Appendix E

Ecological Assessment Report

Powerlink Queensland

December 2022

Meandu Mine Transmission Line Relocation Project

Ecological Assessment Report

Question today
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Meandu Mine Transmission Line Relocation Project
Ecological Assessment Report

Powerlink Queensland

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Glossary and abbreviations

Biosecurity Act	*Biosecurity Act 2014* (Queensland)
DAF	Department of Agriculture and Fisheries (Queensland)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DES	Department of Environment and Science (Queensland)
DNRME	Department of Natural Resources, Mines and Energy (Queensland) (former)
DoEE	Department of the Environment and Energy (Commonwealth) (former)
DoR	Department of Resources (Queensland)
EO Act	*Environmental Offsets Act 2014* (EO Act) (Queensland)
EOP	EPBC Act Environmental Offsets Policy (2012)
EO Regulation	*Environmental Offsets Regulation 2014* (Queensland)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EWP	Environmental Work Plan
Flora Survey Guidelines	*Flora Survey Guidelines – Protected Plants*
K2E Project	King 2 East Project
kV	Kilovolt
MLES	Matters of local environmental significance
MNES	Matters of national environmental significance
MSES	Matters of state environmental significance
NC Act	*Nature Conservation Act 1992* (Queensland)
PMST	Protected Matters Search Tool
Powerlink	Powerlink Queensland
Project footprint	Areas of ground and vegetation disturbance for the transmission line and installation of transmission line structures, brake winch sites and access tracks to facilitate construction and operation of the Project.
QEOP	Queensland Environmental Offset Policy
RE	Regional ecosystems
Significant Impact Guidelines	*Matters of National Environmental Significance: Significant Impact Guidelines 1.1*
SMP	Species Management Program
Stanwell	Stanwell Corporation Limited

Study Area	The transmission line easement and 10 m buffer either side of access tracks. The Study Area is labelled “Ecology Study Area” in yellow polygons throughout figures in this report.
TEC	Threatened ecological community
The Project	The Meandu Mine Transmission Line Relocation Project
VM Act	*Vegetation Management Act 1999* (Queensland)
WSP	WSP Australia Pty Ltd

1 Introduction

1.1 Project background

A portion of the Feeder 831 275 kilovolt (kV) transmission line between H018 Tarong and H014 Middle Ridge substations (approximately 5 kilometres (km)), located to the east of Stanwell Corporation Limited (Stanwell)'s Meandu Mine, is proposed to be relocated (the Project). Relocation of this portion of Feeder 831 is required to overcome potential geotechnical instability issues in a section of the current Feeder 831 corridor, and to safely accommodate future mining activities within the approved surface rights area of the Meandu Mine, which requires that a section of land underneath this line is mined. The affected portion of transmission line is owned and operated by Powerlink Queensland (Powerlink).

TEC Coal Pty Ltd (TEC Coal) (a wholly owned subsidiary of Stanwell) is also currently seeking approval to increase the approved surface rights area at the Meandu Mine. The King 2 East (K2E) Project involves increasing the approved surface area within mining lease (ML) 6674 by an additional 186 hectares (ha), which will allow progression of the K2E pit to the east. Planning for relocation of the portion of the Feeder 831 transmission line has been undertaken with consideration of the K2E Project.

This ecological assessment aims to confirm the presence or likely presence of Matters of National Environmental Significance (MNES) and/or Matters of State Environmental Significance (MSES) associated with the proposed construction and operational footprint for the Project. The MNES are protected matters under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), while MSES are protected matters under the Queensland *Environmental Offsets Act 2014* (EO Act). The study also provides information for the future application of statutory approvals and permits for both the construction and operational phases of the Project.

1.2 Purpose

This Ecological Assessment Report presents a summary of the key findings of the desktop assessment, as well as update the results of the initial terrestrial ecological field verification surveys conducted in August 2019 with additional results from the flora and fauna surveys conducted January 2022. It confirms the presence / absence of MNES and/or MSES, which have been identified by a desktop assessment and then targeted with flora and fauna surveys.

The structure of this report is summarised in Table 1.1.

Table 1.1 Report structure

Section	Description
Section 1: Introduction	Provides an overview of the purpose of this report and outlines the structure and supporting documentation of the report. It also provides and overview of the Project, including site description, and the proposed pre-construction, construction and operational activities relating to the Project.
Section 2: Legislative context	Provides a summary of Commonwealth and Queensland legislation relevant to terrestrial ecological values within the Study area.
Section 3: Study methods	Outlines the methods used to gather information relating to ecologically sensitive areas, flora and fauna species and ecological communities that are known or likely to occur in the Study area and wider Locality.
Section 4: Desktop findings	Presents the findings from the desktop assessment.
Section 5: Field survey results	Presents the findings from the field surveys.

Section	Description
Section 6: Project-related impacts and mitigation measures	Describes the Project-related impacts and confirms the relevance of such impacts to terrestrial biodiversity values and MNES and MSES. It also provides a summary of existing site practices and outlines the additional mitigation measures to minimise impacts to terrestrial biodiversity values.
Section 7: Risk of impact assessment to MNES and MSES	Confirms and assesses the risk of impacts to biodiversity values and the significance of these impacts to relevant MNES and MSES.
Section 8: Conclusions and recommendations	Summarises the findings of the ecological assessment and provides advice on environmental offset requirements for any significant residual impacts to MNES and MSES resulting from the Project.

1.3 Project location

The existing transmission line is located immediately to the east of the surface rights area of Meandu Mine, located near Yarraman in the Darling Downs region (refer Figure 1.1). The transmission line is proposed to be relocated further to the east to adjoin the proposed K2E pit boundary at the Meandu Mine. The Project is located on Lot 10 on SP305494, Lot 3 on RP176969, Ridge Road reserve, and Lot 289 on FTY1859, as shown on Figure 1.2.

1.4 Areas of investigation

The areas of investigation for the ecological assessment, include:

- Project footprint – areas of ground and vegetation disturbance for the transmission line, and installation of transmission line structures, brake winch sites and access tracks to facilitate construction and operation of the Project.
- Study area – the transmission line easement and 10 m buffer either side of access tracks.
- Wider study area – the areas within Yarraman State Forest that surround the Study area where previous ecological studies were completed for the K2E Project.
- Locality – the extent of database searches and local areas surrounding the Project.

1.5 Project description

The transmission line easement and associated access rights area is intended to accommodate a single circuit 275kV transmission line. Typically, transmission structures will be centrally located within a 60 m wide easement. Easements are usually cleared of vegetation unless an environmental or cultural heritage assessment determines the need to retain vegetation to minimise ecological or cultural impacts. These measures usually involve over the canopy stringing, vegetation scalloping and careful tower placement.

Transmission structures (generally 50-70 m high) keep the high voltage conductors separate from each other and clear of the ground and other obstacles. Requirements for minimum clearance between energised conductors and various types of obstacles are specified in the Electricity Safety Regulation 2013. The distance between structures is typically 450 m on flat ground and their height is determined by the topography, land use, average temperatures, sensitive environmental areas, clearance requirements and structure loading limits.

KINGAROY
STUART RIVER
KINGAROY CREEK
WHEELBARROW CREEK
MALAR CREEK
BRISBANE GULLY
HORSE CREEK
BARKERS CREEK
CAMP CREEK
WATER COURSE
NANANGO
SOUTH BURNETT REGIONAL COUNCIL
SANDY CREEK
BARKER CREEK
OAKY CREEK
MIDDLE CREEK
PEACH CREEK
MEANDU CREEK
TARONG AND TARONG NORTH POWER STATIONS
BLACK GULLY
ROCKY CREEK
BAINS GULLY
TANDURINGIE CREEK
ML 6674
YARRAMAN
TOOWOOMBA REGIONAL COUNCIL
COOMBA GULLY
COOMBA FALLS
COPPER CREEK
BEAR CREEK
PETER CREEK
YARRAMAN CREEK

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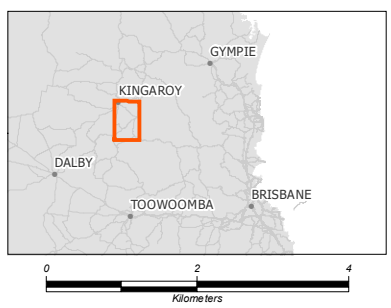
Figure 1.1
Locality Map

Legend

- Proposed Feeder
- Rail Line
- Feeder
- Existing Feeder 831 Centerline
- Cadastre
- King 2 East Additional Surface Area
- Local Government Areas
- Mining Lease (ML6674)
- Approved Surface Rights Area



Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:100,000 Date: 2/12/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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Meandu Mine
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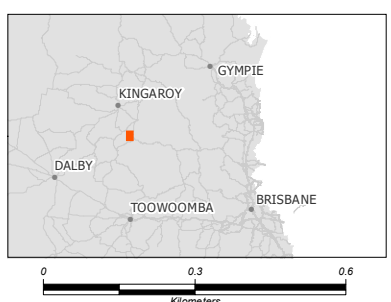
Figure 1.2
Property and alignment details

NG POWER STATION ROAD
NANANGO NEUMGNA ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD
1030-STR-9008
D1
D2
D3
D4
1030-STR-9009
Lot 3
RP176969
D5
D6
Lot 10
SP305494
Ridge Road
reserve
D7
D8
D9
D10
Lot 289
FTY1859
D10A
D11
D13
1030-STR-9018
D14
D15
1030-STR-9019

Legend

- Proposed transmission structure locations
- Transmission structure footprint
- Proposed Feeder
- Existing Transmission Feeder
- Access track full clearing
- King 2 East Additional Surface Area
- Helicopter stringing Emergency trim-cut only
- Ecology Study Area
- Proposed Easement
- Approved Surface Right Area
- Cadastre
- Mining Lease (ML6674)



0 0.3 0.6
Kilometers

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 2/12/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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A preliminary design for the proposed realignment has been prepared by Powerlink based on LiDAR data provided by Stanwell. The preliminary design includes 19 structures and spans approximately 5 km. The new section of transmission line will be cut into the existing feeder at both ends, and the redundant assets decommissioned. Steel poles will be utilised to cut-over the feeder from the existing transmission assets to the proposed assets. The arrangement of these poles will allow them to be constructed without an outage and cut-over during a short outage. The remaining structures are modified single-circuit forms of Powerlink's existing "S" series lattice towers.

For this Project access to each structure location will be either from existing HQPlantations Pty Ltd (HQPlantations) access tracks or new access tracks. Figure 1.2 shows the proposed access track locations. The existing tracks may require upgrading to make them suitable for construction vehicle access, but it has been assumed that these works will be minor. Also, it is understood that the tracks within the area mapped as 'King 2 East Additional Surface Area' in Figure 1.2 will be available during the transmission line construction period, but no longer available after the Project is completed.

The cleared width for new access tracks will be required to be approximately 8.6 m depending on the terrain and required road formations.

1.5.1 Construction methodology

Construction of a transmission line involves a series of field activities which are briefly described in Table 1.2.

Table 1.2 Construction methodology

Field activity	Description
Site set out	Following cadastral survey of the transmission line easement, the location of the transmission line within the easement is then set out. Structure sites are marked and orientated using design information. Structure locations are based on the technical characteristics of the structures and conductors, topographical constraints, landholder requirements and environmental considerations. Easement boundaries will be identified and marked prior to vegetation clearing.
Flora and fauna surveys	A pre-construction weed survey will be undertaken prior to construction activities commencing and a post-construction weed survey will be undertaken after the first wet season once construction is finalised. The surveys will occur along the easement and access tracks and will identify weeds of national significance, restricted and invasive matters and regionally declared weed species. Pre-clearance habitat surveys will be undertaken immediately prior to clearing to identify any active breeding places and where possible relocate fauna to an undisturbed location.
Vegetation clearing	The amount of vegetation clearing required is dependent on terrain, vegetation type and significance, and landholder requirements (where feasible). The aim is to clear vegetation sufficient to meet Powerlink's safety, reliability and operational requirements for the transmission line. In non–sensitive areas, the most effective and efficient clearing method for large scale clearing is by bulldozer, often fitted with a 'stick rake' or 'tree spear' to push over larger trees or use of a mega-mulcher. Timber of commercial value may be recovered just prior to clearing. Depending on land use, landholder requirements, environmental constraints and maintenance requirements, cleared vegetation may be dealt with in the following ways: — chipped or mulched on site and used for easement revegetation — stacked and windrowed - any stacked and windrowed vegetation must be placed in a manner which does not concentrate overland flow or create erosion — stacked and burnt - any burning of cleared vegetation may only occur in accordance with a permit from the Fire Brigade and so as not to create any additional hazard to the surrounding environment or transmission line.

Field activity	Description
	In sensitive areas, such as steep or erosion prone terrain, near watercourses or other environmentally sensitive areas, alternative methods of clearing such as hand clearing (chainsaw) or the use of a fella-buncher (or excavator with cutting attachment) may be appropriate. Specific vegetation clearing considerations for this Project are outlined in Section 1.5.1.1.
Foundation installation	Geotechnical assessments are undertaken prior to construction to determine the appropriate foundation type for each structure. Bored foundations are often used. Alternative foundation types (i.e. mass concrete, micro-piles, mini-piles) are used in situations where ground conditions are not suitable for bored foundations. The choice of foundation type is dependent on the specific nature of the soil and rock and takes into account soil/concrete friction strength, water levels, soil bearing capacity, construction constraints, rock levels, and soil properties.
Structure assembly and erection	The term 'structure assembly and erection' refers to a sequence of activities from delivery to site, preassembly, erection, tightening and inspection tower components of each structure. Steel for lattice towers is fabricated, galvanised, sorted and bundled ready for delivery at a contractor's facility off site and transported to the final location in two or more pieces, typically by semi-trailer. Preassembly of the tower is usually carried out adjacent to its final site and involves assembly of a number of sections, which will allow convenient erection at the following stage. Where practical, bolts holding the members together are tightened at this stage. Larger or heavy towers may require the use of a small mobile crane at this stage to move members and sections about the site. A large mobile crane is used to erect the tower in sections with a work crew installing and tightening all bolts, and checking that the structure is complete.
Conductor and earth wire stringing	Conductor and earth wire stringing is usually carried out in sections of varying length of up to 10 km between termination structures, depending on constraints, terrain, and access. Existing infrastructure such as buildings, roads and fences may require hurdling which is a method that adopts a protective barrier to prevent contact and potential damage. Additionally, existing distribution and transmission feeders which intersect the proposed alignment may require other electrical entity works to facilitate stringing.
Site reinstatement	Reinstatement will be undertaken progressively during construction, where practicable, and Powerlink will ensure that all disturbed areas impacted from construction are reinstated at the end of the Project. The short-term goal of reinstatement is the stabilisation of soils to provide a suitable matrix for vegetation establishment to aid in preventing erosion. Reinstatement also includes the replacement of topography, topsoil, and fences where disturbed.

1.5.1.1 Vegetation clearing

The following considerations regarding vegetation clearing apply to this Project:

- Structure pads: Nominally, each structure pad will require a 40 x 40 m cleared area. This area may require earthworks to make the site suitable for construction and maintenance.
- Easement clearing: The new land access rights area will be cleared using the governing principle that vegetation removal is of minimum disturbance consistent with the safe operation of the transmission line. This involves removing all vegetation within the proposed new land access rights area that will pose a threat to the integrity of the transmission line, even when fully grown. Clearing of remnant vegetation within the transmission line easement has been minimised by siting transmission structures outside of remnant vegetation and through the use of helicopter stringing of the transmission line in areas of remnant vegetation. Consideration has also been given to minimising clearing of regrowth native vegetation through the implementation of draw path clearing (approximately 40 m wide)

as opposed to full easement clearing. Harvesting of the Hoop Pine plantation areas within the easement will be undertaken by HQPlantations prior to Powerlink's works.

- Brake/Winch Sites: It is envisaged that the new section of transmission line will be strung in two main pulls, plus the cut-overs between the existing and new lines. Each of the two main pulls will require a brake and winch site at either side of the pull. The main pulls are expected to be D1 to D4, and D4 to D15 (refer Figure 1.2). Full clearing of these easement at the brake and winch sites for these pulls is proposed.
- Access tracks: Existing HQPlantations forestry access tracks are proposed to be used for access to the transmission structures during construction and operation (refer Figure 1.2). In areas where new access tracks are required, it is proposed that these are located within areas of Hoop Pine plantation avoiding clearing of remnant vegetation. Required widening of existing forestry access tracks will also occur in areas of Hoop Pine plantation. Widening of access tracks is not planned within area of remnant semi-evergreen vine thicket, woodlands, dry rainforest communities, and gullies and ridges north of Rocky Creek.

1.6 Study limitations

The ecological assessment presented herein has involved a combination of desktop assessment and ecological field surveys. It has relied on publicly available information and web-based data, and the information obtained from previous studies completed for the K2E Project. The likelihood of occurrence assessment has relied on database searches and publicly available information that relates to the Study area and is further supported by the findings of field surveys conducted across the Study area and previous studies completed within the wider study area for the K2E Project.

Field surveys focused on verifying the ecological values and MNES and MSES values that have been mapped by the State government or revealed as potentially present through database searches. Field surveys focused on habitats that may support threatened flora and fauna species, which have either been previously recorded or predicted to occur in the Locality and assessed as having a moderate or higher likelihood of occurring in the Study area.

Fauna surveys were limited to methods for detection, such as call recognition, visual identification and inferential evidence of habitat usage (e.g. scratches, scats, Black-breasted Button-quail platelets, burrows, active nests etc.). No trapping was conducted specifically as part of the fauna surveys for the transmission line relocation Project, as a detailed understanding and detailed field data was available for the habitats and targeted species to be impacted. This detailed field data was collected as part of the K2E Project directly adjacent to the Project, as discussed in Section 3.1.

2 Legislative context

A number of Commonwealth and Queensland State legislative acts and planning policies are relevant to the Project. The following sections set out the legislative context for the Project.

2.1 Commonwealth legislation and policy

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act establishes a requirement for Commonwealth environmental assessment and approval for actions that are likely to have a significant impact on any MNES protected under the Act, including:

- world heritage properties
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- migratory species protected under international agreements
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)
- a water resource, in relation to coal seam gas development and large coal mining development.

Other matters protected under the EPBC Act, include:

- the environment, where actions proposed are on, or will affect Commonwealth land and the environment
- the environment, where Commonwealth agencies are proposing to take an action.

When a proponent proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposed action to the Australian Government Minister for the Environment (the Minister). The purpose of the referral is to determine whether a proposed action is a 'controlled action' and thereby requires approval under the EPBC Act. If the Minister determines that a proposed action is a controlled action, it will then proceed through the Commonwealth assessment and approval processes.

A search of the Commonwealth protected matters search tool (PMST) was undertaken on 12 April 2022, to inform this terrestrial ecological assessment. The results were used to provide guidance on MNES and other matters protected by the EPBC Act that may occur within the Project area and within a 10 km buffer. The outcomes of the protected matters search are summarised in Table 4.1. An assessment of the Project-related impacts to relevant MNES has been undertaken as part of this terrestrial ecological assessment.

2.1.2 EPBC Act Environmental Offsets Policy

The EPBC Act Environmental Offsets Policy (2012) (EOP) outlines the Commonwealth Government's approach to the use of environmental offsets under the EPBC Act. The EOP applies to both project-by-project assessments and approvals under Parts 8 and 9 of the EPBC Act.

The EOP provides a framework on the use of environmental offsets under the EPBC Act including when offsets are required, how offsets can be delivered, and the framework under which they operate.

Offsets are not required for all approvals under the EPBC Act and the EOP is only triggered when significant residual adverse impacts to matters protected under the EPBC Act are unavoidable. The EOP relates to all matters protected under the EPBC Act.

