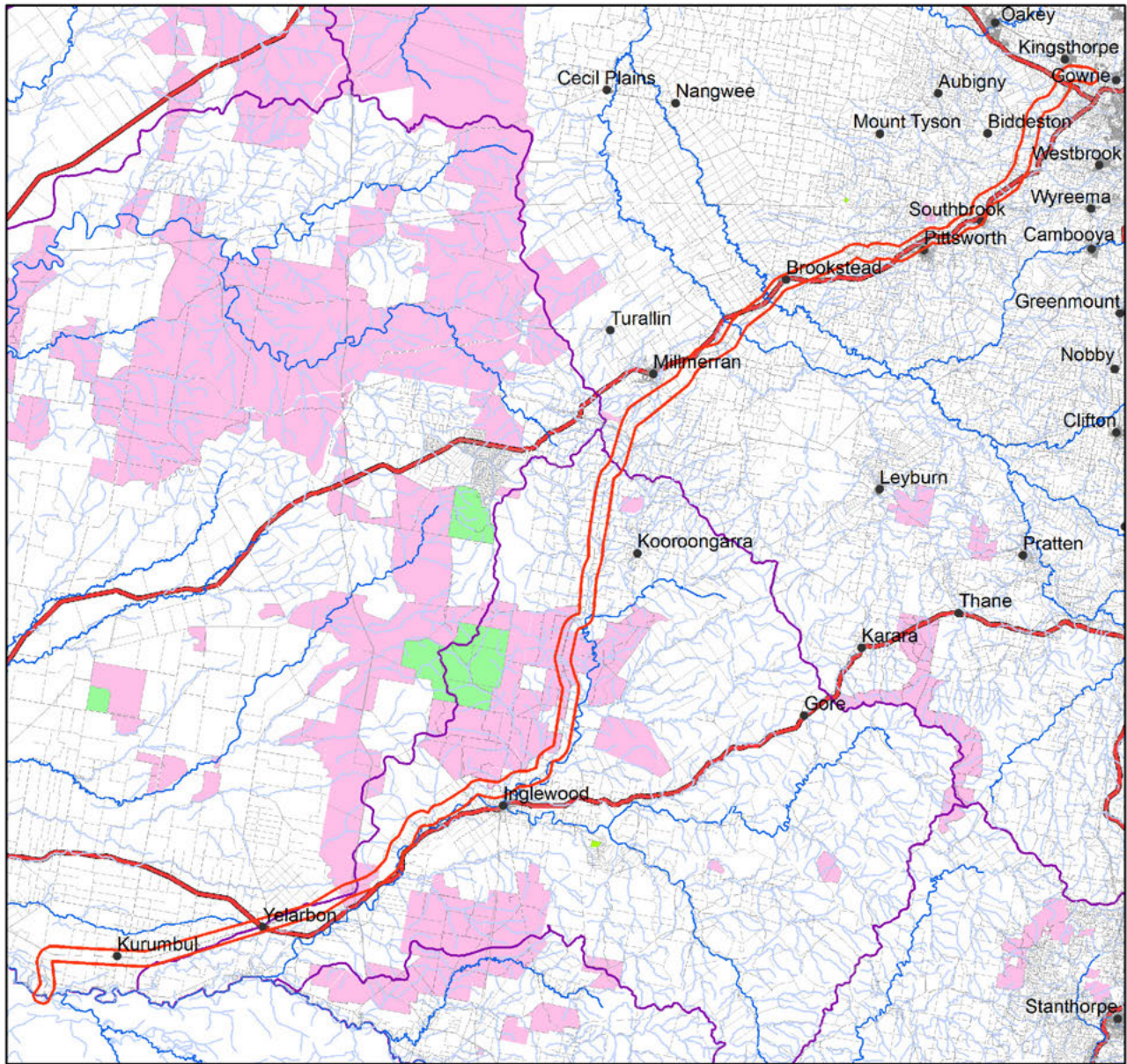


Horizontal Datum: Geographic Datum of Australia 1994 (GDA94)

This map was produced by the Queensland Wetlands Program, Department of Environment and Science, February 2020.

For further information contact: wetlands@des.qld.gov.au

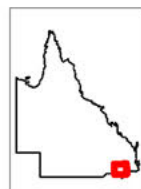
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Legend

- polygon
- Towns
- Cadastral boundaries
- Highways
- Roads
- Sub-basin
- Riverine System Drainage Lines**
 - Major
 - Minor
- Protected Areas**
 - National Park
 - National Park (Scientific)
 - National Park (CYPAL)
 - Conservation Park
 - Resources Reserve
 - Forest Reserve
 - State Forest
 - Timber Reserve
- Marine Parks**
 - General Use Zone
 - Habitat Protection Zone
 - Estuarine Conservation Zone
 - Conservation Park Zone
 - Buffer Zone
 - Scientific Research Zone
 - Marine National Park Zone
 - Preservation Zone

Queensland Protected Area Map



Horizontal Datum: Geographic Datum of Australia 1994 (GDA94)

This map was produced by the Queensland Wetlands Program, Department of Environment and Science, February 2020.

For further information contact: wetlands@des.qld.gov.au

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Wetland habitat types in the AOI. Total area: 3631.42ha

Wetland Class	Habitat type	Area (ha)
None	Coastal/ Sub-coastal floodplain tree swamps (Melaleuca and Eucalypt)	2131.82
Riverine	Riverine	556.52
None	Coastal/ Sub-Coastal non-floodplain tree swamps (Melaleuca and Eucalypt)	435.85
Lacustrine	Artificial/ highly modified wetlands (dams, ring tanks, irrigation channel)	330.05
None	Coastal/ Sub-coastal floodplain grass, sedge and herb swamps	63.59
Lacustrine	Coastal/ Sub-coastal floodplain lakes	51.5
Palustrine	Coastal/ Sub-coastal floodplain grass, sedge and herb swamps	47.51
Palustrine	Coastal/ Sub-coastal floodplain tree swamps (Melaleuca and Eucalypt)	14.58

Queensland wetland habitat typology: Major wetland habitat types for wetland conceptual models and wetland management profiles

Wetland name	Conceptual model	Wetland profile
Mangrove Wetlands	Not developed	Mangrove Wetlands
Saltmarsh Wetlands	Not developed	Saltmarsh Wetlands
Coastal and subcoastal saline swamps of all substrates, water regimes, topographic types and vegetation communities	Coastal and subcoastal saline swamps	Coastal grass-sedge wetlands
Coastal and subcoastal non-floodplain tree swamps (Melaleuca and Eucalypt) of all substrates and water regimes	Coastal and subcoastal non-floodplain tree swamps - melaleuca and eucalypt	Coastal and subcoastal tree swamps
Coastal and subcoastal non-floodplain wet heath swamps of all substrates and water regimes	Coastal and subcoastal non-floodplain wet heath swamps	Coastal and subcoastal wet heath swamps
Coastal and subcoastal non-floodplain grass, sedge and herb swamps of all substrates and water regimes	Coastal and subcoastal non-floodplain grass, sedge and herb swamps	Coastal grass-sedge wetlands
Coastal and subcoastal spring swamps of all substrates, water types, water regimes and vegetation communities	Coastal and subcoastal spring swamps	Great Artesian Basin spring wetlands
Coastal and subcoastal floodplain tree swamps - melaleuca and eucalypt of all substrates and water regimes	Coastal and subcoastal floodplain tree swamps - melaleuca and eucalypt	Coastal and subcoastal tree swamps
Coastal and subcoastal floodplain wet heath swamps of all substrates and water regimes	Coastal and subcoastal floodplain wet heath swamps	Coastal and subcoastal wet heath swamps
Coastal and subcoastal floodplain, grass, sedge herb swamps of all substrates and water regimes	Coastal and subcoastal floodplain grass, sedge, herb swamps	Coastal grass-sedge wetlands
Coastal and subcoastal tree swamps - palm of all substrates, topographic types and water regimes	Coastal and subcoastal floodplain tree swamps - palm	Coastal Palm Swamps
Coastal and subcoastal Floodplain Lakes of all substrates, water types and water regimes	Coastal and subcoastal Floodplain Lakes	Coastal and subcoastal floodplain lakes and non-floodplain soil lakes
Coastal and subcoastal non-floodplain rock lakes of all water types and water regimes	Coastal and subcoastal non-floodplain rock lakes	Coastal and subcoastal non-floodplain rock lakes

Wetland name	Conceptual model	Wetland profile
Coastal and subcoastal non-floodplain sand lakes (window) of all water types and water regimes	Coastal and subcoastal non-floodplain sand lakes - window	Coastal non-floodplain sand lakes
Coastal and subcoastal non-floodplain sand lakes (perched) of all water types and water regimes	Coastal and subcoastal non-floodplain sand lakes - perched	Coastal non-floodplain sand lakes
Coastal and subcoastal non-floodplain soil lakes of all water types and water regimes	Coastal and subcoastal non-floodplain soil lakes	Coastal and subcoastal floodplain lakes and non-floodplain soil lakes
Arid and semi-arid saline swamps of all substrates, water regimes, topographic types and vegetation communities	Arid and semi-arid saline swamps	Semi-arid swamps
Arid and semi-arid fresh tree swamps of all substrates, and water regimes and topographic types	Arid and semi-arid tree swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid lignum swamps of all substrates, and water regimes and topographic types	Arid and semi-arid lignum swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid grass, sedge, herb swamps of all substrates, water regimes and topographic types	Arid and semi-arid grass, sedge, herb swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid fresh non-floodplain tree swamps of all substrates and water regimes	Arid and semi-arid non-floodplain tree swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid fresh non-floodplain lignum swamps of all substrates and water regimes	Arid and semi-arid non-floodplain lignum swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid fresh non-floodplain grass, sedge, herb swamps of all substrates and water regimes	Arid and semi-arid non-floodplain grass, sedge, herb swamps	Arid swamps Semi-Arid swamps
Arid and semi-arid, non-floodplain swamps - springs of all substrates, water regimes and vegetation communities	Arid and semi-arid spring swamps	Great Artesian Basin spring wetlands
Arid and semi-arid, saline lakes of all substrates, topographic types and water regimes	Arid and semi-arid saline lakes	Arid and semi-arid lakes
Arid and semi-arid, floodplain lakes of all, substrates and water regimes	Arid and semi-arid floodplain lakes	Arid and semi-arid lakes
Arid and semi-arid, non-floodplain Lakes of all substrates and water regimes	Arid and semi-arid non-floodplain lakes	Arid and semi-arid lakes
Arid/ semi-arid, non-floodplain (clay pans) lakes of all substrates and water regimes	Arid and semi-arid fresh non-floodplain lakes (clay pans)	Arid and semi-arid lakes
Arid and semi-arid, Permanent Lakes permanently inundated lakes of all substrates, water types, topographic types and vegetation communities	Arid and semi-arid permanent lakes	Arid and semi-arid lakes



Queensland Government

Department of Environment and Science

Environmental Reports

Regional Ecosystems

Biodiversity Status

For the selected area of interest

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the input coordinates.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no matters of interest have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Important Note to User

Information presented in this report is based upon the Queensland Herbarium's Regional Ecosystem framework. The Biodiversity Status has been used to depict the extent of "Endangered", "Of Concern" and "No Concern at Present" regional ecosystems in all cases, rather than the classes used for the purposes of the *Vegetation Management Act 1999* (VMA). Mapping and figures presented in this document reflect the Queensland Herbarium's Remnant and Pre-clearing Regional Ecosystem Datasets, and not the certified mapping used for the purpose of the VMA.

For matters relevant to vegetation management under the VMA, please refer to the Department of Natural Resources, Mines and Energy website

<https://www.dnrme.qld.gov.au/>

Please direct queries about these reports to: Queensland.Herbarium@dsiti.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



Table of Contents

Summary Information	4
Regional Ecosystems	5
1. Introduction.....	5
2. Remnant Regional Ecosystems.....	6
3. Remnant Regional Ecosystems by Broad Vegetation Group.....	10
4. Technical and BioCondition Benchmark Descriptions	11
Maps	14
Map 1 - Location.....	14
Map 2 - Remnant 2017 regional ecosystems	15
Map 3 - Pre-clearing regional ecosystems.....	16
Map 4 - Remnant 2017 regional ecosystems by BVG (5M)	17
Map 5 - Pre-clearing regional ecosystems by BVG (5M).....	18
Map 6 - Wetlands and waterways	19
Links and Other Information Sources	20
References	20
Appendices	21
Appendix 1 - Source Data	21
Appendix 2 - Acronyms and Abbreviations	22

Summary Information

The following table provides an overview of the AOI with respect to selected topographic and environmental themes. Refer to **Map 1** for locality information.

Table 1: Area of interest details:

Size (ha)	44,210.83
Local Government(s)	Toowoomba Regional, Goondiwindi Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Eastern Darling Downs, Inglewood Sandstones, Moonie R. - Commoron Creek Floodout, Macintyre - Weir Fan
Catchment(s)	Border Rivers, Balonne-Condamine

The table below summarizes the extent of remnant vegetation classed as "Endangered", "Of concern" and "No concern at present" regional ecosystems classified by Biodiversity Status within the area of interest (AOI).

Table 2: Summary table, biodiversity status of regional ecosystems within the AOI

Biodiversity Status	Area (Ha)	% of AOI
Endangered	327.15	0.74
Of concern	1,567.24	3.54
No concern at present	5,536.01	12.52
Total remnant vegetation	7,430.40	16.81

Refer to **Map 2** for further information.

Regional Ecosystems

1. Introduction

Regional ecosystems are vegetation communities in a bioregion that are consistently associated with particular combinations of geology, landform and soil (Sattler and Williams 1999). Descriptions of Queensland's Regional ecosystems are available online from the Regional Ecosystem Description Database (REDD). Descriptions are compiled from a broad range of information sources including vegetation, land system and geology survey and mapping and detailed vegetation site data. The regional ecosystem classification and descriptions are reviewed as new information becomes available. A number of vegetation communities may form a single regional ecosystem and are usually distinguished by differences in dominant species, frequently in the shrub or ground layers and are denoted by a letter following the regional ecosystem code (e.g. a, b, c). Vegetation communities and regional ecosystems are amalgamated into a higher level classification of broad vegetation groups (BVGs).

A published methodology for survey and mapping of regional ecosystems across Queensland (Neldner et al 2017) provides further details on regional ecosystem concepts and terminology.

This report provides information on the type, status, and extent of vegetation communities, regional ecosystems and broad vegetation groups present within a user specified area of interest. Please note, for the purpose of this report, the Biodiversity Status is used. This report has not been developed for application of the *Vegetation Management Act 1999* (VMA). Additionally, information generated in this report has been derived from the Queensland Herbarium's Regional Ecosystem Mapping, and not the regulated mapping certified for the purposes of the VMA. If your interest/matter relates to regional ecosystems and the VMA, users should refer to the Department of Natural Resources, Mines and Energy website.

<https://www.dnrme.qld.gov.au/>

With respect to the Queensland Biodiversity Status,

"Endangered" regional ecosystems are described as those where:

- remnant vegetation is less than 10 per cent of its pre-clearing extent across the bioregion; or 10-30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares, or
- less than 10 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss*, or
- 10-30 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss and the remnant vegetation is less than 10,000 hectares; or
- it is a rare** regional ecosystem subject to a threatening process.***

"Of concern" regional ecosystems are described as those where:

- the degradation criteria listed above for 'Endangered' regional ecosystems are not met and,
- remnant vegetation is 10-30 per cent of its pre-clearing extent across the bioregion; or more than 20 per cent of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares, or
- 10-30 percent of its pre-clearing extent remains unaffected by moderate degradation and/or biodiversity loss.****

and "No concern at present" regional ecosystems are described as those where:

- remnant vegetation is over 30 per cent of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000 hectares, and
- the degradation criteria listed above for 'Endangered' or 'Of concern' regional ecosystems are not met.

**Severe degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 50 years even with the removal of threatening processes; or soil surface is severely degraded, for example, by loss of A horizon, surface expression of salinity; surface compaction, loss of organic matter or sheet erosion.*

***Rare regional ecosystem: pre-clearing extent (1000 ha); or patch size (100 ha and of limited total extent across its range).*

****Threatening processes are those that are reducing or will reduce the biodiversity and ecological integrity of a regional ecosystem. For example, clearing, weed invasion, fragmentation, inappropriate fire regime or grazing pressure, or infrastructure development.*

****Moderate degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 20 years even with the removal of threatening processes; or soil surface is moderately degraded.

2. Remnant Regional Ecosystems

The following table identifies the remnant regional ecosystems and vegetation communities mapped within the AOI and provides their short descriptions, Biodiversity Status, and remnant extent within the selected AOI. Please note, where heterogeneous vegetated patches (mixed patches of remnant vegetation mapped as containing multiple regional ecosystems) occur within the AOI, they have been split and listed as individual regional ecosystems (or vegetation communities where present) for the purposes of the table below. In such instances, associated area figures have been generated based upon the estimated proportion of each regional ecosystem (or vegetation community) predicted to be present within the larger mixed patch.

Table 3: Remnant regional ecosystems, description and status within the AOI

Regional Ecosystem	Short Description	BD Status	Area (Ha)	% of AOI
11.3.14	Eucalyptus spp., Angophora spp., Callitris spp. woodland on alluvial plains	No concern at present	161.95	0.37
11.3.18	Eucalyptus populnea, Callitris glaucophylla, Allocasuarina luehmannii shrubby woodland on alluvium	No concern at present	254.61	0.58
11.3.2	Eucalyptus populnea woodland on alluvial plains	Of concern	416.52	0.94
11.3.21	Dichanthium sericeum and/or Astrebla spp. grassland on alluvial plains. Cracking clay soils	Endangered	0.95	less than 0.01
11.3.25	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Of concern	467.49	1.06
11.3.27b	Freshwater wetlands	Of concern	57.88	0.13
11.3.4	Eucalyptus tereticornis and/or Eucalyptus spp. woodland on alluvial plains	Of concern	200.44	0.45
11.4.3	Acacia harpophylla and/or Casuarina cristata shrubby open forest on Cainozoic clay plains	Endangered	269.19	0.61
11.5.1	Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland on Cainozoic sand plains and/or remnant surfaces	No concern at present	1,350.10	3.05
11.5.14	Triodia sp. grassland with emergent trees on Cainozoic sand plains and/or remnant surfaces. Highly alkaline soils	Of concern	324.81	0.73
11.5.1a	Eucalyptus crebra and/or E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii woodland on Cainozoic sand plains and/or remnant surfaces	No concern at present	82.39	0.19
11.5.20	Eucalyptus moluccana and/or E. microcarpa and/or E. woollsiana +/- E. crebra woodland on Cainozoic sand plains	No concern at present	890.67	2.01
11.5.4	Eucalyptus chloroclada, Callitris glaucophylla, C. endlicheri, Angophora leiocarpa woodland on Cainozoic sand plains and/or remnant surfaces	No concern at present	1,571.17	3.55
11.7.4	Eucalyptus decorticans and/or Eucalyptus spp., Corymbia spp., Acacia spp., Lysicarpus angustifolius woodland on Cainozoic lateritic duricrust	No concern at present	37.77	0.09
11.7.5	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks	No concern at present	25.08	0.06

Regional Ecosystem	Short Description	BD Status	Area (Ha)	% of AOI
11.7.7	Eucalyptus fibrosa subsp. nubilis +/- Corymbia spp. +/- Eucalyptus spp. woodland on Cainozoic lateritic duricrust	No concern at present	195.46	0.44
11.8.11	Dichanthium sericeum grassland on Cainozoic igneous rocks	Of concern	8.56	0.02
11.8.2a	Eucalyptus tereticornis, E. melliodora woodland on Cainozoic igneous rocks	No concern at present	22.97	0.05
11.8.3	Semi-evergreen vine thicket on Cainozoic igneous rocks	Of concern	30.14	0.07
11.8.4	Eucalyptus melanophloia open woodland on Cainozoic igneous rocks.	No concern at present	318.57	0.72
11.8.5	Eucalyptus orgadophila open woodland on Cainozoic igneous rocks	No concern at present	625.27	1.41
11.9.5	Acacia harpophylla and/or Casuarina cristata open forest on fine-grained sedimentary rocks	Endangered	57.01	0.13
11.9.7	Eucalyptus populnea, Eremophila mitchellii shrubby woodland on fine-grained sedimentary rocks	Of concern	61.39	0.14
non-rem	None	None	36,598.67	82.78

Refer to **Map 2** for further information. **Map 3** also provides a visual estimate of the distribution of regional ecosystems present before clearing.

Table 4 provides further information in regards to the remnant regional ecosystems present within the AOI. Specifically, the extent of remnant vegetation remaining within the bioregion, the 1:1,000,000 broad vegetation group (BVG) classification, whether the regional ecosystem is identified as a wetland, and extent of representation in Queensland's Protected Area Estate. For a description of the vegetation communities within the AOI and classified according to the 1:1,000,000 BVG, refer to **Table 6**.

Table 4: Remnant regional ecosystems within the AOI, additional information

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.3.14	Pre-clearing 106000 ha; Remnant 2017 81000 ha	18a	None	Low
11.3.18	Pre-clearing 141000 ha; Remnant 2017 79000 ha	17a	None	Low
11.3.2	Pre-clearing 1926000 ha; Remnant 2017 506000 ha	17a	Contains palustrine wetland (e.g. in swales).	Low
11.3.21	Pre-clearing 448000 ha; Remnant 2017 52000 ha	30a	Floodplain (other than floodplain wetlands).	Low
11.3.25	Pre-clearing 795000 ha; Remnant 2017 512000 ha	16a	Riverine wetland or fringing riverine wetland.	Low
11.3.27b	Pre-clearing 52000 ha; Remnant 2017 49000 ha	34d	Lacustrine wetland (e.g. lake).	Low
11.3.4	Pre-clearing 684000 ha; Remnant 2017 179000 ha	16c	Floodplain (other than floodplain wetlands).	Low
11.4.3	Pre-clearing 1551000 ha; Remnant 2017 73000 ha	25a	Contains palustrine wetland (e.g. in swales).	Low
11.5.1	Pre-clearing 774000 ha; Remnant 2017 478000 ha	18b	None	Low

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.5.14	Pre-clearing 4000 ha; Remnant 2017 4000 ha	33b	None	No representation
11.5.1a	Pre-clearing 774000 ha; Remnant 2017 478000 ha	17a	None	Low
11.5.20	Pre-clearing 229000 ha; Remnant 2017 150000 ha	13d	None	Low
11.5.4	Pre-clearing 142000 ha; Remnant 2017 109000 ha	18b	None	Low
11.7.4	Pre-clearing 350000 ha; Remnant 2017 226000 ha	12a	None	Low
11.7.5	Pre-clearing 74000 ha; Remnant 2017 63000 ha	29b	None	Medium
11.7.7	Pre-clearing 199000 ha; Remnant 2017 171000 ha	12a	None	Low
11.8.11	Pre-clearing 606000 ha; Remnant 2017 173000 ha	30b	None	Low
11.8.2a	Pre-clearing 53000 ha; Remnant 2017 36000 ha	11a	None	High
11.8.3	Pre-clearing 81000 ha; Remnant 2017 25000 ha	7a	None	Low
11.8.4	Pre-clearing 217000 ha; Remnant 2017 151000 ha	11a	None	High
11.8.5	Pre-clearing 631000 ha; Remnant 2017 347000 ha	11a	None	Low
11.9.5	Pre-clearing 2272000 ha; Remnant 2017 163000 ha	25a	None	Low
11.9.7	Pre-clearing 512000 ha; Remnant 2017 104000 ha	17a	None	Low
non-rem	None	None	None	None

Representation in Protected Area Estate: High greater than 10% of pre-clearing extent is represented; Medium 4 - 10% is represented; Low less than 4% is represented, No representation.

The distribution of mapped wetland systems within the area of interest is displayed in **Map 6**.

The following table lists known special values associated with a regional ecosystem type.

Table 5: Remnant regional ecosystems within the AOI, special values

Regional Ecosystem	Special Values
11.3.14	Potential habitat for NCA listed species: <i>Acacia handonis</i> , <i>Fimbristylis vagans</i>
11.3.18	Habitat for threatened flora species <i>Acacia curranii</i> , <i>A. lauta</i> and <i>Lomandra teres</i> .
11.3.2	Habitat for threatened flora species <i>Homopholis belsonii</i> .
11.3.21	Habitat for threatened flora species including <i>Thesium australe</i> , <i>Picris evae</i> , <i>Dichanthium queenslandicum</i> and the near threatened flora species <i>Digitaria porrecta</i> and fauna species including grassland earless dragon <i>Tympanocryptis pinguicolla</i> , five-clawed worm skink <i>Anomalopus mackayi</i> and grey snake <i>Hemiaspis damelii</i> .

Regional Ecosystem	Special Values
11.3.25	Shown to be associated with a high fauna species richness in the Taroom area (Venz et al. 2002). Within parts of the Fitzroy catchment, this RE is known habitat for the threatened freshwater turtle <i>Rheodytes leukops</i> . Known to be important habitat for other riparian freshwater turtle species.
11.3.27b	Habitat for a diverse range of fauna species (Venz et al. 2002) particularly birds. 11.3.27a: Provides wetland habitat for a flora and fauna.
11.3.4	Potential habitat for NCA listed species: <i>Acacia pedleyi</i> , <i>Callicarpa thozetii</i> , <i>Cycas megacarpa</i> , <i>Cycas ophiolitica</i> , <i>Digitaria porrecta</i> , <i>Eriocaulon carsonii</i> subsp. <i>orientale</i> , <i>Livistona nitida</i> , <i>Rhaponticum australe</i> , <i>Samadera bidwillii</i> , <i>Sannantha brachypoda</i> ,
11.4.3	Specific habitat for threatened flora species including <i>Xerothamnella herbacea</i> (Endangered) and <i>Eucalyptus argophloia</i> (Vulnerable) and <i>Jalmenus eubulus</i> , pale imperial hairstreak butterfly (Eastwood et al. 2008). Larger gilgai may provide ephemeral wetland habitat. 11.4.3a: Provides important wetland habitat. 11.4.3b: Larger gilgai may provide ephemeral wetland habitat.
11.5.1	Habitat for threatened plant species including <i>Acacia handonis</i> and <i>Acacia argyrot richa</i>
11.5.14	Potential habitat for NCA listed species: <i>Acacia argyrot richa</i>
11.5.1a	Habitat for threatened plant species including <i>Acacia handonis</i> and <i>Acacia argyrot richa</i>
11.5.20	Potential habitat for NCA listed species: <i>Acacia handonis</i> , <i>Macrozamia machinii</i> , <i>Macrozamia platyrhachis</i>
11.5.4	Potential habitat for NCA listed species: <i>Macrozamia machinii</i>
11.7.4	Potential habitat for NCA listed species: <i>Acacia calantha</i> , <i>Acacia handonis</i> , <i>Acacia islana</i> , <i>Acacia rubricola</i> , <i>Acacia wardellii</i> , <i>Bertya pedicellata</i> , <i>Calytrix gurulumundensis</i> , <i>Denhamia parvifolia</i> , <i>Eucalyptus beaniana</i> , <i>Eucalyptus curtisii</i> , <i>Eucalyptus pachycaly</i>
11.7.5	Habitat of threatened plant species including <i>Eucalyptus broviniensis</i> , <i>Micromyrtus carinata</i> , <i>Micromyrtus patula</i> , <i>Acacia curranii</i> , <i>Calytrix gurulumundensis</i> and <i>Homoranthus decumbens</i> .
11.7.7	Potential habitat for NCA listed species: <i>Acacia handonis</i> , <i>Acacia lauta</i> , <i>Acacia wardellii</i> , <i>Boronia grimshawii</i> , <i>Commersonia ingelewoodensis</i> , <i>Eucalyptus curtisii</i> , <i>Eucalyptus virens</i> , <i>Leucopogon</i> sp. (Coolmunda D.Halford Q1635), <i>Macrozamia conferta</i> , <i>Macrozamia</i>
11.8.11	Habitat for threatened plant species including <i>Trioncinia retroflexa</i> and <i>Dichanthium queenslandicum</i> . <i>T. retroflexa</i> is currently known from three small populations.
11.8.2a	Potential habitat for NCA listed species: <i>Discaria pubescens</i> , <i>Homopholis belsonii</i> , <i>Picris evae</i> , <i>Prasophyllum incompositum</i> , <i>Thesium australe</i>
11.8.3	Habitat for threatened plant species <i>Croton magneticus</i> .
11.8.4	Potential habitat for NCA listed species: <i>Acacia arbiana</i> , <i>Acacia islana</i> , <i>Bertya pedicellata</i> , <i>Grevillea hockingsii</i> , <i>Haloragis exalata</i> subsp. <i>velutina</i> , <i>Marsdenia brevifolia</i> , <i>Sannantha brachypoda</i>
11.8.5	In southern part of bioregion, habitat for a number of threatened plant species including <i>Picris evae</i> and <i>Thesium australe</i> and near threatened species <i>Digitaria porrecta</i> and <i>Discaria pubescens</i> .

Regional Ecosystem	Special Values
11.9.5	Habitat for threatened fauna species including <i>Jalmenus eubulus</i> , pale imperial hairstreak butterfly (Eastwood et al. 2008)
11.9.7	None
non-rem	None

3. Remnant Regional Ecosystems by Broad Vegetation Group

BVGs are a higher-level grouping of vegetation communities. Queensland encompasses a wide variety of landscapes across temperate, wet and dry tropics and semi-arid climatic zones. BVGs provide an overview of vegetation communities across the state or a bioregion and allow comparison with other states. There are three levels of BVGs which reflect the approximate scale at which they are designed to be used: the 1:5,000,000 (national), 1:2,000,000 (state) and 1:1,000,000 (regional) scales.

A comprehensive description of BVGs is available at:

<https://publications.qld.gov.au/dataset/redd/resource/>

The following table provides a description of the 1:1,000,000 BVGs present and their associated extent within the AOI.

Table 6: Broad vegetation groups (1 million) within the AOI

BVG (1 Million)	Description	Area (Ha)	% of AOI
None	None	36,598.67	82.78
11a	Moist to dry open forests to woodlands dominated by <i>Eucalyptus orgadophila</i> (mountain coolibah). Some areas dominated by <i>E. tereticornis</i> (blue gum), <i>E. melliodora</i> (yellow box), <i>E. albens</i> (white box), <i>E. crebra</i> (narrow-leaved red ironbark) or <i>E. melanophloia</i> (silver-leaved ironbark). (land zones 8, 11, 4, [3]) (BRB, SEQ, EIU)	966.81	2.19
12a	Dry woodlands to open woodlands dominated by ironbarks such as <i>Eucalyptus decorticans</i> (gum-topped ironbark), <i>E. fibrosa</i> subsp. <i>nubila</i> (blue-leaved ironbark), or <i>E. crebra</i> (narrow-leaved red ironbark) and/or bloodwoods such as <i>Corymbia trachyphloia</i> (yellow bloodwood), <i>C. leichhardtii</i> (rustyjacket), <i>C. watsoniana</i> (Watson's yellow bloodwood), <i>C. lamprophylla</i> , <i>C. peltata</i> (yellowjacket). Occasionally <i>E. thozetiana</i> (mountain yapunyah), <i>E. cloeziana</i> (Gympie messmate) or <i>E. mediocris</i> are dominant. Mostly on sub-coastal/inland hills with shallow soils. (land zones 10, 7, 9) (BRB, DEU, SEQ, GUP)	233.23	0.53
13d	Woodlands dominated by <i>Eucalyptus moluccana</i> (gum-topped box) (or <i>E. microcarpa</i> (inland grey box)) on a range of substrates. (land zone 5, 9, 3, 11, 12) (BRB, SEQ, EIU, CQC, [NET, WET])	890.67	2.01
16a	Open forest and woodlands dominated by <i>Eucalyptus camaldulensis</i> (river red gum) (or <i>E. tereticornis</i> (blue gum)) and/or <i>E. coolabah</i> (coolabah) (or <i>E. microtheca</i> (coolabah)) fringing drainage lines. Associated species may include <i>Melaleuca</i> spp., <i>Corymbia tessellaris</i> (carbeen), <i>Angophora</i> spp., <i>Casuarina cunninghamiana</i> (riveroak). Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded. (land zone 3) (MGD, BRB, GUP, CHC, MUL, DEU, EIU, NWH, SEQ, [NET, WET]) (All bioregions except CYP and CQC)	467.49	1.06

BVG (1 Million)	Description	Area (Ha)	% of AOI
16c	Woodlands and open woodlands dominated by <i>Eucalyptus coolabah</i> (coolabah) or <i>E. microtheca</i> (coolabah) or <i>E. largiflorens</i> (black box) or <i>E. tereticornis</i> (blue gum) or <i>E. chlorophylla</i> on floodplains. Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded. (land zone 3) (All bioregions except WET, principally GUP, BRB, MUL).	200.44	0.45
17a	Woodlands dominated by <i>Eucalyptus populnea</i> (poplar box) (or <i>E. brownii</i> (Reid River box)) on alluvium, sand plains and footslopes of hills and ranges. (land zones 3, 5, 10, 9, 4, 11, 12, [8]) (BRB, MUL, DEU, MUL, EIU)	814.91	1.84
18a	Dry woodlands to open woodlands, dominated by bloodwoods (<i>Corymbia dallachiana</i> , <i>C. terminalis</i> (long-fruited bloodwood), <i>C. plena</i> , or <i>C. leichhardtii</i> (rustyjack)) or ironbarks (<i>Eucalyptus quadricostata</i> (Pentland ironbark), <i>E. crebra</i> (narrow-leaved red ironbark) or <i>E. exilipes</i> (fine-leaved ironbark)), often with <i>E. acmenoides</i> (narrow-leaved white stringybark), <i>Angophora leiocarpa</i> (rusty gum) and <i>Callitris glaucophylla</i> (white cypress pine) in the Brigalow Belt, on sandy plateaus and plains. (land zones 5, 3, 7) (GUP, DEU, BRB)	161.95	0.37
18b	Woodlands dominated <i>Eucalyptus crebra</i> (sens. lat.) (narrow-leaved red ironbark) frequently with <i>Corymbia</i> spp. or <i>Callitris</i> spp. on flat to undulating plains. (land zones 5, 3) (BRB, DEU, EIU, GUP, CYP)	2,921.27	6.61
25a	Open forests to woodlands dominated by <i>Acacia harpophylla</i> (brigalow) sometimes with <i>Casuarina cristata</i> (belah) on heavy clay soils. Includes areas co-dominated with <i>A. cambagei</i> (gidgee) and/or emergent eucalypts (land zones 4, 9, 3, 11, 7, 12, [5, 8]) (BRB, MUL, MGD, DEU, [SEQ])	326.2	0.74
29b	Open shrublands to open heaths in montane frequently rocky locations. (land zones 7, 12, 11, 5, 8, 10) (BRB, NWH, WET, CYP, EIU, SEQ, DEU, [NET, CQC])	25.08	0.06
30a	Tussock grasslands dominated by <i>Astrebla</i> spp. (mitchell grass) or <i>Dichanthium</i> spp. (bluegrass) often with <i>Eulalia aurea</i> (silky browntop) on alluvia. (land zones 3, 4) (MGD, GUP, BRB, MUL, [DEU])	0.95	less than 0.01
30b	Tussock grasslands dominated by <i>Astrebla</i> spp. (mitchell grass) or <i>Dichanthium</i> spp. (bluegrass) often with <i>Iseilema</i> spp. on undulating downs or clay plains. (land zones 9, 3, 4, 8, [5]) (MGD, CHC, GUP, BRB, [EIU, DEU, NWH])	8.56	0.02
33b	Hummock grasslands dominated by <i>Triodia pungens</i> or <i>T. longiceps</i> (giant grey spinifex) or <i>T. mitchellii</i> (buck spinifex) sandplains. (land zones 6, 7, 5, [3, 9]) (MUL, MGD, GUP, DEU, [BRB])	324.81	0.73
34d	Palustrine wetlands. Freshwater swamps/springs/billabongs on floodplains ranging from permanent and semi-permanent to ephemeral. (land zone 3) (GUP, EIU, BRB, CYP, CHC, [MGD])	57.88	0.13
7a	Semi-evergreen vine thickets on wide range of substrates. (land zones 8, 9, 11, 12, 5, 4, 3, 10, [7]) (BRB, EIU, SEQ, CQC, [WET, GUP]) (Tracey 1982 11)	30.14	0.07

Refer to **Map 4** for further information. **Map 5** also provides a representation of the distribution of vegetation communities as per the 1:5,000,000 BVG believed to be present prior to European settlement.

4. Technical and BioCondition Benchmark Descriptions

Technical descriptions provide a detailed description of the full range in structure and floristic composition of regional ecosystems (e.g. 11.3.1) and their component vegetation communities (e.g. 11.3.1a, 11.3.1b). See:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/>

The descriptions are compiled using site survey data from the Queensland Herbarium's CORVEG database. Distribution maps, representative images (if available) and the pre-clearing and remnant extent (hectares) of each vegetation community derived from the regional ecosystem mapping data are included. The technical descriptions should be used in conjunction with the fields from the regional ecosystem description database (REDD) for a full description of the regional ecosystem.

Technical descriptions include data on canopy height, canopy cover and native plant species composition of the predominant layer, which are attributes relevant to assessment of the remnant status of vegetation under the *Vegetation Management Act 1999*. However, as technical descriptions reflect the full range in structure and floristic composition across the climatic, natural disturbance and geographic range of the regional ecosystem, local reference sites should be used for remnant assessment where possible (Neldner et al. 2012 (PDF)* section 3.3.1 of:

<https://publications.qld.gov.au/dataset/redd/resource/>

The technical descriptions are subject to review and are updated as additional data becomes available.

When conducting a BioCondition assessment, these technical descriptions should be used in conjunction with BioCondition benchmarks for the specific regional ecosystem, or component vegetation community.

<http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/>

Benchmarks are based on a combination of quantitative and qualitative information and should be used as a guide only. Benchmarks are specific to one regional ecosystem vegetation community, however, the natural variability in structure and floristic composition under a range of climatic and natural disturbance regimes has been considered throughout the geographic extent of the regional ecosystem. Local reference sites should be used for this spatial and temporal (seasonal and annual) variability.