The EOP applies to offsetting requirements in both terrestrial and aquatic (including marine) environments. It requires that an environmental offset under the EPBC Act be suitable and '*delivers an overall conservation outcome that improves or maintains the viability of the protected matter(s).*'

2.2 State legislation and policy

2.2.1 Nature Conservation Act 1992

2.2.1.1 Protected plants

Section 89 of the *Nature Conservation Act 1992* (NC Act) restricts the taking of particular protected plants. A clearing permit is required for clearing any Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable and Near Threatened (herein referred to as threatened) plants.

Where a flora survey has been undertaken in accordance with the Flora Survey Guidelines in a high-risk trigger map area the following applies:

- Where threatened plants are present in the clearing impact area or 100 m buffer zone a clearing permit application and an accompanying Flora Survey Report must be prepared.
- Where threatened plants are not recorded during the flora survey, clearing of that area will not need a permit, and an exempt clearing notification form must be submitted along with the accompanying Flora Survey Report.

The operation of the NC Act is supported by subordinate *Nature Conservation (Plants) Regulation 2020*, which restricts the taking of protected plants and imposes certain requirements, where clearing of native plants 'in the wild' is required.

As the Project footprint contain areas mapped as high-risk for protected plants on the Protected Plants Flora Survey Trigger Map, a protected plant flora survey will need to be undertaken and a Protected Plant Clearing Permit or Exempt Clearing Notice submitted to the Department of Environment and Science (DES). The protected plant flora survey was undertaken on 15 to 18 August 2022. As this flora survey confirmed the presence of *Rhodamnia dumicola* (Rib-fruited Malletwood) (listed as Endangered under the NC Act) within the clearing buffer zone, a Protected Plants Clearing Permit is required for the Project.

2.2.1.2 Animal breeding places

Section 88 of the NC Act places restrictions on "taking" protected animals listed as Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Special Least Concern or Least Concern wildlife. Section 332 of the *Nature Conservation (Animals) Regulation 2020* requires that a person must not, without a reasonable excuse, tamper with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring, unless the removal or tampering is part of an approved Species Management Program (SMP) for animals of the same species; or the person holds a damage mitigation permit for the animal and the permit authorises the removal or tampering.

A SMP authorises activities, if it will impact on breeding places of protected animals that are classified as Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Special Least Concern, Least Concern (colonial breeder) or Least Concern, under the NC Act.

Two SMP types are available, depending on the identified protected animals. The SMP "low risk of impacts" relate to protected animals classed as Least Concern where the impacts are unlikely to affect a broader population.

The SMP 'high risk of impacts' relates to protected animals identified by Wildlife Regulation or breeding type (e.g. Least Concern colonial breeders), where the broader population is at a greater risk from impacts, and include Least Concern wildlife that are colonial breeders and wildlife prescribed as Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, or a Special Least Concern animal under the *Nature Conservation (Animals) Regulation 2020*. An entity can register for approval to use these standard documents prior to any works being undertaken on a project site.

The need for Low-risk or High-risk SMPs for the Project is discussed further in Sections 6.5.4.2 and 6.5.4.3 respectively.

2.2.1.3 Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act) and its subordinate regulation (Vegetation Management Regulation 2000) seeks to regulate the clearing of native vegetation that are regional ecosystems to prevent land degradation, prevent the loss of biodiversity and maintain ecological processes.

When an activity under section 101 or 112A of the *Electricity Act 1994* or section 17 of the *Electricity Regulation 2006*, such as Powerlink's proposed power transmission line, the proponent is exempt from the VM Act when clearing regulated vegetation.

2.2.1.4 Biosecurity Act 2014

Under the *Biosecurity Act 2014* (Biosecurity Act) landowners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants under their control. Under the Biosecurity Act, it is required that all sightings of prohibited invasive plants are reported to Biosecurity Queensland within 24 hours. In addition, everyone is required to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation.

2.2.1.5 Environmental Offsets Act 2014

The Queensland *Environmental Offsets Act 2014* (EO Act), as amended on 28 October 2014, coordinates the delivery of environmental offsets across jurisdictions and provides a single point-of-truth for environmental offsets in Queensland. The *Environmental Offsets Regulation 2014* (EO Regulation), as amended on 19 December 2014, which sits under the EO Act, provides details of the prescribed activities regulated under existing legislation and prescribed environmental matters to which the EO Act applies (that is, an offset condition can be imposed).

In accordance with the current Queensland environmental offsets framework, environmental offsets for significant residual impacts upon prescribed environmental matters must be delivered in accordance with the EO Act, EO Regulation and the Queensland Environmental Offsets Policy Version 1.1 2014 (QEOP). Prescribed environmental matters are:

- a Matter of State Environmental Significance (MSES) listed in Schedule 2 of the EO Regulation
- an accredited Matter of National Environmental Significance (MNES), should the Queensland Government receive accreditation in relation to environmental offsets required under the EPBC Act
- a Matter of Local Environmental Significance (MLES), as described in Section 10(1)(c) of the EO Act.

In consideration of the above listed prescribed environmental matters, the focus of most infrastructure projects is on MSES and MNES, as they are the main prescribed environmental matters requiring offsets.

Environmental offsets for MLES are likely to be less frequently required by a proponent. An MLES is a prescribed environmental matter if an environmental offset for the matter is required under a local planning instrument and the matter is not the same or substantially the same as an MNES or MSES.

It is important to note that a state or local government cannot impose an offset condition for a prescribed activity that has the same, or substantially the same impact on the same, or substantially the same prescribed environmental matter as an MNES, if it has been assessed as a 'controlled action' under the EPBC Act.

2.2.1.6 Queensland Environmental Offsets Policy

The Queensland *Environmental Offsets Policy Version 1.8* (2020) (QEOP) explains how environmental offsets should be delivered. It provides a single, streamlined framework for environmental offsets in Queensland. The MSES that can require offsets under QEOP are listed in Schedule 2 of the EO Regulation, include:

- regulated vegetation (Endangered and Of Concern regional ecosystems)
- connectivity areas
- wetlands and watercourses
- protected wildlife habitat
- protected areas
- highly protected zones of State marine parks
- fish habitat areas
- waterway providing for fish passage
- marine plants
- legally secured offset areas (including areas subject to vegetation protection covenants).

2.2.1.7 Koala habitat

The *Nature Conservation and Other Legislation (Koala Protection) Amendment Regulation* bill was passed on 7 February 2020 and amends the *Environmental Offsets Regulation 2014*, *Planning Regulation 2017*, *Nature Conservation (Koala) Conservation Plan 2017*, and *Vegetation Management Regulation 2012* to provide increased protection to koala habitat areas in South-East Queensland.

The new planning framework implements strict new clearing restrictions, prohibiting clearing of koala habitat areas within Koala Priority Areas as well as specific requirements relating to Koala Habitat Area impacts (Schedule 5, Part 2 of the Planning Regulation 2017). Within the South Burnett Regional Council local government area, the Project is located in Koala District B, while within the Toowoomba Regional Council local government area the Project is located in Koala District C.

While the woodland habitat along Rocky Creek provides viable habitat for the Koala, this habitat will be unaffected by the Project. The Koala does not make use of Hoop Pine plantation or semi-evergreen vine thicket and dry rainforest habitats. The juvenile mixed hardwood plantation that is isolated from viable woodland habitat along Rocky Creek by areas of Hoop Pine plantation and semi-evergreen vine thicket and dry rainforest habitats, is not used by the species as conclusively demonstrated by field surveys both for this Project and for the adjacent K2E Project.

In addition, the juvenile mixed hardwood plantation has relatively low habitat value for the Koala, as it contains *Corymbia citriodora* subsp. *variegata*, which is not a primary or secondary feed tree species. As such, it is unlikely that the Koala will be encountered during construction of the Project.

3 Study methods

3.1 Desktop assessment

3.1.1 Previous ecological surveys of the area for the K2E Project

Numerous seasonal surveys have been undertaken for the adjacent K2E Project, as listed in Table 3.1.

These surveys targeted threatened flora and fauna species, field verified vegetation communities and regulated vegetation (regional ecosystems), and fauna habitats.

Table 3.1 Surveys completed for adjacent K2E Project

Survey	Timing
Fauna survey (winter / dry season)	21 to 25 August 2017
Flora and vegetation survey (winter / dry season)	22 to 23 August 2017
Fauna survey (autumn / wet season)	19 to 23 March 2018
Flora and vegetation survey (autumn / wet season)	1 to 3 May 2018
Targeted Black-breasted Button-quail surveys	20 to 24 May 2019
Flora and vegetation survey (winter / dry season)	29 July 2019
Targeted fauna survey (spring / wet season)	22 to 26 November 2021
Targeted flora survey (spring / wet season)	22 to 24 November 2021

A total of 95 flora species were recorded within the K2E Project Study area during field surveys, including one threatened flora species, *Haloragis exalata* subsp. *velutina*, listed as Vulnerable under the EPBC Act and NC Act. The population of *Haloragis exalata* subsp. *velutina* was recorded within drainage lines and adjacent to existing tracks within habitat associated with regional ecosystem 12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics.

One hundred and twenty-two (122) fauna species were recorded within the K2E Project Study area during the field surveys, including 81 birds, 35 mammals (including 18 microbat species), 3 frogs and 3 reptiles. Domesticated or feral dogs and feral cats were also recorded within the K2E Project Study area and wider study area.

Threatened and migratory fauna species recorded during the K2E Project field surveys are outlined in Table 3.2. The threatened flora and fauna species recorded during the surveys for the K2E Project and the habitats they were recorded in, are relevant to the habitats associated with the transmission line Project.

Table 3.2 Threatened and migratory fauna species recorded during field surveys

Common name	Scientific name	Status		Study area	
		EPBC Act	NC Act	K2E Project	Wider study area
Black-breasted button-quail	*Turnix melanogaster*	Vulnerable	Vulnerable	Yes	Yes
Greater Glider	*Petauroides volans*	Vulnerable	Vulnerable	No	Yes
Powerful Owl	*Ninox strenua*	–	Vulnerable	No	Yes

Common name	Scientific name	Status		Study area	
		EPBC Act	NC Act	K2E Project	Wider study area
Short-beaked Echidna	*Tachyglossus aculeatus*	–	Special Least Concern	Yes	Yes
Black-faced Monarch	*Monarcha melanopsis*	Migratory	Special Least Concern	Yes	Yes
Rufous Fantail	*Rhipidura rufifrons*	Migratory	Special Least Concern	Yes	Yes

3.1.2 Database searches

Searches and review of the following databases and web-based information sources were performed and where relevant a 20 km search area was applied:

- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) *Protected Matters Search Tool*, to identify threatened species and ecological communities listed under the EPBC Act that are predicted or known to occur in the Locality (refer Attachment A).
- Queensland Government – *WildNet database* search to identify threatened species listed under the NC Act that have been previously recorded in the Locality (refer Attachment A).
- Queensland Government – Species profile search to identify threatened flora and fauna species listed under the NC Act and/or EPBC Act that may have been previously recorded in the Locality.
- Commonwealth Government's Atlas of Living Australia to locate threatened species that have been previously recorded in the Locality.
- Queensland Department of Resources (DoR) regulated vegetation, essential habitat and essential habitat regrowth mapping.
- Queensland Government's Protected Plants Flora Survey Trigger Map to determine high risk areas for protected plants within the Study area.
- Queensland Government's State Planning Policy Interactive Mapping System database to determine if there are any MSES within the Study area.
- The Department of Agriculture and Fisheries (DAF) 'Queensland Waterways for Waterway Barrier Works' spatial layer, to further describe the risk categories assigned to waterways providing for fish passage within the Study area.

3.1.3 Matters of State Environmental Significance

A GIS analysis using the intersect tool was performed to determine the MSES listed under Schedule 2 of the EO Regulation that are mapped within the Study area. The MSES layers subject to this assessment included:

- regulated vegetation (including DoR regional ecosystem and essential habitat mapping)
- connectivity areas
- wetlands and watercourses, including designated high ecological value waters and high ecological significance wetlands
- protected wildlife habitat
- protected areas, (e.g. national parks, marine parks, regional parks and nature refuges)
- fish habitat areas
- waterways providing for fish passage
- areas secured by vegetation protection covenants.

3.1.4 Likelihood of occurrence assessment

The likelihood of occurrence assessment was based upon publicly available species records and/or other information sources, such as field guides and web-based species profiles, results of the K2E Project ecological assessment, including, but not limited to:

- Commonwealth Government's Species Profile and Threats Database (SPRAT) for the threatened species and ecological communities listed under the EPBC Act
- the Queensland Department of Environment and Science (DES) threatened species website.
- Species recorded during the K2E Project ecological assessment.

The likelihood of threatened flora and fauna species and ecological communities occurring in the Study area, has been assessed against the criteria outlined in Table 3.3. The likelihood of occurrence assessment for the Project is provided in Attachment B.

Table 3.3 Likelihood of occurrence assessment criteria

Likelihood of occurrence	Assessment criteria
Low	No previous records of the species within the Locality and one or more of the following criteria is met: — not previously recorded in the Study area and surrounds and the Study area is beyond the current known geographic range — dependent on specific habitat types or resources that are not present in the Study area — considered extinct in the wild.
Moderate	Species previously recorded within the Locality and one or more of the following criteria is met: — previously recorded in proximity to the Study area (i.e. vagrant individuals) — potential habitat resources are present in the Study area.
High	Species previously recorded within the Locality and one or more of the following criteria is met: — previously recorded in the Study area — dependent on habitats or habitat resources that are available in the Study area — suitable habitats are available in the Study area capable of supporting a resident population or individuals of the species.
Recorded	Flora species or ecological community positively identified during field surveys within the Study area: — fauna species positively recorded during field surveys within Study area or adjacent habitat.

3.2 Field surveys for transmission line relocation project

The field surveys for the Project were conducted during the dry season in August 2019 (dry season) and wet season in January 2022 (wet season). The dry season flora and fauna surveys were conducted by a Principal Ecologist (botanist) and Ecologist (zoologist), with the wet season survey conducted 24-25 and 27-28 January 2022 by a Principal Ecologist (botanist), Senior Ecologist (zoologist), Ecologist (zoologist), and Graduate Ecologist (botanist).

The main purpose of the wet and dry season surveys was to field verify the vegetation communities and habitats within the Study area, to further inform the threatened species and ecological communities that occur or may occur in the Study area and to identity threatened species and or threatened species habitat within the Study area.

The flora and fauna survey methods and effort were informed by an initial desktop-based likelihood of occurrence assessment not presented herein. It targeted threatened species assessed as having a moderate or higher likelihood of occurring in the Study area, as informed by the initial desktop-based assessment and previous ecological surveys completed for the K2E Project.

Post field survey, the initial desktop-based likelihood of occurrence assessment (refer Attachment B) was updated based on the findings from field survey.

The fauna survey methods applied to the Project were limited to detection-based surveys only, with no fauna trapping undertaken. The potential areas of ecological constraint identified by the desktop assessment and field verification surveys were the focus of the flora and fauna surveys.

The methodologies for the field investigations are presented in the following sections. The survey effort is depicted on Figure 3.1.

3.2.1 Vegetation and regional ecosystems verification

The purpose of the field verification surveys was to determine the extent and type of vegetation communities and regional ecosystems within the Study area. These surveys were conducted in accordance with the *Methodology for Surveying and Mapping Vegetation Communities and Regional Ecosystems in Queensland* (Neldner et. al., 2019).

A total of 57 Quaternary level flora surveys [29 (August 2019) and 28 (January 2022)] were conducted across the Study area during the field investigations undertaken by suitably qualified ecologists / botanists, as depicted on Figure 3.1. Patches of advanced regrowth[1] vegetation were assessed using quaternary level flora surveys to confirm remnant status against benchmarks for the relevant regional ecosystems.

Quaternary-level surveys were sufficient to determine the presence/absence of the Threatened Ecological Communities (TEC), as it was evident that the field-verified regional ecosystems did not meet the key diagnostic characteristics and condition thresholds specified by the approved conservation advice for any TEC revealed by the PMST database search.

One vegetation transect (in addition to two vegetation transects in 2019) was undertaken in the Study area during the field investigations by suitably qualified ecologists / botanists, as depicted on Figure 3.1. These assessments were applied to confirm the remnant status (remnant, high value regrowth or non-remnant) of State mapped regrowth vegetation.

3.2.1.1 Field verified vegetation mapping

Field verified vegetation communities and regulated vegetation (regional ecosystems) were mapped based on the results of the field surveys, using ARC GIS Version 10.4 software, and ECW aerial images captured at a scale of 1:10,000.

3.2.2 Targeted flora surveys

Targeted searches for threatened flora species assessed as having a moderate or higher likelihood of occurring in the Study area were conducted within the Study area.

If a threatened flora species listed under the NC Act is identified in the Study area during any subsequent surveys or during pre-clearing surveys, a permit to clear application under the *Nature Conservation (Plants) Regulation 2020* will be required. A protected plant flora survey is required and was undertaken between 15 to 18 August 2022.

[1] Advanced regrowth is a term used for mature regrowth that needs quaternary data (height and cover) to confirm whether it is ‘remnant’ or ‘high value regrowth’.

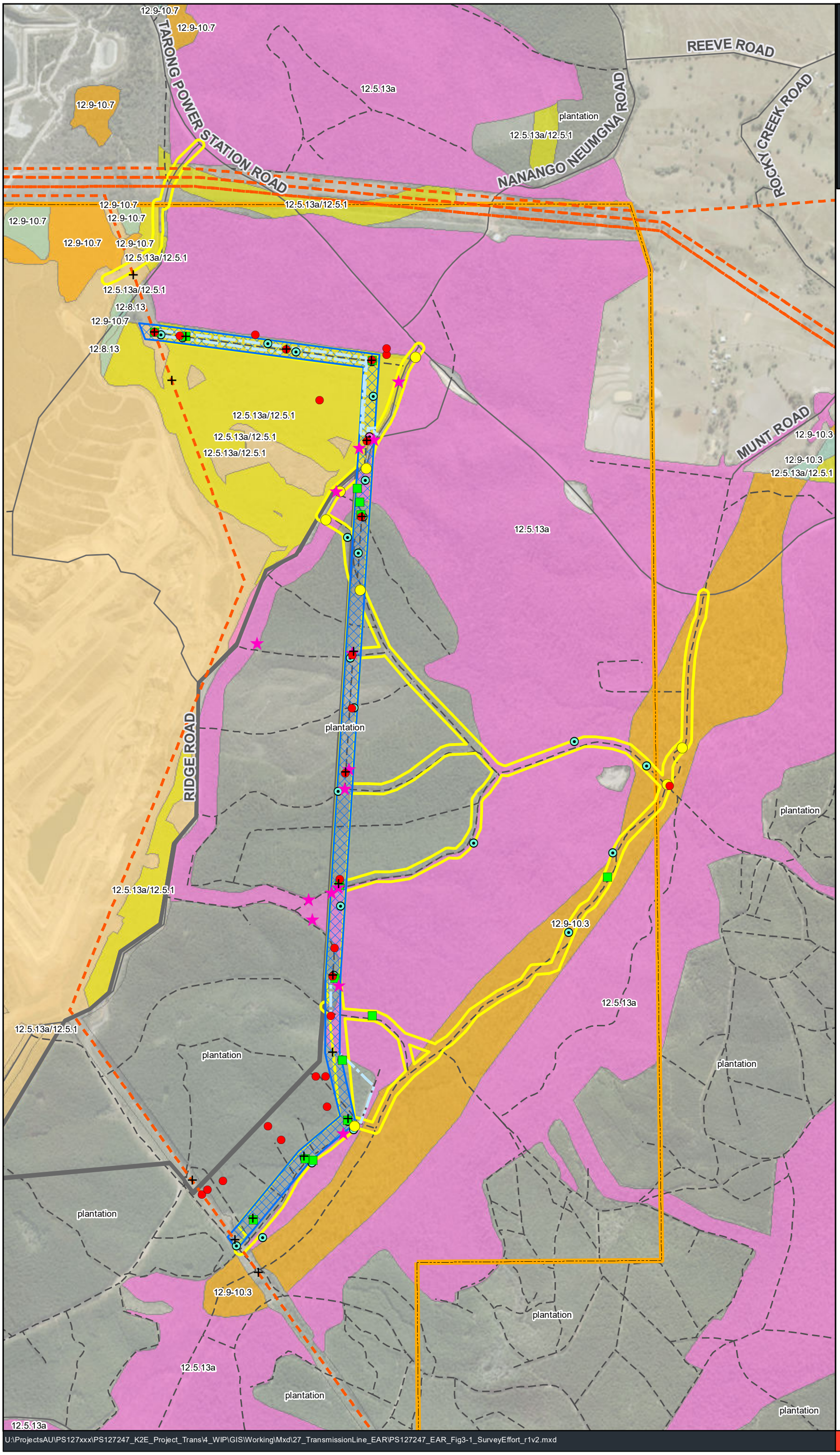

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Figure 3.1
Survey effort

Legend

- Flora Survey August 2019 Quaternary
- Proposed transmission structure locations

Fauna Survey January 2022

- Bird Survey
- Spotlight Survey
- Habitat assessment

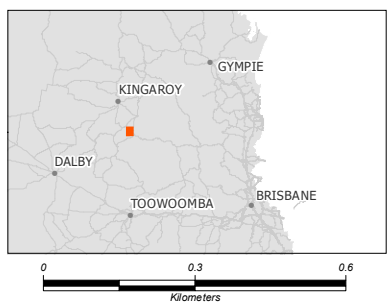
Flora Survey January 2022

- Quaternary
- Tertiary
- Existing Transmission Feeder
- Access track full clearing
- Local roads
- Forestry access tracks
- Ecology Study Area
- Approved Surface Right Area
- King 2 East Additional Surface Area
- Mining Lease (ML6674)
- Proposed Easement

Vegetation management regional ecosystem map

RULEID

- Category A or B containing endangered
- Category A or B containing of concern
- Category C or R containing endangered
- Category C or R containing of concern
- non-remnant



Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 2/12/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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3.2.3 Targeted fauna surveys

The targeted fauna surveys were performed in all habitat types within the Study area, focusing on those that are typically known to support the target threatened species. Surveys were undertaken by suitably qualified ecologists/zoologists. The survey methods and effort were developed in reference to State and Commonwealth survey guidelines to determine the level of adequate survey for the target threatened fauna species.