Table 7: List of remnant regional ecosystems within the AOI for which technical and biocondition benchmark descriptions are available

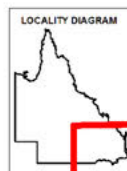
Regional ecosystems mapped as within the AOI	Technical Descriptions	Biocondition Benchmarks
11.3.14	Available	Not currently available
11.3.18	Available	Not currently available
11.3.2	Available	Not currently available
11.3.21	Not currently available	Not currently available
11.3.25	Available	Not currently available
11.3.27b	Available	Not currently available
11.3.4	Available	Not currently available
11.4.3	Available	Not currently available
11.5.1	Available	Not currently available
11.5.14	Not currently available	Not currently available
11.5.1a	Available	Not currently available
11.5.20	Available	Not currently available
11.5.4	Available	Not currently available
11.7.4	Available	Not currently available
11.7.5	Available	Not currently available
11.7.7	Available	Not currently available
11.8.11	Available	Not currently available
11.8.2a	Available	Not currently available

Regional ecosystems mapped as within the AOI	Technical Descriptions	Biocondition Benchmarks
11.8.3	Available	Not currently available
11.8.4	Available	Not currently available
11.8.5	Available	Not currently available
11.9.5	Available	Not currently available
11.9.7	Available	Not currently available
non-rem	Not currently available	Not currently available

Map 1 - Location



- polygon
- Towns
- Highway
- Connector
- Street/Local Road
- Reservoirs
- Lakes
- National Park (Scientific)
- National Park
- National Park (CYPAL)
- Conservation Park
- Resources Reserve
- Forest Reserve
- State Forest
- Timber Reserve
- Nature Refuges
- Coordinated Conservation Areas
- Major rivers/creeks
- Queensland



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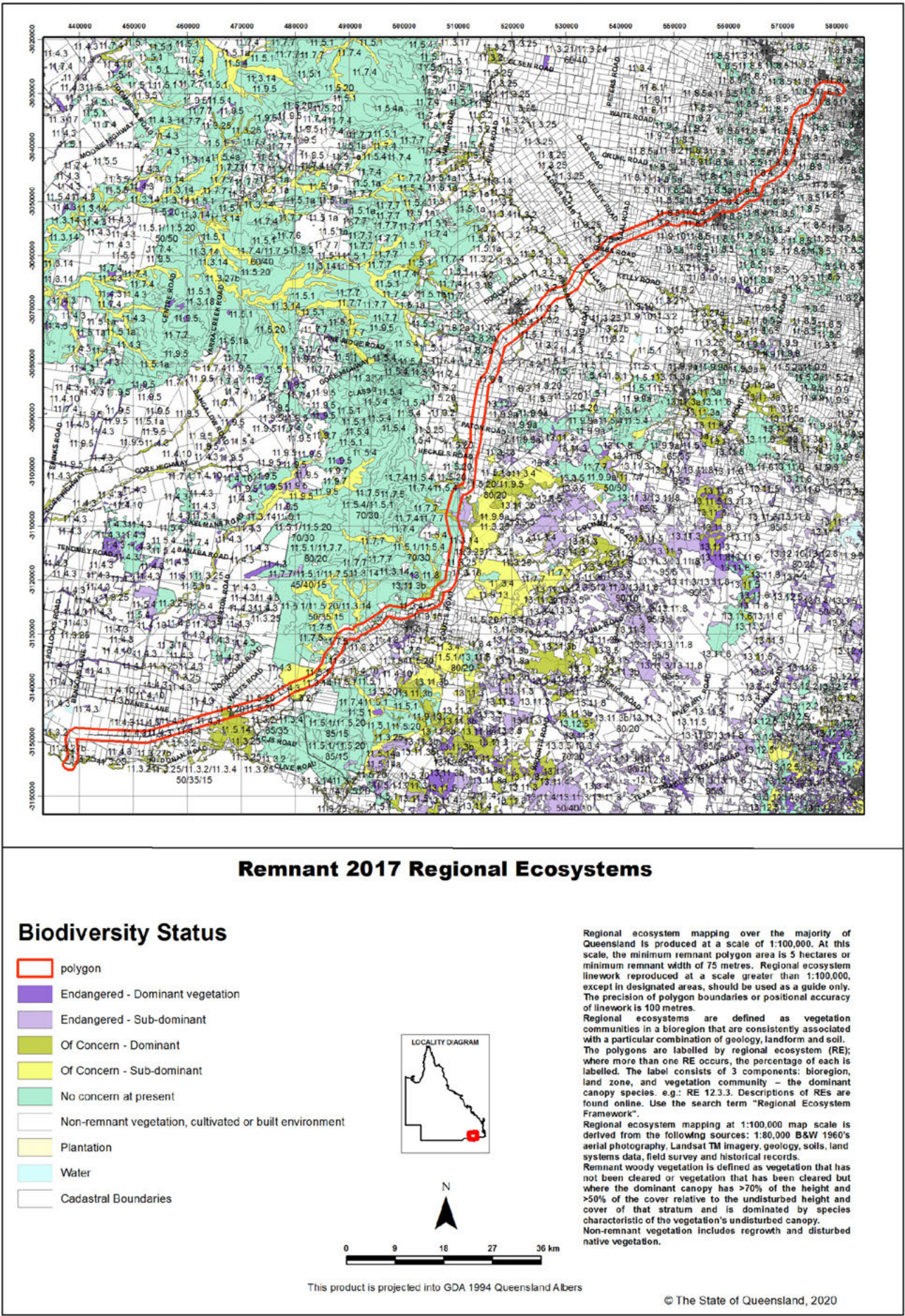
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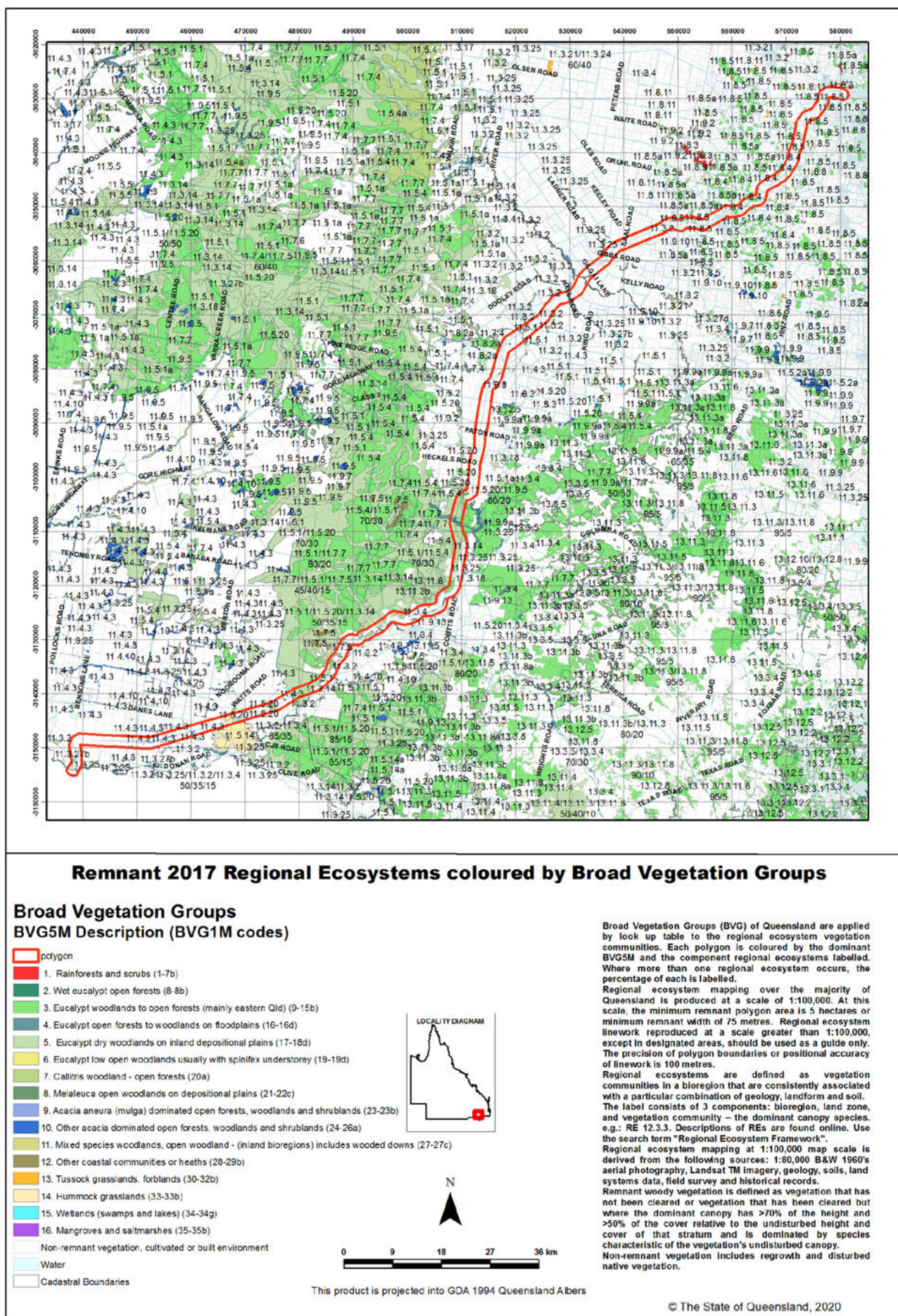
Map 2 - Remnant 2017 regional ecosystems



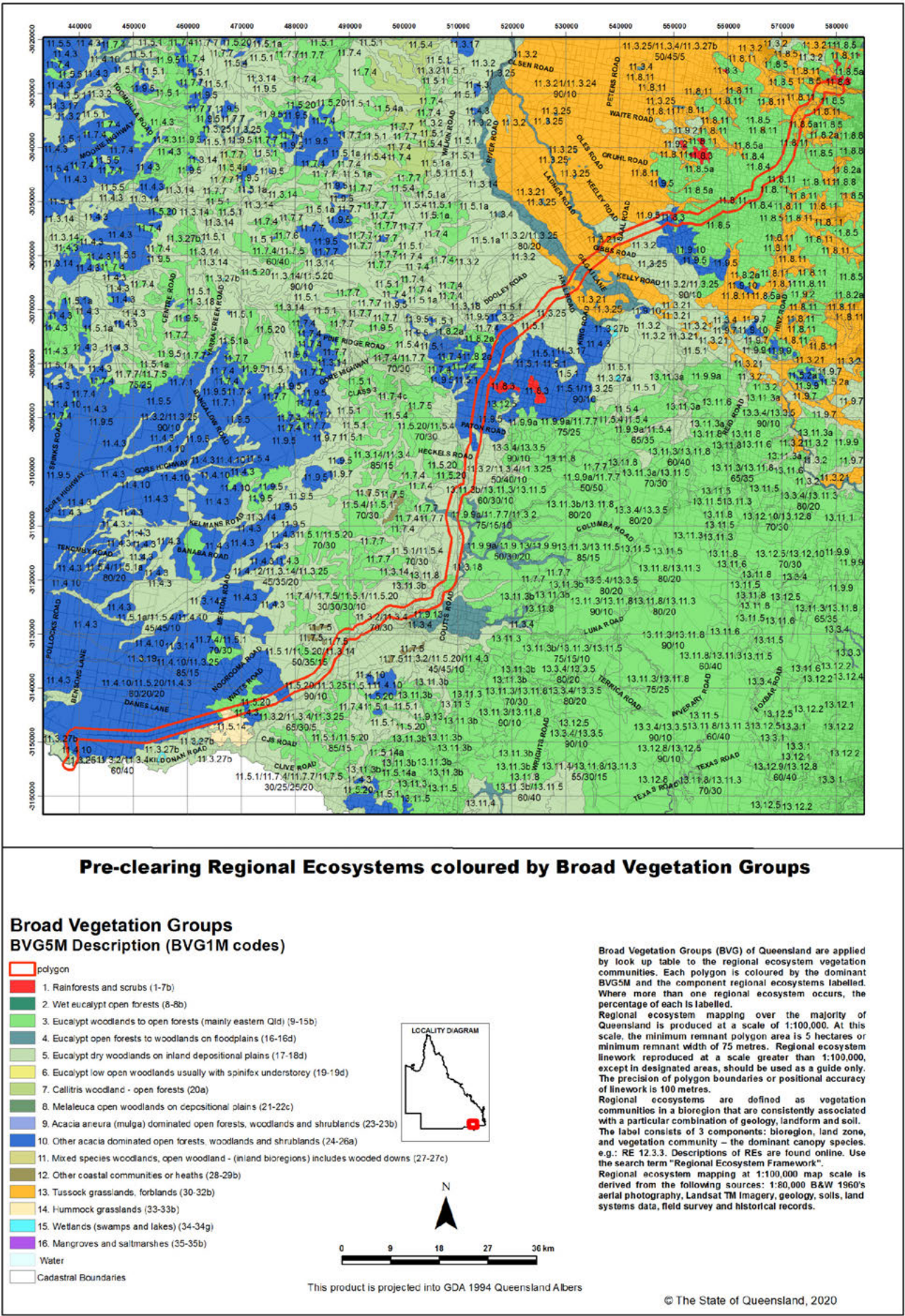
The map displays a complex network of roads and associated numerical data points. The roads are labeled with names such as I-35, I-10, and various state roads. The numerical data points are organized in a grid-like pattern, with each point consisting of a series of numbers, often separated by slashes. The map also shows geographical features like lakes and rivers, and a coordinate grid with latitude and longitude markings.

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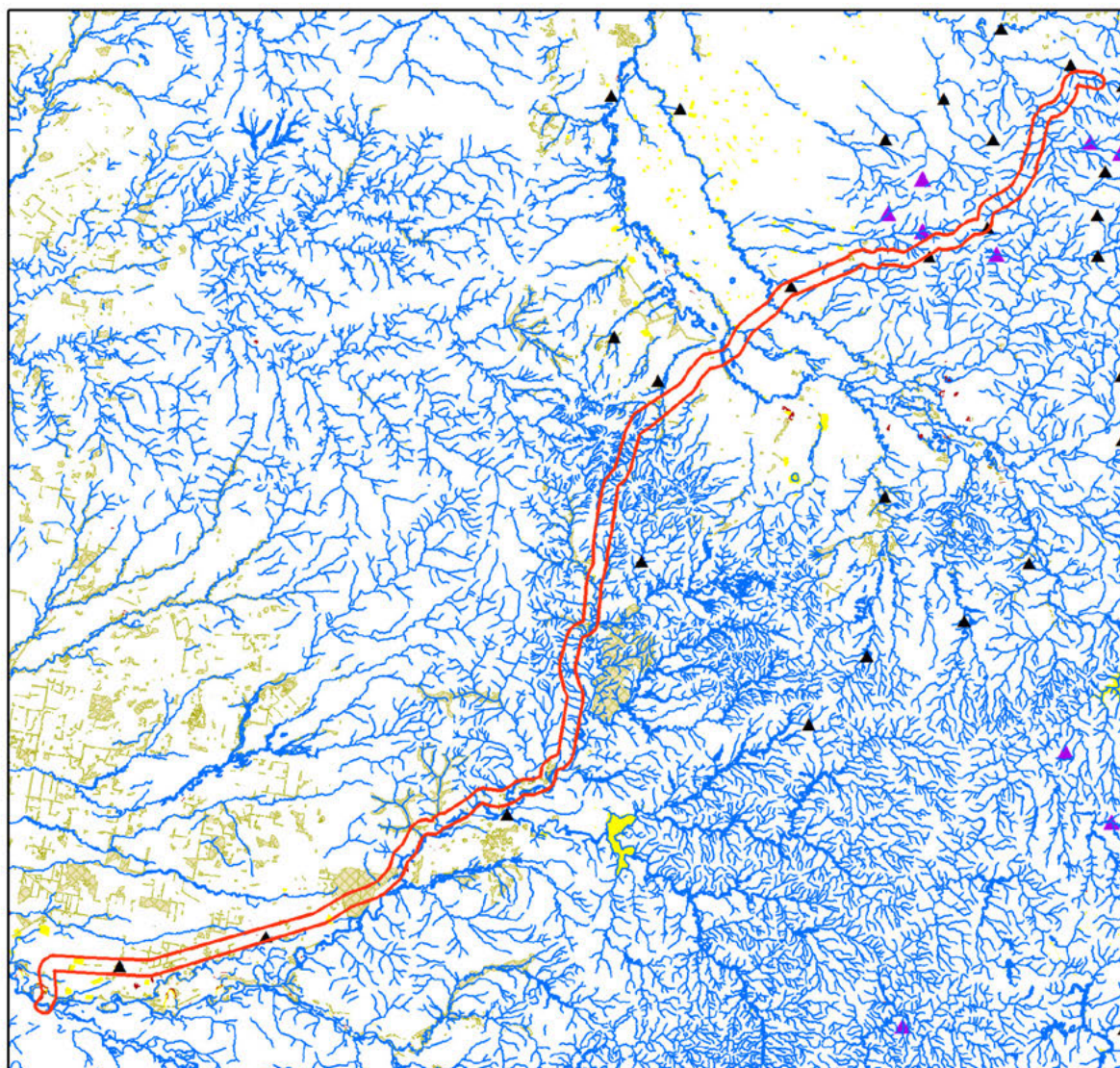
Map 4 - Remnant 2017 regional ecosystems by BVG (5M)



Map 5 - Pre-clearing regional ecosystems by BVG (5M)



Map 6 - Wetlands and waterways



Queensland Wetland Data

Legend

□ polygon

▲ Towns

Queensland Wetland Data

— Riverine Drainage Lines

▲ Springs

Wetland System - Water Bodies

□ Marine Waterbodies

□ Estuarine Waterbodies

□ Riverine Waterbodies

□ Lacustrine Waterbodies

□ Palustrine Waterbodies

Wetland System - Regional Ecosystems

□ Marine RE

□ Estuarine RE

□ Riverine RE

□ Lacustrine RE

□ Palustrine RE

□ RE 51-80% wetland (mosaic units)

□ RE 1-50% wetland (mosaic units)



0 8200 16400 24600 32800 41000 m

Accuracy information: The positional accuracy of wetland data mapped at a scale of 1:100,000 is +/-100m with a minimum polygon size of 5ha or 75m wide for linear features, except for areas along the east coast which are mapped at the 1:50,000 scale with a positional accuracy of +/-50m, with a minimum polygon size of 1ha or 35m wide for linear features. Wetlands smaller than 1ha are not delineated on the wetland data. Consideration of the effects of mapped scale is necessary when interpreting data at a larger scale, e.g. 1:25,000. For property assessment, digital linework should be used as a guide only. The extent of wetlands depicted on this map is based on rectified 2013 Landsat ETM+ imagery supplied by Statewide Landcover and Trees Study (SLATS), Department of Environment and Science. The extent of water bodies is based on the maximum extent of inundation derived from available Landsat imagery up to and including the 2013 imagery.

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Links and Other Information Sources

The Department of Environment and Science's Website -

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/>

provides further information on the regional ecosystem framework, including access to links to the Regional Ecosystem Database, Broad Vegetation Group Definitions, Regional Ecosystem and Land zone descriptions.

Descriptions of the broad vegetation groups of Queensland can be downloaded from:

<https://publications.qld.gov.au/dataset/redd/resource/>

The methodology for mapping regional ecosystems can be downloaded from:

<https://publications.qld.gov.au/dataset/redd/resource/>

Technical descriptions for regional ecosystems can be obtained from:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/>

Benchmarks can be obtained from:

<http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/>

For further information associated with the remnant regional ecosystem dataset used by this report, refer to the metadata associated with the Biodiversity status of pre-clearing and Remnant Regional Ecosystems of Queensland dataset (version listed in **Appendix 1**) which is available through the Queensland Government Information System portal,

<http://dds.information.qld.gov.au/dds/>

The Queensland Globe is a mapping and data application. As an interactive online tool, Queensland Globe allows you to view and explore Queensland maps, imagery (including up-to-date satellite images) and other spatial data, including regional ecosystem mapping. To further view and explore regional ecosystems over an area of interest, access the Biota Globe (a component of the Queensland Globe). The Queensland Globe can be accessed via the following link:

<http://www.dnrm.qld.gov.au/mapping-data/queensland-globe>

References

Neldner, V.J., Niehus R.E., Wilson, B.A. McDonald, W.J.F., Ford, A.J. and Accad, A. (2017) The Vegetation of Queensland. Descriptions of Broad Vegetation Groups. Version 3.0. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts.

<https://publications.qld.gov.au/dataset/redd/resource/78209e74-c7f2-4589-90c1-c33188359086>

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S. and Butler, D.W. (2017) *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland*. Version 4.0. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts.

<https://publications.qld.gov.au/dataset/redd/resource/6dee78ab-c12c-4692-9842-b7257c2511e4>

Sattler, P.S. and Williams, R.D. (eds) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems*. Environmental Protection Agency, Brisbane.

Appendices

Appendix 1 - Source Data

The dataset listed below is available for download from:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/download/>

- Regional Ecosystem Description Database

The datasets listed below are available for download from:

<http://dds.information.qld.gov.au/dds/>

- Biodiversity status of pre-clearing and 2017 remnant regional ecosystems of Queensland
- Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland
- Queensland Wetland Data Version - Wetland lines
- Queensland Wetland Data Version - Wetland points
- Queensland Wetland Data Version - Wetland areas

Appendix 2 - Acronyms and Abbreviations

AOI	- Area of Interest
GDA94	- Geocentric Datum of Australia 1994
GIS	- Geographic Information System
RE	- Regional Ecosystem
REDD	- Regional Ecosystem Description Database
VMA	- <i>Vegetation Management Act 1999</i>

Back on track species

Accessed 25th February 2020

Kingdom	Family	Plant or Animal Type	Species Name	Common Name	State Rank	Link
Animals	Accipitridae	Birds	Erythroriorchis radiatus	red goshawk	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18859&species=Erythroriorchis radiatus&k=Erythroriorchis radiatus
Animals	Agamidae	Reptiles	Tympanocryptis condaminensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21379&species=Tympanocryptis condaminensis&k=Tympanocryptis condaminensis
Animals	Artamidae	Birds	Artamus cinereus normani	black-faced woodswallow (Cape York Peninsula)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17746&species=Artamus cinereus normani&k=Artamus cinereus normani
Animals	Atrichornithidae	Birds	Atrichornis rufescens	rufous scrub-bird	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17786&species=Atrichornis rufescens&k=Atrichornis rufescens
Animals	Atyidae	Crabs, crayfish and shrimps	Caridina thermophila		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18076&species=Caridina thermophila&k=Caridina thermophila
Animals	Bithyniidae	Snails	Gabbia fontana		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19048&species=Gabbia fontana&k=Gabbia fontana
Animals	Boidae	Reptiles	Aspidites ramsayi	woma	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17764&species=Aspidites ramsayi&k=Aspidites ramsayi
Animals	Burhinidae	Birds	Esacus magnirostris	beach stone-curlew	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18862&species=Esacus magnirostris&k=Esacus magnirostris
Animals	Cacatuidae	Birds	Calyptorhynchus lathami lathami	glossy black-cockatoo (eastern)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18007&species=Calyptorhynchus lathami lathami&k=Calyptorhynchus lathami lathami

Animals	Cacatuidae	Birds	Lophochroa leadbeateri	Major Mitchell's cockatoo	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19768&species=Lophochroa leadbeateri&k=Lophochroa leadbeateri
Animals	Camaenidae	Snails	Adclarkia dawsonensis	boggomoss snail	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17522&species=Adclarkia dawsonensis&k=Adclarkia dawsonensis
Animals	Camaenidae	Snails	Bentosites hefferani		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18016&species=Bentosites hefferani&k=Bentosites hefferani
Animals	Camaenidae	Snails	Billordia nicolletteae		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18017&species=Billordia nicolletteae&k=Billordia nicolletteae
Animals	Camaenidae	Snails	Jimbouria rodhobsoni	Jimbour black soil snail	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18018&species=Jimbouria rodhobsoni&k=Jimbouria rodhobsoni
Animals	Camaenidae	Snails	Lamprellia angulata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18020&species=Lamprellia angulata&k=Lamprellia angulata
Animals	Camaenidae	Snails	Lynfergusonia mundubbera		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18015&species=Lynfergusonia mundubbera&k=Lynfergusonia mundubbera
Animals	Camaenidae	Snails	Perioinsolita pokryszkoae		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18014&species=Perioinsolita pokryszkoae&k=Perioinsolita pokryszkoae
Animals	Camaenidae	Snails	Sphaerospira mossmani		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21042&species=Sphaerospira mossmani&k=Sphaerospira mossmani
Animals	Camaenidae	Snails	Steorra estherlilleyae		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18019&species=Steorra estherlilleyae&k=Steorra estherlilleyae
Animals	Carcharhinidae	Fish	Glyphis glyphis	Bizant River shark	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19142&species=Glyphis glyphis&k=Glyphis glyphis

Animals	Carphodactylidae	Reptiles	Phyllurus championae		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20483&species=Phyllurus championae&k=Phyllurus championae
Animals	Carphodactylidae	Reptiles	Phyllurus gulbaru	Gulbaru gecko	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20484&species=Phyllurus gulbaru&k=Phyllurus gulbaru
Animals	Carphodactylidae	Reptiles	Phyllurus isis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20485&species=Phyllurus isis&k=Phyllurus isis
Animals	Carphodactylidae	Reptiles	Phyllurus ossa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20487&species=Phyllurus ossa&k=Phyllurus ossa
Animals	Carphodactylidae	Reptiles	Uvidicolus sphyrurus	border thick-tailed gecko	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21415&species=Uvidicolus sphyrurus&k=Uvidicolus sphyrurus
Animals	Casuariidae	Birds	Casuarius casuarius johnsonii (southern population)	southern cassowary (southern population)	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18106&species=Casuarius casuarius johnsonii (southern population)&k=Casuarius casuarius johnsonii (southern population)
Animals	Ceratodontidae	Fish	Neoceratodus forsteri	Australian lungfish	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20095&species=Neoceratodus forsteri&k=Neoceratodus forsteri
Animals	Chelidae	Reptiles	Elseya albagula	southern snapping turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18780&species=Elseya albagula&k=Elseya albagula
Animals	Chelidae	Reptiles	Elseya irwini	Irwin's turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18781&species=Elseya irwini&k=Elseya irwini
Animals	Chelidae	Reptiles	Elseya irwini (Johnstone)	Johnstone River snapping turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18782&species=Elseya irwini (Johnstone)&k=Elseya irwini (Johnstone)
Animals	Chelidae	Reptiles	Elseya lavarackorum	Gulf snapping turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18783&species=Elseya lavarackorum&k=Elseya lavarackorum
Animals	Chelidae	Reptiles	Elusor macrurus	Mary River turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18785&species=Elusor macrurus&k=Elusor macrurus

Animals	Chelidae	Reptiles	Rheodytes leukops	Fitzroy River turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20835&species=Rheodytes leukops&k=Rheodytes leukops
Animals	Chelidae	Reptiles	Wollumbinia belli	Bell's turtle	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21480&species=Wollumbinia belli&k=Wollumbinia belli
Animals	Cheloniidae	Reptiles	Caretta caretta	loggerhead turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18070&species=Caretta caretta&k=Caretta caretta
Animals	Cheloniidae	Reptiles	Chelonia mydas	green turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18199&species=Chelonia mydas&k=Chelonia mydas
Animals	Cheloniidae	Reptiles	Eretmochelys imbricata	hawksbill turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18850&species=Eretmochelys imbricata&k=Eretmochelys imbricata
Animals	Cheloniidae	Reptiles	Lepidochelys olivacea	olive ridley turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19616&species=Lepidochelys olivacea&k=Lepidochelys olivacea
Animals	Cheloniidae	Reptiles	Natator depressus	flatback turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20081&species=Natator depressus&k=Natator depressus
Animals	Dasyatidae	Fish	Dasyatis fluviorum	estuary stingray	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18576&species=Dasyatis fluviorum&k=Dasyatis fluviorum
Animals	Dasyornithidae	Birds	Dasyornis brachypterus	eastern bristlebird	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18579&species=Dasyornis brachypterus&k=Dasyornis brachypterus
Animals	Dasyuridae	Mammals	Dasyercus blythi	brush-tailed mulgara	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18577&species=Dasyercus blythi&k=Dasyercus blythi
Animals	Dasyuridae	Mammals	Dasyercus cristicauda	crest-tailed mulgara	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18578&species=Dasyercus cristicauda&k=Dasyercus cristicauda
Animals	Dasyuridae	Mammals	Dasyuroides byrnei	kowari	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18580&species=Dasyuroides byrnei&k=Dasyuroides byrnei

Animals	Dasyuridae	Mammals	Dasyurus maculatus gracilis	spotted-tailed quoll (northern subspecies)	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18582&species=Dasyurus maculatus gracilis&k=Dasyurus maculatus gracilis
Animals	Dasyuridae	Mammals	Dasyurus maculatus maculatus	spotted-tailed quoll (southern subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18583&species=Dasyurus maculatus maculatus&k=Dasyurus maculatus maculatus
Animals	Dasyuridae	Mammals	Sminthopsis douglasi	Julia Creek dunnart	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20985&species=Sminthopsis douglasi&k=Sminthopsis douglasi
Animals	Delphinidae	Mammals	Orcaella heinsohni	Australian snubfin dolphin	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20253&species=Orcaella heinsohni&k=Orcaella heinsohni
Animals	Delphinidae	Mammals	Sousa sahalensis	Australian humpback dolphin	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21033&species=Sousa sahalensis&k=Sousa sahalensis
Animals	Dermochelyidae	Reptiles	Dermochelys coriacea	leatherback turtle	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18644&species=Dermochelys coriacea&k=Dermochelys coriacea
Animals	Dugongidae	Mammals	Dugong dugon	dugong	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18739&species=Dugong dugon&k=Dugong dugon
Animals	Elapidae	Reptiles	Hoplocephalus stephensii	Stephens' banded snake	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19372&species=Hoplocephalus stephensii&k=Hoplocephalus stephensii
Animals	Emballonuridae	Mammals	Saccolaimus saccolaimus nudicluniat	bare-rumped sheath-tail bat	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20889&species=Saccolaimus saccolaimus nudicluniat&k=Saccolaimus saccolaimus nudicluniat
Animals	Emballonuridae	Mammals	Taphozous australis	coastal sheath-tail bat	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21196&species=Taphozous australis&k=Taphozous australis
Animals	Estrildidae	Birds	Neochmia phaeton evangelinae	crimson finch (white-bellied subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20097&species=Neochmia phaeton evangelinae&k=Neochmia phaeton evangelinae

Animals	Estrildidae	Birds	Neochmia ruficauda clarescens	star finch (northern subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20099&species=Neochmia ruficauda clarescens&k=Neochmia ruficauda clarescens
Animals	Estrildidae	Birds	Poephila cincta cincta	black-throated finch (white-rumped subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20561&species=Poephila cincta cincta&k=Poephila cincta cincta
Animals	Estrildidae	Birds	Stagonopleura guttata	diamond firetail	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21061&species=Stagonopleura guttata&k=Stagonopleura guttata
Animals	Gobiidae	Fish	Chlamydogobius micropterus	Elizabeth Springs goby	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18220&species=Chlamydogobius micropterus&k=Chlamydogobius micropterus
Animals	Gobiidae	Fish	Chlamydogobius squamigenus	Edgbaston goby	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18222&species=Chlamydogobius squamigenus&k=Chlamydogobius squamigenus
Animals	Gobiidae	Fish	Stiphodon atratus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21101&species=Stiphodon atratus&k=Stiphodon atratus
Animals	Helicarionidae	Snails	Delinitesta gayndahensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18601&species=Delinitesta gayndahensis&k=Delinitesta gayndahensis
Animals	Helicarionidae	Snails	Dimidarion slatyri		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19254&species=Dimidarion slatyri&k=Dimidarion slatyri
Animals	Hipposideridae	Mammals	Hipposideros cervinus	fawn leaf-nosed bat	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19348&species=Hipposideros cervinus&k=Hipposideros cervinus
Animals	Hyalidae	Amphipods	Austrochiltonia sp. AMS P68165		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17802&species=Austrochiltonia sp. AMS P68165&k=Austrochiltonia sp. AMS P68165
Animals	Hydrobiidae	Snails	Edgbastonia alanwillsi		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18746&species=Edgbastonia alanwillsi&k=Edgbastonia alanwillsi

Animals	Hydrobiidae	Snails	Jardinella acuminata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19514&species=Jardinella acuminata&k=Jardinella acuminata
Animals	Hydrobiidae	Snails	Jardinella colmani		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19516&species=Jardinella colmani&k=Jardinella colmani
Animals	Hydrobiidae	Snails	Jardinella coreena		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19517&species=Jardinella coreena&k=Jardinella coreena
Animals	Hydrobiidae	Snails	Jardinella corrugata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19518&species=Jardinella corrugata&k=Jardinella corrugata
Animals	Hydrobiidae	Snails	Jardinella edgbastonensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19519&species=Jardinella edgbastonensis&k=Jardinella edgbastonensis
Animals	Hydrobiidae	Snails	Jardinella eulo		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19520&species=Jardinella eulo&k=Jardinella eulo
Animals	Hydrobiidae	Snails	Jardinella exigua		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19521&species=Jardinella exigua&k=Jardinella exigua
Animals	Hydrobiidae	Snails	Jardinella isolata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19522&species=Jardinella isolata&k=Jardinella isolata
Animals	Hydrobiidae	Snails	Jardinella jesswiseae		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19523&species=Jardinella jesswiseae&k=Jardinella jesswiseae
Animals	Hydrobiidae	Snails	Jardinella pallida		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19524&species=Jardinella pallida&k=Jardinella pallida
Animals	Hydrobiidae	Snails	Jardinella zeidlerorum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19525&species=Jardinella zeidlerorum&k=Jardinella zeidlerorum
Animals	Hylidae	Amphibians	Litoria myola	Kuranda treefrog	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19732&species=Litoria myola&k=Litoria myola

Animals	Idiopidae	Arachnids	Arbanitis longipes	Brisbane tube spider	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17692&species=Arbanitis longipes&k=Arbanitis longipes
Animals	Labridae	Fish	Achoerodus viridis	Eastern blue groper	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17481&species=Achoerodus viridis&k=Achoerodus viridis
Animals	Lamnidae	Fish	Carcharodon carcharias	white shark	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18068&species=Carcharodon carcharias&k=Carcharodon carcharias
Animals	Laridae	Birds	Sternula albifrons	little tern	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21093&species=Sternula albifrons&k=Sternula albifrons
Animals	Lycaenidae	Butterflies and moths	Acrodipsas illidgei	Illidge's ant-blue	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17500&species=Acrodipsas illidgei&k=Acrodipsas illidgei
Animals	Lycaenidae	Butterflies and moths	Hypochrysops apollo apollo	Apollo jewel (Wet Tropics subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19421&species=Hypochrysops apollo apollo&k=Hypochrysops apollo apollo
Animals	Lycaenidae	Butterflies and moths	Hypochrysops piceata	bulloak jewel	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19437&species=Hypochrysops piceata&k=Hypochrysops piceata
Animals	Macropodidae	Mammals	Onychogalea fraenata	bridled nailtail wallaby	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20242&species=Onychogalea fraenata&k=Onychogalea fraenata
Animals	Macropodidae	Mammals	Petrogale penicillata	brush-tailed rock-wallaby	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20411&species=Petrogale penicillata&k=Petrogale penicillata
Animals	Macropodidae	Mammals	Petrogale persephone	Proserpine rock-wallaby	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20412&species=Petrogale persephone&k=Petrogale persephone
Animals	Macropodidae	Mammals	Petrogale xanthopus celeris	yellow-footed rock-wallaby	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20415&species=Petrogale xanthopus celeris&k=Petrogale xanthopus celeris

Animals	Maluridae	Birds	Amytornis ballarae	Kalkadoon grasswren	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17604&species=Amytornis ballarae&k=Amytornis ballarae
Animals	Maluridae	Birds	Amytornis barbatus barbatus	grey grasswren (Bulloo)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17605&species=Amytornis barbatus barbatus&k=Amytornis barbatus barbatus
Animals	Maluridae	Birds	Amytornis barbatus diamantina	grey grasswren (Lake Eyre basin)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17606&species=Amytornis barbatus diamantina&k=Amytornis barbatus barbatus
Animals	Maluridae	Birds	Amytornis dorotheae	Carpentarian grasswren	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17607&species=Amytornis dorotheae&k=Amytornis dorotheae
Animals	Maluridae	Birds	Malurus coronatus	purple-crowned fairy-wren	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19849&species=Malurus coronatus&k=Malurus coronatus
Animals	Megadermatidae	Mammals	Macroderma gigas	ghost bat	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19811&species=Macroderma gigas&k=Macroderma gigas
Animals	Melanotaeniidae	Fish	Rhadinocentrus ornatus	ornate rainbowfish	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20829&species=Rhadinocentrus ornatus&k=Rhadinocentrus ornatus
Animals	Meliphagidae	Birds	Epthianura crocea macgregori	yellow chat (Dawson)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18837&species=Epthianura crocea macgregori&k=Epthianura crocea macgregori
Animals	Meliphagidae	Birds	Grantiella picta	painted honeyeater	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19170&species=Grantiella picta&k=Grantiella picta
Animals	Muridae	Mammals	Melomys rubicola	Bramble Cay melomys	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19946&species=Melomys rubicola&k=Melomys rubicola
Animals	Muridae	Mammals	Pseudomys oralis	Hastings River mouse	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20684&species=Pseudomys oralis&k=Pseudomys oralis
Animals	Muridae	Mammals	Xeromys myoides	water mouse	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21495&species=Xeromys myoides&k=Xeromys myoides

Animals	Myobatrachidae	Amphibians	Crinia tinnula	wallum froglet	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18398&species=Crinia tinnula&k=Crinia tinnula
Animals	Myobatrachidae	Amphibians	Taudactylus pleione	Kroombit tinkerbog	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21208&species=Taudactylus pleione&k=Taudactylus pleione
Animals	Odontaspidae	Fish	Carcharias taurus	greynurse shark	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18067&species=Carcharias taurus&k=Carcharias taurus
Animals	Oecophoridae	Butterflies and moths	Trisyntopa scatophaga		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21356&species=Trisyntopa scatophaga&k=Trisyntopa scatophaga
Animals	Papilionidae	Butterflies and moths	Ornithoptera richmondia	Richmond birdwing	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20268&species=Ornithoptera richmondia&k=Ornithoptera richmondia
Animals	Parastacidae	Crabs, crayfish and shrimps	Cherax cartalacoolah		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18203&species=Cherax cartalacoolah&k=Cherax cartalacoolah
Animals	Percichthyidae	Fish	Maccullochella mariensis	Mary River cod	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19803&species=Maccullochella mariensis&k=Maccullochella mariensis
Animals	Percichthyidae	Fish	Maccullochella peelii	Murray cod	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19804&species=Maccullochella peelii&k=Maccullochella peelii
Animals	Percichthyidae	Fish	Nannoperca oxleyana	Oxleyan pygmy perch	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20078&species=Nannoperca oxleyana&k=Nannoperca oxleyana
Animals	Petauridae	Mammals	Petaurus australis australis	yellow-bellied glider (southern subspecies)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20397&species=Petaurus australis australis&k=Petaurus australis australis
Animals	Petauridae	Mammals	Petaurus australis unnamed subsp.	yellow-bellied glider (northern subspecies)	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20398&species=Petaurus australis unnamed subsp.&k=Petaurus australis unnamed subsp.