The targeted fauna survey methods were limited to detection-based surveys only, with no trapping undertaken. Trapping was deemed unnecessary for the threatened fauna species of potential relevance to the Study area and based upon the habitats to be impacted by the Project.

The fauna survey methods and survey effort are presented in Table 3.4 and Figure 3.1.

Table 3.4 Fauna survey effort

Method	Targeted fauna species	Survey effort
Dawn and dusk bird surveys	— Threatened and migratory birds	6 dawn surveys x 2 ecologists (total 12 person hours) 8 dusk surveys x 2 ecologists (total 16 person hours)
Active searches	— Koala (*Phascolarctos cinereus*) — Amphibians and reptiles	4 x active searches x 2 ecologists (total 4 person hours)
Spotlighting and nocturnal call playback	— Koala — Greater Glider (*Petauroides volans*) — Grey-headed Flying-fox (*Pteropus poliocephalus*) — Yellow-bellied Glider (*Petaurus australis australis*) — Spotted-tail Quoll (*Dasyurus maculatus maculatus*)	8 x evening/night surveys over 3 nights x 2 ecologists (total 16 person hours)
Habitat Assessments	Total of 17 survey sites (including each tower location), opportunistic searches for fauna presence and inferential evidence (i.e. scats, scratch marks, tracks and other traces)	

3.2.4 Habitat assessments

Basic observational habitat assessments were conducted during the field investigations. The purpose was to identify the different habitat types that occur within and adjacent to the Study area, and to determine the presence/absence of micro-habitat features within each habitat type, including but not limited to:

- hollow bearing trees and stags
- arboreal termite mounds
- fallen woody debris
- decorticating bark
- coarse and fine leaf litter
- native grasses
- bare ground
- soil cracks
- surface rock and rocky outcrops.

The habitat assessments also identified any evidence of habitat degradation, such as grazing, weed infestations and soil erosion.

3.2.5 Animal breeding places

Targeted searches for animal breeding places were performed in habitats supported by the Study area, to identify animal breeding places for threatened and Least Concern (colonial breeder) fauna species. Animal breeding places can include but are not limited to:

- hollow bearing trees and stag trees that may support species, such as Greater Glider, Yellow-bellied Glider and colonial breeder microbat species
- culverts, caves or other structures that may support colonial breeder species, such as microbats, swallows, fairy martins
- habitat for Short-beaked Echidna, such as presence of food sources including termites, termite mounds, and ant nests, as well as burrows, hollow logs and log piles for shelter.

4 Desktop findings

Results of the desktop searches that relevant to the terrestrial fauna and flora survey and ecological assessment are presented below.

4.1 Matters of National Environmental Significance

The MNES of relevance to the Study area has been informed by the EPBC Act PMST data search results, as presented in Table 4.1. The complete PMST is presented in Attachment A.

Table 4.1 Summary of listed MNES within Study area

MNES	Relevance to the Project
World Heritage properties	No: World Heritage properties are not identified as occurring in the Study area or Locality.
National Heritage places	No: National Heritage places are not identified as occurring in the Study area or Locality.
Wetlands of International Importance (Listed under the Ramsar Convention)	No. Moreton Bay wetland of international importance, listed under the Ramsar Convention, is located downstream of the Study area, and does not occur in the Study area or Locality.
Threatened Ecological Communities (TECs)	**Yes:** The Protected Matters Search Tool returned five TECs, listed under the EPBC Act, as having potential to occur within 10 km of the Study area (refer to Section 4.1.1).
Threatened Flora Species	**Yes:** Database searches returned 23 flora species, listed as threatened under the EPBC Act, as having been previously recorded or predicted to occur within 10 km of the Study area.
Threatened and/or Migratory Fauna Species	**Yes:** Database searches returned 32 fauna species listed as threatened and 15 fauna species listed as migratory under the EPBC Act, as having been previously recorded or predicted to occur within 10 km of the Study area.
Commonwealth Marine Area	No: The Study area is located inland, approximately 120 km west of Commonwealth Marine Areas, and therefore further assessment of this matter is not required.
Great Barrier Reef Marine Park	No: The Study area is located inland, approximately 300 km south-west of the southern extent of the Great Barrier Reef Marine Park, and therefore further assessment of this matter is not required.
Nuclear Action (including uranium mines)	No: The Project does not constitute a nuclear action.
A water resource, in relation to coal seam gas development and large coal mining development	No: The Project is not a coal seam gas or coal mining development.

4.1.1 Threatened ecological communities

The Protected Matters Search Tool (refer Attachment A) returned the five TECs, listed under the EPBC Act, as having potential to occur within 10 km of the Project, as presented in Table 4.2.

The likelihood for each TEC to occur within the Project footprint was assessed by identifying the State Government regional ecosystems mapped within the Study area along with the potential for these regional ecosystems to meet the definition of each respective TEC (refer Table 4.2). Based on this assessment it was determined that all five TECs have a low potential of occurrence within the Project footprint.

Table 4.2 Summary of likelihood of occurrence for TECs listed under the EPBC Act

TEC	EPBC Act status	Likelihood of occurrence
Coastal Swamp Sclerophyll Forrest of New South Wales and South East Queensland	Endangered	**Low** The Study area is located above the coastal plains and does not contain any regional ecosystems representative of this TEC.
Lowland Rainforest of Subtropical Australia	Critically Endangered	**Low** Remnant patches of regional ecosystem 12.5.13c mapped by the Queensland Herbarium within the Study area can be considered part of the national Lowland Rainforest ecological community where the requirements of the Description, Key diagnostic characteristics and Condition thresholds listed in the Listing Advice are met (Threatened Species Scientific Committee (TSSC), 2011). Based on desktop findings, the remnant patches of regional ecosystem 12.5.13c fail to meet key diagnostic characteristics of the Lowland Subtropical Rainforest TEC including: — the community receives well below 1,300 mm of rainfall annually at 789.8 mm; and — the community was recorded above 300 m at 550 m in altitude.
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	**Low** The Study area does not contain any native grassland vegetation communities or regional ecosystems that could constitute the definition of this TEC.
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	**Low** None of the regional ecosystems mapped within the Study area contain Poplar Box (*Eucalyptus populnea*). Therefore, this TEC is not present.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	**Low** The only regional ecosystem recognised as potentially constituting this TEC in the SEQ bioregion is RE 12.8.16, which occurs only at the far western edge of the bioregion (TSSC, 2011b). This regional ecosystem is not present in the Study area.

4.2 Matters of State Environmental Significance

A review of the database search of the Queensland Government's Environmental Report for MSES and interrogation of Queensland Globe MSES mapping layers identified the MSES of relevance to the Study area and Project footprint, as listed in Table 4.3.

The State mapped regulated vegetation (regional ecosystems) is presented on Figure 4.1, with other relevant State mapped MSES layers depicted on Figure 4.2.

Table 4.3 State mapped MSES within the Study area and Project footprint

Matter	Study area	Project footprint
Regulated Vegetation		
Category B regulated vegetation (Endangered and Of Concern remnant regional ecosystems) comprising:		
Endangered regional ecosystem 12.5.13	Yes	No
Of Concern regional ecosystem 12.9-10.3	Yes	Yes
Category C high value regrowth (HVR) regulated vegetation comprising Endangered HVR regional ecosystem 12.5.13/12.5.1	Yes	Yes
Category R Great Barrier Reef (GBR) riverine vegetation comprising Endangered HVR regional ecosystem 12.5.13/12.5.1	Yes	Yes
Essential habitat comprising:		
Black-breasted Button-quail (EH: 1092)	Yes	Yes
Greater Glider (EH: 848)	Yes	Yes
Haloragis exalata subsp. *velutina (EH: 12163)*	Yes	No
Picris conyzoides (EH: 7131)	Yes	No
Rhodamnia dumicola (EH: 13406)	Yes	Yes
Regulated remnant vegetation intersecting a watercourse on the vegetation management watercourse map:		
Remnant vegetation intersecting within a 10 m buffer distance of a stream order 1 or 2	Yes	Yes
Remnant vegetation intersecting within a 10 m buffer distance of a stream order 3 or 4	Yes	Yes
Protected Wildlife Habitat		
Wildlife habitat for vulnerable species Black-breasted Button-quail	Yes	Yes
Wildlife habitat for special least concern animal, Short-beaked Echidna	Yes	Yes

4.3 Protected plants

Regulated vegetation within the Study area is mapped as a high-risk area on the flora survey trigger map, with the forestry plantations excluded, as shown on Figure 4.3. Five threatened flora species listed under the NC Act have been assessed as having a moderate or higher likelihood of occurring in the Study area (refer Attachment B).

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Figure 4.1
State mapped regulated vegetation (regional ecosystems)

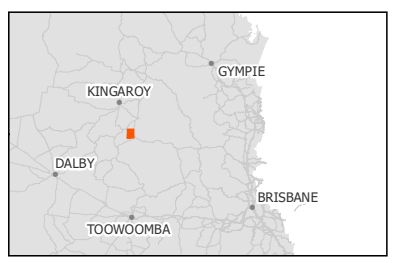
TARONG POWER STATION ROAD
REEVE ROAD
NANANGO NEUMGNA ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD
Yarraman State Forest
1030-STR-9008
1030-STR-9009
1030-STR-9018
1030-STR-9019
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D10A
D11
D13
D14
D15
12.5.13a/12.5.1
12.5.13a
12.9-10.7
12.8.13
12.9-10.3

Legend

- Proposed transmission structure locations
- Transmission structure footprint
- Existing Transmission Feeder
- Access track full clearing
- Local roads
- Forestry access tracks
- Ecology Study Area
- Yarraman State Forest
- Approved Surface Right Area
- Mining Lease (ML6674)

Vegetation management regional ecosystem map

- Category A or B area containing endangered
- Category A or B area containing of concern
- Category C or R area containing endangered
- Category C or R area containing of concern
- Non-remnant
- Proposed Easement
- King 2 East Additional Surface Area



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Kilometers

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 1/07/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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Ecological Assessment Report

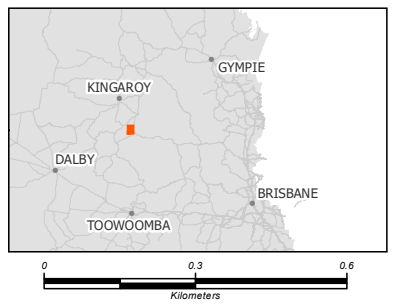
Figure 4.2
MSES layers of relevance to the Study area (regional ecosystems)

TARONG POWER STATION ROAD
NANANGO NEUMGNA ROAD
REEVE ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD

1030-STR-9008
D1
D2
D3
D4
1030-STR-9009
D5
D6
D7
D8
D9
D10
D10A
D11
D13
1030-STR-9018
D14
D15
1030-STR-9019

Legend

- Proposed transmission structure locations
- Transmission structure footprint
- Access track full clearing
- Existing Transmission Feeder
- Local roads
- Forestry access tracks
- Ecology Study Area
- Regulated remnant vegetation intersecting a watercourse
- Essential habitat
- Protected wildlife habitat
- King 2 East Additional Surface
- Mining Lease (ML6674)
- Approved Surface Right Area
- Proposed Easement



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Data sources: - DNRME, TMR, Translink, Geoscience Australia

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TARONG POWER STATION ROAD
REEVE ROAD
NANANGO NEUMGNA ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD
1030-STR-9008
D1
D2
D3
D4
1030-STR-9009
D5
D6
D7
D8
D9
D10
D10A
D11
D13
1030-STR-9018
D14
D15
1030-STR-9019

wsp

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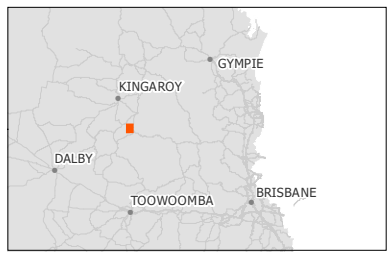
Transmission Line Relocation
Ecological Assessment Report

Figure 4.3
High-risk flora survey trigger mapping for protected plants

Legend

- Proposed transmission structure locations
- Transmission structure footprint
- Access track full clearing
- Existing Transmission Feeder
- Ecology Study
- High-risk flora survey trigger mapping
- Approved Surface Right
- Mining Lease (ML6674)
- King 2 East Additional Surface Area
- Proposed Easement
- Local roads
- Forestry access tracks



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Kilometers

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

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Data sources: - DNRME, TMR, Translink, Geoscience Australia

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5 Field survey results

The results of the field verification and flora and fauna surveys has informed the likelihood of occurrence of MNES and/or MSES and enables an understanding of the ecological constraints and potential impacts to MNES and MSES that could be associated with the Project.

The results of the field verification and flora and fauna surveys, and likelihood of occurrence for relevant matters is presented in the following sections.

5.1 Field verified vegetation communities and regional ecosystems

The results of the field verification surveys of vegetation communities and regulated vegetation (regional ecosystems) within the approximately 52.5 ha Study area are separated into the transmission line easement of approximately 27.4 ha and proposed access tracks with a nominal 10 m buffer either side of the access tracks of approximately 25.1 ha.

Field verified vegetation communities and regional ecosystems recorded within the Study area have been mapped at a scale of 1:5,000.

Most of the transmission line easement field verified non-remnant vegetation in the form of Hoop Pine (*Araucaria cunninghamii*) and Eucalypt plantations, and areas of remnant and high value regrowth (HVR) regulated vegetation, listed under the VM Act.

A summary of the field verified vegetation communities and regional ecosystems within the Study area is presented in Table 5.1. The location and extent of the field verified vegetation communities is presented on Figure 5.1.

Table 5.1 Field verified vegetation communities and regional ecosystems in the Study area

Vegetation Community	Corresponding Regional Ecosystem	EPBC Act Status	VM Act Status	Extent (ha) in Study area		Totals (ha)
				Transmission line easement	Access tracks	
Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces	12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	-	Endangered	3.6	4.8	8.4
Mixed *Acacia spp*. high value regrowth with vine thicket species on deeply weathered Tertiary surfaces	Regrowth 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	-	Endangered (HVR)	4.2	1.5	5.7
Mixed *Acacia spp*. high value regrowth with vine thicket species on metasediments	Regrowth 12.11.11 - Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics; usually southern half of bioregion	-	Least Concern (HVR)	3.1	-	3.1

Vegetation Community	Corresponding Regional Ecosystem	EPBC Act Status	VM Act Status	Extent (ha) in Study area		Totals (ha)
				Transmission line easement	Access tracks	
Remnant *Eucalyptus moluccana* mixed open forest on metasediments	12.11.18 - *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics	-	Least Concern	-	9.5	9.5
Hoop pine plantation	Non-remnant	-	n/a	13.1	5.3	18.4
Mixed Hardwood plantation	Non-remnant	-	n/a	2.2	0.5	2.7
Non-remnant cleared mixed grassland, regrowth and tracks	Non-remnant	-	n/a	1.2	7.6	8.8
Totals				**27.4**	**29.2**	**56.6**

Inconsistencies were identified between the Queensland Herbarium mapped extent of regional ecosystems (refer Figure 4.1) and the field verified regional ecosystems within the Study area (refer Figure 5.1). The main inconsistencies were associated with:

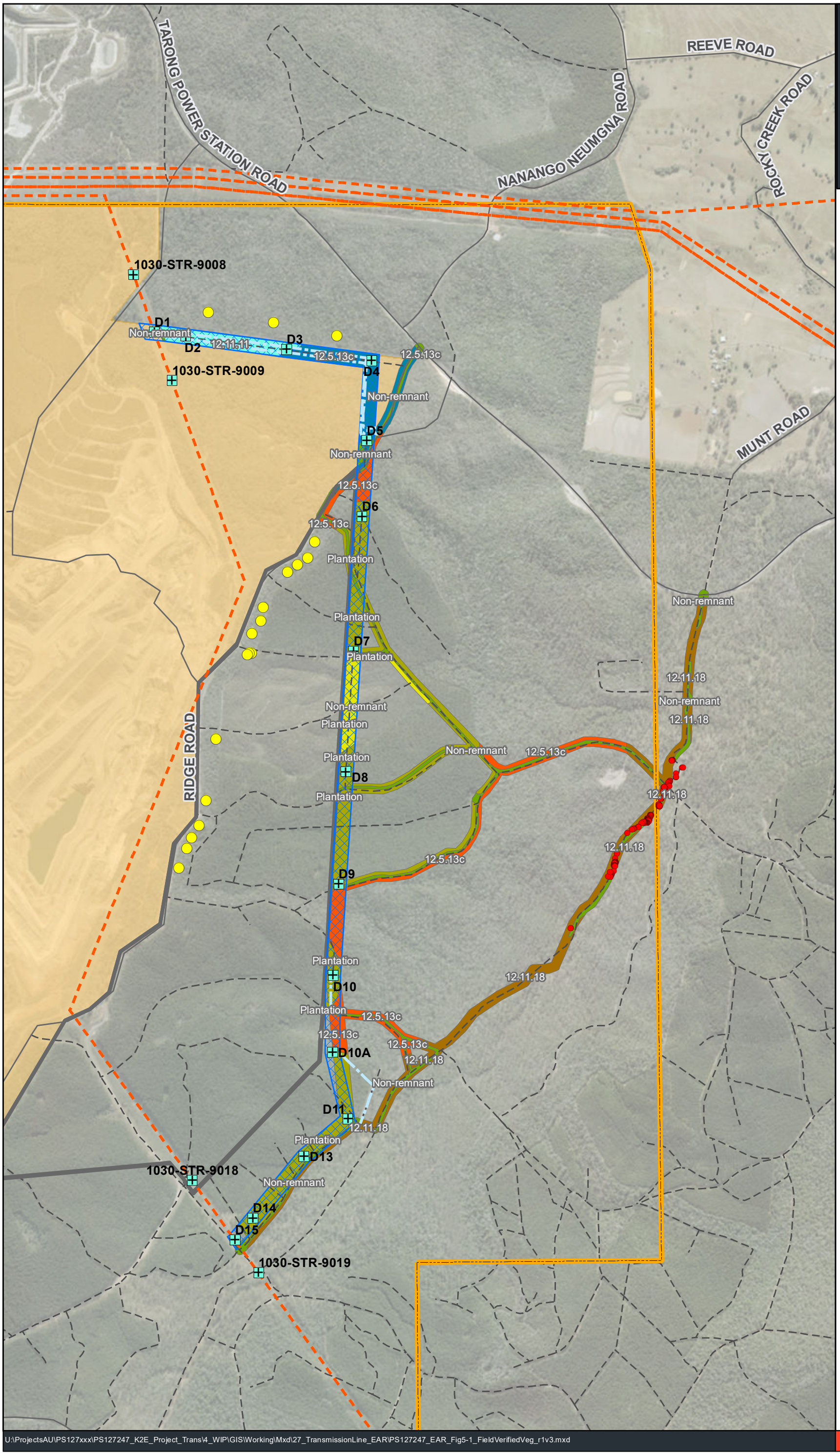
- the difference between mapped extents of regional ecosystems 12.5.13a and 12.5.13c
- the incorrect allocation of regional ecosystem 12.9-10.3, which was field verified as 12.11.18
- the variation of scale between the regulated vegetation mapping (approximately 1:50,000) and the detailed scale of vegetation mapping prepared for the Study area (1:5,000 scale).

The inconsistencies between the State mapping and field verified mapping of regional ecosystems have been corrected through the preparation of the field verified mapping (refer Figure 5.1).

Field verified regional ecosystems within the Study area were found to comprise mainly 12.5.13c, as opposed to regional ecosystem 12.5.13a as mapped by the Queensland Herbarium. The major differences between these two sub regional ecosystems relates to the overall structure and height, as well as the soil type and topographic position of the regional ecosystems. Regional ecosystem 12.5.13c has an ecological dominant layer which is low (<10 m) with scattered emergent trees and occurs on rocky shallow soils and ridgelines. On the other hand, regional ecosystem 12.5.13a is taller with multiple tree layers and occurs on deeper soils in situations with lower topographic relief (i.e. lower slopes and gullies).

Further inconsistencies were identified between State mapped regional ecosystems and the field verified regional ecosystems on the lower slopes of the Study area. The vegetation containing proposed tower locations D1 to D5 are State mapped as HVR regional ecosystem 12.5.13a - Microphyll to notophyll vine forest +/- *Araucaria cunninghamii* and regional ecosystem 12.5.1 - Open forest complex with *Corymbia citriodora* subsp. *variegata* on subcoastal remnant Tertiary surfaces. The vegetation was dominated by *Acacia spp.* regrowth with vine thicket species in the understory.

Tower locations D4 and D5 were field verified as HVR regional ecosystem 12.5.13c, due to the topographic position and soil type, in addition to the regional ecosystem attribution of 12.5.13c within the adjacent remnant vine thicket communities.



Meandu Mine
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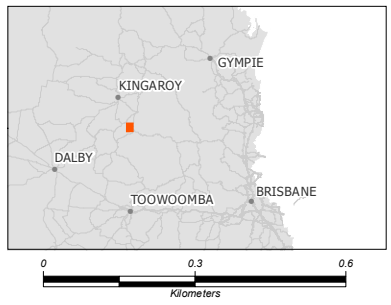
Figure 5.1
Field verified vegetation communities

Legend

- Haloragis exalata subsp velutina
- Rhodamnia dumicola records
- Proposed transmission structure locations
- Transmission structure footprint
- Access track full clearing
- Local roads
- Forestry access tracks
- Existing Transmission Feeder
- Mining Lease (ML6674)
- Approved Surface Right Area
- Proposed Easement
- King 2 East Additional Surface Area

Field Verified Vegetation Community

- Mixed Acacia spp. high value regrowth with vine thicket species on LZ5
- Mixed Acacia spp. high value regrowth with vine thicket species on metasediments
- Non-remnant cleared mixed grassland, regrowth and tracks
- Non-remnant hardwood plantation
- Non-remnant hoop pine plantation
- Remnant Eucalyptus moluccana mixed open forest on metasediments
- Remnant low microphyll vine forest and semi-evergreen vine thicket



Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 2/12/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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Field surveys confirmed the presence of Land Zone 11 associated with exposed areas of surface rock and shallow soils on slopes with underlying interbedded volcanics supporting HVR regional ecosystem 12.11.11 at tower locations D2 and D3 and regional ecosystem 12.11.18 on the lower slopes of the western access tracks (refer Figure 5.1). The patch of vegetation southeast of towers D11, D13 and D14 within the proposed access track buffer was also State mapped as regional ecosystem 12.5.13a, however it was field verified as 12.11.18. This patch is outside of the proposed transmission line easement, however, may be impacted if the access track requires widening.

Vegetation along the existing access tracks is predominantly comprised of field verified non-remnant cleared tracks, surrounded by areas of remnant regulated vegetation listed under the VM Act including *Eucalyptus moluccana* mixed open forest and Microphyll to notophyll vine forest.

Full vegetation communities' descriptions are presented in Table 5.2 to Table 5.8.

Table 5.2 Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces

Vegetation community description	**Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces**	
Regional ecosystem (RE) code	12.5.13c	
Remnant status	Remnant	
RE VM Class	Endangered	
RE Biodiversity Status	Endangered	
Vegetation structure formation	Low Closed Forest	
Ecological Dominant layer (EDL)	Tree 1	
EDL median height (range)	12 m (8-15 m)	
EDL crown cover class	70–90%	
Landform	Ridges and steep slopes	
Soil type	Shallow, rocky soils with red/brown earth	
RE short description	Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	
EPBC Act TEC	No	
Emergent layer dominant species	*Flindersia australis, Flindersia collina, Vitex lignum-vitae, Brachychiton australis*	
Tree 1 layer dominant species	*Bursaria incana, Cupaniopsis parviflora, Gossia bidwillii, Croton insularis*	
Shrub 1 layer dominant species	*Alyxia ruscifolia, Pittosporum multiflora, Lantana camara**	
Shrub 2 layer dominant species	*Carissa ovata, Solanum* spp.	
Ground layer dominant species	*Austrostipa ramosissima*	
Invasive plants (Biosecurity Act)	*Lantana camara**	
Disturbance notes	Edge effect	
Habitat or microhabitat features	Leaf litter providing foraging habitat for Black-breasted Button-quail. Potential *Cossinia australiana* habitat	

Key: * indicates restricted invasive plant under the Biosecurity Act

Table 5.3 Mixed *Acacia* spp. high value regrowth with vine thicket species on deeply weathered Tertiary surfaces

Vegetation community description	**Mixed *Acacia* spp. high value regrowth with vine thicket species on deeply weathered Tertiary surfaces**	
Regional ecosystem (RE) code	12.5.13c	
Remnant status	Regrowth	
RE VM Class	Endangered	
RE Biodiversity Status	Endangered	
Vegetation structure formation	Low Woodland	
Ecological Dominant layer (EDL)	Tree 1	
EDL median height (range)	12 m (10-15 m)	
EDL crown cover class	30-50%	
Landform	Ridges and steep slopes	
Soil type	Shallow, rocky soils with red/brown earth	
RE short description	Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	
EPBC Act TEC	No	
Emergent layer dominant species	N/A	
Tree 1 layer dominant species	*Acacia disparrima subsp. disparrima*	
Tree 2 layer dominant species	*Cupaniopsis parvifolia, Flindersia collina, Opuntia tomentosa**	
Shrub 1 layer dominant species	*Lantana camara*, Opuntia tomentosa*, Alyxia ruscifolia,*	
Ground layer dominant species	*Austrostipa ramosissima, Tetragonia tetragonoides*	
Invasive plants (Biosecurity Act)	*Lantana camara*, Opuntia tomentosa**	
Disturbance notes	Edge effect, historically cleared, dense shrub layer of *Lantana camara,* very mature *Opuntia tomentosa* individuals	
Habitat or microhabitat features	Leaf litter providing foraging habitat for Black-breasted Button-quail	

Key: * indicates restricted invasive plant under the Biosecurity Act.

Table 5.4 Mixed Acacia spp. high value regrowth with vine thicket species on metasediments

Vegetation community description	**Mixed Acacia spp. high value regrowth with vine thicket species on metasediments**	
Regional ecosystem (RE) code	12.11.11	
Remnant status	HVR	
RE VM Class	Least concern	
RE Biodiversity Status	No concern at present	
Vegetation structure formation	Open Forest	
Ecological Dominant layer (EDL)	Tree 1	
EDL height (range)	14 m (12-17 m)	
EDL crown cover class	50 - 60%	
Landform	Lower slopes	
Soil type	Sandy loam	
Geology	Metasediments	
RE short description	Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics, usually in southern half of bioregion	
EPBC Act TEC	No	
Emergent layer dominant species	N/A	
Tree 1 layer dominant species	*Acacia disparrima subsp. disparrima*	
Tree 2 layer dominant species	*Alphitonia excelsa, Opuntia tomentosa*, Grevillea robusta, Alchornea ilicifolia*	
Shrub 1 layer dominant species	*Lantana camara*, Croton insularis, Opuntia tomentosa**	
Ground layer dominant species	*Solanum seaforthianum**	
Invasive plants (Biosecurity Act)	*Lantana camara*, Opuntia tomentosa**	
Disturbance notes	Edge effects, historical clearing, dense shrub layer of *Lantana camara,* very mature *Opuntia tomentosa* individuals	
Habitat or microhabitat features	Leaf litter providing foraging habitat for Black-breasted Button-quail	

Key: * indicates restricted invasive plant under the Biosecurity Act.

Table 5.5 *Eucalyptus moluccana* mixed open forest on metasediments

Vegetation community description	***Eucalyptus moluccana* mixed open forest on metasediments**	
Regional ecosystem (RE) code	12.11.18	
Remnant status	Remnant	
RE VM Class	Least Concern	
RE Biodiversity Status	No Concern at Present	
Vegetation structure formation	Tall Open Forest	
Ecological Dominant layer (EDL)	T1	
EDL height (range)	28 m (23 – 35 m)	
EDL crown cover class	40-70%	
Landform	Low hills	
Soil type	Brown clays	
Geology	Metasediments	
RE short description	*Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics	
EPBC Act TEC	N/A	
Emergent layer dominant species	N/A	
Tree 1 layer dominant species	*Eucalyptus moluccana, Angophora subvelutina*	
Tree 2 layer dominant species	*Angophora subvelutina*	
Shrub 1 layer dominant species	*Acacia disparrima subsp. disparrima, Lantana camara**	
Ground layer dominant species	*Tetragonia tetragonoides, Cymbopogon refractus, Gahnia aspera, Oplismenus aemulus, Pimelea neoanglica*	
Invasive plants (Biosecurity Act)	*Lantana camara*, Bryophyllum delagoense *, Opuntia tomentosa**	
Disturbance notes	Dense shrub layer of *Lantana camara*	
Habitat or microhabitat features	Hollow bearing trees, arboreal termitaria, Koala habitat trees.	

Key: * indicates restricted invasive plant under the Biosecurity Act.

Table 5.6 Hoop pine plantation with *Lantana camara** understorey and scattered *Acacia* spp. regrowth

Vegetation community description	**Hoop pine plantation with *Lantana camara** understorey and scattered *Acacia* spp. regrowth**	
Regional ecosystem (RE) code	n/a	
Remnant status	Non-remnant	
RE VM Class	n/a	
RE Biodiversity Status	n/a	
Vegetation structure formation	Tall Closed Forest	
Ecological Dominant layer (EDL)	Tree 1	
EDL height (range)	15-35 m	
EDL crown cover class	40-90%	
Landform	Hills, upper slope, mid slope	
Soil type	Sandy loam, red/brown earth (Ferrosol)	
Geology	Deeply weathered siltstone, sandstone, quartzite	
RE short description	n/a	
EPBC Act Threatened ecological community type	n/a	
Emergent layer dominant species	n/a	
Tree 1 layer dominant species	*Araucaria cunninghamii*	
Tree 2 and 3 layer dominant species	*Acacia disparrima subsp. disparrima, Cupaniopsis parviflora, Croton insularis*	
Shrub layer dominant species	*Lantana camara**	
Ground layer dominant species	*Cyperus gracilis, Oplismenus aemulus*	
Invasive plants (Biosecurity Act)	*Lantana camara**	
Disturbance notes	Previously cleared, plantation, dense shrub layer of *Lantana camara*	
Habitat or microhabitat features	Leaf litter and fallen woody debris	

Key: * indicates restricted invasive plant under the Biosecurity Act.

Table 5.7 Mixed hardwood plantation with *Lantana camara** understorey and scattered *Acacia* spp. regrowth

Vegetation community description	**Mixed hardwood plantation with *Lantana camara** understorey and scattered *Acacia* spp. regrowth**	
Regional ecosystem (RE) code	n/a	
Remnant status	Non-remnant	
RE VM Class	n/a	
RE Biodiversity Status	n/a	
Vegetation structure formation	Low Woodland	
Ecological Dominant layer (EDL)	T1	
EDL height (range)	8-12m (10m)	
EDL crown cover class	20-25%	
Landform	Hills, upper slope, mid slope	
Soil type	Sandy loam, red/brown earth (Ferrosol)	
Geology	Deeply weathered siltstone, sandstone, quartzite	
RE short description	n/a	
EPBC Act TEC	n/a	
Emergent layer dominant species	n/a	
Tree 1 layer dominant species	*Corymbia citriodora* subsp. *variegata*	
Shrub 1 layer dominant species	*Lantana camara*, Opuntia tomentosa*, Acacia disparrima subsp. disparrima*	
Ground layer dominant species	*Megathyrsus maximus var. pubiglumis*, Tetragonia tetragonoides*	
Invasive plants (Biosecurity Act)	*Lantana camara*, Opuntia tomentosa**	
Disturbance notes	Previously cleared, plantation	
Habitat or microhabitat features	No obvious habitat features	

Key: * indicates restricted invasive plant under the Biosecurity Act.

Table 5.8 Non-remnant cleared mixed grassland, regrowth and tracks

Vegetation community description	**Non-remnant cleared mixed grassland, regrowth and tracks**	
Regional ecosystem (RE) code	n/a	
Remnant status	Non-remnant	
RE VM Class	n/a	
RE Biodiversity Status	n/a	
Vegetation structure formation	Open Grassland	
Ecological Dominant layer (EDL)	Ground	
EDL height (range)	0–2 m	
EDL crown cover class	50%	
Landform	Hills, upper slope, mid slope	
Soil type	Sandy loam, red/brown earth (Ferrosol)	
Geology	Deeply weathered siltstone, sandstone, quartzite	
RE short description	n/a	
EPBC Act TEC	n/a	
Emergent layer dominant species	n/a	
Tree 1 layer dominant species	*n/a*	
Shrub 1 layer dominant species	*n/a*	
Shrub 2 layer dominant species	*Lantana camara**	
Ground layer dominant species	*Chloris gayana*, Austrostipa ramosissima, Melinis repens*	
Invasive plants (Biosecurity Act)	*Lantana camara*,*	
Disturbance notes	Cleared, high cover of exotics.	
Habitat or microhabitat features	No obvious habitat features	

Key: * indicates restricted invasive plant under the Biosecurity Act.

5.1.1 Threatened ecological communities

Due the elevation and average rainfall of the Study area, none of the field verified regional ecosystems can be considered the Lowland Rainforest of Subtropical Australia threatened ecological community (TEC), listed as Critically Endangered under the EPBC Act.

The Lowland Rainforest of Subtropical Australia TEC was returned from database searches with potential to occur within the Study area. The field data obtained for the regional ecosystems 12.5.13c and 12.11.11 in the Study area was assessed against the key diagnostic characteristics and condition thresholds of the Lowland Rainforest of Subtropical Australia Listing Advice, the results of which are presented in Table 5.9.

Table 5.9 Key diagnostic characteristics within the Listing Advice for Lowland Rainforest of Subtropical Australia

Key diagnostics characteristics	Assessment against key diagnostic characteristics
The ecological community generally occurs at an altitude less than 300 m above sea level.	All vegetation within the K2E ASA is >500 m altitude.
The ecological community typically occurs in areas with high annual rainfall (>1,300 mm).	The average annual rainfall for the area is 788 mm.
The structure of the ecological community is typically a tall (20 m–30 m) closed forest, often with multiple canopy layers.	Regional ecosystems 12.5.13c and 12.11.11 within the Study area lacked the typical tall (20–30 m) closed forest characteristics associated with the TEC.
Patches of the ecological community typically have high species richness (at least 30 woody species from Appendix A) (Threatened Species Scientific Committee (TSSC, 2011).	BioCondition site data that was collected for the K2E Project revealed that the regional ecosystems 12.5.13c and 12.11.11 within the Study area did not contain the necessary 30 woody species from Appendix A of the listing advice.

Further to the assessment in Table 5.9, the Lowland Rainforest of Subtropical Australia TEC is generally not described as dry rainforest but may include intergrades with dry rainforest and other rainforest types that meet the key diagnostic characteristics.

Based on the results of the flora surveys it is confirmed that the Lowland Rainforest of Subtropical Australia TEC is not present within the Study area or Project footprint. No other TECs listed under the EPBC Act have potential to occur in the Study area or Project footprint. Therefore, no EPBC Act-listed TECs are at risk from Project-related impacts.

5.2 Flora species

A total of 103 flora species were recorded within the Study area during field surveys for the Project (refer Attachment C).

During the August 2019 survey, one threatened flora species, *Haloragis exalata* subsp. *velutina*, listed as Vulnerable under the EPBC Act and NC Act, was recorded. The population of *H. e. velutina* was recorded within drainage lines and adjacent to existing tracks within habitat associated with the mixed *Eucalyptus moluccana* woodland on interbedded volcanics vegetation community within the Study area, which aligns with regional ecosystem 12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics. The records of *Haloragis exalata* subsp. *velutina* from the field surveys are presented on Figure 5.2.

During the January 2022 survey, targeted surveys were undertaken for the previously recorded population of *H. e. velutina*, however the species was not recorded, which could be due to seasonal conditions. The areas where the *H. e. velutina* were previously recorded now consist of dense *Lantana camara* infestations in the understory, which may be preventing the recruitment and/or survival of the species. Effects of seasonality also may be having an impact on the population, in addition to periods of drought and impacts to plant pollinators. Despite the absence of this species during these field surveys, the vegetation community is still considered supporting habitat. Future surveys in areas where *H. e. velutina* were previously in 2019, may reveal the species as still present.

No other threatened flora species listed under the EPBC Act and/or NC Act were recorded within the Study area during the field surveys for the Project. The likelihood of occurrence assessment based on field survey findings identified five threatened flora species as recorded or assessed as likely to occur within the Study area, as presented in Table 5.10.

As the Project intersects the high risk protected plants trigger area, a protected plants flora survey is required within Study areas and a 100 m buffer to the extent of the high-risk area. This survey took place between 15 to 19 August 2022. *Rhodamnia dumicola* (listed as Endangered under the NC Act) was recorded from adjacent to the Study area, within semi-evergreen vine thicket and dry rainforest habitat during the protected plant flora survey (refer Figure 5.2). While, not recorded within the Project footprint and not directly impacted by the Project, it was recorded within the clearing buffer zone, requiring a Protected Plant Clearing Permit under the NC Act.