Animals	Petauridae	Mammals	Petaurus gracilis	mahogany glider	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20400&species=Petaurus gracilis&k=Petaurus gracilis
Animals	Petroicidae	Birds	Melanodryas cucullata cucullata	hooded robin (south-eastern)	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19916&species=Melanodryas cucullata cucullata&k=Melanodryas cucullata cucullata
Animals	Planorbidae	Snails	Gyraulus edgbastonensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19208&species=Gyraulus edgbastonensis&k=Gyraulus edgbastonensis
Animals	Platylepadidae	Barnacles	Stomatolepas dermochelys		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21105&species=Stomatolepas dermochelys&k=Stomatolepas dermochelys
Animals	Potoroidae	Mammals	Bettongia tropica	northern bettong	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17851&species=Bettongia tropica&k=Bettongia tropica
Animals	Pristidae	Fish	Pristis clavata	dwarf sawfish	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20620&species=Pristis clavata&k=Pristis clavata
Animals	Pristidae	Fish	Pristis pristis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20621&species=Pristis pristis&k=Pristis pristis
Animals	Pristidae	Fish	Pristis zijsron	green sawfish	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20622&species=Pristis zijsron&k=Pristis zijsron
Animals	Pseudomugilidae	Fish	Pseudomugil mellis	honey blue eye	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20673&species=Pseudomugil mellis&k=Pseudomugil mellis
Animals	Pseudomugilidae	Fish	Scaturiginichthys vermeilipinnis	redfin blue eye	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20928&species=Scaturiginichthys vermeilipinnis&k=Scaturiginichthys vermeilipinnis
Animals	Psittacidae	Birds	Cyclopsitta diophthalma coxeni	Coxen's fig-parrot	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18514&species=Cyclopsitta diophthalma coxeni&k=Cyclopsitta diophthalma coxeni
Animals	Psittacidae	Birds	Pezoporus wallicus wallicus	ground parrot	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20422&species=Pezoporus wallicus wallicus&k=Pezoporus wallicus wallicus

Animals	Psittacidae	Birds	Psephotus chrysoterygius	golden-shouldered parrot	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20647&species=Psephotus chrysoterygius&k=Psephotus chrysoterygius
Animals	Pteropodidae	Mammals	Pteropus conspicillatus	spectacled flying-fox	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20726&species=Pteropus conspicillatus&k=Pteropus conspicillatus
Animals	Pteropodidae	Mammals	Pteropus poliocephalus	grey-headed flying-fox	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20727&species=Pteropus poliocephalus&k=Pteropus poliocephalus
Animals	Pygopodidae	Reptiles	Delma inornata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18603&species=Delma inornata&k=Delma inornata
Animals	Pygopodidae	Reptiles	Delma torquata	collared delma	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18609&species=Delma torquata&k=Delma torquata
Animals	Rhinolophidae	Mammals	Rhinolophus philippinensis	greater large-eared horseshoe bat	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20842&species=Rhinolophus philippinensis&k=Rhinolophus philippinensis
Animals	Scincidae	Reptiles	Anomalopus brevicollis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17627&species=Anomalopus brevicollis&k=Anomalopus brevicollis
Animals	Scincidae	Reptiles	Anomalopus mackayi	long-legged worm-skink	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17630&species=Anomalopus mackayi&k=Anomalopus mackayi
Animals	Scincidae	Reptiles	Lerista allanae	Allan's lerista	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19639&species=Lerista allanae&k=Lerista allanae
Animals	Theraphosidae	Arachnids	Selenocosmia crassipes		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20959&species=Selenocosmia crassipes&k=Selenocosmia crassipes
Animals	Theraphosidae	Arachnids	Selenocosmia strenua		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20960&species=Selenocosmia strenua&k=Selenocosmia strenua

Animals	Theraphosidae	Arachnids	Selenotypus plumipes		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20961&species=Selenotypus plumipes&k=Selenotypus plumipes
Animals	Thylacomyidae	Mammals	Macrotis lagotis	greater bilby	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19829&species=Macrotis lagotis&k=Macrotis lagotis
Animals	Tridacnidae	Snails	Tridacna derasa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21336&species=Tridacna derasa&k=Tridacna derasa
Animals	Tridacnidae	Snails	Tridacna gigas		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21337&species=Tridacna gigas&k=Tridacna gigas
Animals	Turnicidae	Birds	Turnix melanogaster	black-breasted button-quail	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21367&species=Turnix melanogaster&k=Turnix melanogaster
Animals	Varanidae	Reptiles	Varanus semiremex	rusty monitor	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21439&species=Varanus semiremex&k=Varanus semiremex
Animals	Vespertilionidae	Mammals	Murina florium	tube-nosed insectivorous bat	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20039&species=Murina florium&k=Murina florium
Animals	Vombatidae	Mammals	Lasiorhinus krefftii	northern hairy-nosed wombat	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19585&species=Lasiorhinus krefftii&k=Lasiorhinus krefftii
Plants	Acanthaceae	Herbs	Brunoniella spiciflora		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17926&species=Brunoniella spiciflora&k=Brunoniella spiciflora
Plants	Apiaceae	Herbs	Eryngium fontanum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18855&species=Eryngium fontanum&k=Eryngium fontanum
Plants	Apiaceae	Herbs	Lilaeopsis brisbanica		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19682&species=Lilaeopsis brisbanica&k=Lilaeopsis brisbanica
Plants	Apiaceae	Herbs	Platysace sp. (Mt Ninderry P.R.Sharpe+ 2092)		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Search.aspx?k=Platysace%20sp.%20(Mt%20Ninderry%20P.R.Sharpe%2B%202092)&cs=This%20Site&u=https%3A%2F%2Fspecies-recovery.ehp.qld.gov.au%2Fehp%2Fthespring

Plants	Apocynaceae	Vines	Marsdenia brevifolia		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19864&species=Marsdenia brevifolia&k=Marsdenia brevifolia
Plants	Apocynaceae	Trees	Ochrosia moorei	southern ochrosia	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20191&species=Ochrosia moorei&k=Ochrosia moorei
Plants	Aponogetonaceae	Water plants	Aponogeton bullosus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17672&species=Aponogeton bullosus&k=Aponogeton bullosus
Plants	Aponogetonaceae	Water plants	Aponogeton lancesmithii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17676&species=Aponogeton lancesmithii&k=Aponogeton lancesmithii
Plants	Aponogetonaceae	Water plants	Aponogeton prolifer		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17677&species=Aponogeton prolifer&k=Aponogeton prolifer
Plants	Araliaceae	Herbs	Hydrocotyle dippleura		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19396&species=Hydrocotyle dippleura&k=Hydrocotyle dippleura
Plants	Araliaceae	Herbs	Trachymene geraniifolia		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21305&species=Trachymene geraniifolia&k=Trachymene geraniifolia
Plants	Arecaceae	Palms	Archontophoenix myolensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17699&species=Archontophoenix myolensis&k=Archontophoenix myolensis
Plants	Arecaceae	Palms	Livistona concinna		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19755&species=Livistona concinna&k=Livistona concinna
Plants	Arecaceae	Palms	Livistona lanuginosa		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19758&species=Livistona lanuginosa&k=Livistona lanuginosa
Plants	Aristolochiaceae	Vines	Pararistolochia praevenosa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20335&species=Pararistolochia praevenosa&k=Pararistolochia praevenosa

Plants	Asteraceae	Shrubs	Olearia macdonnellensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20235&species=Olearia macdonnellensis&k=Olearia macdonnellensis
Plants	Asteraceae	Herbs	Picris conyzoides		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20490&species=Picris conyzoides&k=Picris conyzoides
Plants	Asteraceae	Herbs	Picris evae		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20491&species=Picris evae&k=Picris evae
Plants	Asteraceae	Shrubs	Rhaponticum australe		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20832&species=Rhaponticum australe&k=Rhaponticum australe
Plants	Asteraceae	Herbs	Trioncinia retroflexa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21349&species=Trioncinia retroflexa&k=Trioncinia retroflexa
Plants	Blandfordiaceae	Herbs	Blandfordia grandiflora	christmas bells	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17858&species=Blandfordia grandiflora&k=Blandfordia grandiflora
Plants	Byttneriaceae	Shrubs	Commersonia ingelewoodensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18295&species=Commersonia ingelewoodensis&k=Commersonia ingelewoodensis
Plants	Byttneriaceae	Shrubs	Commersonia pearnii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18297&species=Commersonia pearnii&k=Commersonia pearnii
Plants	Byttneriaceae	Shrubs	Lasiopetalum sp. (Proston J.A.Baker 17)		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19584&species=Lasiopetalum sp. (Proston J.A.Baker 17)&k=Lasiopetalum sp. (Proston J.A.Baker 17)
Plants	Byttneriaceae	Shrubs	Seringia denticulata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20973&species=Seringia denticulata&k=Seringia denticulata
Plants	Caesalpiniaceae	Herbs	Chamaecrista maritima		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18180&species=Chamaecrista maritima&k=Chamaecrista maritima

Plants	Celastraceae	Shrubs	Apatophyllum olsenii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17661&species=Apatophyllum olsenii&k=Apatophyllum olsenii
Plants	Celastraceae	Shrubs	Denhamia parvifolia		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18641&species=Denhamia parvifolia&k=Denhamia parvifolia
Plants	Convolvulaceae	Vines	Ipomoea saintronanensis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19480&species=Ipomoea saintronanensis&k=Ipomoea saintronanensis
Plants	Cunoniaceae	Trees	Davidsonia johnsonii	smooth Davidsonia	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18584&species=Davidsonia johnsonii&k=Davidsonia johnsonii
Plants	Cunoniaceae	Shrubs	Eucryphia wilkiei		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18938&species=Eucryphia wilkiei&k=Eucryphia wilkiei
Plants	Cupressaceae	Trees	Callitris baileyi	Bailey's cypress	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17992&species=Callitris baileyi&k=Callitris baileyi
Plants	Cyatheaceae	Ferns and fern-like plants	Cyathea exilis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18495&species=Cyathea exilis&k=Cyathea exilis
Plants	Cycadaceae	Cycads	Cycas cairnsiana		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18498&species=Cycas cairnsiana&k=Cycas cairnsiana
Plants	Cycadaceae	Cycads	Cycas couttsiana		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18500&species=Cycas couttsiana&k=Cycas couttsiana
Plants	Cycadaceae	Cycads	Cycas megacarpa		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18504&species=Cycas megacarpa&k=Cycas megacarpa
Plants	Cycadaceae	Cycads	Cycas ophiolitica	Marlborough blue	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18505&species=Cycas ophiolitica&k=Cycas ophiolitica
Plants	Cycadaceae	Cycads	Cycas platyphylla		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18506&species=Cycas platyphylla&k=Cycas platyphylla

Plants	Cycadaceae	Cycads	Cycas semota		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18507&species=Cycas semota&k=Cycas semota
Plants	Cyperaceae	Sedges and rushes	Caustis blakei subsp. macrantha		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18117&species=Caustis blakei subsp. macrantha&k=Caustis blakei subsp. macrantha
Plants	Cyperaceae	Sedges and rushes	Lepidosperma quadrangulatum		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19619&species=Lepidosperma quadrangulatum&k=Lepidosperma quadrangulatum
Plants	Ericaceae	Shrubs	Lissanthe brevistyla		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19708&species=Lissanthe brevistyla&k=Lissanthe brevistyla
Plants	Eriocaulaceae	Herbs	Eriocaulon carsonii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18853&species=Eriocaulon carsonii&k=Eriocaulon carsonii
Plants	Euphorbiaceae	Shrubs	Acalypha lyonsii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17457&species=Acalypha lyonsii&k=Acalypha lyonsii
Plants	Haloragaceae	Water plants	Myriophyllum artesium		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20055&species=Myriophyllum artesium&k=Myriophyllum artesium
Plants	Hymenophyllaceae	Ferns and fern-like plants	Crepidomanes aphlebioides		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18391&species=Crepidomanes aphlebioides&k=Crepidomanes aphlebioides
Plants	Lamiaceae	Herbs	Plectranthus amoenus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20529&species=Plectranthus amoenus&k=Plectranthus amoenus
Plants	Lamiaceae	Herbs	Plectranthus graniticola		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20532&species=Plectranthus graniticola&k=Plectranthus graniticola
Plants	Lamiaceae	Herbs	Plectranthus gratus		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20533&species=Plectranthus gratus&k=Plectranthus gratus

Plants	Lamiaceae	Shrubs	Prostanthera clotteniana		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20636&species=Prostanthera clotteniana&k=Prostanthera clotteniana
Plants	Laxmanniaceae	Lilies	Arthropodium sp. (Mt Cordeaux P.I.Forster+ PIF22065)		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17755&species=Arthropodium sp. (Mt Cordeaux P.I.Forster+ PIF22065)&k=Arthropodium sp. (Mt Cordeaux P.I.Forster+ PIF22065)
Plants	Loganiaceae	Shrubs	Logania diffusa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19762&species=Logania diffusa&k=Logania diffusa
Plants	Lycopodiaceae	Mosses	Phlegmariurus carinatus		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19381&species=Phlegmariurus carinatus&k=Phlegmariurus carinatus
Plants	Lycopodiaceae	Mosses	Phlegmariurus dalhousieanus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19382&species=Phlegmariurus dalhousieanus&k=Phlegmariurus dalhousieanus
Plants	Lycopodiaceae	Mosses	Phlegmariurus filiformis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19383&species=Phlegmariurus filiformis&k=Phlegmariurus filiformis
Plants	Lycopodiaceae	Mosses	Phlegmariurus lockyeri		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19384&species=Phlegmariurus lockyeri&k=Phlegmariurus lockyeri
Plants	Lycopodiaceae	Mosses	Phlegmariurus marsupiiiformis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19385&species=Phlegmariurus marsupiiiformis&k=Phlegmariurus marsupiiiformis
Plants	Lycopodiaceae	Mosses	Phlegmariurus phlegmaria		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19386&species=Phlegmariurus phlegmaria&k=Phlegmariurus phlegmaria
Plants	Lycopodiaceae	Mosses	Phlegmariurus phlegmarioides		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19387&species=Phlegmariurus phlegmarioides&k=Phlegmariurus phlegmarioides

Plants	Lycopodiaceae	Mosses	Phlegmariurus squarrosus		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19388&species=Phlegmariurus squarrosus&k=Phlegmariurus squarrosus
Plants	Lycopodiaceae	Mosses	Phlegmariurus tetrastichoides		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19389&species=Phlegmariurus tetrastichoides&k=Phlegmariurus tetrastichoides
Plants	Lycopodiaceae	Mosses	Phlegmariurus varius		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19390&species=Phlegmariurus varius&k=Phlegmariurus varius
Plants	Mimosaceae	Shrubs	Acacia attenuata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21548&species=Acacia attenuata&k=Acacia attenuata
Plants	Mimosaceae	Shrubs	Acacia eremophiloides		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17396&species=Acacia eremophiloides&k=Acacia eremophiloides
Plants	Mimosaceae	Trees	Acacia lumholtzii		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17411&species=Acacia lumholtzii&k=Acacia lumholtzii
Plants	Mimosaceae	Trees	Acacia maranoensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17412&species=Acacia maranoensis&k=Acacia maranoensis
Plants	Mimosaceae	Shrubs	Acacia porcata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17426&species=Acacia porcata&k=Acacia porcata
Plants	Mimosaceae	Trees	Acacia tingoorensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17451&species=Acacia tingoorensis&k=Acacia tingoorensis
Plants	Molluginaceae	Shrubs	Macarthuria complanata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19801&species=Macarthuria complanata&k=Macarthuria complanata
Plants	Musaceae	Trees	Musa jackeyi		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20040&species=Musa jackeyi&k=Musa jackeyi
Plants	Myrtaceae	Trees	Eucalyptus argophloia	Queensland western white gum	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18884&species=Eucalyptus argophloia&k=Eucalyptus argophloia

Plants	Myrtaceae	Trees	Eucalyptus broviniensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18891&species=Eucalyptus broviniensis&k=Eucalyptus broviniensis
Plants	Myrtaceae	Trees	Eucalyptus pachycalyx subsp. waajensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18914&species=Eucalyptus pachycalyx subsp. waajensis&k=Eucalyptus pachycalyx subsp. waajensis
Plants	Myrtaceae	Trees	Eucalyptus raveretiana	black ironbox	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18919&species=Eucalyptus raveretiana&k=Eucalyptus raveretiana
Plants	Myrtaceae	Shrubs	Homoranthus decumbens		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19364&species=Homoranthus decumbens&k=Homoranthus decumbens
Plants	Myrtaceae	Shrubs	Homoranthus vagans		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19368&species=Homoranthus vagans&k=Homoranthus vagans
Plants	Myrtaceae	Shrubs	Micromyrtus delicata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19973&species=Micromyrtus delicata&k=Micromyrtus delicata
Plants	Nyctaginaceae	Trees	Pisonia grandis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20504&species=Pisonia grandis&k=Pisonia grandis
Plants	Orchidaceae	Orchids	Caladenia atroclavia		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17972&species=Caladenia atroclavia&k=Caladenia atroclavia
Plants	Orchidaceae	Orchids	Calochilus psednus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17997&species=Calochilus psednus&k=Calochilus psednus
Plants	Orchidaceae	Orchids	Dendrobium bigibbum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18621&species=Dendrobium bigibbum&k=Dendrobium bigibbum
Plants	Orchidaceae	Orchids	Dendrobium mirbelianum	mangrove orchid	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18629&species=Dendrobium mirbelianum&k=Dendrobium mirbelianum

Plants	Orchidaceae	Orchids	Dendrobium nindii	blue orchid	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18630&species=Dendrobium nindii&k=Dendrobium nindii
Plants	Orchidaceae	Orchids	Diuris parvipetala		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18707&species=Diuris parvipetala&k=Diuris parvipetala
Plants	Orchidaceae	Orchids	Genoplesium tectum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19095&species=Genoplesium tectum&k=Genoplesium tectum
Plants	Orchidaceae	Orchids	Phaius australis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20427&species=Phaius australis&k=Phaius australis
Plants	Orchidaceae	Orchids	Phaius bernaysii	yellow swamp orchid	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20428&species=Phaius bernaysii&k=Phaius bernaysii
Plants	Orchidaceae	Orchids	Sarcochilus fitzgeraldii	ravine orchid	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20914&species=Sarcochilus fitzgeraldii&k=Sarcochilus fitzgeraldii
Plants	Orchidaceae	Orchids	Sarcochilus hartmannii		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20915&species=Sarcochilus hartmannii&k=Sarcochilus hartmannii
Plants	Orchidaceae	Orchids	Sarcochilus weinthalii	blotched sarcochilus	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20917&species=Sarcochilus weinthalii&k=Sarcochilus weinthalii
Plants	Orobanchaceae	Herbs	Euphrasia bella	Lamington eyebright	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18959&species=Euphrasia bella&k=Euphrasia bella
Plants	Phrymaceae	Herbs	Peplidium sp. (Edgbaston R.J.Fensham 3341)		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20381&species=Peplidium sp. (Edgbaston R.J.Fensham 3341)&k=Peplidium sp. (Edgbaston R.J.Fensham 3341)
Plants	Pittosporaceae	Trees	Auranticarpa edentata		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17793&species=Auranticarpa edentata&k=Auranticarpa edentata

Plants	Polygalaceae	Shrubs	Comesperma oblongatum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18290&species=Comesperma oblongatum&k=Comesperma oblongatum
Plants	Proteaceae	Shrubs	Banksia plagiocarpa		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17825&species=Banksia plagiocarpa&k=Banksia plagiocarpa
Plants	Proteaceae	Shrubs	Grevillea scortechinii subsp. scortechinii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19195&species=Grevillea scortechinii subsp. scortechinii&k=Grevillea scortechinii subsp. scortechinii
Plants	Proteaceae	Shrubs	Grevillea venusta	grevillea	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19197&species=Grevillea venusta&k=Grevillea venusta
Plants	Proteaceae	Shrubs	Hakea trineura		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19224&species=Hakea trineura&k=Hakea trineura
Plants	Proteaceae	Trees	Triunia robusta		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21357&species=Triunia robusta&k=Triunia robusta
Plants	Rhamnaceae	Shrubs	Pomaderris clivicola		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20584&species=Pomaderris clivicola&k=Pomaderris clivicola
Plants	Rhamnaceae	Shrubs	Pomaderris coomingalensis		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20585&species=Pomaderris coomingalensis&k=Pomaderris coomingalensis
Plants	Rubiaceae	Shrubs	Durringtonia paludosa	durringtonia	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18740&species=Durringtonia paludosa&k=Durringtonia paludosa
Plants	Rubiaceae	Shrubs	Myrmecodia beccarii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20058&species=Myrmecodia beccarii&k=Myrmecodia beccarii
Plants	Rubiaceae	Shrubs	Oldenlandia gibsonii		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20227&species=Oldenlandia gibsonii&k=Oldenlandia gibsonii

Plants	Rutaceae	Shrubs	Boronia keysii	Key's boronia	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17884&species=Boronia keysii&k=Boronia keysii
Plants	Rutaceae	Shrubs	Boronia repanda		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17888&species=Boronia repanda&k=Boronia repanda
Plants	Rutaceae	Trees	Clausena smyrelliana		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18261&species=Clausena smyrelliana&k=Clausena smyrelliana
Plants	Rutaceae	Shrubs	Phebalium distans		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20442&species=Phebalium distans&k=Phebalium distans
Plants	Rutaceae	Shrubs	Zieria furfuracea subsp. gymnocarpa		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21517&species=Zieria furfuracea subsp. gymnocarpa&k=Zieria furfuracea subsp. gymnocarpa
Plants	Sapindaceae	Trees	Alectryon ramiflorus		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17549&species=Alectryon ramiflorus&k=Alectryon ramiflorus
Plants	Sapindaceae	Trees	Cupaniopsis shirleyana	wedge-leaf tuckeroo	High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18489&species=Cupaniopsis shirleyana&k=Cupaniopsis shirleyana
Plants	Solanaceae	Shrubs	Solanum adenophorum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=20995&species=Solanum adenophorum&k=Solanum adenophorum
Plants	Solanaceae	Shrubs	Solanum stenopterum		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=21026&species=Solanum stenopterum&k=Solanum stenopterum
Plants	Sparrmanniaceae	Shrubs	Corchorus cunninghamii		High	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=18330&species=Corchorus cunninghamii&k=Corchorus cunninghamii
Plants	Surianaceae	Trees	Cadellia pentastylis	ooline	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17963&species=Cadellia pentastylis&k=Cadellia pentastylis

Plants	Zamiaceae	Cycads	Bowenia serrulata	Byfield fern	Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=17900&species=Bowenia serrulata&k=Bowenia serrulata
Plants	Zamiaceae	Cycads	Macrozamia conferta		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19831&species=Macrozamia conferta&k=Macrozamia conferta
Plants	Zamiaceae	Cycads	Macrozamia cranei		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19832&species=Macrozamia cranei&k=Macrozamia cranei
Plants	Zamiaceae	Cycads	Macrozamia crassifolia		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19833&species=Macrozamia crassifolia&k=Macrozamia crassifolia
Plants	Zamiaceae	Cycads	Macrozamia lomandroides		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19835&species=Macrozamia lomandroides&k=Macrozamia lomandroides
Plants	Zamiaceae	Cycads	Macrozamia longispina		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19836&species=Macrozamia longispina&k=Macrozamia longispina
Plants	Zamiaceae	Cycads	Macrozamia machinii		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19837&species=Macrozamia machinii&k=Macrozamia machinii
Plants	Zamiaceae	Cycads	Macrozamia occidua		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19838&species=Macrozamia occidua&k=Macrozamia occidua
Plants	Zamiaceae	Cycads	Macrozamia parcifolia		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19839&species=Macrozamia parcifolia&k=Macrozamia parcifolia
Plants	Zamiaceae	Cycads	Macrozamia pauli-guilielmi		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19840&species=Macrozamia pauli-guilielmi&k=Macrozamia pauli-guilielmi
Plants	Zamiaceae	Cycads	Macrozamia platyrhachis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19841&species=Macrozamia platyrhachis&k=Macrozamia platyrhachis

Plants	Zamiaceae	Cycads	Macrozamia serpentina		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19842&species=Macrozamia serpentina&k=Macrozamia serpentina
Plants	Zamiaceae	Cycads	Macrozamia viridis		Critical	https://species-recovery.ehp.qld.gov.au/ehp/thespring/Pages/Species-Details.aspx?listurl=https://species-recovery.ehp.qld.gov.au/ehp/thespring/Lists/Species&itemid=19843&species=Macrozamia viridis&k=Macrozamia viridis

Data deficient species for the South East Queensland NRM region

Kingdom	Species name	Common name	Taxonomic work	Check records / specimens	Survey known locations	Look for new sites	Biology / ecology	Population status
Animals	<i>Acrodipsas arcana</i>	black-veined ant-blue			✓	✓	✓	✓
Animals	<i>Amarinus sp.</i>	a freshwater crab			✓	✓		✓
Animals	<i>Amphibolurus muricatus</i>	jacky lizard	✓	✓	✓	✓		
Animals	<i>Angeliera rivularis</i>	a freshwater isopod			✓	✓		✓
Animals	<i>Antennarius commersonii</i>	giant anglerfish		✓	✓	✓	✓	✓
Animals	<i>Apristurus australis</i>	pinocchio catshark			✓	✓	✓	
Animals	<i>Apristurus platyrhynchus</i>	bigfin catshark			✓	✓	✓	
Animals	<i>Cassis cornuta</i>	Giant Helmet Shell			✓	✓	✓	✓
Animals	<i>Centropyge flavissima</i>	Lemonpeel Angelfish			✓	✓	✓	✓
Animals	<i>Cephaloscyllium variegatum</i>	saddled swellshark			✓	✓	✓	✓
Animals	<i>Charonia tritonis</i>	Giant triton or trumpet shell		✓	✓	✓	✓	✓
Animals	<i>Chicoreus axicornis</i>	axicornis murex		✓	✓	✓	✓	✓
Animals	<i>Chicoreus cervicornis</i>	deer-antler murex		✓	✓	✓	✓	✓
Animals	<i>Chicoreus huttoniae</i>	Hutton's murex		✓	✓	✓	✓	✓
Animals	<i>Chicoreus ramosus</i>	Giant murex		✓	✓	✓	✓	✓
Animals	<i>Chimaera macrospina</i>	longspine chimaera			✓	✓		
Animals	<i>Chimaera obscura</i>	shortspine chimaera			✓	✓	✓	
Animals	<i>Conus leopardus</i>	Leopard cone		✓	✓	✓	✓	✓
Animals	<i>Ctenotus eurydice</i>		✓					
Animals	<i>Cymbiola pulchra</i> (various forms)	Beautiful volute		✓	✓	✓	✓	✓
Animals	<i>Dipturus melanospilus</i>	blacktip skate	✓		✓	✓		✓
Animals	<i>Dipturus wengi</i>	wengs skate	✓		✓	✓		✓
Animals	<i>Etmopterus lucifer</i>	blackbelly lanternshark		✓	✓	✓	✓	✓
Animals	<i>Falco hypoleucos</i>	grey falcon			✓	✓		✓
Animals	<i>Falsistrellus tasmaniensis</i>	eastern false pipistrelle			✓	✓		✓

Data deficient species for the South East Queensland NRM region

Kingdom	Species name	Common name	Taxonomic work	Check records / specimens	Survey known locations	Look for new sites	Biology / ecology	Population status
Animals	<i>Fluvidona anodonta</i>				✓	✓		✓
Animals	<i>Hesperilla sarnia</i>	swift sedge-skipper			✓	✓	✓	✓
Animals	<i>Hexatrygon bickelli</i>	sixgill stingray		✓	✓	✓	✓	✓
Animals	<i>Hydrolagus marmoratus</i>	marbled ghostshark		✓	✓	✓	✓	✓
Animals	<i>Ixobrychus dubius</i>	Australian little bittern			✓	✓	✓	✓
Animals	<i>Laevophiloscia myrmecophila</i>	a terrestrial isopod			✓	✓		✓
Animals	<i>Lambis truncata</i>	giant spider conch		✓	✓	✓	✓	✓
Animals	<i>Melo amphora</i>	Common Queensland baler		✓	✓	✓	✓	✓
Animals	<i>Mustelus walkeri</i>	white-spotted gummy shark	✓	✓	✓	✓		✓
Animals	<i>Myliobatis hamlyni</i>	purple eagle ray			✓	✓	✓	✓
Animals	<i>Onthophagus phoenicocerus</i>	beetle			✓	✓	✓	✓
Animals	<i>Paratya australiensis lineage 3</i>	a freshwater shrimp	✓		✓	✓		✓
Animals	<i>Paratya australiensis lineage 4</i>	a freshwater shrimp	✓		✓	✓		✓
Animals	<i>Paratya australiensis lineage 6</i>	a freshwater shrimp	✓		✓	✓		✓
Animals	<i>Paratya australiensis lineage 8</i>	a freshwater shrimp	✓		✓	✓		✓
Animals	<i>Pavoraja umbrosa</i>	dusky skate	✓					
Animals	<i>Plesiobatis daviesi</i>	giant stingaree			✓	✓		✓
Animals	<i>Saproscincus oriarus</i>				✓	✓		✓
Animals	<i>Scotorepens</i> sp. (Parnaby)	central-eastern broad-nosed bat	✓	✓	✓			
Animals	<i>Squalus albifrons</i>	eastern highfin spurdog			✓	✓	✓	✓
Animals	<i>Squatina albipunctata</i>	eastern angel shark			✓	✓	✓	✓
Animals	<i>Syrinx aruanus</i>	Australian trumpet shell		✓	✓	✓	✓	✓
Animals	<i>Torpedo macneilli</i>	shorttail torpedo ray			✓	✓	✓	✓
Animals	<i>Turnix maculosus</i>	red-backed button-quail			✓	✓	✓	✓

Data deficient species for the South East Queensland NRM region

Kingdom	Species name	Common name	Taxonomic work	Check records / specimens	Survey known locations	Look for new sites	Biology / ecology	Population status
Plants	<i>Abelmoschus moschatus</i> subsp. <i>tuberosus</i>		✓					
Plants	<i>Acacia adunca</i>				✓	✓		✓
Plants	<i>Acalypha eremorum</i>		✓					
Plants	<i>Aponogeton elongatus</i> subsp. <i>fluitans</i>				✓	✓		✓
Plants	<i>Bulbophyllum argyropus</i>			✓	✓	✓	✓	✓
Plants	<i>Burmannia juncea</i>			✓	✓			
Plants	<i>Cheirostylis notialis</i>				✓	✓		
Plants	<i>Corybas fordhamii</i>				✓	✓		
Plants	<i>Cryptostylis hunteriana</i>			✓	✓	✓		
Plants	<i>Genoplesium nudiscapum</i>				✓	✓		
Plants	<i>Genoplesium sigmoideum</i>				✓	✓		
Plants	<i>Goodenia arenicola</i>				✓	✓		✓
Plants	<i>Potamogeton tepperi</i>				✓	✓		✓
Plants	<i>Prasophyllum wallum</i>				✓	✓		
Plants	<i>Pterostylis chaetophora</i>		✓					
Plants	<i>Pterostylis scoliosa</i>				✓	✓		✓
Plants	<i>Rhizanthella omissa</i>			✓	✓	✓	✓	✓
Plants	<i>Solanum nobile</i>		✓					
Plants	<i>Teucrium</i> sp. (Ormeau G.Leiper AQ476858)		✓					

APPENDIX

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Terrestrial Ecology Technical Report

Appendix E Flora Species List

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix E

Flora Species List

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Acanthaceae	<i>Brunoniella australis</i>	Blue trumpet	SL	-	Native
Aizoaceae	<i>Carpobrotus aequilaterus</i>	Coastal pigweed	-	-	Non-native
Amaranthaceae	<i>Alternanthera pungens</i>	Khaki weed	-	-	Non-native
Amaranthaceae	<i>Amaranthus viridis</i>	Green amaranth	-	-	Non-native
Amaranthaceae	<i>Gomphrena celosioides</i>	Gomphrena weed	-	-	Non-native
Amaranthaceae	<i>Nyssanthus diffusa</i>	Barbed-wire weed	C	-	Native
Amaranthaceae	<i>semilanatus</i>		C	-	Native
Apiaceae	<i>Centella asiatica</i>		C	-	Native
Apiaceae	<i>Foeniculum vulgare</i>	Fennel	-	-	Non-native
Apocynaceae	<i>Alstonia constricta</i>	Bitterbark	C	-	Native
Apocynaceae	<i>Araujia sericifera</i>	Moth plant	-	-	Non-native
Apocynaceae	<i>Carissa ovata</i>	Currantbush	C	-	Native
Apocynaceae	<i>Gomphocarpus physocarpus</i>	Balloon cottonbush	-	-	Non-native
Apocynaceae	<i>Nerium oleander</i>	Oleander	-	-	Non-native
Apocynaceae	<i>Parsonsia eucalyptophylla</i>	Gargaloo	C	-	Native
Apocynaceae	<i>Parsonsia lanceolata</i>	Northern silkpod	C	-	Native
Apocynaceae	<i>Parsonsia straminea</i>	Monkey rope	C	-	Native
Asparagaceae	<i>Asparagus africanus</i>	Ornamental asparagus	-	-	Non-native
Asphodelaceae	<i>Bulbine semibarbata</i>	Wild onion	C	-	Native
Asteraceae	<i>Ambrosia artemisiifolia</i>	Annual ragweed	-	-	Non-native
Asteraceae	<i>Arctotheca calendula</i>	Cape weed	-	-	Non-native
Asteraceae	<i>Bidens pilosa</i>		-	-	Non-native
Asteraceae	<i>Brachyscome chrysoglossa</i>		C	-	Native
Asteraceae	<i>Brachyscome dentata</i>		C	-	Native
Asteraceae	<i>Calotis cuneifolia</i>	Burr daisy	C	-	Native
Asteraceae	<i>Calotis hispidula</i>	Bogan flea	C	-	Native
Asteraceae	<i>Calotis lappulacea</i>	Yellow burr daisy	C	-	Native
Asteraceae	<i>Calyptocarpus vialis</i>	Creeping cinderella weed	-	-	Non-native
Asteraceae	<i>Cassinia laevis</i>		C	-	Native
Asteraceae	<i>Chrysocephalum apiculatum</i>	Yellow buttons	C	-	Native
Asteraceae	<i>Cirsium vulgare</i>	Spear thistle	-	-	Non-native
Asteraceae	<i>Conyza canadensis</i>	Canadian fleabane	-	-	Non-native
Asteraceae	<i>Eclipta prostrata</i>	White eclipta	-	-	Non-native
Asteraceae	<i>Euchiton sphaericus</i>		C	-	Native
Asteraceae	<i>Macroptilium atropurpureum</i>	Siratro	-	-	Non-native
Asteraceae	<i>discolor</i>		C	-	Native
Asteraceae	<i>Picris barbarorum</i>		V	-	Native
Asteraceae	<i>lutealbum</i>	Jersey cudweed	C	-	Native
Asteraceae	<i>Senecio madagascariensis</i>	Fireweed	-	-	Non-native
Asteraceae	<i>pinnatifolius</i>		C	-	Native
Asteraceae	<i>Sigesbeckia orientalis</i>	Indian weed	C	-	Native
Asteraceae	<i>Soliva anthemifolia</i>	Dwarf jo jo weed	-	-	Non-native
Asteraceae	<i>Soliva sessilis</i>		-	-	Non-native
Asteraceae	<i>Sonchus oleraceus</i>	Common sowthistle	-	-	Non-native
Asteraceae	<i>Tagetes minuta</i>	Stinking roger	-	-	Non-native
Asteraceae	<i>Tamarix aphylla</i>	Athol pine	-	-	Non-native
Asteraceae	<i>Vittadinia sulcata</i>	Native daisy	C	-	Native
Asteraceae	<i>Xanthium occidentale</i>	Nagoora burr	-	-	Non-native
Asteraceae	<i>Zinnia peruviana</i>	Wild zinnia	-	-	Non-native
Basellaceae	<i>Anredera cordifolia</i>	Madeira vine	-	-	Non-native
Bignoniaceae	<i>Jacaranda mimosifolia</i>	Jacaranda	-	-	Non-native
Bignoniaceae	<i>Pandorea pandorana</i>	Wonga vine	C	-	Native
Boraginaceae	<i>Heliotropium amplexicaule</i>	Blue heliotrope	-	-	Non-native
Brassicaceae	<i>Brassica tournefortii</i>	Wild turnip	-	-	Non-native
Brassicaceae	<i>Capsella bursapastoris</i>	Shepherd's purse	-	-	Non-native
Brassicaceae	<i>Lepidium africanum</i>	Common peppergrass	-	-	Non-native
Brassicaceae	<i>Lepidium bonariense</i>	Argentine peppergrass	-	-	Non-native

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Brassicaceae	<i>Lepidium virginicum</i>	Virginian peppergrass	-	-	Non-native
Cactaceae	<i>Cereus uruguayanus</i>		-	-	Non-native
Cactaceae	<i>Harrisia martinii</i>		-	-	Non-native
Cactaceae	<i>Opuntia aurantiaca</i>	Tiger pear	-	-	Non-native
Cactaceae	<i>Opuntia stricta</i>		-	-	Non-native
Cactaceae	<i>Opuntia tomentosa</i>	Velvety tree pear	-	-	Non-native
Caesalpiniaceae	<i>Cassia brewsteri</i>		C	-	Native
Campanulaceae	<i>Wahlenbergia communis</i>	Tufted bluebell	SL	-	Native
Campanulaceae	<i>Wahlenbergia gracilis</i>	Sprawling bluebell	SL	-	Native
Capparaceae	<i>Apophyllum anomalum</i>	Broom bush	C	-	Native
Capparaceae	<i>Capparis canescens</i>		C	-	Native
Capparaceae	<i>Capparis lasiantha</i>	Nipan	C	-	Native
Capparaceae	<i>Capparis mitchellii</i>		C	-	Native
Caryophyllaceae	<i>Stellaria media</i>	Chickweed	-	-	Non-native
Casuarinaceae	<i>Allocasuarina inophloia</i>		C	-	Native
Casuarinaceae	<i>Allocasuarina luehmannii</i>	Bull oak	C	-	Native
Casuarinaceae	<i>Casuarina cristata</i>	Belah	C	-	Native
Chenopodiaceae	<i>Atriplex leptocarpa</i>	Slender fruit saltbush	C	-	Native
Chenopodiaceae	<i>Atriplex muelleri</i>	Lagoon saltbush	C	-	Native
Chenopodiaceae	<i>Atriplex semibaccata</i>	Creeping saltbush	C	-	Native
Chenopodiaceae	<i>Chenopodium album</i>	Fat-hen	-	-	Non-native
Chenopodiaceae	<i>Einadia hastata</i>		C	-	Native
Chenopodiaceae	<i>Maireana microphylla</i>		C	-	Native
Chenopodiaceae	<i>Salsola australis</i>		C	-	Native
Chenopodiaceae	<i>Sclerolaena birchii</i>	Galvanised burr	C	-	Native
Chenopodiaceae	<i>Sclerolaena tetracuspis</i>	Brigalow burr	C	-	Native
Commelinaceae	<i>Commelina diffusa</i>	Wandering jew	C	-	Native
Commelinaceae	<i>Murdannia graminea</i>	Murdannia	C	-	Native
Convolvulaceae	<i>Convolvulus erubescens</i>	Australian bindweed	C	-	Native
Convolvulaceae	<i>Dichondra repens</i>	Kidney weed	C	-	Native
Convolvulaceae	<i>Ipomoea cairica</i>		-	-	Non-native
Convolvulaceae	<i>Ipomoea indica</i>	Blue morning-glory	-	-	Non-native
Crassulaceae	<i>Bryophyllum delagoense</i>	Mother of millions	-	-	Non-native
Cupressaceae	<i>Callitris glaucophylla</i>	White cypress pine	C	-	Native
Cyperaceae	<i>Carex appressa</i>		C	-	Native
Cyperaceae	<i>Cyperus bifax</i>	Western nutgrass	C	-	Native
Cyperaceae	<i>Cyperus difformis</i>	Rice sedge	C	-	Native
Cyperaceae	<i>Cyperus eragrostis</i>		-	-	Non-native
Cyperaceae	<i>Cyperus exaltatus</i>	Tall flatsedge	C	-	Native
Cyperaceae	<i>Cyperus fulvus</i>		C	-	Native
Cyperaceae	<i>Cyperus gracilis</i>		C	-	Native
Cyperaceae	<i>Cyperus iria</i>		C	-	Native
Cyperaceae	<i>Cyperus rotundus</i>	Nutgrass	-	-	Non-native
Cyperaceae	<i>Cyperus vaginatus</i>		C	-	Native
Cyperaceae	<i>Eleocharis plana</i>	Ribbed spikerush	C	-	Native
Cyperaceae	<i>Eleocharis pusilla</i>	Small spikerush	C	-	Native
Cyperaceae	<i>Fimbristylis dichotoma</i>	Common fringe-rush	C	-	Native
Cyperaceae	<i>Gahnia aspera</i>		C	-	Native
Ericaceae	<i>Leucopogon biflorus</i>		C	-	Native
Ericaceae	<i>Leucopogon mitchellii</i>		C	-	Native
Ericaceae	<i>Melichrus urceolatus</i>	Honey gorse	C	-	Native
Euphorbiaceae	<i>Euphorbia drummondii</i>		C	-	Native
Euphorbiaceae	<i>Euphorbia peplus</i>	Petty spurge	-	-	Non-native
Euphorbiaceae	<i>Ricinus communis</i>	Castor oil bush	-	-	Non-native
Fabaceae	<i>Acacia neriifolia</i>	Oleander wattle	C	-	Native
Fabaceae	<i>Aeschynomene indica</i>	Budda pea	C	-	Native
Fabaceae	<i>Cullen tenax</i>	Emu-foot	C	-	Native