Table 5.10 Threatened flora with high or moderate likelihood of occurrence within Study area

Species name	Common name	EPBC Act	NC Act	Likelihood of occurrence	Supporting habitat
Haloragis exalata subsp. *velutina*	Tall velvet sea berry	V	V	**Recorded** Recorded during August 2019 surveys (refer Figure 5.2).	12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics
Rhodamnia dumicola	Rib-fruited Malletwood		CE	**Moderate** Recorded from within RE12.5.13c during surveys undertaken for the K2E Project. Recorded from outside the Project footprint in RE12.11.11 and RE12.5.13c during protected plant flora survey (refer Figure 5.2).	12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*
Cossinia australiana	-	E	E	**Moderate** Not recorded during August 2019 or January 2022 surveys	12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*
Picris conyzoides	-	-	V	**Moderate** Not recorded during August 2019 or January 2022 surveys	12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics
Rhaponticum australe	Austral Cornflower	V	V	**Moderate** Not recorded during August 2019 or January 2022 surveys	12.11.18 – *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics
Key: Endangered (E), Vulnerable (V)					

wsp

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Figure 5.2
Threatened species recorded during field surveys

TARONG POWER STATION ROAD
NANANGO NEUMGNA ROAD
REEVE ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD
1030-STR-9008
D1
D2
D3
1030-STR-9009
D4
D5
D6
D7
D8
D9
D10
D10A
D11
D13
1030-STR-9018
D14
D15
1030-STR-9019

Legend

- Haloragis exalata subsp velutina
- Rhodamnia dumicola records
- Proposed transmission structure locations
- Transmission structure footprint
- Access track full clearing
- Local roads
- Forestry access tracks
- Ecology Study Area
- Existing Transmission Feeder
- King 2 East Additional Surface Area
- Mining Lease (ML6674)
- Access track full clearing
- Approved Surface Right Area
- Proposed Easement

Habitat Features

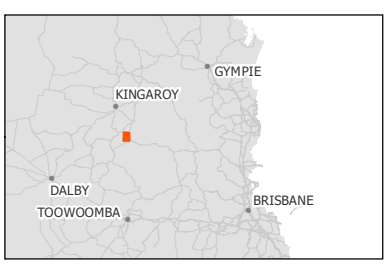
- Arboreal termitaria
- Dam
- Hollow bearing tree

Threatened species recorded

- Black-breasted Button-quail Platelets
- Black-faced Monarch
- Rufous Fantail
- Black-faced monarch
- Greater Glider
- Powerful Owl
- Rufous fantail

Species Record

- Black-breasted Button-quail



Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 9/12/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

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5.2.1 Invasive plants

Of the 15 exotic flora species recorded, four flora species were recorded within the Study area, which are listed under the *Biosecurity Act 2014* (Biosecurity Act) and/or listed as Weed on National Significance, as presented in Table 5.11.

Table 5.11 Invasive plants recorded within Study area

Scientific name	Common name	Weed of National Significance	Biosecurity Act status
Bryophyllum delagoense	Mother of Millions		Restricted invasive
Lantana camara	Lantana	Yes	Restricted invasive
Opuntia tomentosa	Velvety Tree Pear		Restricted invasive
Opuntia sp.	-		Restricted invasive

5.3 Fauna species

A total of 135 fauna species were recorded within the wider Study area during the field surveys for the transmission line project and K2E Project combined, including 6 amphibians, 88 birds, 37 mammals (including 18 microbat species) and 4 reptiles. Domesticated or feral dogs, feral cats and Red Fox were also recorded within the Study area. A complete fauna species list is presented in Attachment C.

Locations where threatened and/or migratory fauna species were recorded during field surveys, are shown on Figure 5.2.

Based on the presence of species records within the Locality and the habitats identified within the Study area, a likelihood of occurrence assessment was conducted to identify threatened fauna species with potential to occur within the Study area (including those recorded), as listed in Table 5.12. The complete likelihood of occurrence assessment is presented in Attachment B.

Table 5.12 Threatened and or migratory fauna species recorded with a moderate or high likelihood of occurrence in Study area

Species name	Common name	EPBC Act	NC Act	Likelihood of occurrence
Birds				
Cuculus optatus	Oriental Cuckoo	M	SL	**Moderate** Potential habitat present within the Study area
Falco hypoleucos	Grey Falcon	V	V	**Recorded** Recorded during field survey
Monarcha melanopsis	Black-faced Monarch	M	SL	**Recorded** Several individuals recorded during field survey
Myiagra cyanoleuca	Satin Flycatcher	M	SL	**Moderate** Potential habitat present within the Study area
Ninox strenua	Powerful Owl	-	V	**Recorded** Recorded during K2E Project field surveys (WSP, 2021)
Rhipidura rufifrons	Rufous Fantail	M	SL	**Recorded** Several individuals recorded during field survey
Symposiachrus trivirgatus	Spectacled Monarch	M	SL	**High** Suitable habitat present within the Study area

Species name	Common name	EPBC Act	NC Act	Likelihood of occurrence
Turnix melanogaster	Black-breasted Button Quail	V	V	**Recorded** Platelets observed in remnant and HVR habitats during fauna surveys for the Project. Species known from the area, with several individuals recorded during K2E Project field surveys (WSP, 2021)
Mammals				
Dasyurus maculatus maculatus	Spotted-tail Quoll	E	V	**Moderate** Suitable habitat present within the Study area
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	**Moderate** Potential habitat present within the Study area
Petaurus australis australis	Yellow-bellied Glider	V	E	**Moderate** Potential habitat present within the Study area
Petauroides volans (P. armillatus)	Greater Glider	V	E	**Recorded** Recorded during K2E Project field surveys (WSP, 2021)
Phascolarctos cinereus	Koala	E	V	**High** Suitable habitat present within the Study area
Pteropus poliocephalus	Grey-headed Flying-fox	V	-	**Moderate** Potential habitat present within the Study area
Tachyglossus aculeatus	Short-beaked Echidna	-	SL	**Recorded** Recorded during K2E Project field surveys (WSP, 2021)

Value codes: Critically Endangered (CE), Endangered (E), Vulnerable (V), Near Threatened (NT), Migratory (M), Special Least Concern (SL)

5.4 Habitat assessment

The Study area is comprised of several fauna habitat types, including softwood and hardwood plantations, remnant semi-evergreen vine thicket and dry rainforest, high value regrowth and non-remnant vegetation. A summary of field verified habitats, corresponding regional ecosystems and relevant threatened and or migratory species are presented in Table 5.13 and shown on Figure 5.3.

Table 5.13 Threatened species habitat and corresponding habitat type and regional ecosystems

Fauna habitat type	Corresponding regional ecosystem	Threatened fauna habitat	Extent (ha) in Study area		Totals
			Transmission line easement	Access tracks	
Low vine forest	Remnant 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces.	— Black-breasted Button Quail — Black-faced Monarch — Spotted-tail Quoll — Grey Falcon — Oriental Cuckoo — Powerful Owl — Rufous Fantail — Short-beaked Echidna — Spectacled Monarch — *Cossinia australiana* — *Rhodamnia dumicola*	3.6	4.8	8.4

Fauna habitat type	Corresponding regional ecosystem	Threatened fauna habitat	Extent (ha) in Study area		Totals
			Transmission line easement	Access tracks	
Regenerating Acacia and low vine forest	Regrowth 12.5.13c - Mixed *Acacia spp.* high value regrowth with vine thicket species on deeply weathered Tertiary surfaces.	— Black-breasted Button Quail (foraging only as evidenced by platelets) — Black-faced Monarch — Oriental Cuckoo — Powerful Owl (foraging) — Spectacled Monarch — Spotted-tail Quoll — Rufous Fantail — Short-beaked Echidna	4.2	1.5	8.8
	Regrowth 12.11.11 - Mixed *Acacia* spp. high value regrowth with vine thicket species on metasediments		3.1	-	
Eucalypt open forest	Remnant 12.11.18 - *Eucalyptus moluccana* mixed open forest on brown clays	— Corben's Long-eared Bat — Greater Glider — Grey Falcon — Grey-headed Flying-fox — Koala — Oriental Cuckoo — Powerful Owl — Rufous Fantail — Satin Flycatcher — Short-beaked Echidna — Yellow-bellied Glider — *Haloragis exalata* subsp. *velutina* — *Picris conyzoides* — *Rhaponticum australe*	-	9.5	9.5
Hoop pine plantation	Non-remnant	Within 50 m of remnant habitat and with the right floristic understorey of dry rainforest and vine thicket species, Hoop Pine plantation provides supplementary foraging habitat for the Black-breasted Button-quail.	13.1 (1.2 ha in 50 m buffer to remnant habitat)	5.3	18.4
Juvenile hardwood plantation	Non-remnant	Short-beaked Echidna	2.2	0.5	2.7
Exotic / native shrubby grasslands and bare earth tracks	Non-remnant	n/a	1.2	7.6	8.8
Totals			**27.4**	**29.2**	**56.6**

Meandu Mine
Transmission Line Relocation
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Figure 5.3
Habitats within the Study area

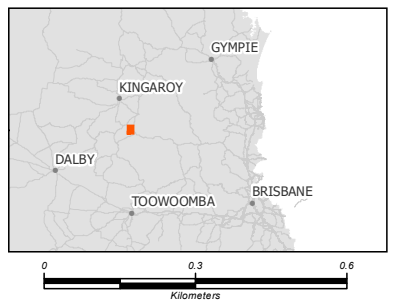
TARONG POWER STATION ROAD
REEVE ROAD
NANANGO NEUMGNA ROAD
ROCKY CREEK ROAD
MUNT ROAD
RIDGE ROAD
1030-STR-9008
1030-STR-9009
1030-STR-9018
1030-STR-9019
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D10A
D11
D13
D14
D15

Legend

- Proposed transmission structure locations
- Transmission structure footprint
- Existing Transmission Feeder
- Access track full clearing
- Local roads
- Forestry access tracks
- Ecology Study Area
- Approved Surface Right Area
- Proposed Easement
- King 2 East Additional Surface Area
- Mining Lease (ML6674)

Fauna Habitat

- Eucalypt open forest
- Exotic / native shrubby grasslands and bare earth tracks
- Hoop pine plantation
- Juvenile hardwood plantation
- Low vine forest
- Regenerating Acacia and low vine forest
- Hoop Pine Plantation Buffer (Black-breasted Button-quail foraging habitat)



Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

1:15,000 Date: 24/08/2022

Data sources: - DNRME, TMR, Translink, Geoscience Australia

C:\Users\haaxs0\OneDrive - WSP O365\PROJECTS\PS113963_Confidentail_K2EE\Mxd\27_TransmissionLine_EAR\PS127247_EAR_Fig5-3_Habitats_r1v2.mxd

5.4.1 Low vine forest

The low vine forest habitat is comprised of remnant regional ecosystem 12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*. This low vine thicket habitat, depicted on Photo 5.1, occupies approximately 8.4 ha of the Study area.

The low vine forest (RE 12.5.13c) is predominant along the elevated ridgelines upper slopes on Land Zone 5 deeply weathered remnant tertiary surfaces.

The low vine forest habitat supports most of the biodiversity recorded within the Study area. It provides a range of foraging, sheltering and breeding resources for native fauna and has a relatively high abundance of fallen woody debris and deep leaf litter. Overall, it exhibits a low number of hollow bearing trees and logs, which become more prominent in the lower elevations of the Study area.

Edge effects along the low vine thicket habitat mainly consist of densely regenerating native shrub and tree species with occurrences of the restricted invasive plant and WoNS, *Lantana camara* (Lantana). Lantana was observed as also being present in decreasing densities away from the edge effects within the low vine thicket understorey. Despite this level of weed invasion, *Cossinia australiana* has been assessed as having a moderate likelihood of occurring in the low vine thicket habitat. *Rhodamnia dumicola* has also been recorded from this habitat type adjacent to the Project footprint.

The low vine forest habitat supports a portion of the local Black-breasted Button-quail population, individuals of which have been recorded throughout this habitat type within the Study area. The Rufous Fantail, Black-faced Monarch and Short-beaked Echidna have also been recorded from this habitat type.

The Black-breasted Button-quail population residing within the Study area are highly dependent on the low vine forest habitat, as this habitat type supports all of the species' life cycle requirements (foraging, roosting, breeding and dispersal). The migratory bird species, Rufous Fantail and Black-faced Monarch are less dependent on the low vine forest habitat, as they only occupy it periodically on a seasonal basis. Nevertheless, both species use this habitat type seasonally for foraging, nesting and breeding.

The other migratory bird species that may use this habitat but have not been recorded within the Study area are the Spectacled Monarch and Oriental Cuckoo. The low vine forest habitat provides suitable seasonal foraging, nesting and breeding resources for these species.

The Short-beaked Echidna would move periodically through the low vine forest habitat when foraging and may potentially find places to burrow and raise young. The Powerful Owl, not recorded in the low vine forest habitat, may also use this habitat type when seeking prey as part of its larger home range. No large hollow bearing trees with the potential to support nesting and breeding for the Powerful Owl were observed in the low vine forest habitat.

Photo 5.1 Low vine thicket habitat

5.4.2 Regenerating Acacia and low vine forest

The regenerating Acacia and low vine forest habitat is in the early stages of successional development, whereby it is dominated by *Acacia disparrima* subsp. *disparrima* that has colonised as a pioneer species within this area of habitat that was previously cleared, as depicted on Photo 5.2. It also contains vine forest species in low densities that are regenerating in the understorey, which is substantially limited due to heavy infestations of Lantana and other weed species.

This habitat type provides potential foraging resources within the leaf litter for the Black-breasted Button-quail, as evidenced by the presence of platelets observed in the 2019 and 2022 surveys for the Project, and previous surveys conducted in 2018 for the K2E Project. These platelets are from individuals that reside in adjacent remnant vegetation, as evidenced by records on a motion sensor camera that was deployed for the K2E Project in 2018. Therefore, this habitat type provides the species with marginal supplementary foraging resources.

The foraging value, is however, substantially limited by the Lantana infestations and the low diversity of vine forest species, dominated by *Acacia disparrima* subsp. *disparrima*, which in-turn reduces leaf litter diversity and limits the diversity of decomposer invertebrate prey species for the Black-breasted Button-quail. It also provides potential foraging habitat for other threatened species detailed in Table 5.13.

Photo 5.2 Regenerating Acacia and low vine forest habitat

5.4.3 Eucalypt open forest

The Eucalypt open forest habitat is located in the eastern extent of the Study area in association with the lower slopes and hills along and surrounding Rocky Creek, where most of the proposed access tracks are located (depicted on Photo 5.3). The Eucalypt open forest is associated with the recorded populations of the threatened species, *Haloragis exalata* subsp. *velutina*, Powerful Owl and Greater Glider. It has been subject to periodic fire and has exotic species present in the understorey, in particular Lantana. Leaf litter and woody debris is present, but relatively low in abundance.

There is a relatively high abundance of large hollow bearing Eucalypts, which provide essential foraging, sheltering and breeding habitat resources for arboreal mammals and forest owls, in particular the Greater Glider and Powerful Owl, which were both recorded in this habitat type. Other forest owls were also recorded within this habitat, Sooty Owl (*Tyto tenebricosa*), Barking Owl (*Ninox connivens*) and Tawny Frogmouth (*Podargus strigoides*), all of which are not listed as species of conservation significance under Commonwealth or State legislation.

The open forest to woodland habitat supports mature *Eucalyptus biturbinata*, recognised as a secondary feed tree for the Koala on the North Coast of New South Wales, which is comparable to parts of South-East Queensland (DoPIE, 2019). The Koala was targeted during the seasonal surveys by means of spotlighting but was not recorded.

A population of *Haloragis exalata* subsp. *velutina*, which is listed as Vulnerable under the EPBC Act and NC Act, was encountered during the field surveys within the Eucalypt open forest along Rocky Creek, which is a preferred habitat for this flora species.

Photo 5.3 Eucalypt open forest habitat in Study area

5.4.4 Hoop pine plantation

The Hoop Pine plantation within the Study area is essentially a monoculture of Hoop Pine, with some native shrub and tree species present in the understorey, as depicted on Photo 5.4. Lantana dominates the edges and is present in varying densities within the understorey of the Hoop Pine. In some places the Lantana becomes very dense and difficult to traverse.

Photo 5.4 Hoop Pine plantation habitat

The Species Profile and Threats Database (SPRAT), suggests the Black-breasted Button-quail has been recorded as far as 60 m into mature Hoop Pine plantations, where it is adjacent to its preferred habitat, such as semi-evergreen vine thicket and dry rainforest (DoEE, 2019e). It also suggests that a mosaic of Lantana and emergent vine forest species appears to be important for cover for the Black-breasted Button-quail (DoEE, 2019e).

Based on visual observations noted for the adjacent K2E Project, the Hoop Pine plantation buffer zone (areas adjacent to semi-evergreen vine thicket and dry rainforest habitat where vine forest species are present in the understorey) was found to extend 20 to 50 m into the Hoop Pine from the adjacent and preferred semi-evergreen vine thicket and dry rainforest habitat. Results from the Black-breasted Button-quail scientific literature review and observations during seasonal field surveys conducted for the K2E Project, including motion camera surveys (deployed for two months) suggest that the Black-breasted Button-quail may use adjacent Hoop Pine plantation (within a 20 to 50 m buffer) as marginal temporary foraging/refuge habitat when the following conditions are met:

- the Hoop Pine is adjacent to the semi-evergreen vine thicket and dry rainforest preferred habitat for the species
- the Hoop Pine plantation is mature (approximately 50 years old) providing a closed canopy; and
- there is an understorey of vine thicket and dry rainforest species.

Within the Project footprint for the transmission line these conditions are primarily found within the Hoop Pine plantation buffer zone that occurs immediately adjacent to the semi-evergreen vine thicket and dry rainforest habitat. These plantation habitats provide minimal habitat value for the Black-breasted Button-quail that may occasionally forage therein. Since the field survey was undertaken, HQPlantations have commenced harvesting of the Hoop Pine plantation in accordance with their normal harvesting operations and the areas of Hoop Pine which may be used for foraging by the Black-breasted Button-quail adjacent to remnant low vine forest habitat are no longer present.

Apart from the Hoop Pine plantation buffer zone, the Hoop Pine plantation within the Study area possesses limited structural and floristic diversity that in turn provides limited habitat values for native fauna, which was evidenced by means of motion sensor cameras that were deployed where the Hoop Pine plantation is adjacent to the low vine forest habitat. Only the common opportunistic fauna species such as the following species use this habitat type:

- Wonga Pigeon (*Leucosarcia melanoleuca*)
- Eastern Whipbird (*Psophodes olivaceus*)
- Northern Brown Bandicoot (*Isoodon macrourus*)
- Red-necked Pademelon (*Thylogale stigmatica*); and
- Common Brushtail Possum (*Trichosurus vulpecula*).

The limited number of fauna species recorded in the Hoop Pine plantation, when compared to the higher number of fauna species recorded in the other habitat types, reflects the limited ecological value and lower biodiversity associated with the monoculture Hoop Pine plantation within the Study area.

5.4.5 Juvenile hardwood plantation

The juvenile hardwood plantation had low plant diversity and a monoculture of immature regrowth trees with limited structural and habitat values for native fauna. Lantana was present and dense throughout the understorey. This hardwood plantation is a monoculture of *Corymbia citriodora* subsp. *variegata* which is neither a primary nor secondary feed tree for the Koala. It is also isolated by areas of Hoop Pine plantation and semi-evergreen vine thicket and dry rainforest from viable woodland habitat along Rocky Creek (that contains *Eucalyptus tereticornis*, a primary Koala feed tree species). The Koala was targeted during field surveys by means of spotlighting and active searches but was not recorded.

5.4.6 Exotic / native shrubby grasslands and bare earth tracks

The exotic / native shrubby grasslands and bare earth tracks habitat (depicted on Photo 5.5) had low plant diversity with a relatively high abundance of exotic flora species and, as such, possesses very minimal habitat values for native fauna. Lantana was present in varying densities.

Photo 5.5 Exotic/native shrubby grasslands and bare earth tracks habitat

6 Project-related impacts and mitigation measures

6.1 Project-related impacts

The Project involves the following proposed works to relocate a portion of the Feeder 831 275kV transmission line:

- approximately 5 km transmission line (60 m wide easement) with some portions requiring vegetation trimming to enable construction and maintenance
- 19 transmission tower structures on concrete pads (40 x 40 m footprint) requiring vegetation clearing
- three brake winch sites (40 x 40 m footprint) draw-wire path provisions, requiring vegetation clearing
- access track provisions, including:
  - new access tracks, requiring clearing up to 8.6 m wide
  - use of existing forestry access tracks, with some requiring minor upgrades (vegetation trimming)
- vegetation trimming for helicopter stringing and for emergency use.

The Project will result in approximately 21.4 ha of ground disturbance impacts to areas of Hoop Pine plantation, regrowth native vegetation, already disturbed areas containing non-remnant vegetation and along existing bare earth access tracks. Additional vegetation clearing may be required to widen access tracks within Hoop Pine plantation areas.

There will also be vegetation trimming of remnant and regrowth native vegetation to reduce the height of the canopy vegetation within specific locations along the easement.

6.2 Impact avoidance and minimisation

Design of the Project has considered design measures to avoid and minimise impacts to native vegetation and habitats, including:

- Using existing access tracks for the Project with upgrading or extension, where practicable, in preference to the creation of new tracks. Note that as most access tracks are used by HQPlantations' forestry harvesting vehicles including B-doubles very little upgrading / widening of the existing tracks is required.
- Locating transmission structures and new access tracks outside of areas of remnant vegetation and within Hoop Pine plantation and already cleared areas to minimise the number of towers located in native vegetation and habitats.
- Helicopter stringing of the transmission line and selective vegetation trimming of tall flora species, which have the potential to compromise the transmission line, in areas of sensitive vegetation (between structures D5 and D6 and D9 and D10A). This will leave most of the vegetation in situ, albeit in a reduced overall canopy height with cover expected to remain much the same.
- Limiting the extent of vegetation clearing in high value regrowth vegetation between structures D1 and D5 to draw-line path clearing (apart from at brake and winch sites where full width easement clearing is required).

These measures have substantially reduced the overall amount (hectares) of native vegetation and habitats to be potentially impacted by the Project, and substantially limits indirect impacts.

This Ecological Assessment Report identifies further measures to avoid and minimise direct and indirect impacts associated with the construction and operational phases of the Project.

6.3 Direct impacts

Direct impacts are areas where ground disturbance and clearing of vegetation and habitats will occur. Direct impacts are permanent residual impacts, which are in the most part unavoidable. The potential direct impacts that may result from construction activities and/or the operational phase of the Project have been identified below.

6.3.1 Vegetation clearing

Most of the Study area has been heavily impacted by commercial forestry activities, with much of the original vegetation communities having been cleared for development of plantation forestry. The Hoop Pine and mixed hardwood plantations that comprise a portion of the Study area are essentially a monoculture, with low ecological and biodiversity value when compared to the previously cleared native vegetation communities. Both plantation communities are non-remnant and completely modified, and as such are no longer analogous to any native vegetation community or regional ecosystem. Despite the level of site disturbance associated with forestry activities, the Study area retains biodiversity value in association with the field verified remnant and regrowth regional ecosystems listed in Table 6.1.

Table 6.1 presents the extent of Project-related impact (hectares) to vegetation communities and regulated vegetation (regional ecosystems) within the Project footprint (disturbance area).

Table 6.1 Extent of Project-related impacts (ha) to field verified vegetation communities and regulated vegetation

Vegetation Community	Regulated vegetation (regional ecosystems)	EPBC Act Status	VM Act Status	Extent within Study area (ha)	Impact area (Project footprint) (ha)
Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces	12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	-	Endangered	8.4	0
Mixed *Acacia spp.* high value regrowth with vine thicket species on deeply weathered Tertiary surfaces [1]	Regrowth 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*	-	Endangered (HVR)	5.7	4.0
Mixed *Acacia spp.* high value regrowth with vine thicket species on metasediments [1]	Regrowth 12.11.11 - Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics; usually southern half of bioregion	-	Least Concern (HVR)	3.1	3.1
Remnant *Eucalyptus moluccana* mixed open forest on metasediments	12.11.18 - *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics	-	Least Concern	9.5	0
Hoop pine plantation	Non-remnant (Buffer zone)	-	n/a	18.4 (1.2)	11.2 (1.2)
Mixed Hardwood plantation	Non-remnant	-	n/a	2.7	2.2
Non-remnant cleared mixed grassland, regrowth and tracks	Non-remnant	-	n/a	8.8	0.9
Total				**56.6**	**21.4**

1. Note for the purposes of this impact assessment full clearing of the easement between structures D1 and D5 has been assumed. However, Powerlink is proposing to limit clearing to the draw-wire path in this location (except where brake and winch sites are proposed).

Clearing of the Hoop Pine plantation within the proposed transmission line easement will be undertaken by licenced forestry operators (HQPlantations) who will undertake timber harvesting in accordance with the requirements of their Plantation Licence. HQPlantations have commenced clearing of this Hoop Pine plantation as part of their normal forestry operations.

6.3.2 Habitat loss

Field surveys recorded the following flora and fauna species of conservation significance within the Study area:

- *Haloragis exalata* subsp. *velutina*, listed as Vulnerable under the EPBC Act and NC Act
- Black-breasted Button-quail, listed as Vulnerable under the EPBC Act and NC Act
- Black-faced Monarch, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act
- Greater Glider, listed as Vulnerable under the EPBC Act and Endangered under the NC Act
- Grey Falcon, listed as Vulnerable under the EPBC Act and NC Act
- Powerful Owl, listed as Vulnerable under the NC Act
- Rufous Fantail, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act
- Short-beaked Echidna, listed as Special Least Concern under the NC Act
- *Rhodamnia dumicola*, listed as Endangered under the NC Act.

The Study area provides viable habitat for threatened flora and fauna species listed in Table 6.2. The extent (hectares) of habitats within the Project footprint that will be impacted is presented in Table 6.2.

The low vine forest, regenerating Acacia and low vine forest and Eucalypt open forest habitats within the Project footprint supports most of the biodiversity recorded during field surveys. It provides a range of foraging, sheltering and breeding resources for native fauna and has varying levels of fallen woody debris and deep leaf litter.

Table 6.2 Habitats within the Study area and relevant threatened species and extent (ha) of potential impact

Fauna habitat type	Corresponding field verified regional ecosystem	Threatened fauna habitat	Impact area (Project footprint) (ha)
Low vine forest	Remnant 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket with emergents on deeply weathered remnant Tertiary surfaces.	— Black-breasted Button Quail — Black-faced Monarch — Spotted-tail Quoll — Grey Falcon — Oriental Cuckoo — Powerful Owl — Rufous Fantail — Short-beaked Echidna — Spectacled Monarch — *Cossinia australiana* — *Rhodamnia dumicola*	0
Regenerating Acacia and low vine forest	Regrowth 12.5.13c - Mixed *Acacia spp.* high value regrowth with vine thicket species on deeply weathered Tertiary surfaces. Regrowth 12.11.11 - Mixed *Acacia* spp. high value regrowth with vine thicket species on metasediments	— Black-breasted Button Quail (foraging only) — Black-faced Monarch — Oriental Cuckoo — Powerful Owl (foraging) — Spectacled Monarch — Spotted-tail Quoll — Rufous Fantail — Short-beaked Echidna	7.1

Fauna habitat type	Corresponding field verified regional ecosystem	Threatened fauna habitat	Impact area (Project footprint) (ha)
Eucalypt open forest	Remnant 12.11.18 - *Eucalyptus moluccana* mixed open forest on brown clays	— Corben's Long-eared Bat — Greater Glider — Grey Falcon — Grey-headed Flying-fox — Koala — Oriental Cuckoo — Powerful Owl — Rufous Fantail — Satin Flycatcher — Short-beaked Echidna — Yellow-bellied Glider — *Haloragis exalata* subsp. *velutina* — *Picris conyzoides* — *Rhaponticum australe*	0
Hoop pine plantation	Non-remnant	n/a	9.7
Hoop pine plantation (buffer zone)	Non-remnant	Black-breasted Button-quail (supplementary foraging habitat only)	1.2
Juvenile hardwood plantation	Non-remnant	n/a	2.2
Exotic / native shrubby grasslands and bare earth tracks	Non-remnant	n/a	0.9
Totals			21.4

Powerlink and its contractors will be responsible for the clearing of vegetation within the Project footprint extents (apart from the Hoop Pine planation which is being harvested by HQPlantations as part of its forestry operations). Flushing of large ground dwelling fauna will be undertaken by Powerlink and/or its contractors prior to clearing to reduce incident of fauna species becoming trapped. A fauna spotter-catcher will be present during clearing activities (refer further Section 6.5). The risk of impacts to MNES and MSES resulting from this vegetation clearing and habitat loss is discussed in Sections 7.2 and 7.3 respectively.

6.3.3 Impacts to wildlife corridors and connectivity

Relatively large areas of native vegetation are associated with the Yarraman State Forest (location of the Project), and the nearby Tarong State Forest and Tarong National Park. A large north-south wildlife corridor exists to the east of the transmission line easement along and adjacent to Rocky Creek. This corridor provides fundamentally important movement and dispersal for native fauna, as it connects Yarraman State Forest with Tarong National Park to the west and Tarong State Forest to the north-west. Only minimal vegetation trimming impacts are to occur within this large north-south wildlife corridor in association with access track provisions.

The impacts associated with the construction activities for the relocation of the transmission line are in the most relatively isolated and unlikely to result in detrimental impacts to wildlife corridors and connectivity.

Moreover, the clearing for the transmission line relocation or associated access tracks will not fragment an area of habitat into two or more separate habitats, nor will it result in fragmenting a population of native species into two or more isolated populations. Therefore, the risk of impact to wildlife movements resulting from the Project has been assessed as low.

6.3.4 Wildlife interactions

Fauna injury or death has the greatest potential to occur during vegetation clearing activities. Some mobile species, such as birds, including the Black-breasted Button-quail, may be able to move away from the path of clearing and may not be greatly affected unless they are nesting. However, other species that are less mobile (ground dwelling reptiles and mammals), or those that are nocturnal and nest or roost in tree hollows during the day (arboreal mammals and microbat species), may find it difficult to escape roosts and may find it difficult to move rapidly over relatively large distances when disturbed.

During the construction phase, there is also the risk that an increase in construction vehicle traffic may potentially impact native species that are diurnal or crepuscular (active at twilight) such as reptiles and macropods.

Risks to fauna from operation of the Project include animals climbing and/or nesting in transmission structures and strikes from flying species of fauna connecting with the transmission lines.

Mitigation measures will be incorporated into the Environmental Work Plan (EWP) prepared for the Project (refer Section 6.5). With these measures in place, the risk of direct mortality from the Project is assessed as low, based upon the implementation of the clearing and fauna management procedures to be applied by Powerlink, and the incremental staged clearing process allowing time for species to move on their own accord ahead of each stage of land clearing.

6.4 Potential indirect impacts

Indirect impacts occur when Project-related activities affect vegetation or habitats in a manner other than a direct loss or clearing. Examples of indirect impacts include promotion of soil erosion, sedimentation of waterways, dust inhibiting plant pollination, provision of suitable seed bed for invasive plants, or increased noise activity within or directly adjacent to sensitive habitat areas.

Potential indirect impacts that may result from construction activities and/or the operational phase of the Project have been identified below.

6.4.1 Weed invasion and colonisation

Weed species are established throughout the Study area, especially Lantana (*Lantana camara*), with the greatest density contained within the previously cleared areas for plantation forestry and along access tracks. Activities associated with the Project have the potential to disperse weeds into surrounding areas.

The most likely causes of weed dispersal associated with the Project include earthworks, movement of soil and attachment of seed (and other propagules) to vehicles and machinery. This is an indirect impact that may reduce habitat quality. However, it should be recognised that much vegetation within the Study area, already has considerable weed infestation. Therefore, the overall current extent of habitat modification from weed invasion is not likely to increase extensively because of the Project.

Table 6.3 presents the weed species that have been recorded or highly likely to occur in the Study area and their respective classifications as declared plants under the *Biosecurity Act 2014* and/or national recognition as Weeds of National Significance (WoNS).

Table 6.3 Invasive plants (Bio. Act) and WoNS recorded in the Study area

Scientific name	Common name	WoNS	Biosecurity Act status
Bryophyllum delagoense	Mother of Millions		Restricted invasive
Lantana camara	Lantana	Yes	Restricted invasive
Opuntia tomentosa	Velvety tree pear		Restricted invasive

To control the spread of weeds from activities associated with the Project, weed management procedures as outlined in the Project Environmental Management Plan (EMP) will be implemented. This includes completing a biosecurity matter survey of the transmission line easement prior to vegetation clearing activities commencing to capture biosecurity data (weed species and distribution) (refer further to Table 6.4).

6.4.2 Pest animals

Three species of introduced pest animal were recorded in the feral dog, feral cat and Red Fox. While the Project activities, particularly vegetation clearing, have the potential to disperse pest animal species out of the areas of disturbance across the surrounding landscape, it is highly likely that pest animal species recorded in the Study area already occupy habitats in the Locality. Therefore, the risk of the Project resulting in the establishment of these pest animal species in areas where they are currently absent is assessed as low.

6.4.3 Soil erosion and sedimentation

Earthworks will be required during the construction phase, which will create areas of bare ground with the potential to create significant soil erosion and sedimentation risks and water quality impacts if not properly controlled through management and rehabilitation during the construction phase. There is a risk of erosion and sedimentation as a result of the Project due to the slopes associated with parts of the Study area.

The Project EMP provides appropriate mitigation measures to minimise the risk of soil erosion and sedimentation (refer Table 6.4). Potential sedimentation impacts are discussed further in Section 6.4.4.

6.4.4 Water quality

Several activities associated with the construction and operation of the Project have the potential to impact on water quality in waterways and wetlands within the Study area. Depending on the nature of these impacts, they could have an indirect influence on aquatic flora and fauna inhabiting downstream aquatic habitats.

The clearing of vegetation within the Project footprint will increase the amount of exposed ground surfaces and soils, resulting in an increased risk of erosion and downstream sedimentation during high rainfall events.

Earthworks and increased vehicle traffic associated with construction also have the potential to disturb soils and generate dust, which can settle either in waterways and wetlands, or in surrounding terrestrial areas. During high rainfall events or periods of high wind, these exposed soils and dust, as well as any associated particulates, nutrients, and other contaminants, could become mobilised and enter surrounding waterways. This could increase turbidity in watercourses and contribute to sedimentation of the stream channels. Depending on their nature and severity, these processes could adversely influence aquatic flora and fauna communities and habitats by:

- smothering aquatic flora and fauna
- reducing levels of sunlight penetration, which can restrict growth of submerged aquatic plants and reduce the concentration of dissolved oxygen in the water column
- altering the particle size distribution of bed sediments and therefore changing the structure of available habitats
- reducing water flow-rates due to sediment build-up in minor watercourse channel.

Waste items such as construction debris will also be generated by the Project. If not managed and disposed of appropriately, these items could wash into local waterways, impacting on the aesthetic value of the waterways and harming aquatic organisms. The risk of water quality impacts from the Project is assessed as low.

The Project EMP provides appropriate mitigation measures to minimise the risk of water quality impacts (refer Table 6.4).

6.4.5 Disruption of pollination cycle from dust generation

Excessive dust generation from construction activities could potentially disrupt the pollination cycle and ability of native plants to reproduce (i.e. fertilisation, germination, revegetation and recolonisation of existing plants). Therefore, dust suppression mitigation and management measures must be considered for the construction phase of the Project.

The Project EMP provides appropriate mitigation measures to minimise dust generation.

6.4.6 Displacement of native fauna from noise generation

Noise pollution generated by vehicles, machinery and excavation during the construction phase may deter native fauna from utilising areas immediate surrounding the Project footprint. Fauna may therefore be displaced by immediate noise generated from construction phase, but impacts will be greatly reduced during the operational phase of the Project.

The Project EMP provides appropriate mitigation measures to minimise the risk of excessive noise generation and potential displacement of native fauna (refer Table 6.4).

6.5 Impact mitigation and management

Where feasible, the Project has followed the general principles for impact mitigation of:

1. avoid impacts
2. minimise impacts
3. mitigate the impacts
4. where impacts cannot be avoided or minimised, compensate for the residual impacts using other mitigation measures.

6.5.1 Design considerations

The Project has been designed to avoid and minimise impacts on biodiversity, in particular MNES and MSES. As such, clearing of remnant vegetation and habitats for threatened species within the Study area has been avoided, where possible with a maximum of 7.1 ha of regrowth native vegetation and habitats being impacted.

All infrastructure required for the Project has been located, as far as practicable, within the Hoop Pine plantation and areas of non-remnant vegetation that have been previously disturbed, to minimise the overall extent of impact to remnant vegetation and habitats. For example, using and upgrading / widening forest tracks as access to the transmission structures during construction and operation where possible.

Development of the Project will also rely upon mitigation measures, as detailed in the following sections, for biodiversity management.

6.5.2 Environmental management

The mitigation and management measures for this Project have been proposed in line with Powerlink's Standard Environmental Controls Specification and outlined in the Project EMP. These measures will be applied to construction, maintenance and operation activities. Additional measures have been proposed where required to provide further mitigation and management measures specifically for the Project.

Table 6.4 provides a summary of the mitigation measures proposed to minimise impacts to terrestrial biodiversity values as a result of the Project.

Powerlink will undertake a fauna pre-clearing survey of the vegetation to be impacted within the areas of proposed ground disturbance and vegetation trimming. Particular attention will be given to the regenerating Acacia and low vine forest habitats, to flush or capture and relocate any fauna into adjacent forested areas. Clearing activities within these habitats will be undertaken in the presence of a qualified spotter-catcher to flush or capture and relocate animals into nearby areas of habitat.

Table 6.4 Mitigation measures for Project-related impacts to terrestrial biodiversity values

Impact	Mitigation measures
Vegetation and habitat loss	Powerlink's standard environmental controls for vegetation management, applied to the Project, will assists with minimising impacts on native vegetation and habitats from construction, maintenance and operation activities associated with the Project. These include: — Prior to commencing initial vegetation clearing, the extent of clearing (work area) shall be clearly marked on site using high visibility barriers or taping to ensure that clearing will not occur in areas to be preserved. The marked-up limits of clearing shall be maintained for at least the duration of clearing and earthworks. — Vegetation clearing is to be conducted in a staged approach (i.e. vegetation assessment; fauna assessment and/or removal or relocation; vegetation removal; soil surface stabilisation; revegetation) so that the minimum area of ground is exposed at any one time. — Vegetation clearing is to be undertaken in a staged and sequential manner, moving away from environments, such as roads, which may potentially cause injury to fleeing fauna. Specific controls with respect to vegetation management for this Project, include: — avoid clearing of the remnant low vine forest habitat (RE12.5.13c) along the proposed transmission alignment — avoiding the development of new access tracks in the remnant low vine forest habitat (RE 12.5.13c and 12.11.11) — avoid clearing native vegetation (RE12.5.13c, RE12.11.11 or RE12.11.18) for any required widening of existing forestry access tracks — minimising clearing of the regenerating Acacia and low vine forest habitats, where possible to do so.
Wildlife interactions	Powerlink's standard environmental controls for wildlife management, applied to the Project, will assist with minimising impacts on wildlife and breeding places from construction, maintenance and operation activities associated with the Project. These include: — Suitably qualified fauna spotter catchers must be engaged to undertake pre-clearance habitat searches and be present during vegetation clearing activities to minimise fauna harm. — A suitably qualified person (i.e. spotter catcher) must be present during any disturbance to habitat features (e.g. trees containing hollows, trees containing nests, hollow logs) and/or native fauna. — Habitat features such as felled trees and logs will be relocated where possible to adjacent areas. — An authorised carer (holding a valid Rehabilitation Permit) must be engaged to care for and rehabilitate injured or orphaned native animals. — Domestic pets and animals are prohibited on site during works.