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Fabaceae	<i>Desmodium brachypodum</i>	Large ticktrefoil	C	-	Native
Fabaceae	<i>Desmodium gunnii</i>		C	-	Native
Fabaceae	<i>Desmodium rhytidophyllum</i>		C	-	Native
Fabaceae	<i>Glycine tabacina</i>	Glycine pea	C	-	Native
Fabaceae	<i>Glycine tomentella</i>	Woolly glycine	C	-	Native
Fabaceae	<i>Hardenbergia violacea</i>		C	-	Native
Fabaceae	<i>Indigofera hirsuta</i>	Hairy indigo	C	-	Native
Fabaceae	<i>Jacksonia scoparia</i>		C	-	Native
Fabaceae	<i>Medicago lupulina</i>	Black medic	-	-	Non-native
Fabaceae	<i>Medicago polymorpha</i>	Burr medic	-	-	Non-native
Fabaceae	<i>australis</i>		C	-	Native
Fabaceae	<i>cannabina</i>		C	-	Native
Fabaceae	<i>Tipuana tipu</i>	Tipuana	-	-	Non-native
Fabaceae	<i>Trifolium repens</i> var. <i>repens</i>	White clover	-	-	Non-native
Fabaceae	<i>Vicia sativa</i> subsp. <i>nigra</i>		-	-	Non-native
Geraniaceae	<i>Erodium cicutarium</i>	Common crowfoot	-	-	Non-native
Goodeniaceae	<i>Goodenia rotundifolia</i>		C	-	Native
Juncaceae	<i>Juncus usitatus</i>		C	-	Native
Lamiaceae	<i>Ajuga australis</i>	Australian bugle	C	-	Native
Lamiaceae	<i>Mentha satureioides</i>	Native pennyroyal	C	-	Native
Lamiaceae	<i>Plectranthus parviflorus</i>		C	-	Native
Lamiaceae	<i>Salvia verbenaca</i>	Wild sage	-	-	Non-native
Lauraceae	<i>Cassytha pubescens</i>	Downy devil's twine	C	-	Native
Laxmanniaceae	<i>Eustrephus latifolius</i>	Wombat berry	C	-	Native
Laxmanniaceae	<i>Laxmannia compacta</i>	Compact wire lily	C	-	Native
Laxmanniaceae	<i>Laxmannia gracilis</i>	Slender wire lily	C	-	Native
Laxmanniaceae	<i>Lomandra hystrix</i>		C	-	Native
Laxmanniaceae	<i>Lomandra longifolia</i>	Spiny-head mat-rush	C	-	Native
Lomandraceae	<i>Lomandra leucocephala</i> subsp. <i>leucocephala</i>		C	-	Native
Loranthaceae	<i>Amyema bifurcata</i>		C	-	Native
Loranthaceae	<i>Amyema cabbagei</i>		C	-	Native
Loranthaceae	<i>Amyema gaudichaudii</i>		C	-	Native
Loranthaceae	<i>orientalis</i>		C	-	Native
Loranthaceae	<i>angustifolia</i>		C	-	Native
Malvaceae	<i>Abutilon otocarpum</i>		C	-	Native
Malvaceae	<i>Gossypium hirsutum</i>	Cotton	-	-	Non-native
Malvaceae	<i>Malva parviflora</i>	Small-flowered mallow	-	-	Non-native
Malvaceae	<i>Pavonia hastata</i>	Pink pavonia	-	-	Non-native
Malvaceae	<i>Sida fibulifera</i>		C	-	Native
Malvaceae	<i>Sida rhombifolia</i>		-	-	Non-native
Marsileaceae	<i>Marsilea drummondii</i>	Common nardoo	C	-	Native
Marsileaceae	<i>Marsilea hirsuta</i>	Hairy nardoo	C	-	Native
Meliaceae	<i>Melia azedarach</i>	White cedar	C	-	Native
Mimosaceae	<i>Acacia amblygona</i>	Fan wattle	C	-	Native
Mimosaceae	<i>Acacia aprepta</i>	Miles mulga	C	-	Native
Mimosaceae	<i>Acacia complanata</i>	Flatstem wattle	C	-	Native
Mimosaceae	<i>Acacia conferta</i>		C	-	Native
Mimosaceae	<i>Acacia decora</i>	Pretty wattle	C	-	Native
Mimosaceae	<i>Acacia harpophylla</i>	Brigalow	C	-	Native
Mimosaceae	<i>Acacia implexa</i>	Lightwood	C	-	Native
Mimosaceae	<i>Acacia pendula</i>	Myall	C	-	Native
Mimosaceae	<i>Acacia polybotrya</i>	Silver wattle	C	-	Native
Mimosaceae	<i>Acacia polybotrya</i>	Western silver wattle	C	-	Native
Mimosaceae	<i>Acacia salicina</i>	Doolan	C	-	Native
Mimosaceae	<i>Acacia shirleyi</i>	Lancewood	C	-	Native
Mimosaceae	<i>Acacia stenophylla</i>	Belalie	C	-	Native

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Mimosaceae	<i>Vachellia farnesiana</i>	Mimosa bush	-	-	Non-native
Molluginaceae	<i>Glinus lotoides</i>	Hairy carpet weed	C	-	Native
Moraceae	<i>Morus alba</i>	White mulberry	-	-	Non-native
Myrtaceae	<i>Angophora floribunda</i>	Rough-barked apple	C	-	Native
Myrtaceae	<i>Angophora leiocarpa</i>	Rusty gum	C	-	Native
Myrtaceae	<i>Calytrix tetragona</i>	Fringe-myrtle	C	-	Native
Myrtaceae	<i>Corymbia clarksoniana</i>		C	-	Native
Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay ash	C	-	Native
Myrtaceae	<i>Corymbia torelliana</i>	Cadaghi	C	-	Native
Myrtaceae	<i>Eucalyptus albens</i>	White box	C	-	Native
Myrtaceae	<i>Eucalyptus chloroclada</i>	Baradine red gum	C	-	Native
Myrtaceae	<i>Eucalyptus crebra</i>	Narrow-leaved red ironbark	C	-	Native
Myrtaceae	<i>nubilis</i>		C	-	Native
Myrtaceae	<i>Eucalyptus melliodora</i>	Yellow box	C	-	Native
Myrtaceae	<i>Eucalyptus microcarpa</i>	Inland grey box	C	-	Native
Myrtaceae	<i>Eucalyptus moluccana</i>	Gum-topped box	C	-	Native
Myrtaceae	<i>Eucalyptus orgadophila</i>	Mountain coolibah	C	-	Native
Myrtaceae	<i>Eucalyptus populnea</i>	Poplar box	C	-	Native
Myrtaceae	<i>Homalocalyx polyandrus</i>		C	-	Native
Myrtaceae	<i>Leptospermum brevipes</i>		C	-	Native
Myrtaceae	<i>Melaleuca bracteata</i>		C	-	Native
Myrtaceae	<i>Melaleuca densispicata</i>		C	-	Native
Myrtaceae	<i>Melaleuca linariifolia</i>	Snow-in summer	C	-	Native
Myrtaceae	<i>Micromyrtus sessilis</i>		C	-	Native
Najadaceae	<i>Najas tenuifolia</i>	water nymph	C	-	Native
Nyctaginaceae	<i>Boerhavia dominii</i>	Tar vine	C	-	Native
Nyctaginaceae	<i>Bougainvillea glabra</i>		-	-	Non-native
Nymphaeaceae	<i>Nymphaea gigantea</i>		C	-	Native
Oleaceae	<i>Jasminum dianthifolium</i>		C	-	Native
Oleaceae	<i>Jasminum simplicifolium</i> subsp. <i>australiense</i>	Stiff jasmine	C	-	Native
Orchidaceae	<i>Cymbidium canaliculatum</i>	Black orchid	SL	-	Native
Oxalidaceae	<i>Oxalis chnoodes</i>		C	-	Native
Passifloraceae	<i>Passiflora subpeltata</i>	White passion flower	-	-	Non-native
Phyllanthaceae	<i>Phyllanthus virgatus</i>		C	-	Native
Phytolaccaceae	<i>Phytolacca octandra</i>	Inkweed	-	-	Non-native
Picrodendraceae	<i>Petalostigma pubescens</i>	Quinine tree	C	-	Native
Pittosporaceae	<i>Bursaria incana</i>		C	-	Native
Pittosporaceae	<i>spinosa</i>		C	-	Native
Pittosporaceae	<i>Pittosporum angustifolium</i>	Gumbi gumbi	C	-	Native
Pittosporaceae	<i>Pittosporum spinescens</i>		C	-	Native
Plantaginaceae	<i>Bacopa monnieri</i>		C	-	Native
Plantaginaceae	<i>Plantago lanceolata</i>		-	-	Non-native
Poaceae	<i>Alloteropsis semialata</i>	Cockatoo grass	C	-	Native
Poaceae	<i>Alopecurus geniculatus</i>	Marsh foxtail	-	-	Non-native
Poaceae	<i>Ancistrachne uncinulata</i>	Hooky grass	C	-	Native
Poaceae	<i>Aristida caput-medusae</i>		C	-	Native
Poaceae	<i>Aristida contorta</i>	Bunched kerosene grass	C	-	Native
Poaceae	<i>Aristida echinata</i>		C	-	Native
Poaceae	<i>Aristida lazardis</i>		C	-	Native
Poaceae	<i>Aristida leptopoda</i>	White speargrass	C	-	Native
Poaceae	<i>Aristida ramosa</i>	Purple wiregrass	C	-	Native
Poaceae	<i>Arundinella nepalensis</i>	Reedgrass	C	-	Native
Poaceae	<i>Astrebula lappacea</i>	Curly mitchell grass	C	-	Native
Poaceae	<i>Austrostipa ramosissima</i>	Bamboo grass	C	-	Native
Poaceae	<i>Austrostipa verticillata</i>	Slender bamboo grass	C	-	Native

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Poaceae	<i>Avena fatua</i>	Wild oats	-	-	Non-native
Poaceae	<i>Avena sativa</i>	Common oats	-	-	Non-native
Poaceae	<i>Bothriochloa erianthoides</i>	Fluffy tip	C	-	Native
Poaceae	<i>Bothriochloa ewartiana</i>	Desert bluegrass	C	-	Native
Poaceae	<i>Bothriochloa pertusa</i>	Indian couch	-	-	Non-native
Poaceae	<i>Brachyachne convergens</i>	Common native couch	C	-	Native
Poaceae	<i>Bromus catharticus</i>	Prairie grass	-	-	Non-native
Poaceae	<i>Capillipedium spicigerum</i>	Spicytop	C	-	Native
Poaceae	<i>Cenchrus ciliaris</i>	Buffel grass	-	-	Non-native
Poaceae	<i>Chloris gayana</i>	Rhodes grass	-	-	Non-native
Poaceae	<i>Chloris pectinata</i>	Comb chloris	C	-	Native
Poaceae	<i>Chloris truncata</i>		C	-	Native
Poaceae	<i>Chloris ventricosa</i>	Tall chloris	C	-	Native
Poaceae	<i>Chrysopogon fallax</i>		C	-	Native
Poaceae	<i>Cymbopogon oblectus</i>		C	-	Native
Poaceae	<i>Cymbopogon refractus</i>	Barbed-wire grass	C	-	Native
Poaceae	<i>Dactyloctenium radulans</i>	Button grass	C	-	Native
Poaceae	<i>Digitaria ammophila</i>	Silky umbrella grass	C	-	Native
Poaceae	<i>Digitaria porrecta</i>	Finger panic grass	NT	-	Native
Poaceae	<i>Digitaria brownii</i>		C	-	Native
Poaceae	<i>Digitaria diffusa</i>		C	-	Native
Poaceae	<i>Echinochloa colona</i>	Awnless barnyard grass	-	-	Non-native
Poaceae	<i>Echinochloa crus-galli</i>	Barnyard grass	-	-	Non-native
Poaceae	<i>Eleusine tristachya</i>	Goose grass	-	-	Non-native
Poaceae	<i>Enneapogon avenaceus</i>		C	-	Native
Poaceae	<i>Entolasia minutifolia</i>		C	-	Native
Poaceae	<i>Eragrostis brownii</i>	Brown's lovegrass	C	-	Native
Poaceae	<i>Eragrostis cilianensis</i>		-	-	Non-native
Poaceae	<i>Eragrostis curvula</i>	African love grass	-	-	Non-native
Poaceae	<i>Eragrostis elongata</i>		C	-	Native
Poaceae	<i>Eragrostis lacunaria</i>	Purple lovegrass	C	-	Native
Poaceae	<i>Eragrostis leptostachya</i>	Fairy grass	C	-	Native
Poaceae	<i>Eragrostis microcarpa</i>		C	-	Native
Poaceae	<i>Eragrostis parviflora</i>	Weeping lovegrass	C	-	Native
Poaceae	<i>Eragrostis sororia</i>		C	-	Native
Poaceae	<i>Eragrostis tenuifolia</i>	Elastic grass	-	-	Non-native
Poaceae	<i>Eremochloa bimaculata</i>	Poverty grass	C	-	Native
Poaceae	<i>Eulalia aurea</i>	Silky browntop	C	-	Native
Poaceae	<i>Homopholis belsonii</i>	Belson's panic	E	V	Native
Poaceae	<i>Hyparrhenia hirta</i>	Coolati grass	-	-	Non-native
Poaceae	<i>Imperata cylindrica</i>	Blady grass	C	-	Native
Poaceae	<i>Iseilema membranaceum</i>	Small flinders grass	C	-	Native
Poaceae	<i>Melinis repens</i>	Red natal grass	-	-	Non-native
Poaceae	<i>Oplismenus aemulus</i>	Creeping shade grass	C	-	Native
Poaceae	<i>Panicum effusum</i>		C	-	Native
Poaceae	<i>Paspalidium caespitosum</i>	Brigalow grass	C	-	Native
Poaceae	<i>Paspalidium distans</i>	Shotgrass	C	-	Native
Poaceae	<i>Paspalidium globoideum</i>	Sago grass	C	-	Native
Poaceae	<i>Paspalum dilatatum</i>	Paspalum	-	-	Non-native
Poaceae	<i>Paspalum distichum</i>	Water couch	C	-	Native
Poaceae	<i>Paspalum urvillei</i>	Vasey grass	-	-	Non-native
Poaceae	<i>Poa fordeana</i>	Sweet swampgrass	C	-	Native
Poaceae	<i>Setaria sphacelata</i>	Whorled pigeon grass	-	-	Non-native
Poaceae	<i>Setaria surgens</i>		C	-	Native
Poaceae	<i>Sorghum bicolor</i>	Forage sorghum	-	-	Non-native
Poaceae	<i>Sorghum halepense</i>	Johnson grass	-	-	Non-native
Poaceae	<i>Sporobolus caroli</i>	Fairy grass	C	-	Native

Family	Scientific Name	Common Name	NC Act status	EPBC Act status	Native/Non-native
Poaceae	<i>Sporobolus creber</i>		C	-	Native
Poaceae	<i>Themeda avenacea</i>		C	-	Native
Poaceae	<i>Themeda quadrivalvis</i>	Grader grass	-	-	Non-native
Poaceae	<i>Themeda triandra</i>	Kangaroo grass	C	-	Native
Poaceae	<i>Triodia scariosa</i>		C	-	Native
Poaceae	<i>Urochloa mosambicensis</i>	Sabi grass	-	-	Non-native
Poaceae	<i>panicoides</i>		-	-	Non-native
Poaceae	<i>Walwhalleya subxerophila</i>		C	-	Native
Polygonaceae	<i>Persicaria decipiens</i>	Slender knotweed	C	-	Native
Polygonaceae	<i>Persicaria orientalis</i>	Princes feathers	C	-	Native
Polygonaceae	<i>Persicaria prostrata</i>	Creeping knotweed	C	-	Native
Polygonaceae	<i>Rumex brownii</i>	Swamp dock	C	-	Native
Polygonaceae	<i>Rumex crispus</i>	Curled dock	-	-	Non-native
Portulacaceae	<i>Portulaca oleracea</i>	Pigweed	-	-	Non-native
Portulacaceae	<i>Portulaca pilosa</i>		-	-	Non-native
Proteaceae	<i>Grevillea striata</i>	Beefwood	C	-	Native
Rhamnaceae	<i>Alphitonia excelsa</i>	Soap tree	C	-	Native
Rhamnaceae	<i>Ventilago viminalis</i>	Supplejack	C	-	Native
Rubiaceae	<i>Asperula conferta</i>		C	-	Native
Rubiaceae	<i>Pomax umbellata</i>		C	-	Native
Rubiaceae	<i>Richardia stellaris</i>		-	-	Non-native
Rutaceae	<i>Boronia occidentalis</i>		C	-	Native
Rutaceae	<i>Citrus glauca</i>	Native lime	C	-	Native
Rutaceae	<i>Geijera parviflora</i>	Wilga	C	-	Native
Salicaceae	<i>Salix babylonica</i>	Weeping willow	-	-	Non-native
Santalaceae	<i>Exocarpos cupressiformis</i>	Native cherry	C	-	Native
Santalaceae	<i>Santalum lanceolatum</i>		C	-	Native
Sapindaceae	<i>Alectryon diversifolius</i>	Scrub boonaree	C	-	Native
Sapindaceae	<i>Atalaya hemiglauca</i>		C	-	Native
Scrophulariaceae	<i>Eremophila debilis</i>	Winter apple	C	-	Native
Scrophulariaceae	<i>Eremophila longifolia</i>	Berrigan	C	-	Native
Scrophulariaceae	<i>Eremophila mitchellii</i>	False sandlewood	C	-	Native
Scrophulariaceae	<i>Myoporum acuminatum</i>	Coastal boobialla	C	-	Native
Solanaceae	<i>Datura ferox</i>	Fierce thornapple	-	-	Non-native
Solanaceae	<i>Lycium ferocissimum</i>	African boxthorn	-	-	Non-native
Solanaceae	<i>Solanum esuriale</i>	Quena	C	-	Native
Stackhousiaceae	<i>Stackhousia muricata</i>		C	-	Native
Thymelaeaceae	<i>Pimelea neoanglica</i>	Poison pimelea	C	-	Native
Ulmaceae	<i>Celtis sinensis</i>	Chinese elm	-	-	Non-native
Verbenaceae	<i>Glandularia aristigera</i>		-	-	Non-native
Verbenaceae	<i>Phyla canescens</i>		-	-	Non-native
Verbenaceae	<i>Verbena bonariensis</i>	Purpletop	-	-	Non-native
Vitaceae	<i>Clematicissus opaca</i>		C	-	Native
Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>		SL	-	Native
Zygophyllaceae	<i>Tribulus terrestris</i>	Caltrop	C	-	Native

APPENDIX

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Terrestrial Ecology Technical Report

Appendix F Fauna Species List

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix F

Fauna Species List

Family	Scientific Name	Common Name	Conservation status		Native/Non-native	Restricted matter
			NC Act	EPBC Act		
Acanthizidae	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped thornbill	C	-	Native	
Acanthizidae	<i>Acanthiza nana</i>	Yellow thornbill	C	-	Native	
Acanthizidae	<i>Acanthiza pusilla</i>	Brown thornbill	C	-	Native	
Acanthizidae	<i>Gerygone olivacea</i>	White-throated gerygone	C	-	Native	
Acanthizidae	<i>Smicrornis brevirostris</i>	Weebill	C	-	Native	
Accipitridae	<i>Elanus axillaris</i>	Black-shouldered kite	C	-	Native	
Accipitridae	<i>Haliastur sphenurus</i>	Whistling kite	C	-	Native	
Agamidae	<i>Pogona barbata</i>	Bearded dragon	C	-	Native	
Agamidae	<i>Tympanocryptis condaminesis</i>	Condamine earless dragon	E	E	Native	
Anatidae	<i>Anas superciliosa</i>	Pacific black duck	C	-	Native	
Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	C	-	Native	
Anatidae	<i>Dendrocygna eytoni</i>	Plumed whistling-duck	C	-	Native	
Anatidae	<i>Malacorhynchus membranaceus</i>	Pink-eared duck	C	-	Native	
Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter	C	-	Native	
Ardeidae	<i>Ardea alba</i>	Great egret	C	-	Native	
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced heron	C	-	Native	
Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen night-heron	C	-	Native	
Artamidae	<i>Artamus leucorhynchus</i>	White-breasted woodswallow	C	-	Native	
Artamidae	<i>Artamus superciliosus</i>	White-browed woodswallow	C	-	Native	
Artamidae	<i>Cracticus nigrogularis</i>	Pied butcherbird	C	-	Native	
Artamidae	<i>Cracticus tibicen</i>	Australian magpie	C	-	Native	
Artamidae	<i>Cracticus torquatus</i>	Grey butcherbird	C	-	Native	
Artamidae	<i>Strepera graculina</i>	Pied currawong	C	-	Native	
Bovidae	<i>Bos taurus</i>	European cattle	-	-	Non-native	
Bovidae	<i>Capra hircus</i>	Goat	-	-	Non-native	Class 3
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested cockatoo	C	-	Native	
Cacatuidae	<i>Cacatua sanguinea</i>	Little corella	C	-	Native	
Cacatuidae	<i>Calyptorhynchus banksii</i>	Red-tailed black-cockatoo	C	-	Native	
Cacatuidae	<i>Eolophus roseicapilla</i>	Galah	C	-	Native	
Cacatuidae	<i>Nymphicus hollandicus</i>	Cockatiel	C	-	Native	
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced cuckoo-shrike	C	-	Native	
Campephagidae	<i>Lalage tricolor</i>	White-winged triller	C	-	Native	
Canidae	<i>Canis lupus familiaris</i>	Dog	-	-	Non-native	Class 3
Canidae	<i>Vulpes vulpes</i>	Red fox	-	-	Non-native	Class 3
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	C	-	Native	
Charadriidae	<i>Vanellus miles novaehollandiae</i>	Masked lapwing (southern subspecies)	C	-	Native	
Cisticolidae	<i>Cisticola exilis</i>	Golden-headed cisticola	C	-	Native	
Climacteridae	<i>Climacteris picumnus</i>	Brown treecreeper	C	-	Native	
Climacteridae	<i>Cormobates leucophaea</i>	White-throated treecreeper	C	-	Native	
Columbidae	<i>Columba livia</i>	Rock dove	-	-	Non-native	

Family	Scientific Name	Common Name	Conservation status		Native/Non-native	Restricted matter
			NC Act	EPBC Act		
Columbidae	<i>Geopelia humeralis</i>	Bar-shouldered dove	C	-	Native	
Columbidae	<i>Geopelia striata</i>	Peaceful dove	C	-	Native	
Columbidae	<i>Ocyphaps lophotes</i>	Crested pigeon	C	-	Native	
Corcoracidae	<i>Corcorax melanorhamphos</i>	White-winged chough	C	-	Native	
Corcoracidae	<i>Struthidea cinerea</i>	Apostlebird	C	-	Native	
Corvidae	<i>Corvus coronoides</i>	Australian raven	C	-	Native	
Corvidae	<i>Corvus orru</i>	Torresian crow	C	-	Native	
Cuculidae	<i>Cacomantis pallidus</i>	Pallid cuckoo	C	-	Native	
Cuculidae	<i>Chrysococcyx minutillus</i>	Little bronze cuckoo	C	-	Native	
Diplodactylidae	<i>Strophurus williamsi</i>	Soft-spined gecko	C	-	Native	
Elapidae	<i>Demansia psammophis</i>	Yellow-faced whipsnake	C	-	Native	
Elapidae	<i>Pseudechis australis</i>	Mulga snake	C	-	Native	
Equidae	<i>Equus caballus</i>	Horse	-	-	Non-native	
Estrildidae	<i>Neochmia temporalis</i>	Red-browed finch	C	-	Native	
Estrildidae	<i>Taeniopygia bichenovii</i>	Double-barred finch	C	-	Native	
Estrildidae	<i>Taeniopygia guttata</i>	Zebra finch	C	-	Native	
Falconidae	<i>Falco cenchroides</i>	Nankeen kestrel	C	-	Native	
Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko	C	-	Native	
Hirundinidae	<i>Hirundo neoxena</i>	Welcome swallow	C	-	Native	
Hirundinidae	<i>Petrochelidon ariel</i>	Fairy martin	C	-	Native	
Leporidae	<i>Lepus capensis</i>	Fare	-	-	Non-native	
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit	-	-	Non-native	Class 3
Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	Spotted grassfrog	C	-	Native	
Macropodidae	<i>Macropus giganteus</i>	Eastern grey kangaroo	C	-	Native	
Macropodidae	<i>Macropus robustus</i>	Common wallaroo	C	-	Native	
Macropodidae	<i>Macropus rufogriseus</i>	Red-necked wallaby	C	-	Native	
Macropodidae	<i>Wallabia bicolor</i>	Swamp wallaby	C	-	Native	
Maluridae	<i>Malurus cyaneus</i>	Superb fairy-wren	C	-	Native	
Maluridae	<i>Malurus lamberti</i>	Variegated fairy-wren	C	-	Native	
Meliphagidae	<i>Acanthagenys rufogularis</i>	Spiny-cheeked honeyeater	C	-	Native	
Meliphagidae	<i>Caligavis chrysops</i>	Yellow-faced honeyeater	C	-	Native	
Meliphagidae	<i>Lichmera indistincta</i>	Brown honeyeater	C	-	Native	
Meliphagidae	<i>Manorina melanocephala</i>	Noisy miner	C	-	Native	
Meliphagidae	<i>Melithreptus lunatus</i>	White-naped honeyeater	C	-	Native	
Meliphagidae	<i>Nesoptilotis leucotis</i>	White-eared honeyeater	C	-	Native	
Meliphagidae	<i>Philemon corniculatus</i>	Noisy friarbird	C	-	Native	

Family	Scientific Name	Common Name	Conservation status		Native/Non-native	Restricted matter
			NC Act	EPBC Act		
Meliphagidae	<i>Plectorhyncha lanceolata</i>	Striped honeyeater	C	-	Native	
Meliphagidae	<i>Ptilotula penicillata</i>	White-plumed honeyeater	C	-	Native	
Meropidae	<i>Merops ornatus</i>	Rainbow bee-eater	C	-	Native	
Miniopteridae	<i>Miniopterus schreibersii oceanensi</i>	Eastern bentwing bat	C	-	Native	
Molossidae	<i>Mormopterus ridei</i>	Eastern freetail bat	C	-	Native	
Molossidae	<i>Tadarida australis</i>	White-striped freetail bat	C	-	Native	
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	C	-	Native	
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	C	-	Native	
Muridae	<i>Hydromys chrysogaster</i>	Water rat	C	-	Native	
Myobatrachidae	<i>Crinia parinsignifera</i>	Beeping froglet	C	-	Native	
Myobatrachidae	<i>Uperoleia fusca</i>	Dusky gungan	C	-	Native	
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	C	-	Native	
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied sittella	C	-	Native	
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey shrike-thrush	C	-	Native	
Pachycephalidae	<i>Falcunculus frontatus</i>	Crested shrike-tit	C	-	Native	
Pachycephalidae	<i>Pachycephala pectoralis</i>	Golden whistler	C	-	Native	
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous whistler	C	-	Native	
Pardalotidae	<i>Pardalotus punctatus</i>	Spotted pardalote	C	-	Native	
Pardalotidae	<i>Pardalotus striatus</i>	Striated pardalote	C	-	Native	
Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	C	-	Native	
Petauridae	<i>Petaurus australis</i>	Yellow-bellied glider	C	-	Native	
Petroicidae	<i>Eopsaltria australis</i>	Eastern yellow robin	C	-	Native	
Petroicidae	<i>Petroica goodenovii</i>	Red-capped robin	C	-	Native	
Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	Little black cormorant	C	-	Native	
Phasianidae	<i>Coturnix ypsilophora</i>	Brown quail	C	-	Native	
Podicipedidae	<i>Poliocephalus poliocephalus</i>	Hoary-headed grebe	C	-	Native	
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned babbler	C	-	Native	
Psittacidae	<i>Aprosmictus erythropterus</i>	Red-winged parrot	C	-	Native	
Psittacidae	<i>Barnardius zonarius</i>	Australian ringneck	C	-	Native	
Psittacidae	<i>Platycercus adscitus</i>	Pale-headed rosella	C	-	Native	
Psittacidae	<i>Platycercus eximius</i>	Eastern rosella	C	-	Native	
Psittacidae	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted lorikeet	C	-	Native	

Family	Scientific Name	Common Name	Conservation status		Native/Non-native	Restricted matter
			NC Act	EPBC Act		
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed flying-fox	C	V	Native	
Ptilonorhynchidae	<i>Chlamydera maculata</i>	Spotted bowerbird	C	-	Native	
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged stilt	C	-	Native	
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey fantail	C	-	Native	
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie wagtail	C	-	Native	
Scincidae	<i>Carlia pectoralis</i>	Open-litter rainbow skink	C	-	Native	
Scincidae	<i>Concinnia tenuis</i>	Bar-sided skink	C	-	Native	
Scincidae	<i>Cryptoblepharus plagiocephalus</i>	Snake-eyed skink	C	-	Native	
Sturnidae	<i>Acridotheres tristis</i>	Common myna	-	-	Non-native	
Sturnidae	<i>Sturnus vulgaris</i>	Common starling	-	-	Non-native	
Suidae	<i>Sus scrofa</i>	Pig	-	-	Non-native	Class 3
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked echidna	SL	-	Native	
Threskiornithidae	<i>Threskiornis spinicollis</i>	Straw-necked ibis	C	-	Native	
Timaliidae	<i>Zosterops lateralis</i>	Silvereeye	C	-	Native	
Varanidae	<i>Varanus panoptes</i>	Yellow-spotted monitor	C	-	Native	
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	C	-	Native	
Vespertilionidae	<i>Nyctophilus species</i>	Long-eared bat species	V*	V*	Native	
Vespertilionidae	<i>Scotorepens greyii/Scotorepens sp.</i>	Broad-nosed bats	C	-	Native	
Vespertilionidae	<i>Scotorepens orion/Falsistrellus tas</i>	Eastern broad-nosed bat	C	-	Native	
Vespertilionidae	<i>Vespadelus darlingtoni</i>	Large forest bat	C	-	Native	
Vespertilionidae	<i>Vespadelus troughtoni</i>	Eastern cave bat	C	-	Native	
Vespertilionidae	<i>Vespadelus vulturnus</i>	Little forest bat	C	-	Native	

APPENDIX

J

Terrestrial Ecology Technical Report

Appendix G Predictive Habitat Modelling Outputs for Conservation Significant Species

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix G

Predictive habitat modelling outputs for conservation significant species



Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Cyperus clarus* (A sedge)



Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



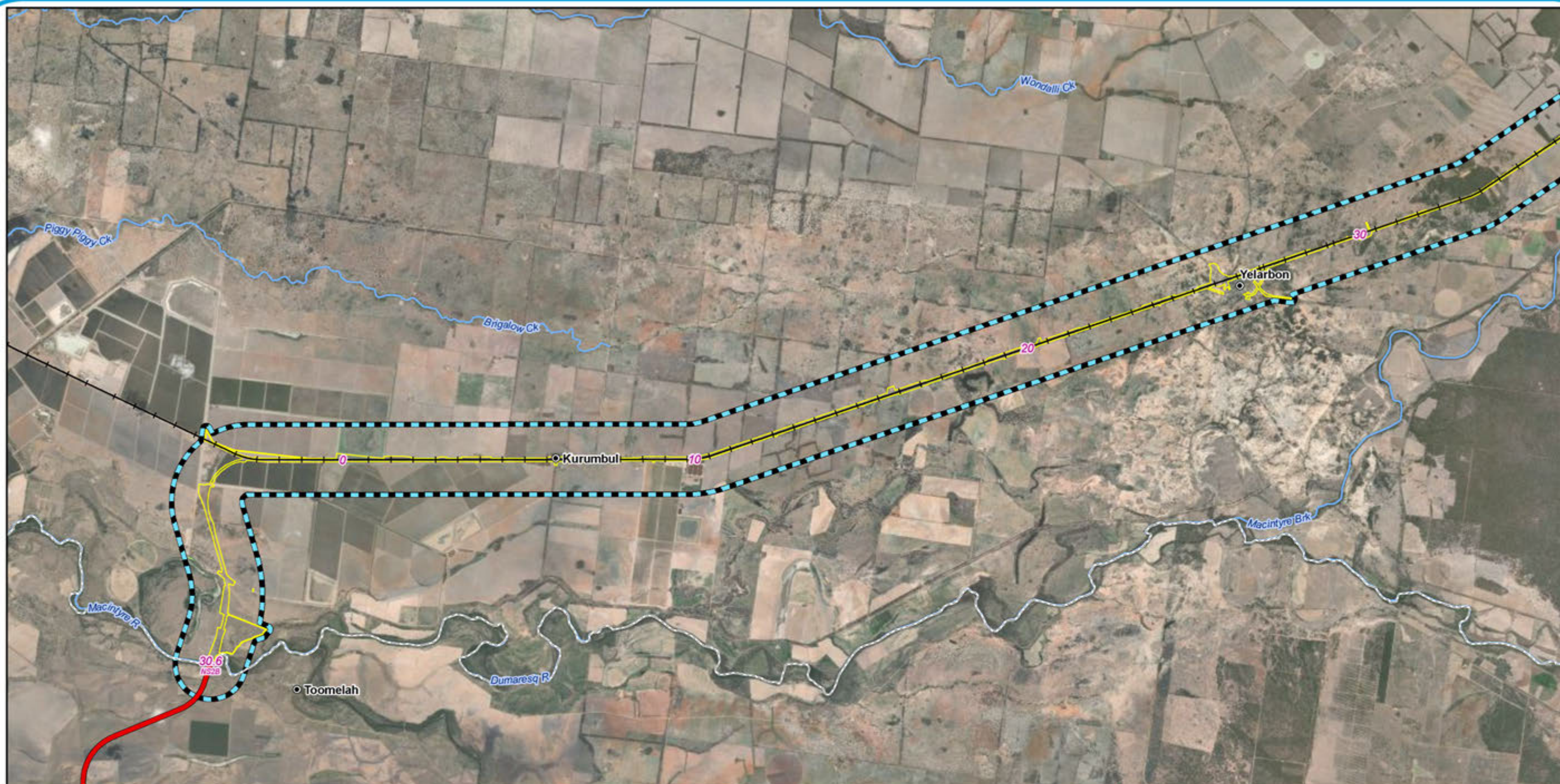
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Cyperus clarus* (A sedge)



Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



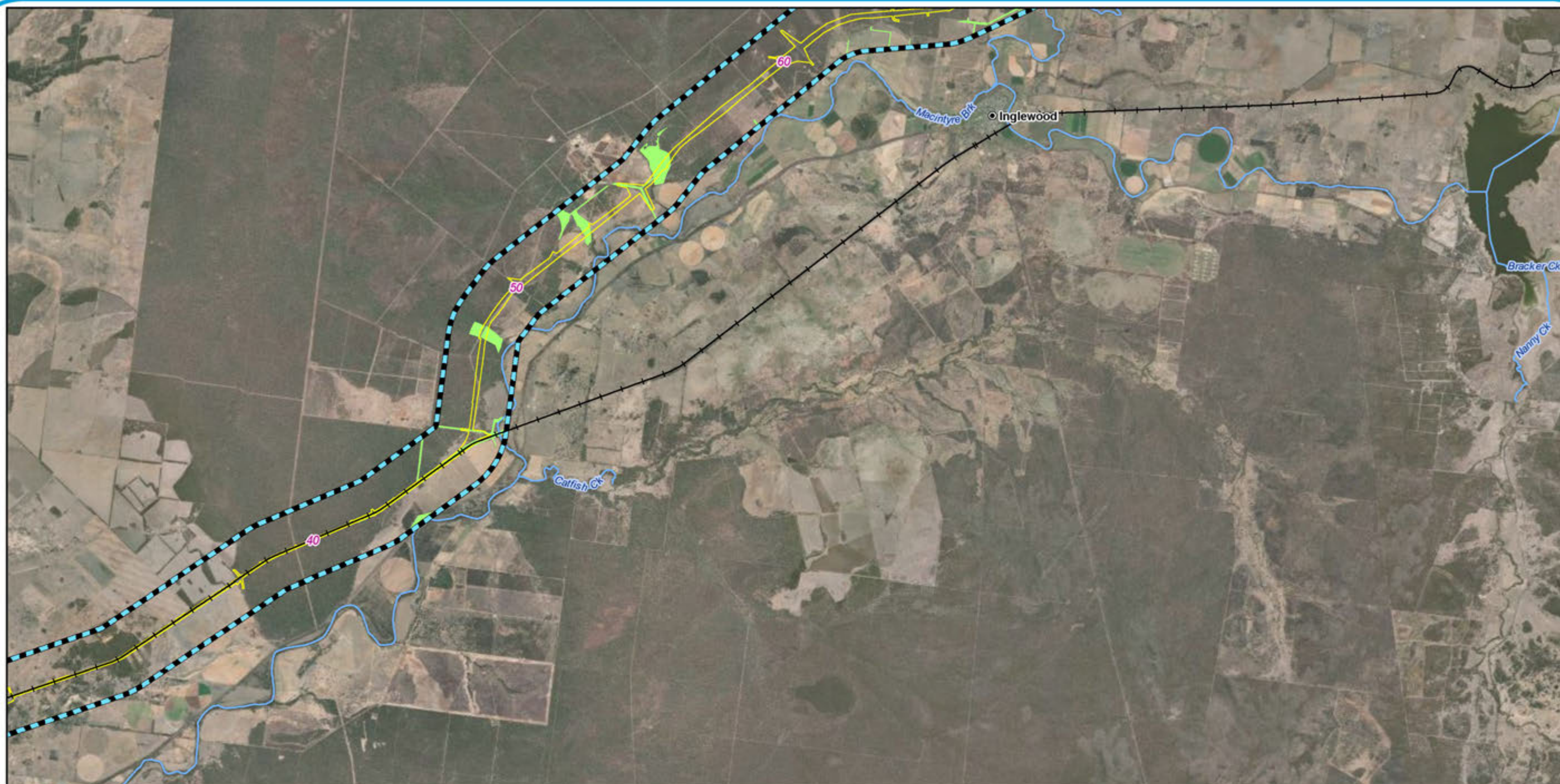
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
 - 5 Chainage (km)
 - Existing rail (operational)
 - Watercourses
 - Project footprint
 - Impact assessment area
- Predicted Habitat**
- General