Impact	Mitigation measures
	— Restrict vehicles to approved and mapped access tracks and only those vehicles required for the safe, efficient and essential construction activities will be allowed in the work area. — Excavations must be secured to prevent access from native fauna. — Diverters on spans will be installed where identified as required. — Installation of fauna-friendly anti-climbing barriers on towers where wildlife interactions have been identified or are likely. Specific controls with respect to wildlife management for this Project, include: — ensuring that pre-clearing surveys are undertaken and a suitably qualified fauna spotter is present for all clearing within the regenerating Acacia and low vine forest habitat — staging clearing activities at a pace that allows fauna to progressively escape and relocate into adjacent habitat areas — habitat trees (i.e. those with hollows and fissures) will be marked to enable appropriate tree dismantling prior to broader clearing operations — clearing of the understorey will be undertaken first, avoiding temporarily retained habitat trees, to encourage fauna to move away from the clearing zone, before the retained habitat trees are removed.
Weeds / Pests	Powerlink's standard environmental controls for biosecurity matters, implemented for the Project, will assist with controlling the spread of weeds and/or pest from construction, maintenance and operation activities associated with the Project. These are outlined in Appendix A of the Project EMP and aim to achieve Powerlink's general biosecurity obligations under the Biosecurity Act. Measures to be implemented include, but are not limited to: — Workers must receive a Project specific induction that includes relevant information relating to biosecurity management requirements. — Clean downs must be undertaken in accordance with the Queensland Government's Vehicle and Machinery Clean down Procedures. Clean downs should be undertaken at designated locations. — Avoid or minimise travel through areas heavily affected by biosecurity matters wherever possible. — Regular monitoring of the easement and access tracks shall be undertaken to identify any new outbreaks. — Appropriate disposal of material potentially contaminated with biosecurity matter shall be undertaken in accordance with *Biosecurity Act 2014* requirements. — A biosecurity matter survey will be completed along the easement and established access tracks post construction and following the first wet season.

Impact	Mitigation measures
Alteration of abiotic factors	Powerlink's standard environmental control measures for soil and water implemented for the Project, will assist in reducing impacts to abiotic factors and native vegetation and fauna. These measures require the development and implementation of an Erosion and Sediment Control Plan prior to soil disturbance which considers: — Managing soil disturbance activities in accordance with IECA Best Practice Erosion and Sediment Control Guidelines 2008. — Minimising ground disturbance and retaining ground cover to reduce potential erosion surface area. — Giving consideration to diverting upslope stormwater / runoff to minimise erosion. — Where soil disturbance has taken place, visual assessments must be undertaken for the presence and effectiveness of erosion and sediment control structures and measures preceding significant rainfall events (within 24 hours of expected rainfall while the site is unstable, weekly inspections when rainfall is not expected or the site is stable). Records of this monitoring will be available on site for inspection. — Undertaking progressive rehabilitation of disturbed areas as soon as practicable to establish ground cover.
Noise	Powerlink's standard environmental control measures for noise mitigation implemented for the Project, will assist in reducing impacts to native fauna. These include: — Limiting work hours to between 6.30 am to 6.30 pm Monday to Saturday (excluding public holidays) for construction work. Work is not to occur outside these hours unless permitted by a Development Approval, or it is in an emergency, due to limited line outages, maintenance activity, or other exceptional circumstances. — Selecting appropriate plant and equipment for each task to minimise the noise contributions. — Ensuring machinery is fitted with appropriate noise attenuation devices and is maintained in accordance with the manufacturer's recommendations. — Shutting down any LPG/petrol/diesel powered equipment generating loud, extraneous (unusual) noise until the source of the noise can be identified and rectified. — Scheduling loud noise activities to occur at times to minimise noise nuisance to surrounding sensitive receptors. Physical noise barriers such as earth mounds, mobile screens, or noise attenuation devices should be used, where necessary. — Delivering and/or removing materials and equipment to and from the site within the approved hours for construction. All transport vehicles will be in good working order and will avoid using exhaust brakes in built up areas adjacent to the work site. — Ensuring transport routes to and from the site are located, where possible, to limit the impact of traffic noise on potentially sensitive areas. — Turning plant off when not in use. — Regularly maintaining and repairing or replacing plant if it becomes noisier. — Using non-tonal reversing alarms where practicable.

Impact	Mitigation measures
Dust	Powerlink's standard environmental control measures for air quality implemented for the Project, will assist with reducing dust impacts to native vegetation and fauna. These include: — Restricting vehicle travelling speed (<40 km/hr unless specified) on unsealed and off-road access tracks. Vehicle speeds should be further reduced on unsealed access tracks during dry, windy weather, to a speed whereby visible dust emanating from soil type interaction is minimised. — Applying dust suppressants or watering to work areas, stockpiles and access tracks as required to prevent dust nuisance. — Restricting vehicles to approved and mapped access tracks and only those vehicles required for the safe, efficient and essential construction activities will be allowed in the work area. — Covering all loose loads for transport to and from the work site. — Scheduling dust generating activities in proximity to dust sensitive locations (e.g. residences etc.), when possible, to minimise dust nuisance at the sensitive receptors. Consideration shall be given to local site conditions, including soil type, rainfall, wind speed and direction, proximity to receptors and duration of the activity. — In dust sensitive locations consider constructing access tracks from materials which are more stable and less likely to turn to bull dust. — Orientating material stockpiles in a direction that reduces exposed surfaces to prevailing winds. — Ensuring chipping/ mulching equipment has dust collection devices attached where possible. — Limiting dust inducing activities on days with high levels of bushfire smoke in the air and if wind is blowing towards receptors. In addition, dust emission will be minimised during vegetation clearing activities through minimising the extent of soil disturbance and exposure, thus minimising the potential for dust to be generated.

6.5.3 Legislative requirements

This assessment has identified that the following NC Act permits will be required for the Project:

- Low-risk species management program (SMP) for tampering with animal breeding places
- High-risk SMP for the clearing of hollow bearing tree resources potentially supporting least concern (colonial breeder) microbat species
- Protected plant flora survey and reporting, and a clearing permit.

Further details on these permits are provided in the following sections.

6.5.4 Pre-construction phase

General mitigation measures to be implemented during the pre-construction phase of the Project, beyond those outlined in Table 6.4, are presented in the following sections.

6.5.4.1 Delineation of vegetation clearing

The boundaries of areas to be cleared are to be clearly defined on–ground and 'no go zones' clearly signposted, delineated and fenced to prevent unauthorised clearing and vehicle and/or pedestrian traffic. Relevant construction plans are to be clearly labelled with the intent and exclusion conditions of these clearance zones. Exclusion conditions may include, but are not limited to:

- No dumping of soil, organic or inorganic matter into surrounding vegetated areas. The creation of microhabitat (discussed below) would represent an exception to the dumping of organic matter.
- Refuelling of machinery and equipment in the vicinity of watercourses and sensitive vegetation.
- Unrestricted use of herbicide, particularly foliar application.

Powerlink will issue an EWP to clearing and construction contractors which provides clear guidance on on-go zones, sensitive vegetation and habitat (such as identified nest) area to be cleared and retained, methods for clearing and other environmental protection matters.

6.5.4.2 Low-risk species management program

As with any project that involves the removal of native vegetation and habitats, there is an inherent risk of impacting animal breeding places of Least Concern (not including colonial) fauna species (e.g. bird nests). To mitigate this risk, it is a requirement under the NC Act to implement a Species Management Program (low risk of impacts) (Low-risk SMP). Tampering with animal breeding places for Least Concern fauna species may be undertaken where in accordance with a Low-risk SMP.

Several fauna breeding habitat features were recorded within the Project footprint, including bird nests, hollow bearing trees, and arboreal termitaria with nest excavations.

A Low-risk SMP approved by DES will be required for the Project prior to construction commencing. The Low-risk SMP provides a standard set of management and mitigation measures for the clearing of vegetation containing animal breeding places of Least Concern (not including colonial) fauna species. The Low-risk SMP is best practice and will minimise impacts to breeding places vegetation clearing.

6.5.4.3 High-risk species management program

As the Project involves clearing of habitat for fauna species listed under the NC Act and least concern (colonial breeder) fauna species, a High-risk SMP will need to be prepared for the Project and approved by DES prior to construction commencing. Species requiring a High-risk SMP include protected animals identified by Wildlife Regulation or breeding type (e.g. least concern colonial breeders), where the broader population is at a greater risk from impacts and include least concern wildlife that are colonial breeders and threatened fauna species listed under the Nature Conservation (Animals) Regulation 2020.

Species of relevance to a High-risk SMP, include:

- colonial breeding microbat species
- Black-breasted Button-quail (the Project involves clearing of supplementary foraging habitat for the species)
- Short-beaked Echidna (*Tachyglossus aculeatus*).

The High-risk SMP will be specific to the Project and will detail protocols and procedures to be adhered to during vegetation clearing and construction. The High-risk SMP is to be implemented by the fauna spotter-catcher and overseen by the relevant site personnel (construction site manager or environmental manager).

6.5.4.4 Fauna pre-clearance survey

Significant habitat features, such as hollow bearing resources, hollow logs, burrows and nests, will be identified and marked / flagged during a pre-clearance survey prior to clearing works commencing, and all vegetation clearing will be supervised by the fauna spotter-catcher or ecologist. A Koala walkthrough should be conducted each morning prior to clearing commencing.

6.5.5 Construction phase

General mitigation measures to be implemented during the construction phase of the Project, beyond those outlined in Table 6.4, are presented in the following sections.

6.5.5.1 Fauna spotter-catcher

A suitably qualified (holding a DES approved Rehabilitation Permit) and experienced fauna spotter-catcher or ecologist will need to be employed for the construction phase of the Project to implement a protocol of best management practices. The fauna spotter-catcher should also be experienced in Koala surveys and management and/or Koala spotting during clearing works, just in case a Koala is encountered.

Due to the habitat features observed within the Project footprint, the clearing supervision protocol will include a two-stage approach. Vegetation should be under scrubbed first, involving the removal of all non-habitat trees. Any trees containing habitat features (e.g. nests, dreys, or hollows) are then removed 24 to 72 hours later. The objective of this is to enable hollow dependent fauna an opportunity to move on their own accord as many species utilise multiple den / roost sites within a given home range. Once vegetation surrounding a habitat feature is cleared, nocturnal fauna has a high rate of overnight dispersal, reducing or eliminating the risk of injury or death during clearing.

It is particularly important to ensure that if a Koala is found to be in a scattered tree on the Project footprint prior to or during clearing, that the vegetation is not further isolated or fragmented to ensure that the Koala spends as little time dispersing along the ground as possible. This includes construction exclusion fencing, which should be shifted if required, to ensure the safe dispersal of Koalas out of the Project footprint and in to surrounding retained vegetation if required.

Where possible, large hollow bearing trees and other habitat features (such as avian nests) should be cleared last at the end of the day, to allow any potentially injured or orphaned fauna (such as nest bound juvenile birds) to be rapidly transported to a vet or carer. The use of mulching attachments (e.g. mulching heads on excavators or grooming heads on posi-tracks) on plant undertaking the clearing works is not recommended due to the high risk of fauna injury or mortality.

Trees must be directionally felled into open or already cleared areas, or in a direction that causes the least amount of impact to a habitat feature (hollow, nest etc.) as determined by the fauna spotter/catcher, where possible (avoiding obstacles such as the road and fences etc.). Directional clearing should be implemented, whereby clearing works move in a direction that moves towards surrounding bushland or suitable habitat and does not cause fragmentation, allowing fauna to move towards retained habitat. Fragmentation should also be considered during two-stage clearing, as to not isolate hollow bearing habitat trees and ensuring fauna such as possums and gliders can safely move through vegetation to adjacent retained vegetation.

Certain areas should be identified and flagged as significant, such as old growth trees with hollow resources, and on-site identification to construction personnel will help reduce / avoid unnecessary clearing. Where required, native fauna situated within areas to be cleared will be relocated to a secure area of similar habitat prior to the commencement of vegetation clearing by the fauna spotter-catcher.

In the unlikely event a Koala is encountered during vegetation clearing, an exclusion zone should be established around the tree containing the Koala, to allow it to move on of its own volition (usually overnight).

7 Risk of impact assessment to MNES and MSES

7.1 Risk of impact assessment

The risk of impact assessment is based upon the potential extent of habitat loss resulting from clearing activities and construction operations within the Project footprint. It considers the following:

- the value of the impacted habitat within the Project footprint to each respective species
- the amount of habitat to be lost against adjoining unaffected habitat
- potential fragmentation of a population into two or more populations
- increased fragmentation of wildlife corridors intersected by the Project footprint
- risk of operational impacts (e.g. vehicle strike)
- each species ability (e.g. fauna) or inability (e.g. flora) to move away from areas of direct impact into adjoining unaffected habitat.

The risk of impact assessment has been applied to threatened flora and fauna species recognised as MNES and/or MSES.

7.2 Matters of National Environmental Significance

7.2.1 Threatened flora species

EPBC Act-listed threatened flora species that have either been recorded or assessed as having a moderate or higher likelihood of occurrence in the Study area, are identified in Table 7.1, along with the risk of impact from the Project and significant impact assessment requirements.

Based on this assessment, none of the threatened flora species listed under the EPBC Act, are at potential risk of Project-related impacts and EPBC Act significant impact assessments are not required.

Table 7.1 Assessment of risk of impact to threatened flora species listed under the EPBC Act

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Haloragis exalata subsp. *velutina*	Tall Velvet Sea-berry	V	**Recorded** Population recorded in open forest to woodland habitat along Rocky Creek during August 2019 surveys, not recorded during January 2022 surveys.	Low Population recorded outside of areas of Project-related impacts.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Cossinia australiana	-	E	**Moderate** Not recorded during August 2019 or January 2022 surveys.	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the potentially suitable regenerating Acacia and low vine forest habitat and remnant low vine forest habitat. Therefore, this species is unlikely to be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Picris conyzoides	-	-	**Moderate** Not recorded during August 2019 or January 2022 surveys	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the Study area. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Rhaponticum australe	Austral Cornflower	V	**Moderate** Not recorded during August 2019 or January 2022 surveys	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the Study area. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.

7.2.2 Threatened fauna species

The threatened fauna species listed under the EPBC Act that have been recorded or assessed as having a moderate or high likelihood of occurrence in the Study area are presented in Table 7.2 along with an assessment of the risk of impact from the Project.

Of these species, the Black-breasted Button-quail, has been further assessed as potentially at risk from Project-related impacts. Therefore, significant impact assessments in accordance with the Significant Impact Guideline have been prepared for this species and presented in Attachment D.

Table 7.2 Assessment of risk of impact to threatened fauna species listed under the EPBC Act

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Falco hypoleucos	Grey Falcon	V	**Recorded** Recorded during field survey	**Moderate** Species habitat within Project footprint.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Dasyurus maculatus maculatus	Spotted-tail Quoll	E	**Moderate** Suitable habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Nyctophilus corbeni	Corben's Long-eared Bat	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Petaurus australis australis	Yellow-bellied Glider	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Petauroides volans (P. armillatus)	Greater Glider	V	**Recorded** Recorded during K2E field surveys (WSP, 2021)	**Moderate** Species habitat within Project footprint.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Phascolarctos cinereus	Koala	E	**High** Suitable habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Pteropus poliocephalus	Grey-headed Flying-fox	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Turnix melanogaster	Black-breasted Button-quail	V	**Recorded** Recorded during Project field surveys	**Recorded** Recorded during Project field surveys	The 7.1 ha of regenerating Acacia and low vine forest habitat and 1.2 ha or Hoop Pine plantation buffer zone that only provides supplementary foraging resources this species will be impacted by the Project where transmission line infrastructure is proposed. Therefore, the species is at risk of potentially adverse impacts from the Project. **EPBC Act significant impact assessment required (refer Attachment D)**

7.2.3 Migratory fauna species

The migratory fauna species listed under the EPBC Act that have been recorded or assessed as having a high likelihood of occurrence in the either the Study area or Project footprint, are presented in Table 7.3 along with an assessment of the risk of impact from the Project.

The significant impact assessments concluded that the migratory populations of Black-faced Monarch, Rufous Fantail and Spectacled Monarch that have been recorded or are likely to occur in the regenerating Acacia and low vine forest habitat within the Study area, are not ecologically significant proportions of each species population in the region or nationally. The proposed action is unlikely to substantially modify, by means of fragmentation beyond that already present, or destroy or isolate important habitat that supports (i.e. recorded Black-faced Monarch and Rufous Fantail) or may support (i.e. high likelihood of occurring Spectacled Monarch), local populations of these highly mobile migratory bird species.

In summary, the proposed action (the Project) is unlikely to have a significant impact on the Black-faced Monarch, Rufous Fantail and/or Spectacled Monarch within the meaning of the Significant Impact Guidelines.

Table 7.3 Assessment of risk of impact to migratory fauna species listed under the EPBC Act

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Cuculus optatus	Oriental Cuckoo	M	Moderate Potential habitat present within the Study area	Moderate Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the potentially suitable low vine forest, Eucalypt open forest and regenerating Acacia and low vine forest and remnant low vine forest habitats. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Monarcha melanopsis	Black-faced Monarch	M	Recorded Several individuals recorded during field survey	High Potential habitat present within the Project footprint.	The 7.1 ha of regenerating Acacia and low vine forest habitat that supports this species will be impacted by the Project where transmission line infrastructure is proposed. Therefore, the species is at risk of potentially adverse impacts from the Project. EPBC Act significant impact assessment required (refer Attachment D)
Myiagra cyanoleuca	Satin Flycatcher	M	Moderate Potential habitat present within the Study area	Low Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the Study area. The Eucalypt open forest habitat that provides potential habitat for this species will not be impacted by the Project. Species is at low risk of adverse impacts and an EPBC Act significant impact assessment is not required.
Rhipidura rufifrons	Rufous Fantail	M	Recorded Several individuals recorded during field survey	Recorded Several individuals recorded during field survey	The 7.1 ha of regenerating Acacia and low vine forest habitat that supports this species will be impacted by the Project where transmission line infrastructure is proposed. Therefore, the species is at risk of potentially adverse impacts from the Project. EPBC Act significant impact assessment required (refer Attachment D)

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Symposiachrus trivirgatus	Spectacled Monarch	M	High Suitable habitat present within the Study area	High Potential habitat present within the Project footprint.	Despite targeted surveys, this species has not been recorded. The 7.1 ha of regenerating Acacia and low vine forest habitat that provides potential habitat this species will be impacted by the Project where transmission line infrastructure is proposed. Therefore, the species is at risk of potentially adverse impacts from the Project. EPBC Act significant impact assessment required (refer Attachment D)

7.3 Impacts to Matters of State Environmental Significance

The likelihood of occurrence assessment for threatened flora and fauna species listed under the NC Act that are recognised as MSES and the risk of potential Project-related impacts upon each has been assessed to determine the need for further assessment under the EO Act.

The MSES of relevance to the Project, which are not also MNES, and the risk of Project-related impacts to each are assessed in the following sections.

7.3.1 Regulated vegetation

The impacts to regulated vegetation are presented in Table 6.1. As Powerlink are exempt from impacts to regulated vegetation under the VM Act, the clearing of regulated vegetation does not require any further assessment herein.

7.3.2 Connectivity areas

The GIS test for connectivity areas was applied in accordance with the SRI Guideline, which determined the Study area contains State mapped connectivity areas.