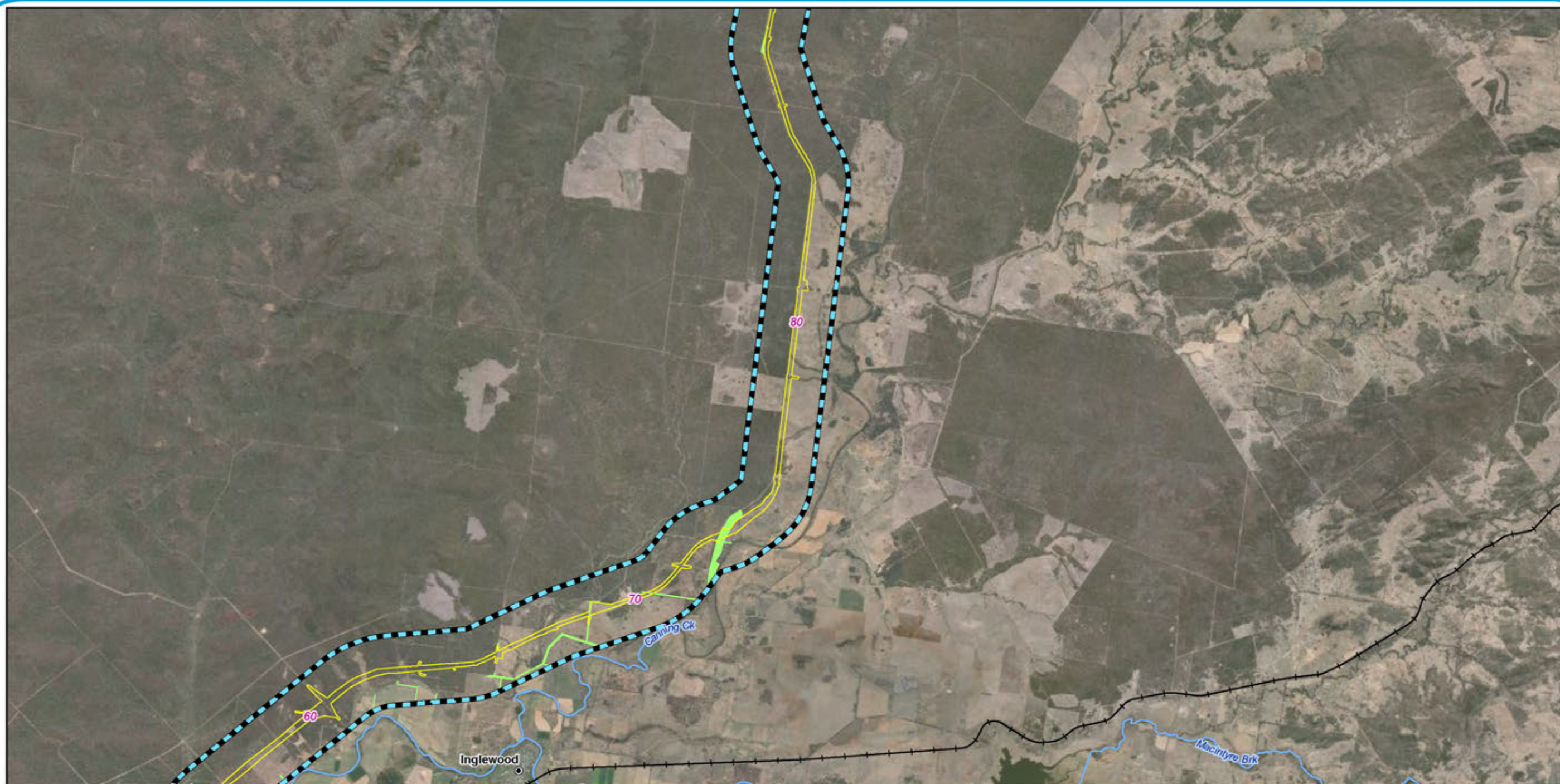
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
- 5 Chainage (km)
- Watercourses
- Project footprint
- ▨ Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
- 5 Chainage (km)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- Essential
- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- 5 Chainage (km)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- Essential
- General



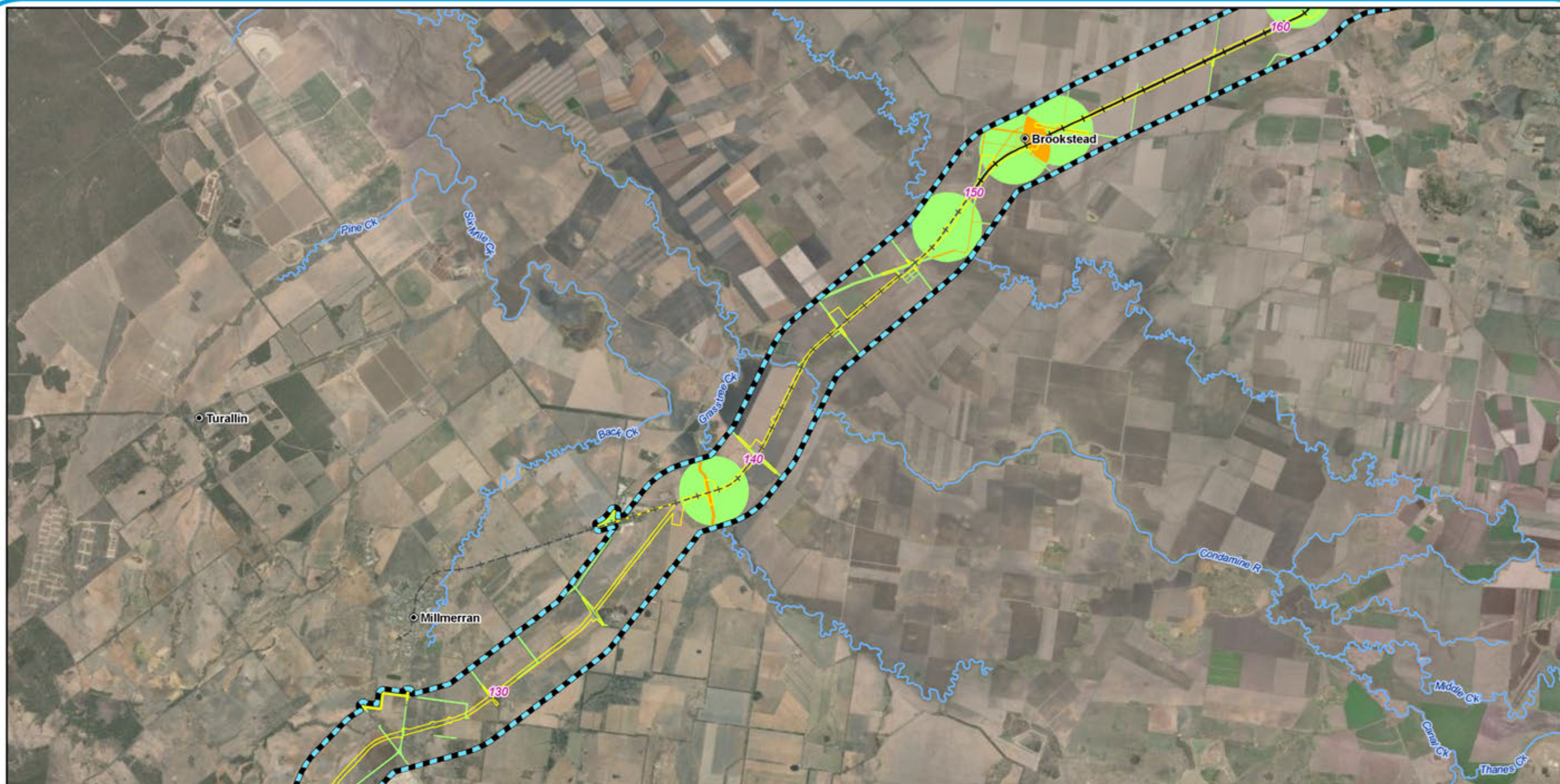
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- Essential
- General



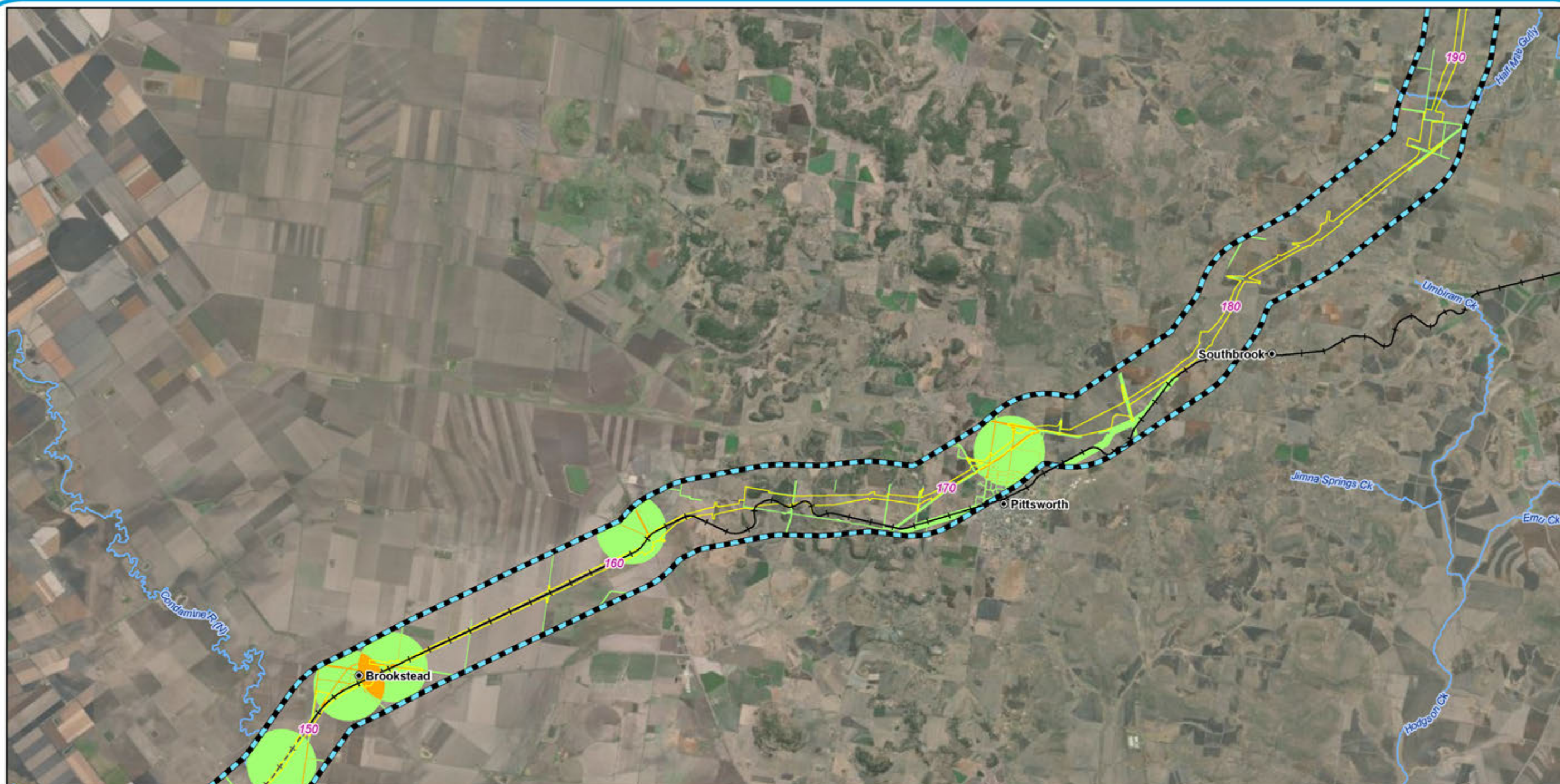
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
 - 5 Chainage (km)
 - Existing rail (operational)
 - - - Existing rail (non-operational)
 - Watercourses
 - Project footprint
 - ▨ Impact assessment area
- Predicted Habitat**
- Essential
 - General



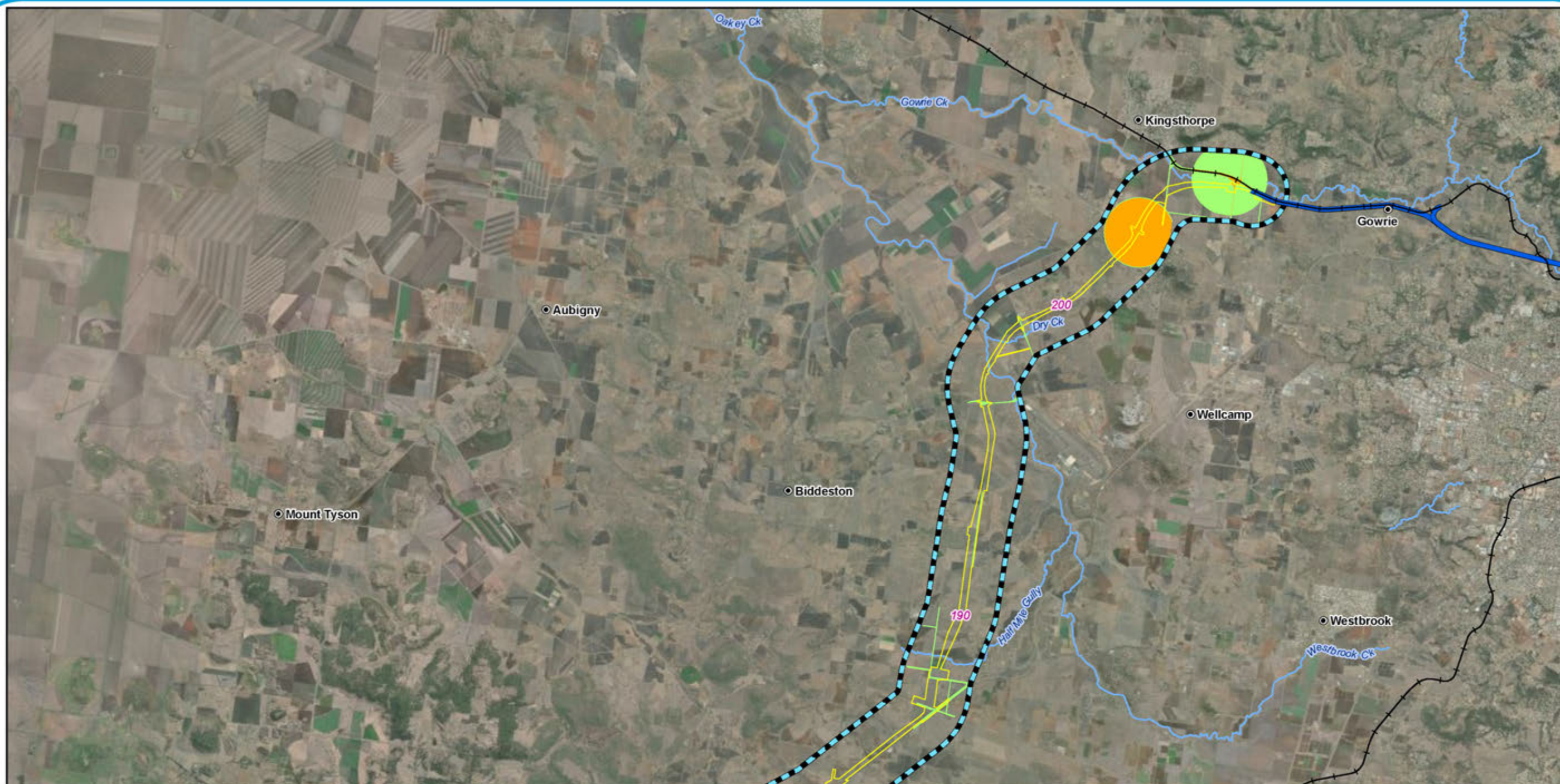
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0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)

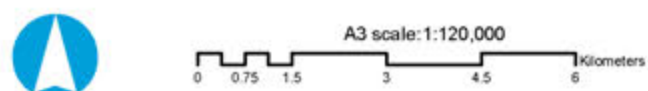


Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

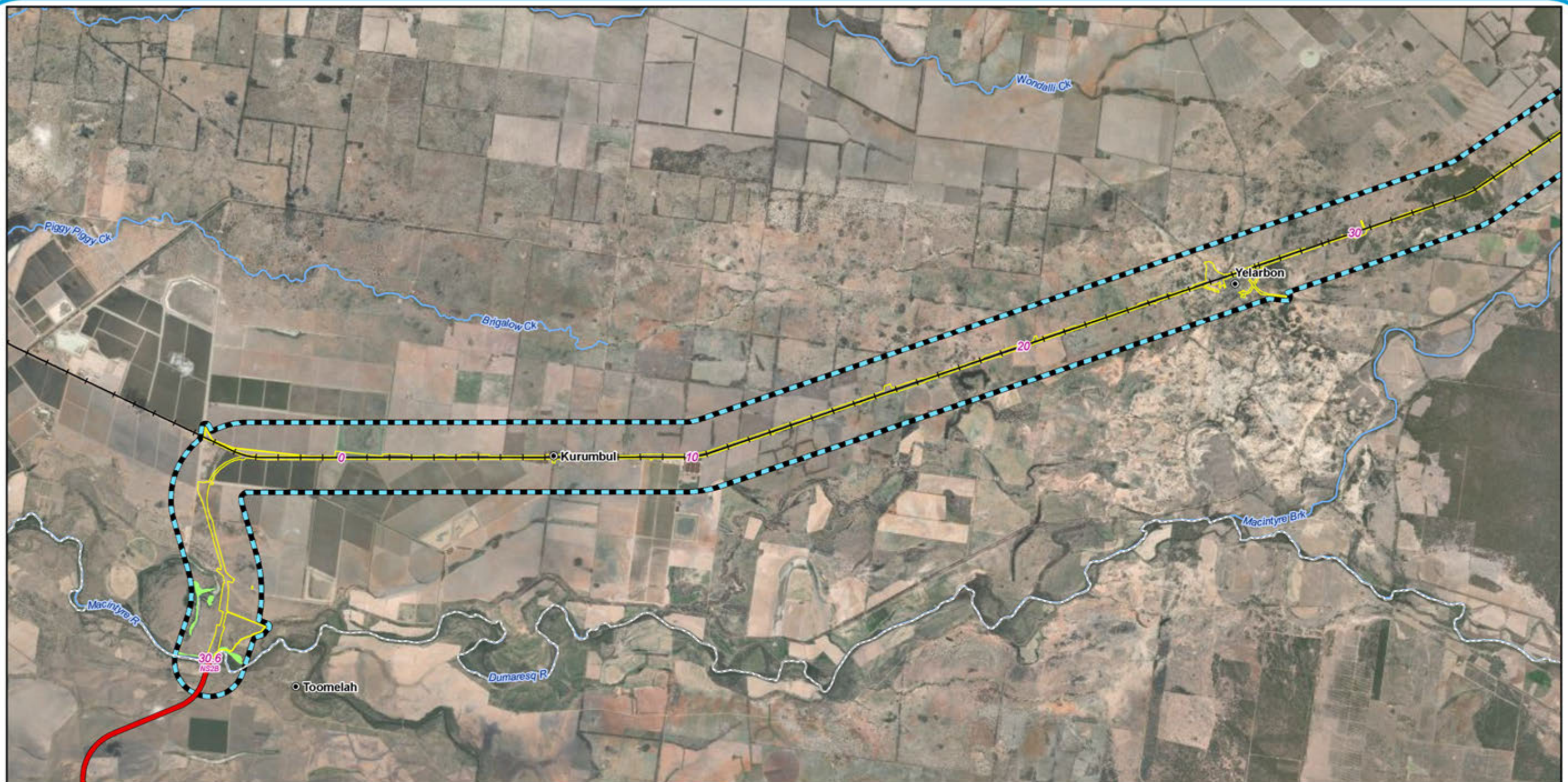
- Essential
- General



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Digitaria porrecta* (Finger panic grass)



Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



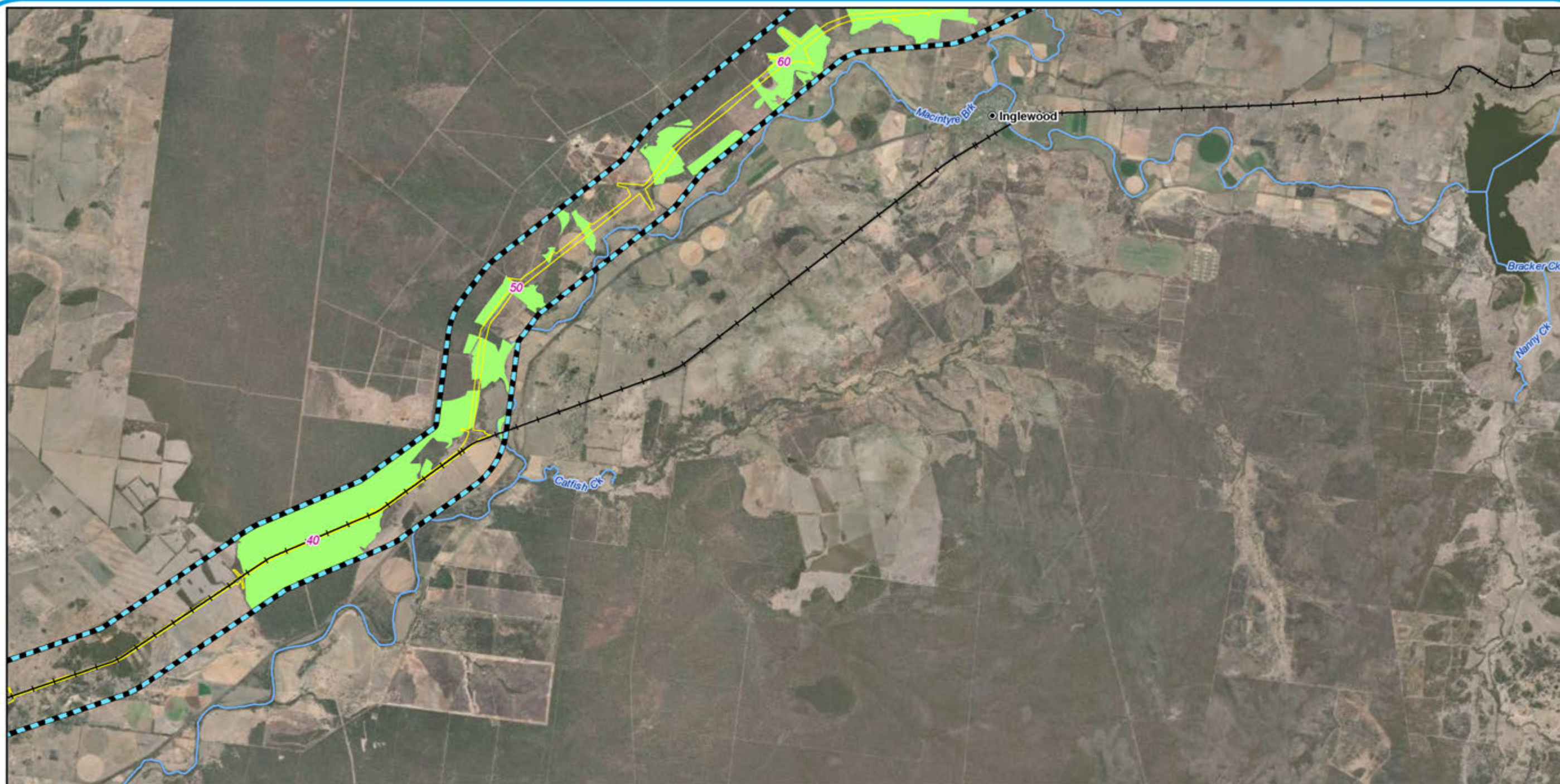
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)



Legend

- Localities
 - 5 Chainage (km)
 - Existing rail (operational)
 - Watercourses
 - Project footprint
 - ▨ Impact assessment area
- Predicted Habitat**
- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)



Legend

- Localities
- 5 Chainage (km)
- Watercourses
- Project footprint
- ▤ Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)



Legend

- Localities
- 5 Chainage (km)
- Watercourses
- Project footprint
- ▨ Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)



Legend

- 5 Chainage (km)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- General



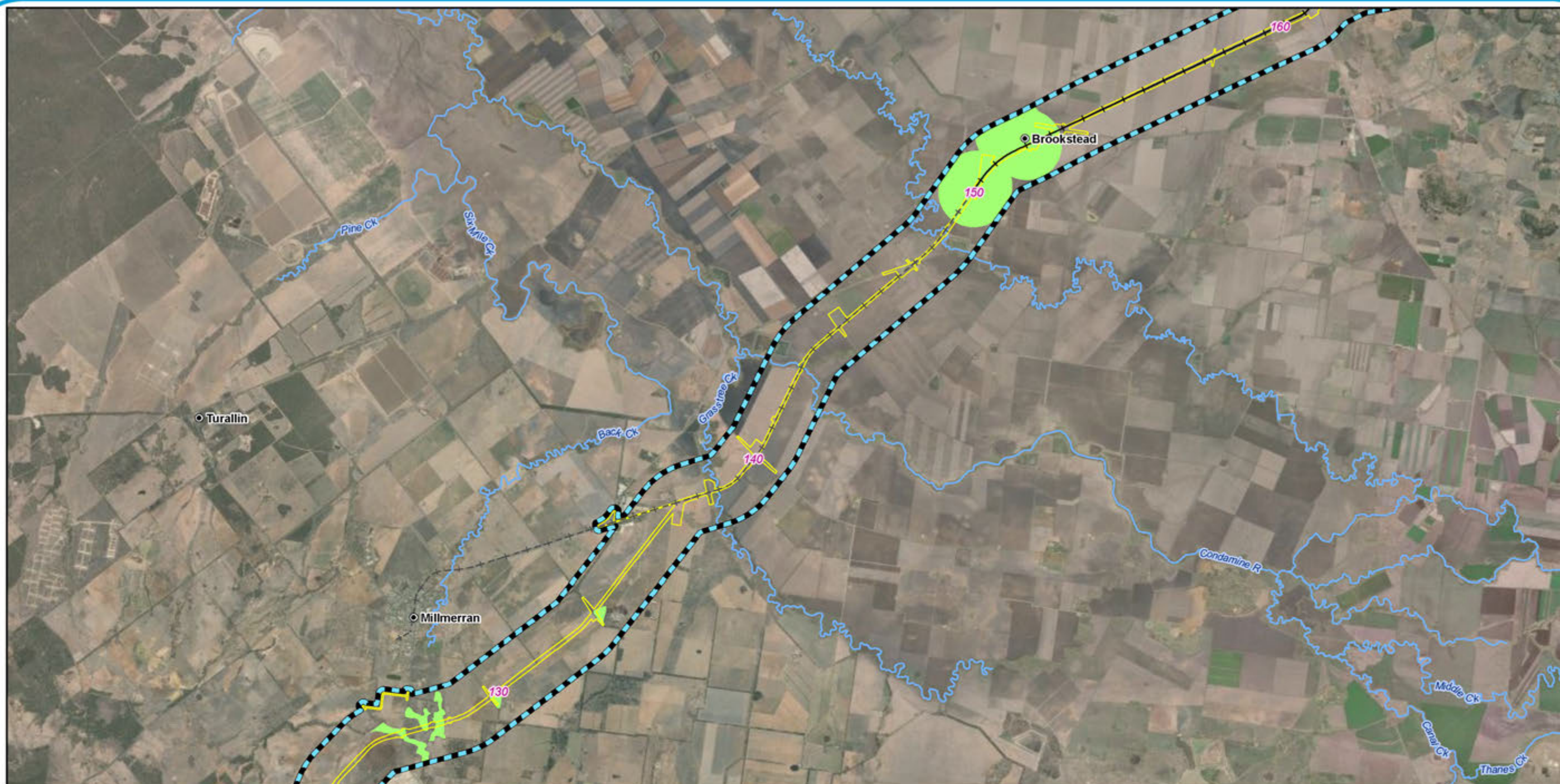
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)

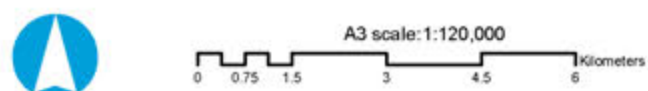


Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- Project footprint
- Impact assessment area

Predicted Habitat

- General



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Picris barbarorum* (A hawkweed)



Legend

- Localities
 - 5 Chainage (km)
 - Existing rail (operational)
 - - - Existing rail (non-operational)
 - Watercourses
 - Project footprint
 - Impact assessment area
- Predicted Habitat**
- Essential
 - General



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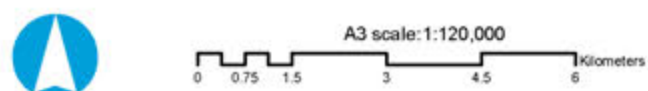


Legend

- Localities
- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- Essential
- General





Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



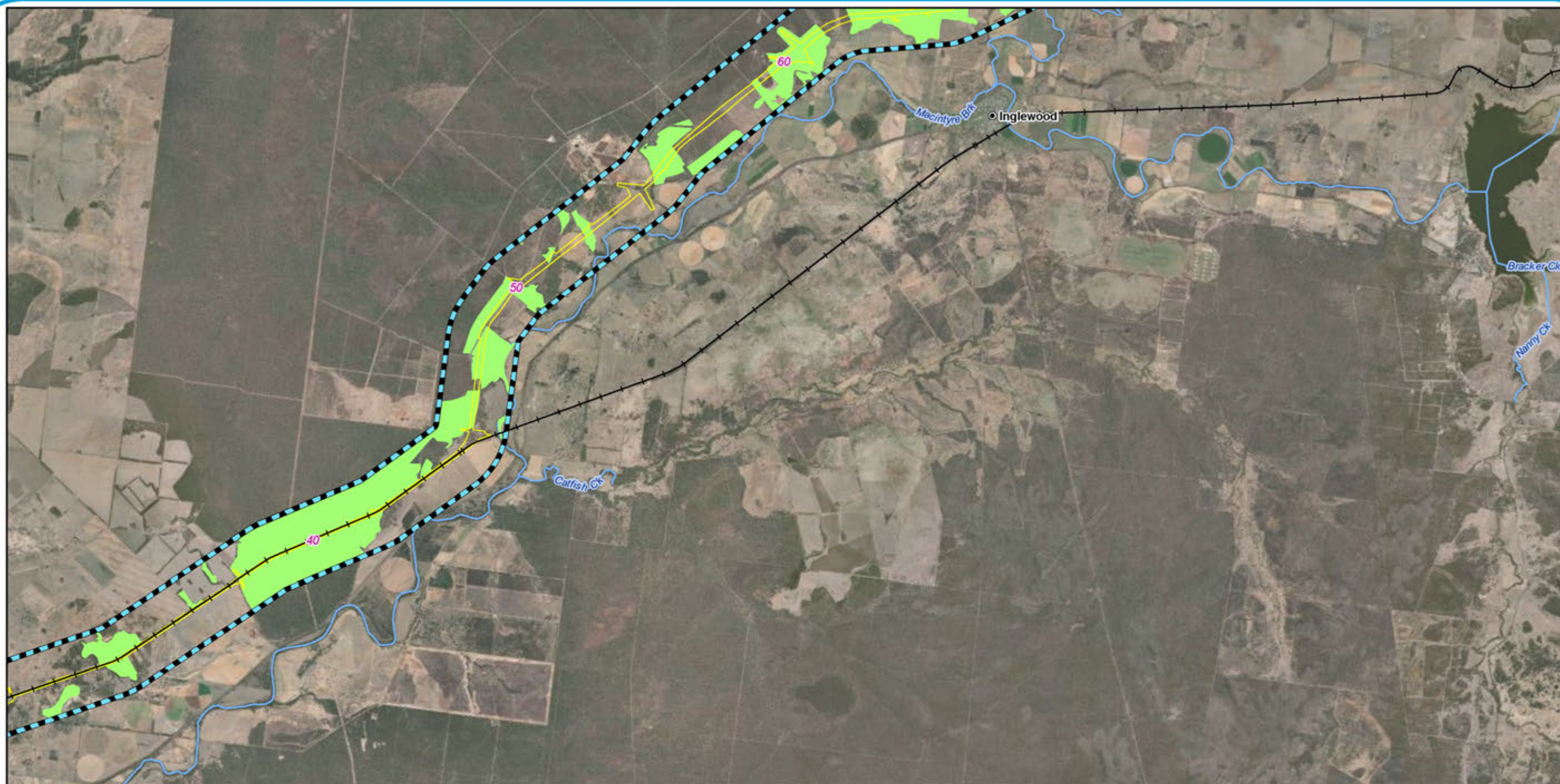
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- | | | |
|-----|-----------------------------|--------------------------|
| 5 | Chainage (km) | Predicted Habitat |
| —+— | Existing rail (operational) | General |
| — | Watercourses | |
| --- | NSW/QLD border | |
| — | Project footprint | |
| —+— | Impact assessment area | |



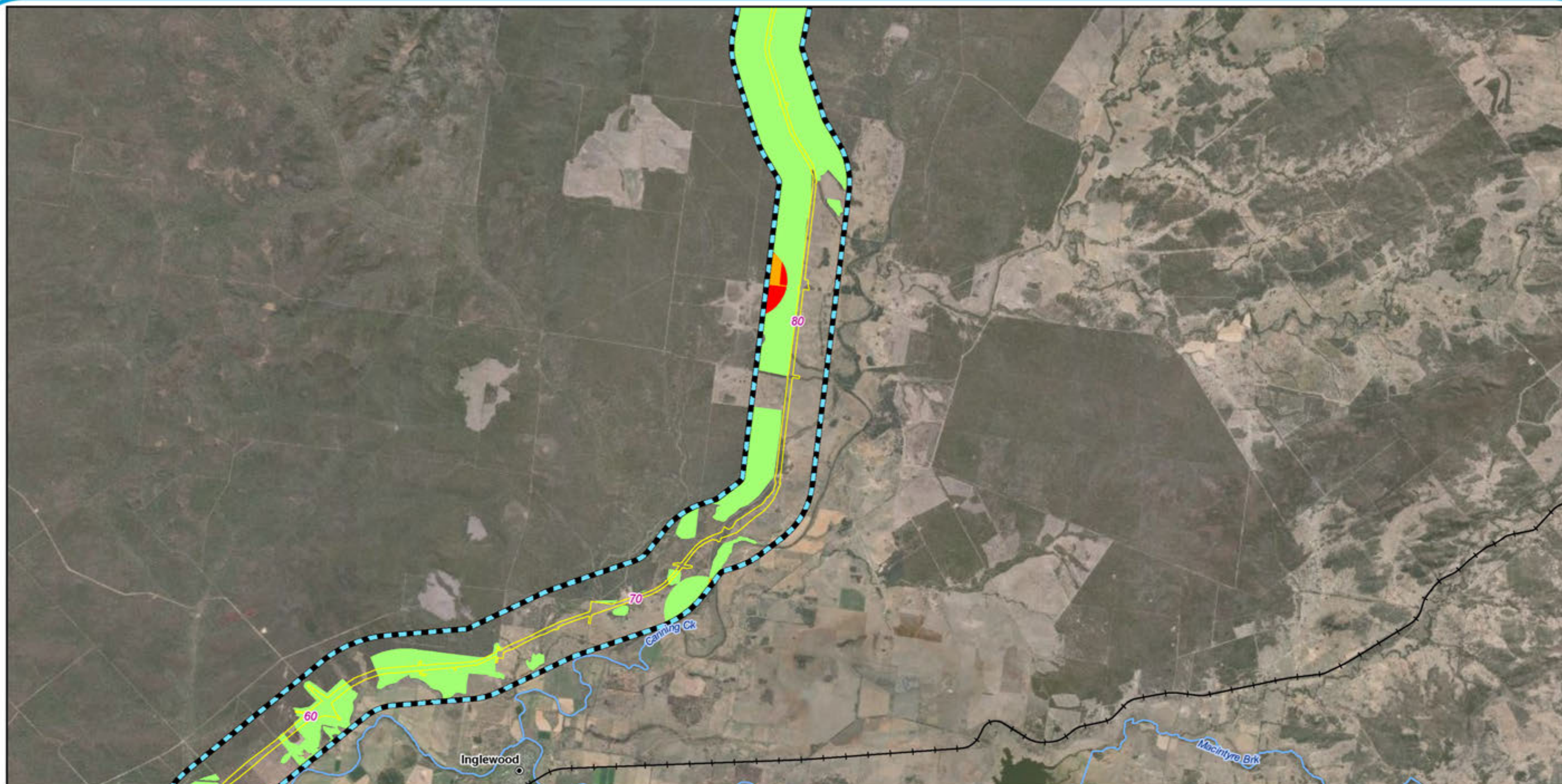
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- Core
- Essential
- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
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ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- - - NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- | | |
|---------------------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| — Existing rail (operational) | General |
| - - - Existing rail (non-operational) | |
| — Watercourses | |
| - - - NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



A3 scale: 1:120,000
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ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



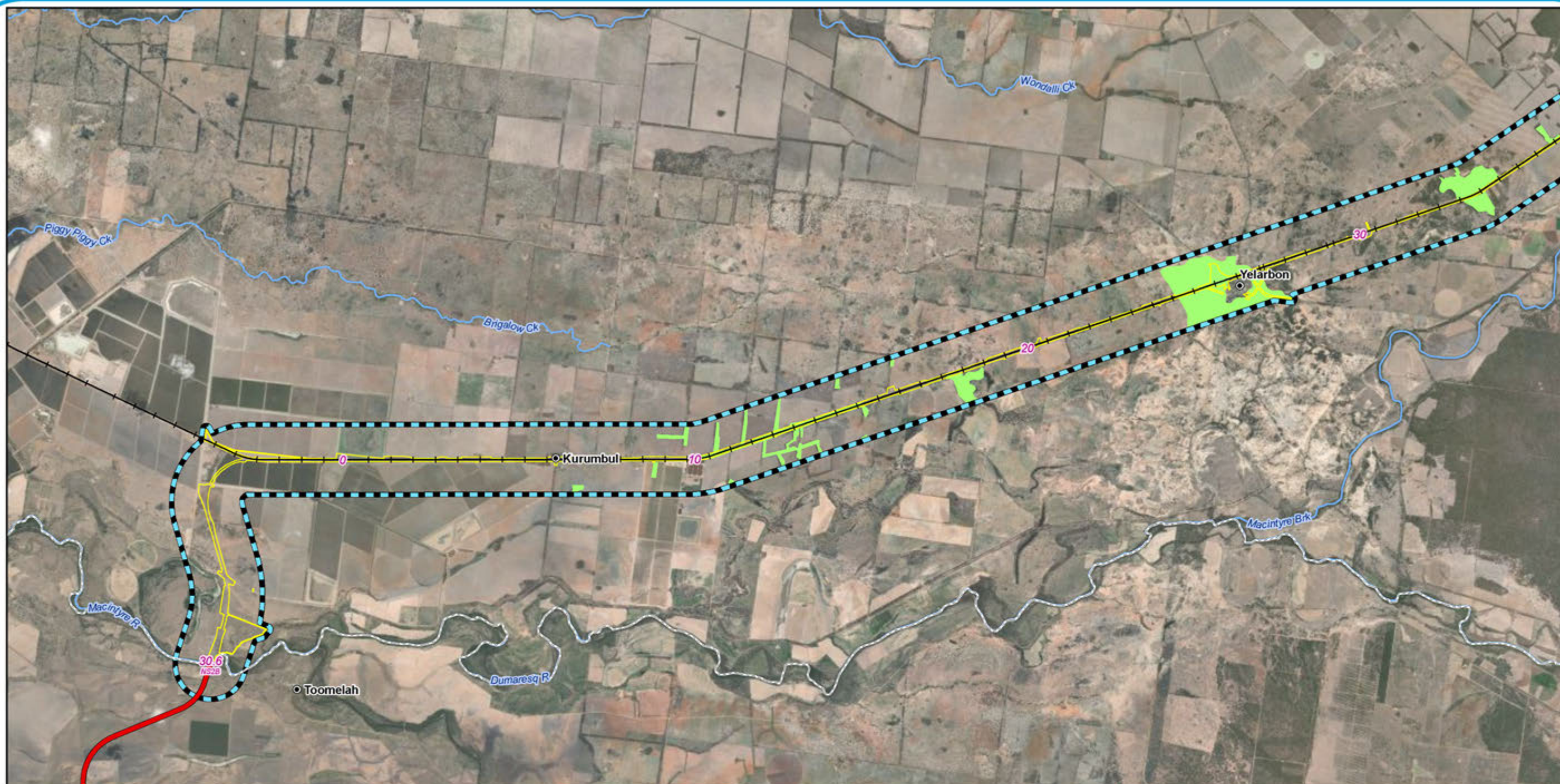
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ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Acanthophis antarcticus* (Common death adder)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



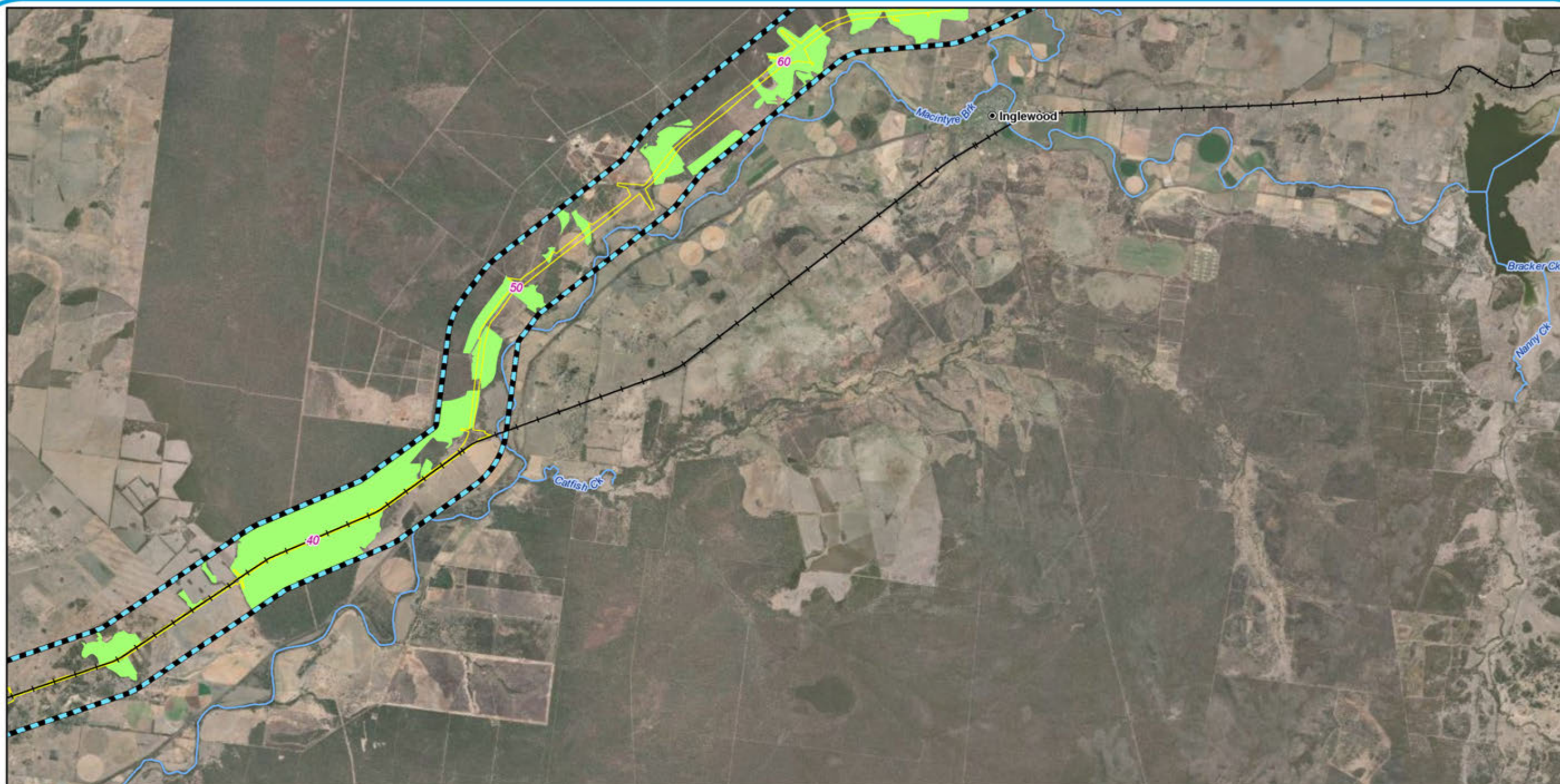
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Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- | | | |
|-----|-----------------------------|--------------------------|
| 5 | Chainage (km) | Predicted Habitat |
| —+— | Existing rail (operational) | General |
| — | Watercourses | |
| --- | NSW/QLD border | |
| □ | Project footprint | |
| ▨ | Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- Core
- Essential
- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))

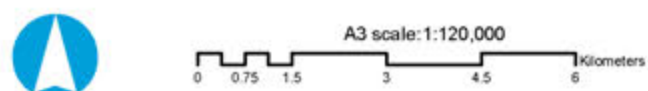


Legend

- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- - - NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- | | |
|---------------------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| — Existing rail (operational) | General |
| - - - Existing rail (non-operational) | |
| — Watercourses | |
| - - - NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Calyptorhynchus lathami lathami* (Glossy black-cockatoo (eastern))



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



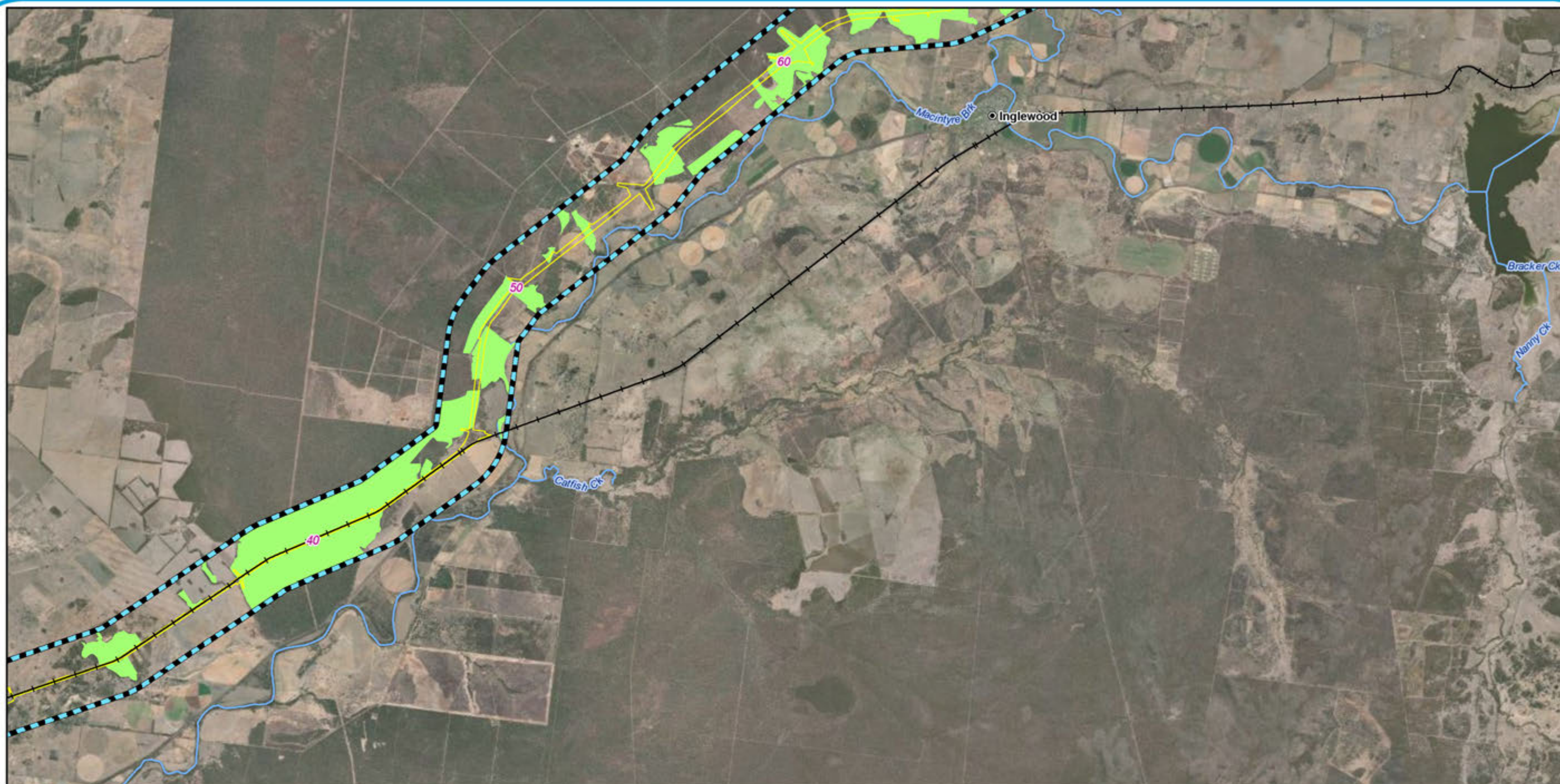
A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- | | | |
|-----|-----------------------------|--------------------------|
| 5 | Chainage (km) | Predicted Habitat |
| —+— | Existing rail (operational) | General |
| — | Watercourses | |
| --- | NSW/QLD border | |
| — | Project footprint | |
| —+— | Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- - - NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- | | |
|---------------------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| — Existing rail (operational) | General |
| - - - Existing rail (non-operational) | |
| — Watercourses | |
| - - - NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



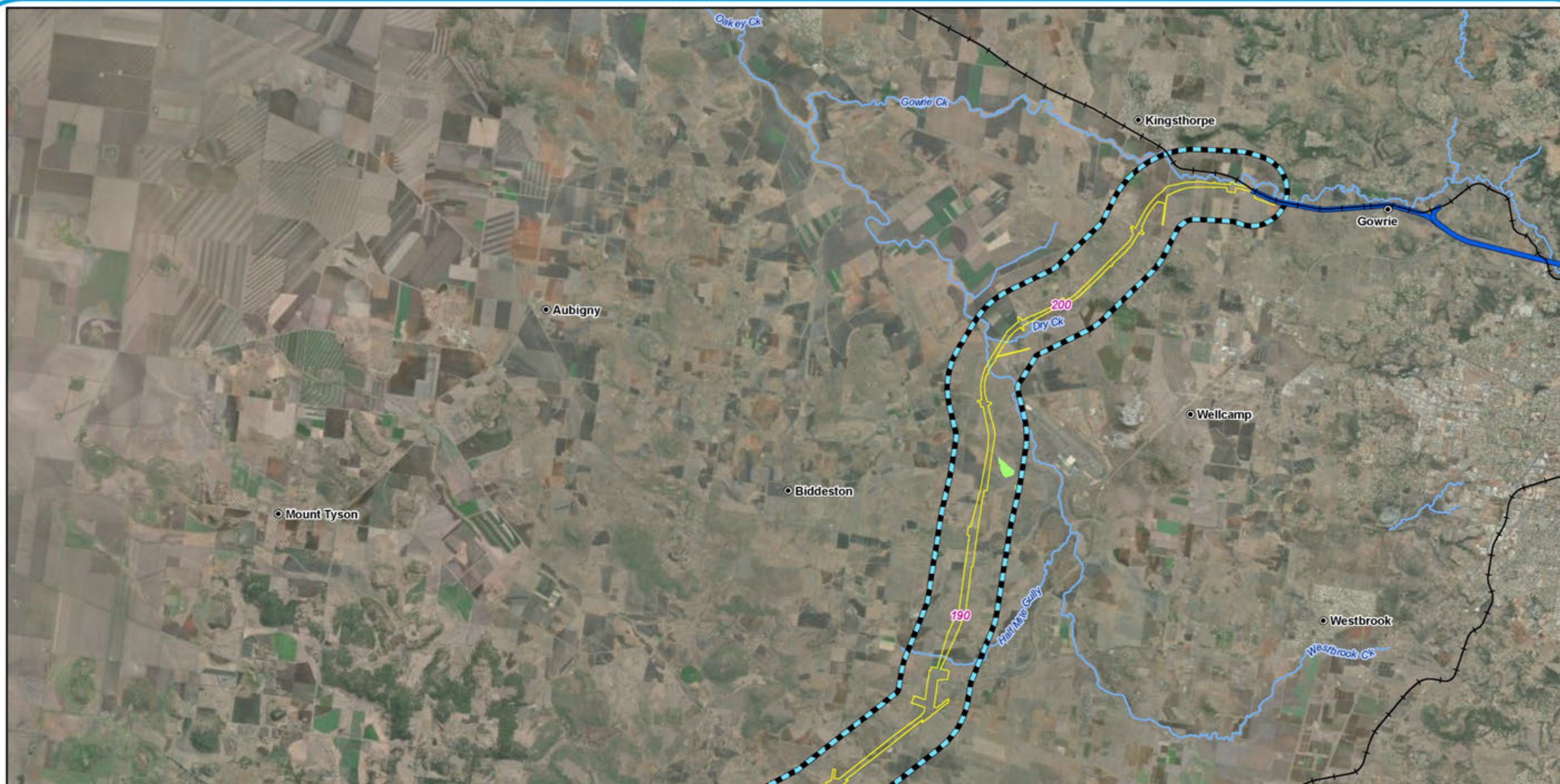
A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



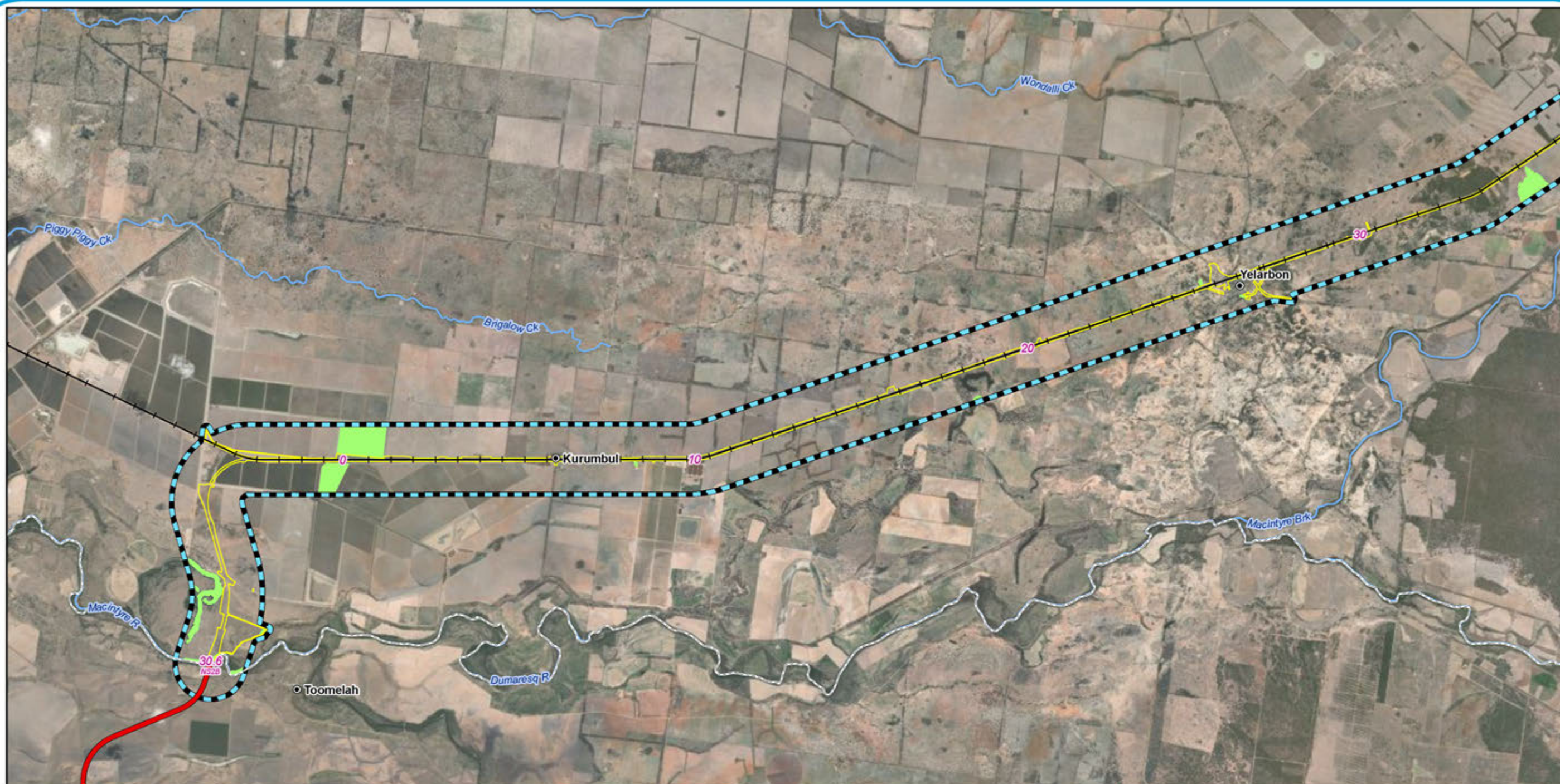
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0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Lophochroa leadbeateri* (Major Mitchells cockatoo)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



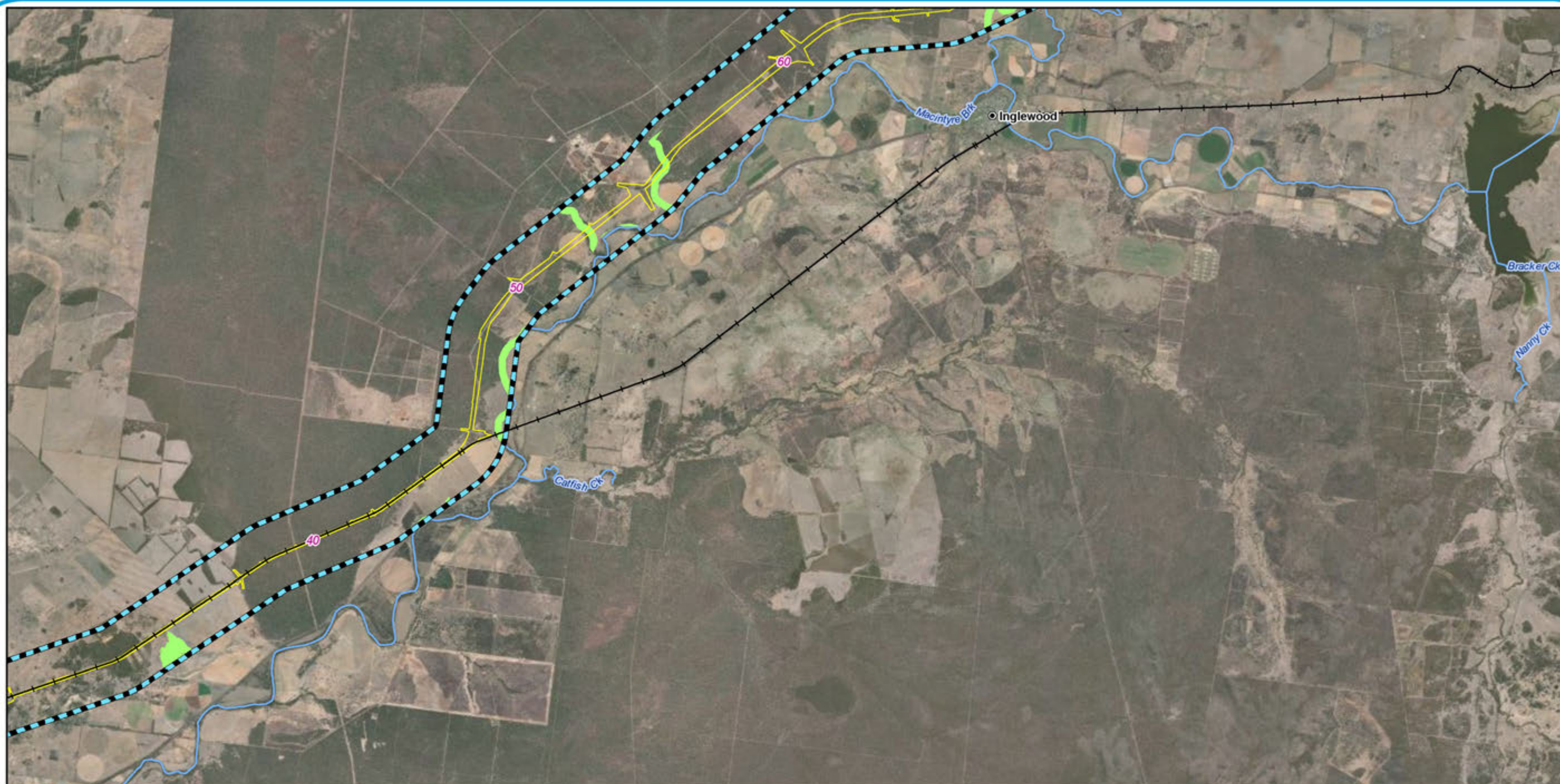
A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- | | |
|-----------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| Existing rail (operational) | General |
| Watercourses | |
| NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- - - NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- | | |
|---------------------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| — Existing rail (operational) | General |
| - - - Existing rail (non-operational) | |
| — Watercourses | |
| - - - NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



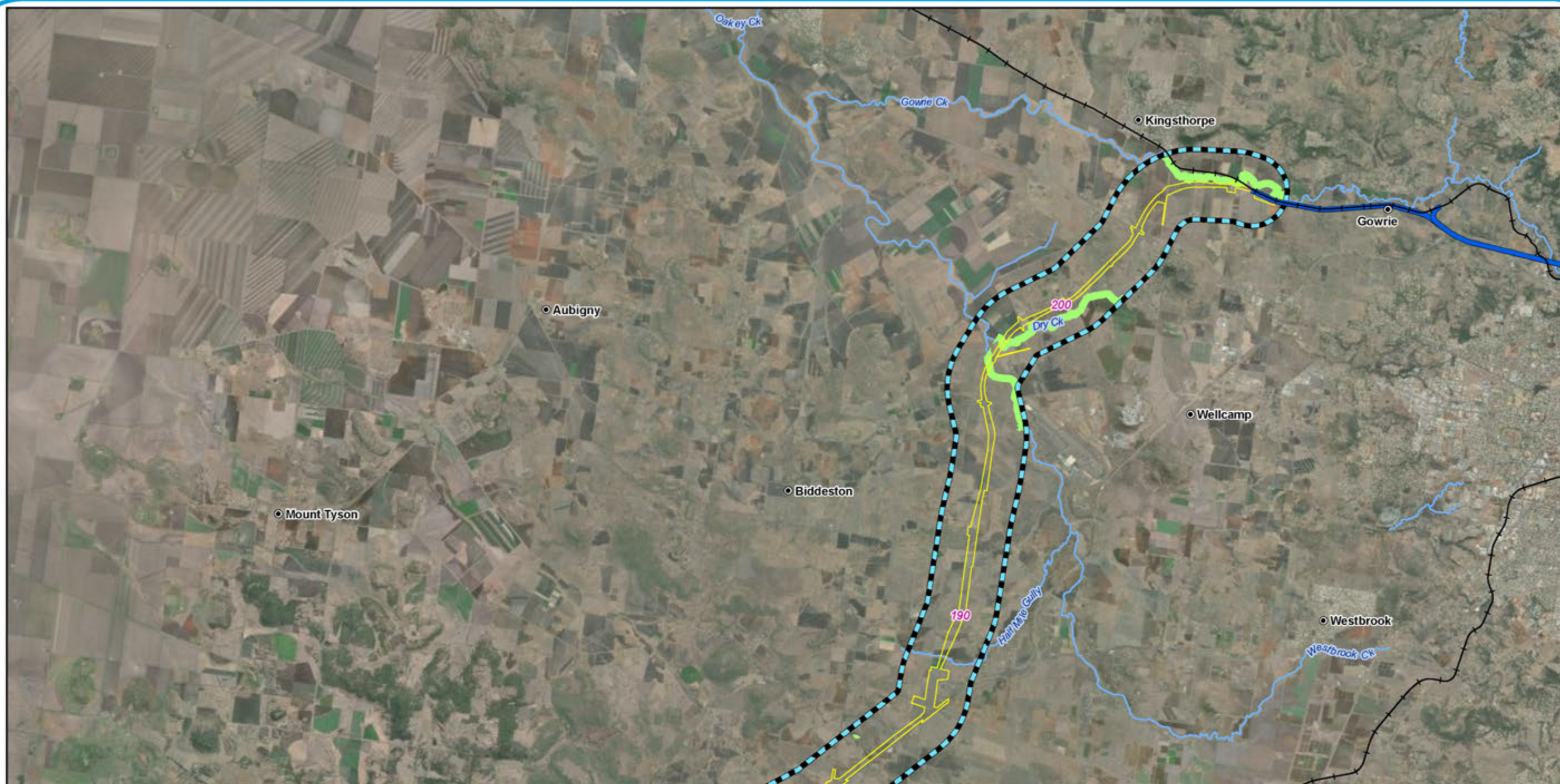
A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



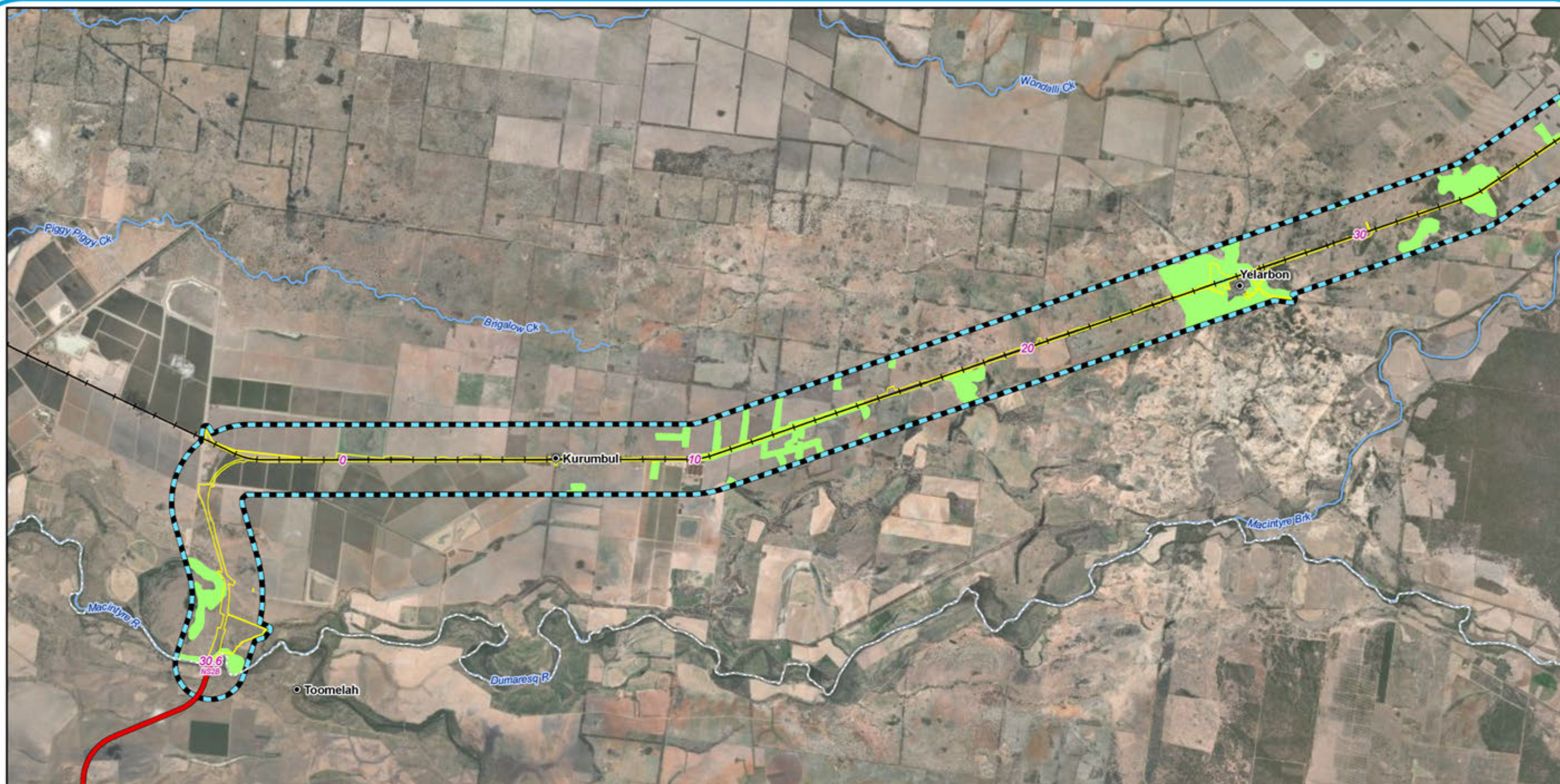
A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Ornithorhynchus anatinus* (Platypus)

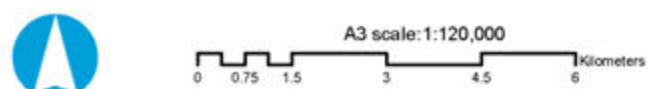


Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- North Star to NSW/QLD border alignment
- Project footprint
- Impact assessment area

Predicted Habitat

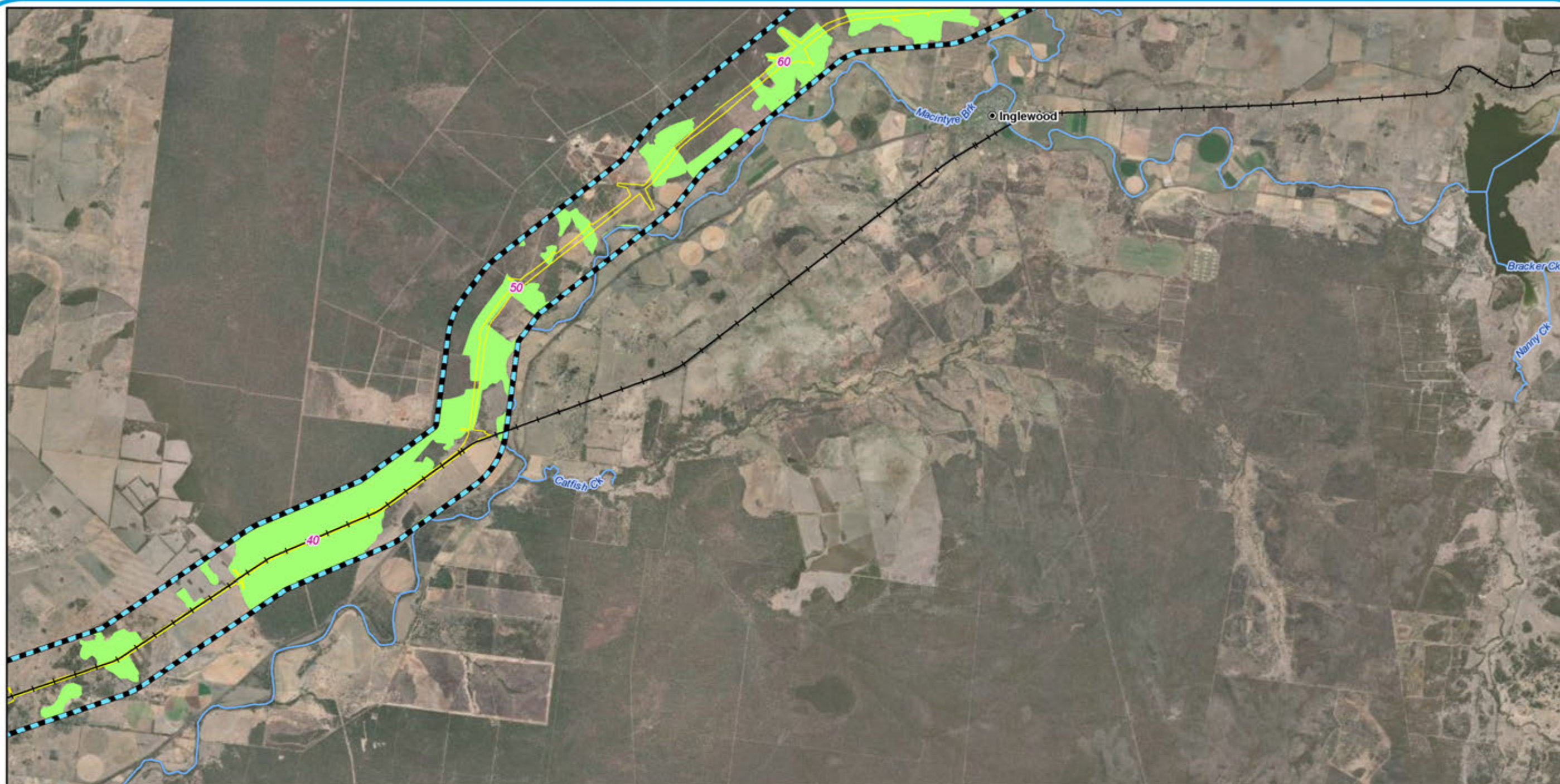
- General



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- | | | |
|---------|-----------------------------|--------------------------|
| 5 | Chainage (km) | Predicted Habitat |
| —+— | Existing rail (operational) | General |
| — | Watercourses | |
| --- | NSW/QLD border | |
| — | Project footprint | |
| --- --- | Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- 5 Chainage (km)
- Watercourses
- NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- - - Existing rail (non-operational)
- Watercourses
- - - NSW/QLD border
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- | | |
|---------------------------------------|--------------------------|
| 5 Chainage (km) | Predicted Habitat |
| — Existing rail (operational) | General |
| - - - Existing rail (non-operational) | |
| — Watercourses | |
| - - - NSW/QLD border | |
| Project footprint | |
| Impact assessment area | |



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)



Legend

- 5 Chainage (km)
- Existing rail (operational)
- Watercourses
- NSW/QLD border
- Gowrie to Helidon alignment
- Project footprint
- Impact assessment area

Predicted Habitat

- General



A3 scale: 1:120,000
0 0.75 1.5 3 4.5 6 Kilometers



Issue date: 18/05/2020 Version: 4
Coordinate system: MGA56

ARTC Inland Rail Study: Border to Gowrie

Predicted Habitat: *Tachyglossus aculeatus* (short-beaked echidna)

APPENDIX

J

Terrestrial Ecology Technical Report

Appendix H Completed Vegetation Assessment Proformas

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix H

Completed vegetation assessment proformas

Fauna Proforma



Future Freight
Integrating Community, Environment and Engineering

Site Information

Site Name: 1

Date: 16/4/18

Observers: CR + CS

Refer to flora proforma

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: _____

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): _____ Regional Ecosystem Observed: _____

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Regent HE
curlew SP
black-throated F
border thick-tailed gecko
spotted pigeon
painted HE
keola
southern greyta
glider
eastern long-eared bat
dunnals snake
ballale Jewell
grey snake
woma
white-throated noddie
white-winged black tern
caper tern
sharp-tailed sandpiper
glossy ibis
short-billed echin
glossy black-caterpillar
Midge Mitchell's cecropia
powerful owl
common death adder

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	3
Clearing	3
Erosion	2.

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) – from database searches	Yes	No
		NO

Incidental fauna observations/scats/traces:

Variegated Flycatcher ✓
 WW Chough ✓
 bar-shafted dave ✓
 Stopped HE ✓
 large macropod - (tracks + scats) ✓
 apostrophe ✓
 T. crown ✓
 Willie wagtail ✓
 infans whistler ✓
 mistletoe ✓

Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter 0 >15cm, <30cm diameter 0 >10cm, <15cm diameter 0 >5cm, <10cm diameter 0 < 5cm diameter 1
Fallen logs (>10cm diam.)	4
Coarse woody debris (<10cm diam.)	3
Decorticating bark	1
Leaf litter (%)	5%
Bare ground (%)	70%
Grass (%)	10%
Soil cracks	1
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	NO
Weeds and non-native species (%)	0
Rock Crevices	0
Flower Abundance (%)	0 5 mistletoe
Fruit Abundance (%)	0
Water present (Y/N)	Y road side ditch

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 2 (mored)

Date: 16/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: Refer to veg proforma.

Plot Centre: Zone: Easting: Northing: Accuracy m

Altitude: m Altitude accuracy: +/- m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height m cover %

Dominant species:

Sub canopy present Y / N average height m cover %

Dominant species:

Shrub layer present Y / N average height m cover %

Dominant species:

Ground layer: cover % weeds % Dominant species

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	3
Clearing	3
Erosion	2

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

crested pig
hairy miner ✓

ac bubbles ✓

mistaken

~~me~~ ~~large~~ ~~indigo~~
green leather

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)		7
Coarse woody debris (<10cm diam.)		6
Decorticating bark		0
Leaf litter (%)		20
Bare ground (%)		40
Grass (%)		20 30
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		10
Rock Crevices		0
Flower Abundance (%)		0
Fruit Abundance (%)		0
Water present (Y/N)		Y shallow

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 3

Date: 16/4/18

Observers: OE + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: Easting: Northing: Accuracy: m

Altitude: m Altitude accuracy: +/- m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree Canopy present Y / N average height m cover %

Dominant species:

Sub canopy present Y / N average height m cover %

Dominant species:

Shrub layer present Y / N average height m cover %

Dominant species:

Ground layer: cover % weeds % Dominant species

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics



Future Freight
Integrating Community, Environment and Engineering

Habitat Features – Abundance:

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	3
Clearing	1
Erosion	2

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	>30cm diameter 0
	>15cm, <30cm diameter 0
	>10cm, <15cm diameter 0
	>5cm, <10cm diameter 0
	< 5cm diameter 0
Fallen logs (>10cm diam.)	3
Coarse woody debris (<10cm diam.)	4
Decorticating bark	2
Leaf litter (%)	5
Bare ground (%)	85
Grass (%)	5
Soil cracks	2
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	Y
Weeds and non-native species (%)	5
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	Wetland

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) – from database searches	Yes	No
Aus. bittern	✓	
Painted snipe	✓	

Incidental fauna

observations/scats/traces:

mistletoe bird
sheep
w. swallow
w. magpie

T. crow

C. parus

ducky toadlet
eastern grey

Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

lynnabynates
red-capped robin

Site Information



Date: 11/4/18

Observers: OK + LS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height ____ m cover ____ %

Dominant species:

Sub canopy present Y / N average height ___ m cover ___ %

Dominant species:

Shrub layer present Y / N average height ___ m cover ___ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	3
Clearing	3
Erosion	1

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) – from database searches	Yes	No

Incidental fauna

observations/scats/traces:

Brown TB ✓
 Willy wattle ✓
 Red-rump R ✓
 White-plumbeed HE
 WW-chough



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Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter >15cm, <30cm diameter >10cm, <15cm diameter >5cm, <10cm diameter < 5cm diameter
Fallen logs (>10cm diam.)	
Coarse woody debris (<10cm diam.)	
Decorticating bark	
Leaf litter (%)	
Bare ground (%)	
Grass (%)	
Soil cracks	
Soil banks (eg. River banks/road cuttings, etc.)	
Surface Rocks and/or Boulders	
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	
Weeds and non-native species (%)	
Rock Crevices	
Flower Abundance (%)	
Fruit Abundance (%)	
Water present (Y/N)	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

7 small depressions

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: new site 6

Date: 17.4.18

Observers: ER, CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: all veg proforma

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): _____ Regional Ecosystem Observed: _____

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	3
Clearing	3
Erosion	1

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

2 mu ✓ gc babs ✓
ringneck.
owl nest in tree on road side
eastern gray tracks ✓
noisy miner ✓



Future Freight
Integrating Community, Environment and Engineering

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)		1
Coarse woody debris (<10cm diam.)		1
Decorticating bark		0
Leaf litter (%)		5
Bare ground (%)		60
Grass (%)		30 20
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		1
Surface Rocks and/or Boulders		5
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		5
Rock Crevices		0
Flower Abundance (%)		10 (mistake)
Fruit Abundance (%)		0
Water present (Y/N)		Y dam

* Note: 0 = absent; 1 = Rare; 2 = Rare to common; 3 = Common; 4 = Abundant; 5 = Very Abundant; 6 = Dominant; 7 = Exclusive

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 9

Date: 17/4/18

Observers: OR + CS

refer to veg proforma

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) – from database searches	Yes	No
Imperial hairstreak	Acacia irrorata	

Incidental fauna observations/scats/traces:

Acacia irrorata has signs of herbivory (ie imperial hairstreak)
 Rufous whistler
 weebill.
 wallaby sp rednecked.

Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter 2
	>15cm, <30cm diameter 4
	>10cm, <15cm diameter 2
	>5cm, <10cm diameter 2
	< 5cm diameter 1
Fallen logs (>10cm diam.)	6
Coarse woody debris (<10cm diam.)	7
Decorticating bark	4
Leaf litter (%)	55 55
Bare ground (%)	30
Grass (%)	10
Soil cracks	0
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	5
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

eulampius tenuis

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 14

Date: 17/4/18

Observers: GR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

refer to veg proforma

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	2
Clearing	3
Erosion	1

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

pied 66
noisy miner
pale head not
a possible red

Tarrow ✓
c' pyren ✓
wobill ✓
emu (track) ✓

(Tracks)
 Leightonham hwy,
 under bridge $\rightarrow$ faint marks

Future Freight
Innovative Community Development and Education

Habitat Features = Abundance:

Characteristics	Abundance (0-17) or % within landscape	
Hollows in trees and stags. (May include hollows in termite mounds)	>20cm diameter	0
	>15cm, <20cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)	1	
Coarse woody debris (<10cm diam.)	2	
Decorticating bark	0	
Leaf litter (%)	1%	
Bare ground (%)	30	
Grass (%)	50	
Soil cracks	0	
Soil banks (eg. River banks/road cuttings, etc.)	0	
Surface Rocks and/or Boulders	0	
Wetlands (Y/N). If yes complete wetland Proforma	N	
Weeds and non-native species (%)	29%	
Rock Crevices	0	
Flower Abundance (%)	0	
Fruit Abundance (%)	9	
Water present (Y/N)	yes	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 18 GPS# 14

Date: ... / ... / ...

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

refer to veg proforma

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma



Future Freight
Infrastructure, Environment, Community and Engineering

Site Information

Site Name: New Site 15

Date: 1/1/11

Observers: CL + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: refer to map

Plot Centre: Zone: Easting: Northing: Accuracy m

Altitude: m Altitude accuracy: +/- m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: if a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height m cover %

Dominant species:

Sub canopy present Y / N average height m cover %

Dominant species:

Shrub layer present Y / N average height m cover %

Dominant species:

Ground layer: cover % weeds % Dominant species

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

Habitat suitability for target fauna

[illegible]

yellow TB ✓
Incidental fauna ✓
observations/scats/traces? ✓
sittell ✓
brown TB ✓
area faint. ✓

use bit yellow for HE
gsf
Allocastrina in sphera. potential
gb cockatoo food
wallaby sp (scat) ✓



Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in <i>termentartia</i>)	>30cm diameter	0
	>15cm, <30cm diameter	1
	>10cm, <15cm diameter	1
	>5cm, <10cm diameter	1
	< 5cm diameter	2
Fallen logs (>10cm diam.)		7
Coarse woody debris (<10cm diam.)		7
Decorticating bark		3
Leaf litter (%)		40
Bare ground (%)		40
Grass (%)		20
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		0
Rock Crevices		0
Flower Abundance (%)		5 (mostly to)
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

common to abundant; 7 = abundant

2mm (scat) ✓
rabbit ✓
warren ✓
confirmed yellow-bellied glider ✓
scat see photo (red/brown) / Glider
in colour
↳ coarse brown material

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: New Site 16

Date: 18/9/18

GPS 046

Observers: CS-1 OR

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

pelicans above ✓
emu (track) ✓
e' g' my k' (track) ✓
a post hole bit ✓



Future Freight
Integrating Community, Environment and Engineering

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	1
	>10cm, <15cm diameter	1
	>5cm, <10cm diameter	2
	< 5cm diameter	3
Fallen logs (>10cm diam.)		7
Coarse woody debris (<10cm diam.)		7
Decorticating bark		3
Leaf litter (%)		60
Bare ground (%)		20
Grass (%)		20
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		dry gully
Surface Rocks and/or Boulders		3
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		0
Rock Crevices		0
Flower Abundance (%)		5 (mustabe)
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent: 1 = Rare: 2 = Rare: 3 = Rare: 4 = Rare: 5 = Rare: 6 = Rare: 7 = Rare:

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

yellow spotted monitor ✓
see photo

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: New site 19.

Date: 18/4/18

Observers: OR + CR

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics



Habitat Features – Abundance:

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

e' yellow robin ✓

bearded dragon. ✓

Emu scarf

east' gray k

scat w seeds see photo

↳ Ceratironella

unfronced yellow bellied
fox scap. glider (scap)

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	1
	< 5cm diameter	2.
Fallen logs (>10cm diam.)		5
Coarse woody debris (<10cm diam.)		6
Decorticating bark		2
Leaf litter (%)		50
Bare ground (%)		40
Grass (%)		10
Soil cracks		2
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		0
Weeds and non-native species (%)		0
Rock Crevices		0
Flower Abundance (%)		5 (mistlebe)
Fruit Abundance (%)		0
Water present (Y/N)		0

* Note: 0 = absent; 1 = Bare; 2 = D

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 27.

Date: 19/4/18

Observers: CR + CS.

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics



Habitat Features – Abundance:

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	1
Clearing	0
Erosion	0

belah woodland. on sandy clay
Habitat suitability for target ^{her} ~~millet~~ ^{tauna}

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

grey kangaroo scat / tracks ✓
variegated fw ✓
grey FT ✓
weebill ✓
rufous WH
noisy miners

Characteristics	Abundance (0-7)* or % within landscape	
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	4
	>15cm, <30cm diameter	4
	>10cm, <15cm diameter	4 4
	>5cm, <10cm diameter	5
	< 5cm diameter	5
Fallen logs (>10cm diam.)	6	
Coarse woody debris (<10cm diam.)	7	
Decorticating bark	2	
Leaf litter (%)	80	
Bare ground (%)	10	
Grass (%)	10	
Soil cracks	1	
Soil banks (eg. River banks/road cuttings, etc.)	0	
Surface Rocks and/or Boulders	1	
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	N	
Weeds and non-native species (%)	0	
Rock Crevices	0	
Flower Abundance (%)	15% wilga	
Fruit Abundance (%)	0	
Water present (Y/N)	N	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

silver eye ✓
yellow TB ✓

Site Information



Site Name: new site 21

Date: 19/4/18

Observers: 029 CS.

LOCATION (GPS reference)Datum: ☐ AGD84☐ GDA94 (WGS84)

OTHER:

Plot Centre: Zone: Easting: Northing: Accuracy ____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height ____ m cover ____ %

Dominant species:

Sub canopy present Y / N average height ____ m cover ____ %

Dominant species:

Shrub layer present Y / N average height ____ m cover ____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

21

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0 2
Clearing	2
Erosion	1

callitris - box-belah on sand

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
S' pigeon	✓	
Painted he	✓	
Eastern bit	✓	
Death adder	✓	

Incidental fauna

observations/scats/traces:

weebill ✓
yellow TB ✓
e' grey 'k' fender ✓
gc tabs.

carlia pectoralis ✓



Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	1
	>15cm, <30cm diameter	2
	>10cm, <15cm diameter	2
	>5cm, <10cm diameter	2
	< 5cm diameter	2
Fallen logs (>10cm diam.)		5
Coarse woody debris (<10cm diam.)		5
Decorticating bark		3
Leaf litter (%)		10
Bare ground (%)		30/40
Grass (%)		50
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		2
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		N
Rock Crevices		N
Flower Abundance (%)		0
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 20

Date: 19/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: refer to veg proforma

Plot Centre: Zone: Easting: Northing: Accuracy m

Altitude: m Altitude accuracy: +/- m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height m cover %

Dominant species:

Sub canopy present Y / N average height m cover %

Dominant species:

Shrub layer present Y / N average height m cover %

Dominant species:

Ground layer: cover % weeds % Dominant species

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

20

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	1
Erosion	2

box-callers on sandy ground (LZ 5)

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
acacia irrorata		
blue harlequin	✓	

Incidental fauna observations/scats/traces:

camera trap ~800m north
 fox confirmed
 red-necked wallaby
 weebill
 shrike-eg.
 yellow-faced HE
 yellow TB
 white-eared HE



Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	>30cm diameter: 0 >15cm, <30cm diameter: 1 >10cm, <15cm diameter: 2 >5cm, <10cm diameter: 3 <5cm diameter: 4
Fallen logs (>10cm diam.)	3
Coarse woody debris (<10cm diam.)	5
Decorticating bark	2
Leaf litter (%)	20
Bare ground (%)	50-70
Grass (%)	10
Soil cracks	0
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	7
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	0
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	0
warrior bird	10
Water present (Y/N)	dam

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

nearby dam w water
 ab fine h

Fauna Proforma



Future Freight
Integrating Community, Environment and Engineering

Site Information

Site Name: 19

Date: 19/1/18

Observers: OR-CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: Easting: Northing: Accuracy: m

Altitude: m Altitude accuracy: +/- m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height m cover %

Dominant species:

Sub canopy present Y / N average height m cover %

Dominant species:

Shrub layer present Y / N average height m cover %

Dominant species:

Ground layer: cover % weeds % Dominant species

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

alluvium.

Fauna Proforma

Habitat characteristics

Habitat Disturbance $\rightarrow$ box / gum.
+ Lantana

Disturbance type	Severity (1-3) (1=nil, 3=severe)
Fire	0
Grazing	1
Clearing	0
Erosion	0

Common
note

affixed in a fine sand, clay,

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

Impress ✓

average line
(deep cut)

looks to create
yellow TB.
NMS FT



Future Freight

International Community Development and Cooperation

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in tementaria)	>30cm diameter	2
	>15cm, <30cm diameter	2
	>10cm, <15cm diameter	3
	>5cm, <10cm diameter	4
	<5cm diameter	3
Fallen logs (>10cm diam.)		5
Coarse woody debris (<10cm diam.)		6
Decorticating bark		3
Leaf litter (%)		75
Bare ground (%)		10
Grass (%)		15
Soil cracks		0
Soil banks (eg. river banks/road cuttings, etc.)		✓
Surface Rocks and/or Boulders		0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%) L5%		very low 10%
Rock Crevices		0
Flower Abundance (%)		0
Fruit Abundance (%)		5 w/lyg
Water present (Y/N) NO WATER		N - crack

* Note: 1 = absent; 1 = rare; 2 = rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

? lille strake / dull light
med aurore ^{reflex} golden
w/

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 29

Date: 19/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0 1
Erosion	0

Habitat suitability for target fauna

Habitat suitability for target fauna

[illegible]

Future Freight
Innovation, Community, Environment and Engineering

Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape	
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)	1	
Coarse woody debris (<10cm diam.)	3	
Decorticating bark	0	
Leaf litter (%)	50 75	
Bare ground (%)	0	
Grass (%)	50	
Soil cracks	0	
Soil banks (eg. River banks/road cuttings, etc.)	0	
Surface Rocks and/or Boulders	2	
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	N	
Weeds and non-native species (%)	N	
Rock Crevices	0	
Flower Abundance (%)	0	
Fruit Abundance (%)	LS	
Water present (Y/N)	N	

Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Incidental fauna

observations/scats/traces:

Incidental fauna observations/scats/traces: *eastern grey roo scat/scat track*

water present (Y/N) *N*

Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

rufous wht. db finch. cockatiel. → nests in adjacent paddock → in native lime bushes

dark shouldered kite

she FW

black-faced CS

TONGUE

BAT

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 30

Date: 20/4/18 GPS# 55.

Observers: GR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

30

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	2
Clearing	3
Erosion	1

grassy paddock

half native
half exotc
grasses

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
major mitchell	✓	
squatter pigeon	✓	

small cracks
not big enough
for pythons.



Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter —
	>15cm, <30cm diameter —
	>10cm, <15cm diameter —
	>5cm, <10cm diameter —
	< 5cm diameter —
Fallen logs (>10cm diam.)	—
Coarse woody debris (<10cm diam.)	2
Decorticating bark	0
Leaf litter (%)	0
Bare ground (%)	40
Grass (%)	30
Soil cracks	2
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N damaged lake
Weeds and non-native species (%)	30
Rock Crevices	—
Flower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Incidental fauna

observations/scats/traces:

N' kestrel ✓

coonella ✓

striated pardalote ✓

galah ✓

plavers ✓

dob finch ✓

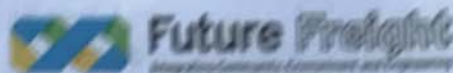
active nest in cypress bush

land zone 9

five sandy n/17

Fauna Proforma

Site Information



Site Name: 31

Date: 20/4/18

Observers: CA - CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

31

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

two dojacks
bright low habitat

L2 9

native grassland on dark heavy
cracking clay
derived from sandstone

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
Major mitchell	✓	
earless dragon	✓	
chameleons		

Incidental fauna

observations/scats/traces: golden-headed cisticola ✓

cockatiel ✓
grey kangaroo (scat)
T. crow
magpie

Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	
>20cm diameter	0
>15cm, <20cm diameter	6
>10cm, <15cm diameter	0
>5cm, <10cm diameter	0
< 5cm diameter	0
Fallen logs (>10cm diam.)	0
Coarse woody debris (<10cm diam.)	0
Decorticating bark	0
Leaf litter (%)	0
Bare ground (%)	0
Grass (%)	100
Soil cracks (but small)	6
Soil banks (eg. River banks/road cuttings, etc.)	
Surface Rocks and/or Boulders	
Wetlands (Y/N). If yes complete wetland Proforma	
Weeds and non-native species (%)	
Rock Crevices	
Flower Abundance (%)	
Fruit Abundance (%)	
Water present (Y/N)	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

kestrel
db Finch
blue FW

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 32

Date: 20/4/18

Observers: CR + ZS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

(32)

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	1 1
Clearing	0
Erosion	1

with mistle
to 1/2 fruit

big - below in heavy dark clay

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
Painted HE	✓	

Incidental fauna

observations/scats/traces:

ge babs / spiny-cheeked HE
brown HE
grey roo (scat)

Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	>30cm diameter
	>15cm, <30cm diameter
	>10cm, <15cm diameter
	>5cm, <10cm diameter
	< 5cm diameter
Fallen logs (>10cm diam.)	4
Coarse woody debris (<10cm diam.)	5
Decorticating bark	1
Leaf litter (%)	70
Bare ground (%)	20
Grass (%)	10
Soil cracks	20
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	7
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	N
Weeds and non-native species (%)	< 1
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	10 (widge)
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

chenopods in ground layer
cupress - paired thorn.

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 39

Date: 21/4/18

Observers: DR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

refer to veg proforma

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

think black under
paper box

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

Plaver / magpie.
+ crow / crested jay
stomach miner /
fox den. active (scents + tracks).



Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in tarmentaria)	>30cm diameter	2
	>15cm, <30cm diameter	2
	>10cm, <15cm diameter	3
	>5cm, <10cm diameter	3
	< 5cm diameter	4
Fallen logs (>10cm diam.)		4
Coarse woody debris (<10cm diam.)		5
Decorticating bark		1
Leaf litter (%)		80
Bare ground (%)		10
Grass (%)		10
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		1
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		0
Rock Crevices		0
Flower Abundance (%)		0
Fruit Abundance (%)		0
Water present (Y/N)		0

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

eastern gray (scat)
+ trouble.

Fauna Proforma



Future Freight

Integrating Community, Environment and Engineering

Site Information

Site Name:

Site X gps #

S -27.90022 / 151.29285

Date:

21/4/18

Observers:

CR + CS

LOCATION (GPS reference)

Datum:

☐

AGD84

☐

GDA94 (WGS84)

OTHER:

refer to pg
proforma

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	0
Erosion	0

woodland.
grass open forest? poplar. etc.

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
not suitable for squatter.		
powerful owl	✓	

Incidental fauna

observations/scats/traces:

T. crow ✓
c. pigeon ✓
noisy miner ✓
ringnecked plover ✓
grey b. bird ✓

willaby (scat) ✓

skunk - refer to incidentals in notes book



Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter: 7
	>15cm, <30cm diameter: 7
	>10cm, <15cm diameter: 7
	>5cm, <10cm diameter: 7
	< 5cm diameter: 7
Fallen logs (>10cm diam.)	3
Coarse woody debris (<10cm diam.)	4
Decorticating bark	0
Leaf litter (%)	25
Bare ground (%)	5
Grass (%)	70
Soil cracks	0
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	0
Rock Crevices	0
Flower Abundance (%)	Acacia 10
Fruit Abundance (%)	5
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 36

Date: 21/11/18

Observers: CD + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: refer to veg proforma

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): _____ Regional Ecosystem Observed: _____

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	1
Clearing	6
Erosion	1

gray-chenopod.
grand (a) s.

Brig-beldn. open forest w mistlebe.
Habitat suitability for target fauna

[illegible]

high density of institute.

Incidental fauna
observations/scats/traces:

observations/scats/traces:

T. crow / grey 'bb' ✓
Aus Raven ✓
w/ 17 m m ✓
night hawk ✓
spiny-cheeked he.
spiny-cheeked he.

* Note: 0 = absent; 1 = Rare; 2
occasional; 4 = occasional to
common to abundant; 7 = abun



Future Freight
Integrating Community, Environment and Engineering

Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape	
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	1
	< 5cm diameter	1
Fallen logs (>10cm diam.)	5	
Coarse woody debris (<10cm diam.)	6	
Decorticating bark	0	
Leaf litter (%)	30	
Bare ground (%)	20	
Grass (%)	50	
Soil cracks <i>but too small</i>	3	
Soil banks (eg. River banks/road cuttings, etc.)	0	
Surface Rocks and/or Boulders	0	
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	N	
Weeds and non-native species (%)	<1	
Rock Crevices	0	
Flower Abundance (%)	10 mustard	
Fruit Abundance (%)	5 collinsia	
Water present (Y/N)	N	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 40

Date: 21/4/18

Observers: CR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84

☐ GDA84 (WGS84)

OTHER: refer to reg proforma

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): _____ Regional Ecosystem Observed: _____

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

M
N
1

small down nearby

E. carmel glutens's.
tereticoans.

poplar green forest. 13

on black cracking clays

on black cracking clay soil

hoary-headed grebe
ts/traces: in dam

cockerel ✓
yellow-bellied (scratches)
maple mud lark ✓



M
N
1

small down nearby

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

sulphur crested cockatoo ✓

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 4

Date: 21/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER: refer to veg proforma

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): _____ Regional Ecosystem Observed: _____

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

grassland on heavy black cracking clay

Habitat suitability for target fauna

[illegible]

**Incidental fauna
observations/scats/traces:**

very deep large cracks
in soil.

T crow
nestorel.



Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	—
	>15cm, <30cm diameter	—
	>10cm, <15cm diameter	—
	>5cm, <10cm diameter	—
	< 5cm diameter	—
Fallen logs (>10cm diam.)		—
Coarse woody debris (<10cm diam.)		—
Decorticating bark		—
Leaf litter (%)		—
Bare ground (%)		—
Grass (%)		100
Soil cracks		5
Soil banks (eg. River banks/road cuttings, etc.)		—
Surface Rocks and/or Boulders		—
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		✓
Weeds and non-native species (%) <i>weed grass</i>		90%
Rock Crevices		0
Flower Abundance (%)		0
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent; 1 = Bare; 2 = ...

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
Integrating Community, Environment and Engineering

Site Name: 42

Date: 22/9/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

dominated by lipid.

weedy mown roadside

Habitat suitability for target fauna

[illegible]

Incidental fauna

observations/scats/traces:

✓ rock dove ✓

indian myna.

may be.

n'kestré



Future Freight
Integrating Community, Environment and Engineering

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)		0
Coarse woody debris (<10cm diam.)		2
Decorticating bark		0
Leaf litter (%)		0
Bare ground (%)		20
Grass (%)		10
Soil cracks		7
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		
Weeds and non-native species (%)		70
Rock Crevices		0
Flower Abundance (%)		0
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent; 1 = 100%

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



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Site Name: 44

Date: 22/4/18

Observers: ON Les

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s	Photo No/s	Other photo numbers and notes:
North:	South:	
East:	West:	

44

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

Slashed grass roadside

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
What EVNT species are known from region (complete in rows below) - from database searches	Yes	No
carless drgh	✓	

Incidental fauna observations/scats/traces:

emu (track)



sp list for nearby creeks (offsite)
- S.C. cockatoo
- grey FI
- willie wagtail
- T. crow



Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter — >15cm, <30cm diameter — >10cm, <15cm diameter — >5cm, <10cm diameter — < 5cm diameter —
Fallen logs (>10cm diam.)	—
Coarse woody debris (<10cm diam.)	—
Decorticating bark	—
Leaf litter (%)	—
Bare ground (%)	10
Grass (%)	90
Soil cracks	7
Soil banks (eg. River banks/road cuttings, etc.)	drainage line
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	60%
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

older scars?
see photo

Fauna Proforma



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Site Information

Site Name: 45 (mud) gps # 195

Date: 21/5/18

Observers: CR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

refer to veg proforma

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s	Photo No/s	Other photo numbers and notes:
North:	South:	
East:	West:	

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



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Site Name: 43

Date: 2, 4, 18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

43

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	
Grazing	
Clearing	
Erosion	

or black cracking clay -
lighter across tracks.

Roadside grassland (stashed).
Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
	Yes	No
What EVNT species are known from region (complete in rows below) - from database searches		
earless dragon	✓	

Incidental fauna observations/scats/traces:

T'crow



Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	>30cm diameter
	>15cm, <30cm diameter
	>10cm, <15cm diameter
	>5cm, <10cm diameter
	< 5cm diameter
Fallen logs (>10cm diam.)	
Coarse woody debris (<10cm diam.)	
Decorticating bark	
Leaf litter (%)	
Bare ground (%)	10
Grass (%)	90
Soil cracks	5
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	70
Rock Crevices	0
Flower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Proforma

Site Information



Future Freight
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Site Name: 54

Date: 23/4/18

Observers: CR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

54

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	2

roadside grassland

Habitat suitability for target fauna

Species (EVNT) known from Region	Suitable habitat present	
	Yes	No
What EVNT species are known from region (complete in rows below) - from database searches		
	0	

Incidental fauna observations/scats/traces:

indian myna
golden headed cisticola.
white wagtail.

L2-8 burnt dried black soil.



Habitat Features - Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentaria)	
>30cm diameter	0
>15cm, <30cm diameter	0
>10cm, <15cm diameter	0
>5cm, <10cm diameter	0
< 5cm diameter	0
Fallen logs (>10cm diam.)	0
Coarse woody debris (<10cm diam.)	0
Decorticating bark	0
Leaf litter (%)	0
Bare ground (%)	10
Grass (%)	80
Soil cracks	0
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If yes complete wetland Proforma	N
Weeds and non-native species (%)	90
Rock Crevices	0
Flower Abundance (%)	41 (hubs)
Fruit Abundance (%)	0
Water present (Y/N)	N

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fauna Site

Site Name:
 Date: 23/11/2018

LOCALITY

Datum:
 Plot Cent:
 Altitude:
 Locality:

VEGETATION

section)
 General:

Regional

Remnant:

STRUCTURE

Tree can:

Dominant:

Sub can:

Dominant:

Shrub la:

Dominant:

Ground:

Site Photo

PH:

North: ☐

East: ☐

Fauna Proforma

Site Information



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Site Name: 53 moved gps # 267

Date: 23/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

grassy river terrace

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

Superb family when
with w. tail.
black kite.



Future Freight

Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	0
	>15cm, <30cm diameter	0
	>10cm, <15cm diameter	0
	>5cm, <10cm diameter	0
	< 5cm diameter	0
Fallen logs (>10cm diam.)		0
Coarse woody debris (<10cm diam.)		0
Decorticating bark		0
Leaf litter (%)		0
Bare ground (%)		5
Grass (%)		70
Soil cracks		7
Soil banks (eg. River banks/road cuttings, etc.)		creek bank
Surface Rocks and/or Boulders		1
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		20
Rock Crevices		0
Flower Abundance (%)		20 herbs.
Fruit Abundance (%)		0
Water present (Y/N)		Y creek

*note: 0 = absent; 1 = Rare; 2 = Common

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

dog (scat.)

Faur Site In

Site Name:

Date: 23.1.20

LOCATIC

Datum:

Plot Centre

Altitude:

Locality De

VEGETA
section)

General De

Regional E

Remnant /

STRUCTURE

Tree canopy

Dominant

Sub canop

Dominant

Shrub layer

Dominant

Ground la

Site Photo

North:

East:

Fauna Proforma

Site Information



Site Name: 52

Date: 3/4/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA94 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):

.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):

.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Suburb edge

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	0

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

black faced cs

keep the l.

yellow-rumped T.B.
sparrow.

sp. nov.

willy wagtail.



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Habitat Features – Abundance:

Characteristics	Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	
>30cm diameter	—
>15cm, <30cm diameter	—
>10cm, <15cm diameter	—
>5cm, <10cm diameter	—
< 5cm diameter	—
Fallen logs (>10cm diam.)	—
Coarse woody debris (<10cm diam.)	—
Decorticating bark	—
Leaf litter (%)	—
Bare ground (%)	—
Grass (%)	100
Soil cracks	7
Soil banks (eg. River banks/road cuttings, etc.)	0
Surface Rocks and/or Boulders	0
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma	N
Weeds and non-native species (%)	80
Rock Crevices	0
Lower Abundance (%)	0
Fruit Abundance (%)	0
Water present (Y/N)	0
<i> creek herby</i>	<i>4</i>

ote: 0 = absent: 1 = Rare: 2 =

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

~~eastern~~ v. zella.
pink-headed

Fauna Proforma

Site Information



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Site Name: 55

Date: 23/9/18

Observers: OR + CS

LOCATION (GPS reference)

Datum: ☐ AGD84 ☐ GDA84 (WGS84) OTHER:

Plot Centre: Zone: _____ Easting: _____ Northing: _____ Accuracy _____ m

Altitude: _____ m Altitude accuracy: +/- _____ m

Locality Description (e.g. proximity to roads, towns, creeks etc.):
.....

VEGETATION (Note: If a site specific vegetation assessment proforma has been completed, ignore this section)

General Description (e.g. Open woodland on alluvium):
.....

Regional Ecosystem (mapped): Regional Ecosystem Observed:

Remnant / Non-remnant (circle)

STRUCTURE

Tree canopy present Y / N average height _____ m cover _____ %

Dominant species:

Sub canopy present Y / N average height _____ m cover _____ %

Dominant species:

Shrub layer present Y / N average height _____ m cover _____ %

Dominant species:

Ground layer: cover _____ % weeds _____ % Dominant species _____

Site Photos

Photo No/s

Photo No/s

Other photo numbers and notes:

North:

South:

East:

West:

Fauna Proforma

Habitat characteristics

Habitat Disturbance

Disturbance type	Severity 0-3 (0=nil, 3=severe)
Fire	0
Grazing	0
Clearing	3
Erosion	1

sashed roadside grassland.	Erosion	1

on dark brown loam

Habitat suitability for target fauna

[illegible]

Incidental fauna
observations/scats/traces:

willie wagtail.
meat ants.
leestrel.



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Habitat Features – Abundance:

Characteristics		Abundance (0-7)* or % within landscape
Hollows in trees and stags. (May include hollows in termentartia)	>30cm diameter	—
	>15cm, <30cm diameter	—
	>10cm, <15cm diameter	—
	>5cm, <10cm diameter	—
	< 5cm diameter	✓
Fallen logs (>10cm diam.)		—
Coarse woody debris (<10cm diam.)		—
Decorticating bark		—
Leaf litter (%)		—
Bare ground (%)		5
Grass (%)		95
Soil cracks		0
Soil banks (eg. River banks/road cuttings, etc.)		0
Surface Rocks and/or Boulders		4
Wetlands (Y/N). If <u>yes</u> complete wetland Proforma		N
Weeds and non-native species (%)		80
Rock Crevices		0
Flower Abundance (%)		herbs < 1
Fruit Abundance (%)		0
Water present (Y/N)		N

* Note: 0 = absent; 1 = 100%

* Note: 0 = absent; 1 = Rare; 2 = Rare to occasional; 3 = occasional; 4 = occasional to common; 5 = common; 6 = common to abundant; 7 = abundant

Fau Site I

Site Name

Date: ... / ... / ...

LOCAT

Datum:

Plot Cent

Altitude:

Locality 1

VEGETA

section)

General D

Regional

Remnant

STRUCTURE

Dominant

Sub cano

Dominant

Shrub layer

Dominan

Ground I

Site Ph

PH

North:

East:

APPENDIX

J

Terrestrial Ecology Technical Report

Appendix I Completed Fauna Assessment Proformas

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Appendix I

Completed fauna assessment proformas

Vegetation Proforma

Date: 16/4/2018 CB26
 Observers: CS+ OR. Site Name: SK 1.



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 Integrating Community, Environment, and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:
 Start point Zone 5 E 0 N
 End point Zone 5 E 0 N
 Photo points (number/s): North: 28.60824 South: 150.62366 West: GPS 057

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Shrub*	Ground
Height Range (m): 12-14	Height Range: 2-5m	Height Range: 0.1-0.3m
Av. Height (m): 12	Av. Height: 3m	Av. Height: 21
Cover (%): 0 - 65	Cover: 30	Cover: 10%
Balak. Bingalen	Selak milga Scrub bamboo	Engelb. lichen Collinsia Cyan. lichen Chlor. geyser Cyanob. lichen Poa Chlor. gelatin Honey Nectar Black lichen

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed <2m tall.

Table 2

Mapped Regional Ecosystem: 11.4.3 Confirmed Regional Ecosystem: 11.4.3-
 Landform: Claypan
 Soils: fine silty clays
 Structural formation (eg woodland, open-forest etc.): Open forest
 Field Observations/ Notes (eg. Level of disturbance connectivity): Road
 Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

CCW	
-----	--

Summary:	
Minimum height of plants included in the transect table:	m
Intercept of EDL 0 - 50m:	m
Intercept of EDL 50 -100m:	m
Measured crown cover % of EDL 0 -100m:	%
Structural formation	
Conclusions/notes:	

[illegible]

Vegetation Proforma

Date: 16/4/2018

Observers: CS/OR

Site Name: Mowbray Site 2



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Transect Details (required for all sites)

GPS coordinates: Datum: Transect length: _____

Start point Zone 5 E 0 N _____

End point Zone 5 E 0 N _____

Photo points (numbers): North: _____ East: _____ South: _____ West: _____

S 28.59330
E 150.67551. GPS - 038.

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (not required for all sites)

Canopy/ Emergent	Tree	Shrub*	Ground
Height Range (m): 10-12	Height Range: 6-8	Height Range: 0.1-3	Height Range: 0.1-0.2
Av. Height (m): 11m	Av. Height: 7m	Av. Height: 2m	Av. Height: 0.1
Cover (%): 10%	Cover: 3%	Cover: 10%	Cover: 60%
E. woodsonia E. woodsonia Buloh. H. pop.	Acaen. aurea. Grevillea striata Sagittaria	Krenigk. milled Guzera. pith	hake of mlt washed tree part Coccol. pig. fm pignm red grasses magn. part Salsola and
Point dens of canopy, Rob. to cream and			

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rem Confirmed Regional Ecosystem: Non rem

Landform: clay pan

Soils: fine silts

Structural formation (eg woodland, open-forest etc.): Closed

Field Observations/ Notes (eg. Level of disturbance connectivity): Highly disturbed (least)

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
Tige. rose, velvet tree part, mlt of mlt

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – **“measured”, not “estimated”**) **A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.**

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Coelichia		
Spont fern		
Spont anem		
Walt of mth		
Pachy d. h.		
Cherem. saubau!		
Sac p. 9 h		
Sol. sol. mth		
False mth		
Sp. glab		
Bolob		
mudg.		
herm. creek		
Dodona p. s. s.		
Papua d. h.		
C. h. grass		
St. h. grass		
Schena mth		

Veg

Date:

Obser

Transe

GPS co

Photo p

Table

C.

Height

Av. He

Cover

Table stems

Tab

Map

an

Soil

Stru

Field

10

1

LeNe

1

1

—

10

— canopy
ve



Future Freight

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N

End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S 28.57300.
E 150.72-74
GPS-039

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Canopy/ Emergent		Shrub*		Ground	
Height Range (m):	Height Range:	Height Range:	Height Range:	Height Range:	Height Range:
Avg. Height (m):	Avg. Height:	Avg. Height:	Avg. Height:	Avg. Height:	Avg. Height:
Cover (%):	Cover:	Cover:	Cover:	Cover:	Cover:
Bullock	Melaleuca sp densispirata	abnt		Acacia sp Cyper sp east	

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Mapped Regional Ecosystem:	11.5.19.	Confirmed Regional Ecosystem:	11.5.19.
Landform:	Draught		
Soils:	Loe silt.		
Structural formation (eg woodland, open-forest etc.):			
Field Observations/ Notes (eg. Level of disturbance connectivity):	Heavy grazed. OB		
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):			

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

Veg

Date:

Observations

Transe

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Table 1

Ca
Height

Height	
Av. Height	

Cover (%)	
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Soils

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Vegetation Proforma

Date: 17/4/2018

Observers: CS/OR

Site Name: Neal's Gile



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:

Datum:

Transect length:

Start point

Zone

56

E

0278739

N

6834775

GPS 040

End point

Zone

5

E

0

N

Photo points (numbers):

North:

East:

South:

West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (Open Woodland)

Canopy/ Emergent	Tree	Shrub*	Ground
Height Range (m):	Height Range:	Height Range: 1-2m	Height Range:
Av. Height (m):	Av. Height:	Av. Height: 1m	Av. Height:
Cover (%):	Cover:	Cover: 5%	Cover:
Absent	Absent	E. mitchellii	d. rock of milk d. Opuntia heder brown slash milk Kambrie grass clover Run

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Rain	Confirmed Regional Ecosystem:
Landform: Clay pan	
Soils: Fine silty-clay	
Structural formation (eg woodland, open-forest etc.):	
Field Observations/ Notes (eg. Level of disturbance connectivity):	
largely dead & regrowth - heavily grazed by sheep	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
velvet tree par H. other. of pulvis H. on coast 30%	

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Date:

Observers:

Transect De

GPS coordinate

Start

End p

Photo points (r

Table 1: Est

Canopy

Height Range

Av. Height (m)

Cover (%):

Table notes: * stems within

Table 2

Mapped F

Landform

Soils:

Structural

Field Obs

Field Ob:

Weed sp

Note: on water in several occur at "Bekuni Poni" were found

Vegetation Proforma

Date: 17/4/2018

Observers: CS / Q.R.

Site Name: New 6



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: 5 Transect length: 41

Start point Zone 5 E 0 2 8 4 0 3 5 N 6 8 3 9 0 6 7

End point Zone 5 E 0 0 0 0 0 0 N 0 0 0 0 0 0

Photo points (numbers): North: East: South: West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated vegetation cover (mandatory for all sites)

Canopy/ E	Shrub*	Ground
Height Range (m): 19-22	Height Range: 1-3	Height Range: 0.1-0.2
Av. Height (m): 20	Av. Height: 2m	Av. Height: 0.1
Cover (%): 0%	Cover: 10%	Cover: 30%
E. wattle	W. gum	Sorghum grass
Banyan	Banyan	Opuntia
	Black sheoak	Horseradish
	Opuntia	Fig
		Schm. mallee
		Eucalyptus sp.

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Rem. Confirmed Regional Ecosystem:

Landform: Plain

Soils: Fine silty/sand

Structural formation (eg woodland, open-forest etc.): Open woodland

Field Observations/ Notes (eg. Level of disturbance connectivity): Highy dense grass

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
Horseradish
Opuntia

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Coelobates		
Bugabug		
Opuntia		
Hesperis		
Dryopteris		
Prickly pear		
Pinus		
Lignum		
Bugabug		
Salsola		
Schinus		
Cochineal		
Persea		
Cinnamomum		
Persea		

- canopy
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Future Freight

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Open Land.

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Canopy/ Emergent		Tree 2		Shrub*		Ground	
Height Range (m):		Height Range:		Height Range:		Height Range:	
Av. Height (m):		Av. Height:		Av. Height:		Av. Height:	
Cover (%):		Cover:		Cover:		Cover:	
<i>E. pyramidalis</i>	c	<i>Calthe glauca</i>	c	<i>Calthe glauca</i>	d	<i>Lamonda</i>	e
<i>Allo lauranti</i>	c	<i>Allo lauranti</i>	c	<i>Acacia cath</i>	a	<i>Cash alone</i>	a
<i>E. lauranti</i>	a	<i>E. lauranti</i>	a	<i>Acacia viciata</i>	a	<i>Waka gossy</i>	d
<i>E. lauranti</i>	a			<i>Acacia glauca</i>	a		
<i>Calthe</i>	c			<i>Acacia lauranti</i>	a		
<i>E. lauranti</i> ?	c						

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Mapped Regional Ecosystem: 11.5.10/11.5.14 Confirmed Regional Ecosystem: 11.5.10

Landform:

Soils:

Structural formation (eg woodland, open-forest etc.): Open forest 60%

Field Observations/ Notes (eg. Level of disturbance connectivity):
Relatively undisturbed

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
grapt. toad
rust of miller] - 2%

Table 3: Canopy cover using Canopy Intercept method (use only if a transect survey is required per representative "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>D. concolor</i> sp.	<i>Chthm. leuck</i>
<i>Arctostaphylos</i> caput	<i>Solan. eschsch</i>
<i>Briza</i> bon	
<i>Entropogon</i>	
<i>Spent</i> bon	
<i>Polkato</i> at ink	
<i>Calliba</i> glax	
<i>Heaser</i> card	
<i>Heam</i> debar	
<i>Heam</i> wroala	
<i>Heam</i> glorca	
<i>E. kuth</i>	
<i>C. kessak</i>	
<i>Allo</i> lamban	
<i>Brigalen</i> g. w.	
<i>E. pop</i>	
<i>E. wools</i>	
<i>Teandra</i> loding	
<i>Charakt</i> seisho	

Vegetation Proforma

Date:

17/4/18

Observers:

CS / OR.

Site Name:

Site 14.



Future Freight

Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 6 E 0 2 9 6 5 7 0 N 6 8 4 5 5 0 3 GPS 043

End point Zone 5 0 E 0 0 0 0 0 0 N 0 0 0 0 0 0

Photo points (numbers): North: East: South: West:

Note: if canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimate Canopy Cover (mandatory for all sites)

Canopy	Tree 2	Shrub*	Ground
Height Range (m):	Height Range: 4 - 7	Height Range: 2 - 5m	Height Range:
Av. Height (m):	Av. Height: 6m	Av. Height: 3m	Av. Height:
Cover (%): 5%	Cover: 10%	Cover: 20%	Cover:
E. pip d	Colea glau. d	gnk hake E. pip d	E. pip gnk weed Soft hke She hke Nake gres.

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Perm. Confirmed Regional Ecosystem:

Landform: Phm

Soils: spin ch 1

Structural formation (eg woodland, open-forest etc.): Ch

Field Observations/ Notes (eg. Level of disturbance connectivity):

Chard - gnk

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

gnk Tiger 30%

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Scleranthus (rubra)</i> <i>Scleranthus asch</i> <i>Scleranthus asch</i> <i>Quercus</i> <i>sh</i> <i>Quercus</i> <i>sh</i> <i>Helianthus angustifolius</i> <i>Salix glauca</i> <i>Eragrostis (brevifolia)</i> <i>Eragrostis binnii</i> <i>Cyperus asch</i> <i>Arctostaphylos uva-ursi</i> <i>Myrica asch</i>		
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Vegetation Proforma

Date: 18/7/18

Observers: CS / AR

Site Name: 26 18



Future Freight
Innovation Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone E N GPS 44

End point Zone E N

Photo points (numbers): North: _____ East: _____ South: _____ West: _____

Non res

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimating the Empty Cover (mandatory for all sites)

Canopy Forest		Tree 2		Shrub ^a		Ground	
Height Range (m):		Height Range:		Height Range:		Height Range:	
Av. Height (m):		Av. Height:		Av. Height:		Av. Height:	
Cover (%):		Cover:		Cover:		Cover:	
<i>E. leucophylla</i> (mallee) d <i>E. masonii</i> a <i>E. ?</i> → <i>sic</i> a <i>Arg. leucophylla</i> a	* 1 1 1 1	<i>Reboulia pub.</i> c <i>Callicarpa glauca</i> c <i>Reboulia</i> a	c c a	<i>Opuntia basilaris</i> c <i>Scaevola coarctata</i> c	c c	<i>Arctostaphylos</i> sp. <i>Conocarpus</i> sp. <i>Phytolacca</i> sp. <i>Ulex</i> <i>Pereskia</i> sp.	c c c 0

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. ^a Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Table 2	
Mapped Regional Ecosystem:	Non rem
Confirmed Regional Ecosystem:	
Landform:	Plains
Soils:	Sandy loam / Shale
Structural formation (eg woodland, open-forest etc.):	open forest regrowth
Field Observations/ Notes (eg. Level of disturbance connectivity):	Highly disturbed ground for cattle
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	Dark brown 20. Scrub cane

Vege

Date:

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Cover (°

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Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

E. lark	Pachira obovata	
E. lark	Acacia implexa	
P. parker	Acacia caribaea	
Conocarpus nutt.	Eucalyptus	
White sp. grass		
Arctostaphylos		
Arctostaphylos		
Phytolacca		
Cathartes		
weeping eucalypt		
Palatium		
Pachira pubescens		
Acacia glauca		
E. lark		
Albizia leonard		
Sp. lark		
Sambucus		
Chamaecyparis sp (not lark)		
Gomphocarpus		

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Vegetation Proforma

Date: 18/4/18

Observers: CS OR.

Site Name: new sites 15



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:
Start point Zone 56 E 0297206 N 6847771 GPS
End point Zone 5 E 0 N 045.
Photo points (numbers): North: East: South: West:

Note: if canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Shrub*	Ground
Height Range (m): 10-14	Height Range: 1-3m	Height Range: 0.1-0.3
Av. Height (m): 12m	Av. Height: 2m	Av. Height: 0.3
Cover (%): 10%	Cover: 15%	Cover: 30%
Cor. munda C	A. laetifolia C	Coker asp
Eucalypt sp C	A. caribaea C	Nature grasses
(C. C. eryth.)	Alo. ingh C	Forbesia
(A. shirleyi) C		
E. laetifolia (S.) C		
C. nodosa		

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: HGL HSL	Confirmed Regional Ecosystem: L7 (7)
Landform: small rise	
Soils: Sandy	
Structural formation (eg woodland, open-forest etc.):	
Field Observations/ Notes (eg. Level of disturbance connectivity):	
on edge of L27. Concerns dark over adjacent	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
grass pasture	

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Date:

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GPS coord

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Table 1:

Can

Height R

Av. Heig

Cover (%)

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E.

A.

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C.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

looking the oak Louisa wood A. lanceolata A. implet A. can. etc. A. laevis Calam. sp. chestnut section Euryg. sp. A. laevis A. laevis wood A. laevis A. laevis Melipha sp. Agave plant		
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Table notes
stems with

Table 2

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Soils:

Soils: Street

Structure	
File Name	

Weed

Vegetation Proforma

Date: 18/4/18.

Observers: CS / OR.

Site Name: new site 16



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E	0 2 9 7 8 5 5	N	6 8 4 8 2 3 5	GPS 096
End point	Zone 5 E	0	N		
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy/ Shrub/ Ground cover for all sites

Canopy/ Emergent		Shrub*		Ground	
Height Range (m):	6-12m	Height Range:	1-2m	Height Range:	0.1-0.2
Av. Height (m):	10m	Av. Height:	2m	Av. Height:	0.1
Cover (%):	40	Cover:	40%	Cover:	30%
E. banksiana	C	mitre (Asteraceae)	a	Wahia gorokou	30
E. muhlenbergii	C	Catclaw glauc	d	+ Ash	
A. stricta	a	Albizia molle	a		
Corymbia (C. shegani)	a				
C. gordonii	C				

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: 11.3.2 / 11.3.28	Confirmed Regional Ecosystem:
Landform: gentle slope	
Soils: sand / underlying sandstone (C29)	
Structural formation (eg woodland, open-forest etc.):	
Field Observations/ Notes (eg. Level of disturbance connectivity):	
fences, some shrub, relatively good	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
O. banksiana (1%)	

Vegetation Proforma

Date: 18/4/18.

Observers: CS/QR.

Site Name: New site 17.



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: J Transect length: 6848261
 Start point Zone 56 E 0297647 N 6848261
 End point Zone 5 E 0 N
 Photo points (numbers): North: East: South: West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree	Shrub*	Ground
Height Range (m): 10-13	Height Range:	Height Range:	Height Range:
Av. Height (m): 12	Av. Height:	Av. Height:	Av. Height:
Cover (%): 30	Cover:	Cover:	Cover:
C. glaucophylla	C. glauca Albizia leucophylla	A. caribaea Leptospermum sp. Pisonia sp.	Argemone sp. A. sp. Mimosa sp. C. sp. Xanthorrhoea

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: 11/5.1/11.7.1/11.7.4- Confirmed Regional Ecosystem:
 Landform: sand slope
 Soils: sandy
 Structural formation (eg woodland, open-forest etc.): open woodland
 Field Observations/ Notes (eg. Level of disturbance connectivity):
 healthy woodland, some sandy change
 Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
 Opuntia stricta 1%
 Tiger grass

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Oenothera lutea</i> <i>Populus deltoides</i> <i>Urtica dioica</i> <i>Cassia</i> <i>Acanthaceae</i> <i>Berberis</i> <i>Alnus incana</i> <i>Aster</i> <i>Asplenium</i> <i>Xanthoxylum</i> <i>Sparganium angustifolium</i> <i>Sparganium angustifolium</i> <i>Malvastrum</i> <i>Persea</i> <i>Larix laricina</i> <i>Calocedrus</i> sp.		
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Vegetation Proforma

Date:

19/01/18

Observers:

CS OR

Site Name:

Site 27



Future Freight

Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:

Datum:

J

Transect length:

Start point

Zone

5

6

E

0

3

2

0

5

7

6

N

6

8

8

0

8

7

1

End point

Zone

5

E

0

Photo points (numbers):

North:

East:

South:

West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 13-18	Height Range: 4-8m	Height Range: 1-2m	Height Range: 0.1-0.2
Av. Height (m): 14	Av. Height: 5m	Av. Height: 1.5m	Av. Height: 0.1
Cover (%): 70% - 30%	Cover: 10%	Cover: 10%	Cover: 20%
Casuarina cristata E. microcarpa A. laevis	nilga d.	Bellot nilga E. pyramidalis	nothin gosses fips

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: 11.5.20 / 11.9.5	Confirmed Regional Ecosystem: 11.9.5
Landform:	
Soils: fine & sandy	→ under 12.9.
Structural formation (eg woodland, open-forest etc.):	closed forest / woodland
Field Observations/ Notes (eg. Level of disturbance connectivity):	evident at chng. stands at Bellot and vst Bigelow
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	11.9.5 African boxthorn 2% giant shaka

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Bellah</i> <i>Bugabon</i> <i>mitga</i> <i>deas</i> <i>lurus</i> <i>deas</i> <i>jeal</i> <i>Artista</i> <i>agut</i> <i>Philobis</i> (<i>small pink</i>) <i>Arta</i> <i>cal</i> <i>Agenda</i> <i>cal</i> <i>B. micropus</i> <i>P. n. sula</i> <i>Ergo</i> <i>at</i> <i>lepto</i> <i>Myron</i> <i>chier</i> <i>Chengpoh</i> <i>a</i> <i>Artista</i> <i>sp</i> <i>Abram</i> <i>boxth</i> <i>Akechun</i> <i>sh</i> <i>Halatogon</i> <i>angth</i> <i>Spent</i> <i>sh</i>	<i>Myron</i> <i>jeal</i> <i>Artista</i> <i>Yellow</i> <i>trills</i> <i>Cypar</i> <i>eragor</i> <i>Paragon</i> <i>soroma</i> <i>Enchela</i> <i>beaut</i> <i>Scher</i> <i>beaut</i> <i>Santa</i> <i>lancet</i> <i>Pannu</i> <i>ell</i> <i>Pipter</i> <i>lao</i> <i>Dioneda</i> <i>aerth</i> <i>Kam</i> <i>stara</i> (<i>coll</i>) <i>Dalora</i> <i>micron</i>
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Vegetation Proforma

Date: 19/03/18

Observers: CS / OR

Site Name:

new site
21



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 56 E 0319408 N 6867999 CPS

End point Zone 5 E 0 N 050

Photo points (numbers): North: East: South: West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 10-12	Height Range: 4-6	Height Range: 1-2m	Height Range: 0.2-0.5
Av. Height (m): 12m	Av. Height: 6m	Av. Height: 1m	Av. Height: 0.2
Cover (%): 30%	Cover: 20%	Cover: 20%	Cover: 20% 60%
<i>E. chlorostada</i> ? (grey box, with wood bark thin (sp.) C <i>A. leucophaea</i> <i>E. microlepis</i> C <i>BL</i> <i>Bulbake</i> C 	<i>Acacia</i> sp. <i>Callitris</i> glauca 	<i>A. glauca</i> (sp.) (collected) <i>Spunk</i> bark <i>A. canaliculata</i> 	<i>Leop. acutata</i> C <i>Arctostaphylos</i> sp. <i>R. g. g.</i> C <i>rock</i> <i>grit</i> <i>rocks</i>

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rem Confirmed Regional Ecosystem: Non rem

Landform: Plain

Soils: Sandy

Structural formation (eg woodland, open-forest etc.): *Acacia* woodland

Field Observations/ Notes (eg. Level of disturbance connectivity):
Adjacent to road / higher site

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
Spunk bark
Open shrub ~ 10%

Vegetation Proforma

Date:

17/3/18

Observers:

CS / OR

Site Name:

Site 20



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: J Transect length: APS 051

Start point Zone 5 C E 0 3 1 9 2 1 7 N 6 8 6 3 3 1 9

End point Zone 5 E 0

Photo points (numbers): North: East: South: West:

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub ^a	Ground
Height Range (m): 6-10m	Height Range: 10-15m	Height Range: 1-2m	Height Range: 0.1-0.5m
Av. Height (m): 8m	Av. Height: 3-5m	Av. Height: 1.5m	Av. Height: 0.2
Cover (%): 70%	Cover: 10%	Cover: 15%	Cover: 15%
E. microcarpa d	Cadham glauca d E. mus Bullock	Apophya crum a wilga a Acacia opoph a	Wahia gosses + Bchs.

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. ^a Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Mon Rem Confirmed Regional Ecosystem: Mon Rem

Landform: Low rise

Soils: Stony L2 11 / L2 9

Structural formation (eg woodland, open-forest etc.): woodland

Field Observations/ Notes (eg. Level of disturbance connectivity):
Highly disturbed / near road / checked with trees

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
Opuntia basilaris - 1%

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

[illegible]

Vegetation Proforma

Date:

19/4/18

Observers:

CS / OR.

Site Name:

Site 19.



Future Freight

Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum: δ		Transect length:	
Start point	Zone 56	E 0316009	N 6859266	GPS 052	
End point	Zone 5	E 0	N		
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Trees	Shrub*	Ground
Height Range (m): 18-20	Height Range: 8-12	Height Range: 2-5	Height Range: 0.1-0.5
Av. Height (m): 18m	Av. Height: 10m	Av. Height: 3m	Av. Height: 0.2
Cover (%): 15%	Cover: 60%	Cover: 60%	Cover: 30%
<i>E. gorg</i> <i>R. canel.</i>	<i>C. glaucophylla</i>	<i>willow</i> <i>cashew</i>	<i>nature grasses</i>

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem:	11.3.2	Confirmed Regional Ecosystem:	11.3.2
Landform:	ohm		
Soils:	aluvium		
Structural formation (eg woodland, open-forest etc.):	woodland		
Field Observations/ Notes (eg. Level of disturbance connectivity):			
gully area			
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):			
senecio cochus			

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Seneca Coctus		
gum tree		
Poplar here		
Red gum		
tiger here		
Col. tree flowers		
Aster stipes		
Magn. past.		
Tasman stream		
willow		
citrus tree		
Melale. banksia		
Gumbi Gumbi		
Abutilon ax.		
Cornelia L. W.		
antelope shrub		
Archid. capul. red		
C. k.		

Vegeta

Date:

Observer:

Transect D

GPS coordin

Sta

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Photo point

Table 1: E

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Height Ra

Av. Heigh

Cover (%)

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Table

Map

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Land
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Soils

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canopy
ative

Vegetation Proforma

Date: 19/4/18

Observers: CS / OR.

Site Name: New site 29.



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0		N		
End point	Zone 5 E 0		N		
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					
S 26.13984 E 151.18794					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 5m	Height Range:	Height Range: 1-3m	Height Range: 60%
Av. Height (m): 7-9m	Av. Height:	Av. Height: 2m	Av. Height: 0.3
Cover (%): 70%	Cover:	Cover: 30%	Cover: 0.1-0.5
St. hoop d F. pop (E) a in strip		wilgum braghten	Back bank Coar pan eye dark Dg dune

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Rain Confirmed Regional Ecosystem: Non Rain

Landform: plain

Soils: 29.

Structural formation (eg woodland, open-forest etc.): closed forest

Field Observations/ Notes (eg. Level of disturbance connectivity):

Brigalow shrub on road side

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

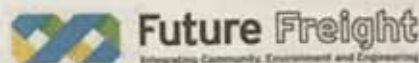
[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

A solan	colom ank	
Bugolan	digreed	
wilgin		
Alupha rutor		
C. lars auctor	(*) Digibaro proct	
lych tra		
Greeny green		
Pos Lohke		
Chly gyp		
Moharsh anan		
darle.		
b. h. p. l. a. e.		
Nephra green		
Ar. Bal. g. 12		
Grayshen wood		
Parren ebr		
Schach m. hea		
Bagala g. 11		
Sida hochkarn		

Vegetation Proforma

Date: 20/4/18
 Observers: CS / OR Site Name: 56 30.



Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N GBS
 End point Zone 5 E 0 N OSS.

Photo points (numbers): North: East: South: West:

S: -28.12714
 E: 151.18953.

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range:
Av. Height (m):	Av. Height:	Av. Height:	Av. Height:
Cover (%):	Cover:	Cover:	Cover:
Ap 20	Abund	B Abund	shrub under margin vegetation Hudon vegetation Halter + exuber grasses

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rem Confirmed Regional Ecosystem: Non rem
 Landform: undulating - h. storm drainage line (exposed). Non wetland
 Soils:
 Structural formation (eg woodland, open-forest etc.):
 Field Observations/ Notes (eg. Level of disturbance connectivity):
 to Eucalyptus marginata (abundant). No aquatic vegetation
 Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):
 B. B. gopher straton 18.

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Blue heliotrope	Sporobolus caeruleus
for wire	Digitaria divaricata
Phylla cand.	Can. caribae
Shale goss.	Stela robusta
Scheuchzeria	Cullen (Linn.)
Scheuchzeria	Black wire goss.
Many mca	Dichot. serrata
Mayas. pnd.	
Raddeia pilosa	
Red wire goss.	
Artem. lora gss.	
Juncus pnd. (in lora)	
Austroshum.	
Pennis. goss.	
Chlam. pnd.	
Straw. for.	
Melastoma ambr.	
Passiflora goss.	
Scheuchzeria	

Need s

Vegetation Proforma

Date: 20/4/18

Observers: CS / OR

Site Name: Site 31.



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	
End point	Zone 5 E 0			N	
Photo points (numbers): North: East: South: West:					
S: 2410756 E: 15119574					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range: 0.1-0.5m
Av. Height (m):	Av. Height:	Av. Height:	Av. Height: 0.2m
Cover (%):	Cover:	Cover:	Cover: 100%
Apart	About	Absent	[Nahrn (90%) Nahr Mt (10%) → Gross.

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Rem	Confirmed Regional Ecosystem: Non rem
Landform: Heavy Loke soils (L29) - Bungalow Adj.	
Soils:	
Structural formation (eg woodland, open-forest etc.):	
Field Observations/ Notes (eg. Level of disturbance connectivity):	
Road Reserve - Belsons Ponic (collected)	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
Opuntia tomentosa 1%	

Table 3: Canopy cover using Canopy Intercept method (use only if a transect is "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Labret cane Sorghum tops Ogishu Lw Pae deal. Sorghum grass Sorghum pest Blue grass Anthus grass Rhod. grass Sheep flocks Pig flocks Pinnate hedges Red root amaranth Bitter melon Salvia cuneata Chloa. det. Ensete. banana Bragelone Ajunt. shrub	Bragelone grass Calce. cuneata Sida. bakelara Cyro. lat. Meryon. mangrove Querc. pycnantha Cullen. tree Champara. leaf Bull. grass Neptha. grass Yellow. paper. daisy Ganyan. weed Dicentra. fern Aristida? Convolvul. ?	* Balsam. pine (CPS = 257-80) → collected for herb.
--	--	---

Vegetation Proforma

Date: 20/4/18

Observers: CS / OR

Site Name: Site 32



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N 0000000000 GPS 084.

End point Zone 5 E 0 N 0000000000

Photo points (numbers): North: East: South: West:

5 26.07481
E 151.19788

(TREC)

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 15-18	Height Range: 8-10	Height Range: 1-3	Height Range: 0.1-0.5
Av. Height (m): 15	Av. Height: 9m	Av. Height: 2m	Av. Height: 0.2
Cover (%): 20%	Cover: 40%	Cover: 40%	Cover: 100%
Bragalan c	Bragalan d	Wetland c	Chrysanthemum c
Belah c	Belah a	Cumbia Cumbia a	Cumbia Cumbia c
		Cassia aculeata a	Opuntia stricta c
		Albizia julibrissin a	Begonia grass c
		Coppin Loranthus a	Bulbine Lily a
		Coppin mitchellii a	

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: ? Confirmed Regional Ecosystem: 115.9?

Landform: 129.

Soils: Heavy brown soils with surface stones

Structural formation (eg woodland, open-forest etc.): Open woodland

Field Observations/ Notes (eg. Level of disturbance connectivity):

Bragalan pole, few large trees lots of regrowth

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

orange box tree

Opuntia stricta

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

[illegible]

Weed

Vegetation Proforma

Date: 21/4/18	 Future Freight Integrating Community, Environment and Engineering
Observers: CS/QR Site Name: Site 39	

Transect Details (required for all sites)

GPS coordinates:	Datum:	Transect length:
Start point Zone 5 E 0 N		
End point Zone 5 E 0 N		
Photo points (numbers): North: East: South: West:		
27.89956 151.29138		

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 8-13m	Height Range:	Height Range:	Height Range:
Av. Height (m): 12m	Av. Height:	Av. Height:	Av. Height:
Cover (%): 70%	Cover:	Cover:	Cover:
Bahk	Alond	Alond Ophe hake	Belows Pann Angole grass Jossman did Erich hake Ophe hake Horse Erich hake

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem:	Confirmed Regional Ecosystem:
Landform: Plain	
Soils: Rich Brown fine sand/loam	
Structural formation (eg woodland, open-forest etc.):	Open/closed Park
Field Observations/ Notes (eg. Level of disturbance connectivity):	→ highly likely
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): Horsetail Box tree → 10% Ophe hake	

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

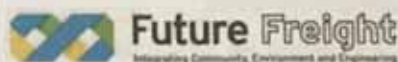
[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

R. B.		
Notch		
Throat.		
Grand stork		
Town ship		
Bellevue p.		
Fire tower		
Sat. av.		
Grand stork		
Brigade gas		
Township		

Vegetation Proforma

Date: 21/4/18
 Observers: CS / OR Site Name: S.b x (new)



Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N
 End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S - 27.9022
 E 151.29285

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Trees 2	Shrub*	Ground
Height Range (m): 10-12	Height Range: 7-9	Height Range: 1-3m	Height Range: 0.1-1m
Av. Height (m): 12	Av. Height: 8	Av. Height: 2m	Av. Height: 0.5
Cover (%): 5%	Cover: 20%	Cover: 15%	Cover: 90%
E. pop	Belah	Dal. vireator	Rubens pom
d	E. pop	A. solomon	Anchda kyla
	A. solomon	Ambi. ambro	Cymb. cobb
			Tas. dala
			Green pom
			Cymb. corobea

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Confirmed Regional Ecosystem:

Landform: Plain

Soils: Dark Brown Sandy loam

Structural formation (eg woodland, open-forest etc.): Woodland

Field Observations/ Notes (eg. Level of disturbance connectivity):

* Belon's Pond - adjacent

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

Opuntia stricta

3608
 Owen's sand Rd.
 * Daryl Lindermeier
 Co. Kank. on bot. rem. record.

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Pygmaea</i> <i>Solenopora</i> <i>Acanthopora</i> <i>Ascidia</i> gemma <i>column</i> <i>Cymba</i> <i>red</i> <i>Cymbid</i> <i>canth</i> <i>Dad</i> <i>viscous</i> <i>Alia</i> <i>terre</i> <i>Car</i> <i>ant.</i> <i>Tosman</i> <i>del.</i> <i>Chlora</i> <i>del.</i> <i>Chla</i> <i>red</i> <i>Pogon</i> <i>ant.</i> <i>Lodge</i> <i>ant.</i> <i>Apur</i> <i>aby.</i> <i>Chla</i> <i>gogon.</i> <i>Solida</i> <i>spin.</i> <i>bulga.</i> <i>Stethygn</i> <i>ake</i>	<i>Urota</i> <i>Alia</i> <i>sp.</i> <i>Aspergus</i> <i>Don</i> <i>Stethygn</i> <i>parab</i>
---	---

Sphacelota.

Vegetation Proforma

Date:

21/4/18

Observers:

CS / OR

Site Name:

Site 36



Future Freight

Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	
End point	Zone 5 E 0			N	
Photo points (numbers): North: 5 East: 27.99502 South: 151.21924 West:					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 16-18	Height Range: 7-8	Height Range: 2-3	Height Range: 0.1-1
Av. Height (m): 18m	Av. Height: 7	Av. Height: 3m	Av. Height: 0.5m
Cover (%): 60%	Cover: 30%	Cover: 50%	Cover: 60%
Singapore Sabal	d a Ragah Balch	d a a Cappah a	d a a chir Bugh cop chir chir Spur Opit
			Bolton Pone

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem:	Confirmed Regional Ecosystem:
Landform: Low hills	
Soils: Heavy soils / cracker clay	
Structural formation (eg woodland, open-forest etc.):	
Field Observations/ Notes (eg. Level of disturbance connectivity):	
Singapore / ground.	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
Opit 100 Opit 100 Borther	

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Belcar Poai2	Brigalow Burr.	
Bon thum	Sabotea lorum	
aput bon		
aput spud		
brynes pest		
Chas. desertum		
ulga		
Brigalow Cross		
Brigalow		
Chloris pest		
Chloris div.		
Capparis bon		
Capparis arch.		
Belcar		
Iron Cross		
Plect. pect.		
Coron lora		
Alston cor. S.		
aput		

For -

 $2, \quad x,$

Vegetation Proforma

Date:

21/4/18

Observers:

CS / OR

Site Name:

Site 40



Future Freight

Integrating Communities, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:

Datum:

Transect length:

Start point

Zone

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E

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End point

Zone

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0

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0

0

0

0

Photo points (numbers):

North:

East:

South:

West:

.

S 27.57240

E 151.31552

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 17-20	Height Range: 2-10	Height Range:	Height Range:
Av. Height (m): 18	Av. Height: 7m	Av. Height:	Av. Height:
Cover (%): 60% (ex. road)	Cover: 15%	Cover:	Cover:
Pepper Box E. canaliculata	Belted Pepper	Absent	Gilg's Grass Green grass Pos. dead Belted Leigars Chloris gay Opuntia stricta

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. # Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rem	Confirmed Regional Ecosystem: Non Rem
Landform: subum / 629	
Soils: Dark brown silty sand-loam	
Structural formation (eg woodland, open-forest etc.): Open hlt.	
Field Observations/ Notes (eg. Level of disturbance connectivity): Road cut	

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):

Opuntia stricta

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established and
"measured", not "estimated") A minimum of 1 measured canopy survey is required per representative
Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Poplar</i> bark <i>Red</i> <i>juice</i> <i>Balata</i> <i>Willow</i> <i>g</i> <i>st.</i> <i>Pas</i> <i>distich</i> <i>Green</i> <i>fruit</i> <i>Quercus</i> <i>bark</i> <i>Sweet</i> <i>fruit</i> <i>Yew</i> <i>wood</i> (white) <i>Hedera</i> - <i>leaf</i> <i>Kentia</i> <i>leaf</i> <i>Wick</i> <i>wood</i> <i>Pas</i> <i>distich</i> <i>Alum</i> <i>fruit</i> <i>Long</i> <i>wood</i> <i>Cotton</i> <i>bark</i> <i>tree</i> <i>Bam</i> <i>grass</i> <i>Panen</i> <i>leaves</i> <i>Mohor</i> <i>wood</i>	<i>Soda</i> <i>ash</i> <i>Cyper</i> <i>raton</i> <i>Alum</i> <i>distich</i> <i>Magn</i> <i>fruit</i> <i>Panen</i> <i>wood</i> <i>Panen</i> <i>wood</i>
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Vegetation Proforma

Date: 21/4/14.

Observers: CS/ OR.

Site Name: Site 41.



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	
End point	Zone 5 E 0			N	
Photo points (numbers): North: East: South: West:					
S 27.83856 E 151.36818					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub ^a	Ground
Height Range (m):	Height Range:	Height Range:	Height Range:
Av. Height (m):	Av. Height:	Av. Height:	Av. Height:
Cover (%):	Cover:	Cover:	Cover:
Aln	Aln	Aln	Noth + non-nth gosses

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. ^a Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rem	Confirmed Regional Ecosystem: Non rem
Landform: Flat	
Soils: Bleach soil	
Structural formation (eg woodland, open-forest etc.): closed grass	
Field Observations/ Notes (eg. Level of disturbance connectivity): High disturbance Red rem	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
N/A	

Vegetation Proforma

Date: 22/4/18.
 Observers: CS OR. Site Name: site 42



Future Freight
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Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N APS
 End point Zone 5 E 0 N 193.

Photo points (numbers): North: East: South: West: S -27.71060 E 151.41299.

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub [*]	Ground
Height Range (m):	Height Range:	Height Range:	Height Range:
Av. Height (m): 13m	Av. Height:	Av. Height:	Av. Height:
Cover (%): 10%	Cover:	Cover:	Cover:
At least one d	Abund	Abund	Phyla can Noctua (Long) Retic goss Whit oak gosses

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. ^{*} Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rain Confirmed Regional Ecosystem: Non Rain

Landform: Plain

Soils: Block soils / croaking soils

Structural formation (eg woodland, open-forest etc.): Road easement Cross/Fork land

Field Observations/ Notes (eg. Level of disturbance connectivity): Highish John - carbon wetland in back plants & landform.

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): 90% - no listed weeds

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Ch's gear pig's card Mary Nodoo Hahotepu Big wad Pocky's lane at Potonia Elvire inden Fox use Rhinoceros mine Carvohin Chant's pedich Mary Glynn Wabih conge Glynn Glynn Pin' pda Dusk one Elvire + Kumbuk Mowat puffs	low Phoke Gungah mawh mawh det. Sargen Lypu mawh pma Patu Perum abin
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Wee

Vegetation Proforma

Date: 22/4/18.

Observers: CS OR

Site Name: Ste 44


Future Freight
 Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	
End point	Zone 5 E 0			N	
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					
S - 27.78063 E 151.42378					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m): 5-15.	Height Range: 4-8	Height Range: 1-2m	Height Range:
Av. Height (m): 12m	Av. Height: 6m	Av. Height: 2m	Av. Height:
Cover (%): 60% (along drain)	Cover: 40% (along drain)	Cover: 10% (along drain)	Cover:
E. forest	A. skene	A. skene	Nahin & earth gopher & paper

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: <i>Non Ren</i>	Confirmed Regional Ecosystem: <i>Non ren</i>
Landform: <i>adjacent to drainage</i>	
Soils: <i>alluvial / Black soil</i>	
Structural formation (eg woodland, open-forest etc.): <i>Crossland / Redden // open forest.</i>	
Field Observations/ Notes (eg. Level of disturbance connectivity): <i>adjacent to drainage in</i>	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
60% - No label	

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

[illegible]

Vegetation Proforma

Date: 22/4/18.

Observers: CS / OR.

Site Name: Site 45.



Future Freight
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Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N

End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S: 27.75623
E: 151.45696

GPS
195

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range:
Av. Height (m): 12m	Av. Height:	Av. Height:	Av. Height:
Cover (%): 51	Cover:	Cover:	Cover:
Platan trees adjacent to site	N/A	N/A	Wahlu + exuberant grasses / forbs

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non rain

Confirmed Regional Ecosystem: Non rain

Landform: Plain

Soils: Black soil.

Structural formation (eg woodland, open-forest etc.):

Field Observations/ Notes (eg. Level of disturbance connectivity): Mown Road/Rail corridor

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): 30% none listed.

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy "measured", not "estimated") A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Refer to BH034 sp list!	to D. portenta known
Creole man	
Area subject to knowing	

Weed

Vegetation Proforma

Date: 22/4/18

Observers: CS / OR

Site Name: Site 43



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	aps
End point	Zone 5 E 0			N	196
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					
S 22.78631 E 151.41858					

Note: if canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub [*]	Ground
Height Range (m):	Height Range:	Height Range: 1-3m	Height Range:
Av. Height (m):	Av. Height:	Av. Height: 2m	Av. Height:
Cover (%):	Cover:	Cover: 10%	Cover:
Aprak	Althor	legume - adjacent to rail line ↓ only in rail corridor	Naher + non-naher grass & Forbs

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. ^{*} Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: NA	Confirmed Regional Ecosystem: NA
Landform: Plain	
Soils: Blocky sands	
Structural formation (eg woodland, open-forest etc.):	Closed grassland / Forbs
Field Observations/ Notes (eg. Level of disturbance connectivity):	wetland, under point
Highly disturbed along rail/Road	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	
60% non native	

Table 3: Canopy cover
"measured", not "est"
Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Plant	Abundance	Notes
Hyphae	cond	
Poa		
Blads	grn	
Cyperus		
Acacia	shrub	
Pos	dead	
Cory	canth	
Nardus		
Blads	right	
Scabiosa		
Myrica	pod	
Eragrostis	to	
Colchic		
Quercus	leaf	
Hyphae	don	
Cladonia	weed	
Sax	thistle	
Bothriochloa	perennial	
Cynodon	weed	

Vegetation Proforma

Date: 23/4/18

Observers: CS/OR

Site Name: Site 54.

 **Future Freight**
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N

End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S - 27.50509
E 151.81789.

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated". Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range: 0.1 - 1m
Av. Height (m):	Av. Height:	Av. Height:	Av. Height: 1m
Cover (%):	Cover:	Cover:	Cover: 90%
Abund	Abund	Abund	Non / Non-Rare grasses

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non Rain

Confirmed Regional Ecosystem: Non Rain

Landform: Plain

Soils: Black soils

Structural formation (eg woodland, open-forest etc.): closed grassland

Field Observations/ Notes (eg. Level of disturbance connectivity): Road reserve, Rare grasses

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): 90% non lab

Table 3: Canopy cover using Canopy Interceptor (all data are "measured", not "estimated") A minimum of 1 measured canopy survey per Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Milk vine Green grass Sugar tops Pine grasses Pisonia Vicia (vetch) Colby Rhod. grass Citrus foliage Star lily Fring. myd. Malabar Cape weed The vine East Beta vulgaris Canebrake cane Pisonia Cyrt. lat. Senecio sp.	Dubaut shrub wild zinnia (Aster ruber) Bidens palustris Karkul weed Aesch. lutea * D. peruviana (adjunct) Scaevola Euphorbia polygonifolia Pap. Aesch. lutea Malabar anther Ech. chin. cor. pink Nepenthes gracilis Lycopodium Hibiscus rosea Mayraea peruviana Heliconia?
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Da	Ob	Tr	GR	Ph	Hei	Av.	Cov	Tabl	stem	Tab	Map	Lar	Soi	Stru	Field	We
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Vegetation Proforma

Date: 23/4/18

Observers: CS / OR.

Site Name: Site 53



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N

End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S - 27.99117
E 151.84323

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy 1	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range: 0.1-1m
Av. Height (m):	Av. Height:	Av. Height:	Av. Height: 0.5m
Cover (%):	Cover:	Cover:	Cover: 95%
NA	NA	NA	msh + ecoh grass + fungi * D. purpurea

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: NA Confirmed Regional Ecosystem: NA

Landform: Terrestrial

Soils: Black soil

Structural formation (eg woodland, open-forest etc.): closed grassland

Field Observations/ Notes (eg. Level of disturbance connectivity): Road near heron drag/creek.

Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): 20% non native

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

<i>Myrica carth</i> <i>S. highland</i> <i>Rh. gr.</i> <i>Therid. aurea</i> <i>Renea villosa</i> <i>Brachy. latata</i> <i>Rh. minor</i> <i>Perel</i> <i>Opuntia stricta</i> <i>D. parvifl.</i> <u>30 plants</u> <i>V. latifolia</i> <i>Cent. asch.</i> <i>Vi. dicartha</i> <u>queens</u> - <u>collected.</u> <i>Sorghum beryllum</i>	<i>Alm. low gr.</i> <i>Renea decurva</i> <i>Cypr. latifolia</i> <i>Therid. aurea</i> <i>Therid. aurea</i> <i>Therid. aurea</i> <i>Cypr. latifolia</i> <i>Therid. aurea</i>
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Vegetation Proforma

Date: 23/4/16

Observers: CS / OR.

Site Name: Site 52



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates:		Datum:		Transect length:	
Start point	Zone 5 E 0			N	
End point	Zone 5 E 0			N	
Photo points (numbers): North: _____ East: _____ South: _____ West: _____					
S - 27.49315					
E 151.84506					

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub*	Ground
Height Range (m):	Height Range:	Height Range:	Height Range:
Av. Height (m):	Av. Height:	Av. Height:	Av. Height:
Cover (%):	Cover:	Cover:	Cover:
NA	NA	NA	Non-woody grasses

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. * Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem: Non-rem	Confirmed Regional Ecosystem: Non-rem
Landform: reman	
Soils: Black soil	
Structural formation (eg woodland, open-forest etc.): closed grassland	
Field Observations/ Notes (eg. Level of disturbance connectivity): Road reserve / rock gorges	
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016): 80% non native	

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible][illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Eight began Khavala summer with end Brykha began Diksha summer Green peasi Plume goats Stokes hill Panna greens Swamp dock Kanga civ. Paa Cyma vengish Digit dunch		
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Vegetation Proforma

Date: 23/4/18

Observers: CS / OR

Site Name: Site 55



Future Freight
Integrating Community, Environment and Engineering

Transect Details (required for all sites)

GPS coordinates: Datum: Transect length:

Start point Zone 5 E 0 N

End point Zone 5 E 0 N

Photo points (numbers): North: East: South: West:

S - 27.53602
E 151.78825

Note: If canopy is estimated (eg. No transect), provide only a single GPS point with a transect length of "0" and state "estimated" Complete Tables 1, 2 and 4 only.

Table 1: Estimated Canopy Cover (mandatory for all sites)

Canopy/ Emergent	Tree 2	Shrub [#]	Ground
Height Range (m):	Height Range:	Height Range:	Height Range: 0.1-0.3
Av. Height (m):	Av. Height:	Av. Height:	Av. Height: 0.2
Cover (%):	Cover:	Cover:	Cover: 90%
Abn	N/A	N/A	closed grass Note + exch sp.

Table notes: * use following terms: D = dominant; C = co-dominant; A = associated; S = suppressed. [#] Shrub is a woody plant <8m tall with multi-stems within 20cm from base or if single stemmed < 2m tall.

Table 2

Mapped Regional Ecosystem:	N/A	Confirmed Regional Ecosystem:	N/A
Landform:	mid-slope		
Soils:	Dark brown loam		
Structural formation (eg woodland, open-forest etc.):	Closed grass		
Field Observations/ Notes (eg. Level of disturbance connectivity):	Good reserve		
Weed species and approx. cover (%) (including restricted matters under the Qld Biosecurity Act 2016):	80% non-veg		

Table 3: Canopy cover using Canopy Intercept method (use only if a transect has been established – canopy “measured”, not “estimated”) A minimum of 1 measured canopy survey is required per representative Regional Ecosystem.

[illegible]

Table 4: Flora species Present (15-20 minute random meander) (required for all sites):

Rhod. gum Decid. gum Agave chely Sorghum kopym Guadalupe Alpin lauges Turp. weed Bartula lept. Karim P. we. C. yon. bahn P. yon. jeth. Ghara Carole. Theunah tangut Stalk grass Sida hooker Hacky grass Lohr bahn stalks		pig weed Kraguak kammacha
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Table notes
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Table 2
Mapped
Landform
Soils:
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