In deciding if an offset is required for connectivity areas, the significance of the ecosystem tract in the context of the local and the regional landscape was assessed.

A Project-related impact on connectivity areas is determined to be a significant residual impact if either of the following tests are true:

- the change in the core remnant ecosystem extent at the local scale (post impact) is greater than a threshold determined by the level of fragmentation at the regional scale; or
- any core area that is greater than or equal to 1 ha is lost or reduced to patch fragments (core to non-core).

The GIS test for connectivity areas has determined that any impact on connectivity areas is not significant, whereby a significant reduction in core remnant at the local scale is False or a change from core to non-core remnant at the site scale is False. Therefore, an offset for connectivity areas will not be required.

7.3.3 Protected wildlife habitat

The Powerful Owl was recorded from the open forest to woodland habitat within the Study area, both visually and via call recognition. The 7.1 ha of regenerating Acacia and low vine forest habitat, which supports foraging habitat for this species will be impacted by the Project where transmission line infrastructure is proposed. This places the species at risk of impact from the Project. Therefore, a significant residual impact assessment in accordance with the SRI Guideline is required for the Powerful Owl (refer Attachment D).

The Queensland Government's Environmental Report for MSES identifies an area of protected wildlife habitat within the Study area. This area of protected wildlife habitat is based upon a species record for the Short-beaked Echidna, listed as Special Least Concern under the NC Act. This State mapped protected wildlife habitat will not be directly impacted by the Project.

However, the Short-beaked Echidna was recorded on a motion sensor camera within the Study area during surveys for the K2E Project. The Study area provides viable habitat for the species, of which 7.1 ha of regenerating Acacia and low vine forest habitat, which supports this species will be impacted by the Project where transmission line infrastructure is proposed. This places the species at risk of impact from the Project. Therefore, a significant residual impact assessment in accordance with the SRI Guideline is required for the Short-beaked Echidna (refer Attachment D).

7.3.3.1 Essential habitat

Essential habitat is mapped by the State Government as occurring within the Study area, as shown on Figure 4.2. The essential habitat that is being impacted by the Project for each relevant species is presented in Table 7.4.

Table 7.4 Essential habitat being impacted by Project and risk of Project-related impacts

Species Essential Habitat	NC Act Status	Impacted Essential Habitat	Risk of Project-related impacts
Black-breasted Button-quail (EH: 1092)	Vulnerable	4.0 ha of regrowth RE 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii* and 3.1 ha of regrowth RE 12.11.11 - Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics that is mapped as providing essential habitat for the Black-breasted Button-quail will be impacted. Total of 7.1 ha of impact upon essential habitat.	Species already assessed as an MNES. Significant residual impact assessment is not required.
Greater Glider (EH: 848)	Vulnerable	The Project will not directly impact the remnant RE 12.11.18 - *Eucalyptus moluccana* woodland on metamorphics +/- interbedded volcanics that provides essential habitat for the Greater Glider.	As the Project will not directly impact essential habitat a significant residual impact assessment for the Greater Glider is not required.

Species Essential Habitat	NC Act Status	Impacted Essential Habitat	Risk of Project-related impacts
Rhodamnia dumicola (EH: 13406)	Critically Endangered	4.0 ha of regrowth RE 12.5.13c - Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii* and 3.1 ha of regrowth RE 12.11.11 - Araucarian microphyll vine forest on metamorphics +/- interbedded volcanics, that is mapped as providing essential habitat for *Rhodamnia dumicola* will be impacted by the Project. Total of 7.1 ha of impact upon essential habitat.	The species was recorded from adjacent to the Project footprint during field surveys. No individuals will be directly impacted by the Project. Approximately 7.1 ha of mapped essential habitat for *Rhodamnia dumicola* will be impacted. Therefore, the species is potentially at risk of impact from the Project. A significant residual impact assessment is required (refer Attachment D).

8 Conclusions and Recommendations

At a regional level, the Project is located in a fragmented and disturbed landscape. The South Burnett subregion of the SEQ Bioregion has experienced a long history of human disturbance because of agriculture, forestry and mining. The Study area is representative of many areas within this region, as it is periodically disturbed and replanted as part of forestry timber production.

Several MNES and MSES are present or are considered likely to occur within the Study area, as detailed in Section 7.2 and 7.3 respectively. Seasonal flora and fauna surveys recorded the following MNES and MSES within the Study area:

- MNES:
  - *Haloragis exalata* subsp. *velutina*, listed as Vulnerable under the EPBC Act and NC Act
  - Grey Falcon, listed as Vulnerable under the EPBC Act and NC Act
  - Black-breasted Button-quail, listed as Vulnerable under the EPBC Act and NC Act
  - Greater Glider, listed as Vulnerable under the EPBC Act and Endangered under the NC Act
  - Black-faced Monarch, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act; and
  - Rufous Fantail, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act.
- MSES:
  - Regulated vegetation – high value regrowth regional ecosystem 12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*, listed as Endangered under the VM Act
  - Powerful Owl, listed as Vulnerable under the NC Act
  - Short-beaked Echidna, listed as Special Least Concern under the NC Act.

In addition to the above listed MNES and MSES recorded within the Study area, the following MNES and/or MSES have been assessed as having a high or moderate likelihood of occurring in the Study area:

- *Cossinia australiana*, listed as Endangered under both the EPBC Act and NC Act
- *Picris conyzoides*, listed as Vulnerable under the NC Act
- *Rhaponticum australe*, listed as Vulnerable under the EPBC Act and NC Act
- *Rhodamnia dumicola*, listed as Endangered under the NC Act
- Corben's Long-eared Bat, listed as Vulnerable under the EPBC Act and NC Act
- Grey-headed Flying-fox, listed as Vulnerable under the EPBC Act
- Spotted-tail Quoll, listed as Endangered under the EPBC Act and Vulnerable under the NC Act
- Koala, listed as Endangered under the EPBC Act and NC Act
- Yellow-bellied Glider, listed as Vulnerable under the EPBC Act and Endangered under the NC Act
- Satin Flycatcher, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act
- Spectacled Monarch, listed as Migratory under the EPBC Act and Special Least Concern under the NC Act.

Of these species the Black-breasted Button-quail, Black-faced Monarch, Rufous Fantail, Spectacled Monarch, *Rhodamnia dumicola*, Powerful Owl and Short-beaked Echidna have been assessed as being potentially at risk from the Project and have undergone significant impact tests in accordance with relevant Commonwealth and State significant impact guidelines.

The significant impact assessments have determined that the Project will not result in significant impacts, within the meaning of the relevant Commonwealth and State significant impact guidelines, to any of the MNES and MSES assessed by this ecological assessment. Based on this outcome, an EPBC Referral for the Project is not required.

As Powerlink are exempt from impacts to regulated vegetation under the VM Act, the clearing of regulated vegetation comprising high value regrowth regional ecosystem 12.5.13c – Low microphyll vine forest and semi-evergreen vine thicket +/- *Araucaria cunninghamii*, listed as Endangered under the VM Act, does not require any further assessment.

The impacts of the Project will require mitigation measures to ensure that all possible impacts to biodiversity are avoided, reduced, or mitigated. This includes the preparation and implementation of a High-risk SMP and undertaking clearing works in accordance with the requirements of the Protected Plant Clearing Permit.

9 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Powerlink (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal for the Transmission Line Relocation Project (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

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Attachment A

Database searches

Australian Government
Department of Agriculture, Water and the Environment

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. Please see the caveat for interpretation of information provided here.

Report created: 12-Apr-2022

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	55
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

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 Lands:	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
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	7
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	8
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	50 - 100km upstream from Ramsar site	In feature area

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.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In buffer area only
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	In buffer area only
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Turnix melanogaster](#) Black-breasted Button-quail [923]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
[Maccullochella mariensis](#) Mary River Cod [83806]	Endangered	Translocated population known to occur within area	In buffer area only
[Neoceratodus forsteri](#) Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
INSECT			
[Phyllodes imperialis smithersi](#) Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Dasyurus hallucatus](#) Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
[Petauroides volans](#) Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Petaurus australis australis](#)			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Petrogale penicillata](#)			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In feature 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]	Endangered	Species or species habitat known to occur within area	In feature area
[Pseudomys novaehollandiae](#)			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Pteropus poliocephalus](#)			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
[Arthraxon hispidus](#)			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Bertya opponens](#)			
[13792]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Bothriochloa bunyensis](#)			
Satin-top Grass [15961]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Cadellia pentastylis](#)			
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Clematis fawcettii](#)			
Stream Clematis [4311]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Cossinia australiana](#)			
Cossinia [3066]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
Denhamia parvifolia Small-leaved Denhamia [18106]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium queenslandicum King Blue-grass [5481]	Endangered	Species or species habitat may occur within area	In buffer area only
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fontainea venosa [24040]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat known to occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Paspalidium grandispiculatum a grass [10838]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phebalium distans Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Polianthion minutiflorum [82772]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhaponticum australe Austral Cornflower, Native Thistle [22647]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sarcochilus weinthalii Blotched Sarcochilus, Weinthals Sarcanth [12673]	Vulnerable	Species or species habitat known to occur within area	In feature area
Sophora fraseri [8836]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
REPTILE			
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat known to occur within area	In feature area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat known to occur within area	In feature area
Listed Migratory Species			[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In buffer area only
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Glen-Ewin	Nature Refuge	QLD	In buffer area only
Mount Binga	Forest Reserve	QLD	In buffer area only
Mount Binga	National Park	QLD	In buffer area only
Pidna	National Park	QLD	In buffer area only
Resolute	Nature Refuge	QLD	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Tarong	National Park	QLD	In buffer area only
The Palms	National Park	QLD	In buffer area only

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Kunioon Coal Project	2007/3334	Controlled Action	Completed	In buffer area only
Meandu Mine King 2 East Project	2021/8999	Controlled Action	Assessment Approach	In feature area
South Burnett Coal Project, Qld	2016/7702	Controlled Action	Assessment Approach	In buffer area only
Not controlled action				
Ash Storage Facility	2006/2641	Not Controlled Action	Completed	In feature area
Clearing of Vegetation on Kingaroy-Cooyar Road	2009/5163	Not Controlled Action	Completed	In buffer area only
Extension of existing coal mining operation	2008/4571	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Surat Basin to Tarong Railway project	2003/1264	Not Controlled Action	Completed	In feature area

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Maranoa-Balonne-Condamine	Northern Inland Catchments	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and 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

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

Where little information is available for a 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 detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

-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
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-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.

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Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest
Longitude: 151.9296 Latitude: -26.8187 with 2 kilometre radius

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.

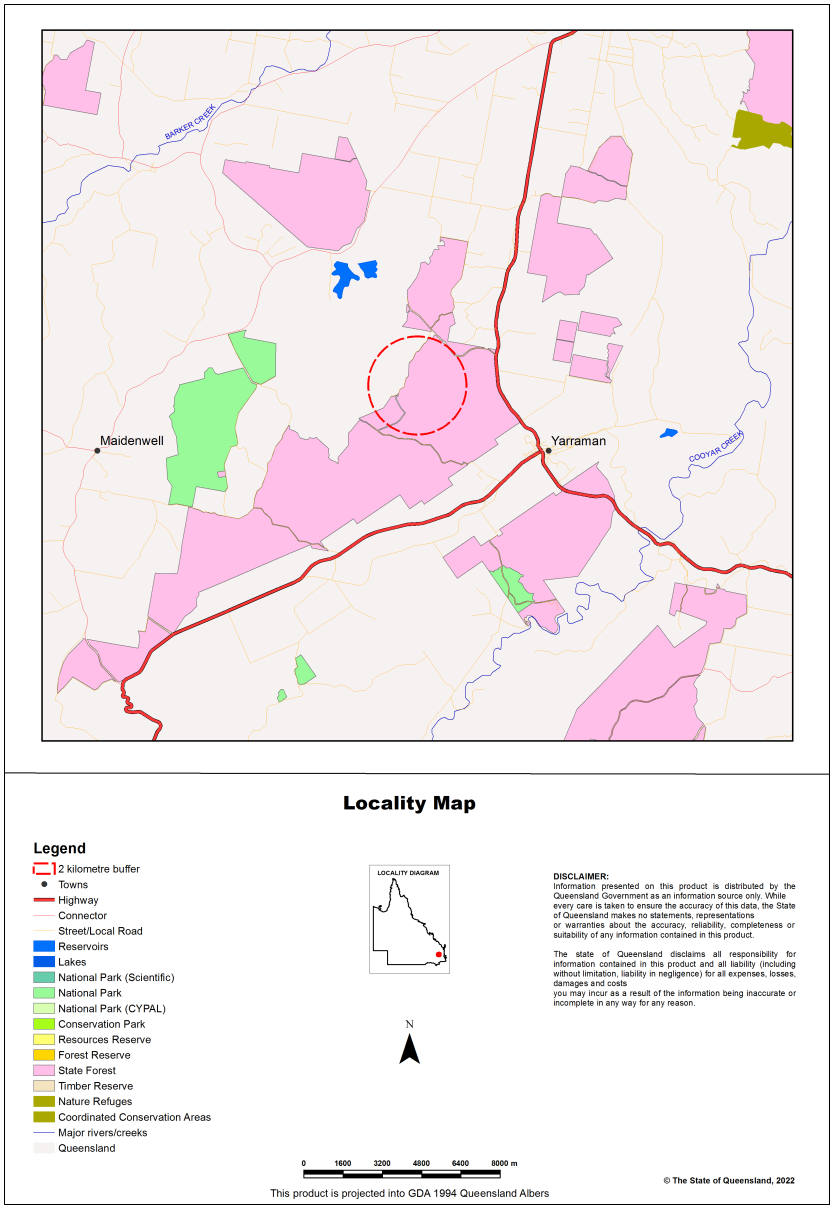
Table of Contents

Assessment Area Details

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 Longitude: 151.9296 Latitude: -26.8187

Size (ha)	1,256.55
Local Government(s)	Toowoomba Regional, South Burnett Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	South Burnett
Catchment(s)	Brisbane, Burnett



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 %
1c Protected Areas- special wildlife reserves	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	0.0 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	368.84 ha	29.4%
7b Special least concern animals	156.62 ha	12.5%
7c i Koala habitat area - core (SEQ)	0.0 ha	0.0 %
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	423.55 ha	33.7%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	26.54 ha	2.1%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	6.81 ha	0.5%
8d Regulated Vegetation - Essential habitat	371.27 ha	29.5%
8e Regulated Vegetation - intersecting a watercourse **	20.9 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	0.0 ha	0.0 %
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)

1c. Protected Areas - special wildlife reserves

(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

(no results)

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)

Not applicable

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

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
Boronia keysii		V	None
Calyptorhynchus lathami	Glossy black cockatoo	V	None
Casuarius casuarius johnsonii	Sthn population cassowary	E	None
Crinia tinnula	Wallum froglet	V	None
Denisonia maculata	Ornamental snake	V	None
Litoria freycineti	Wallum rocketfrog	V	None
Litoria olongburensis	Wallum sedgefrog	V	None
Melaleuca irbyana		E	None
Petaurus gracilis	Mahogany Glider	E	None
Petrogale persephone	Proserpine rock-wallaby	E	None
Phascolarctos cinereus	Koala - outside SEQ*	V	None
Pezoporus wallicus wallicus	Eastern ground parrot	V	None
Taudactylus pleione	Kroombit tinkerfrog	E	None
Xeromys myoides	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
Turnix melanogaster	black-breasted button-quail	V	V	
Petauroides volans	greater glider	V	V	
Haloragis exalata subsp. velutina		V	V	
Picris conyzoides		V		
Ninox strenua	powerful owl	V		

Special least concern animal species records

Scientific name	Common name	Migratory status
Tachyglossus aculeatus	short-beaked echidna	

**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
12.5.13a	E-dom	rem_end
12.9-10.3	O-dom	rem_oc
12.5.13a/12.5.1	E-dom	rem_end

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

Regional ecosystem	Vegetation management polygon	Vegetation management status
12.5.13a/12.5.1	E-dom	hvr_end

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

Regulated vegetation map category	Map number
R	9244

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

Not applicable

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

MSES - Offsets

9a. Legally secured offset areas - offset register areas

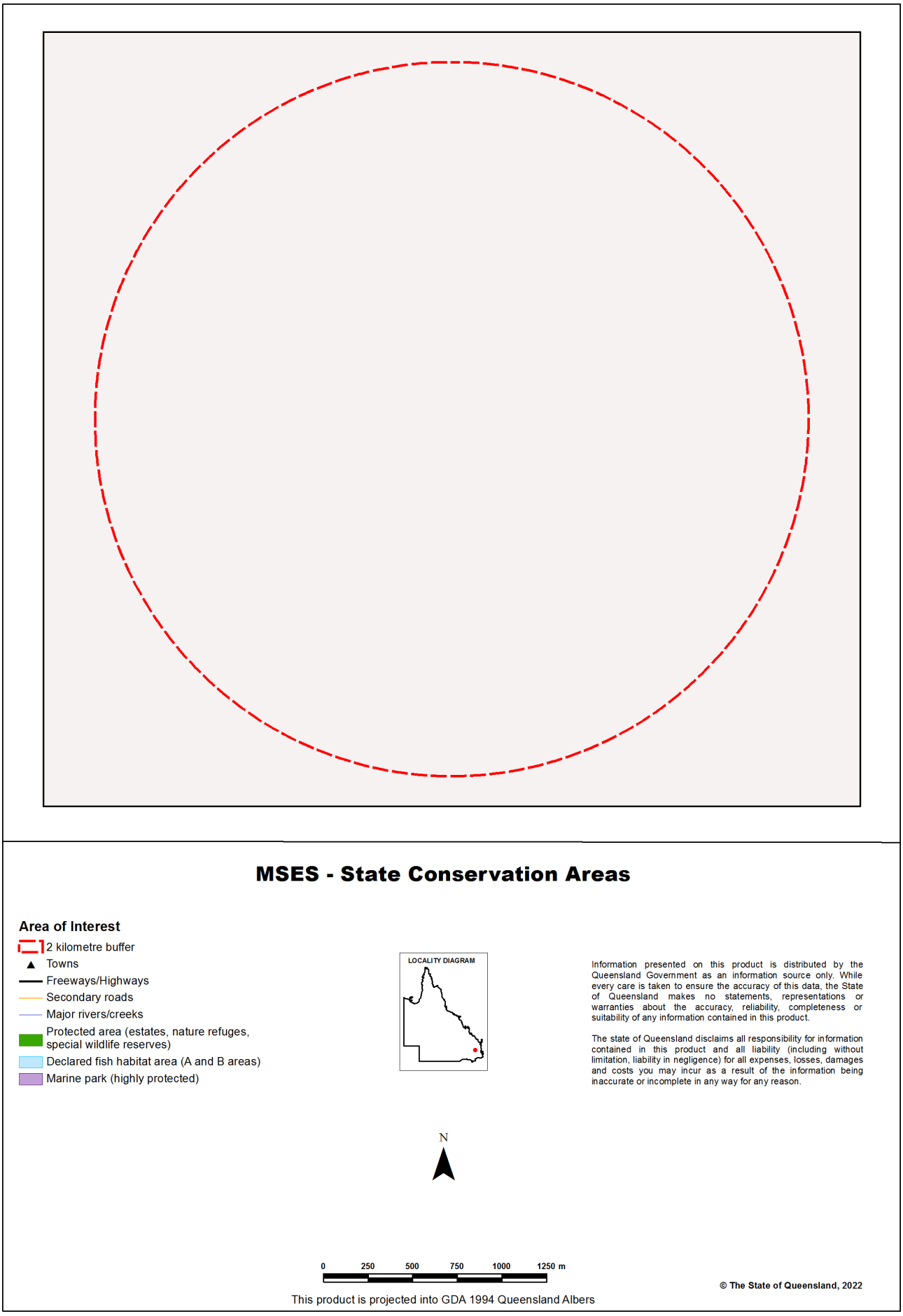
(no results)

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

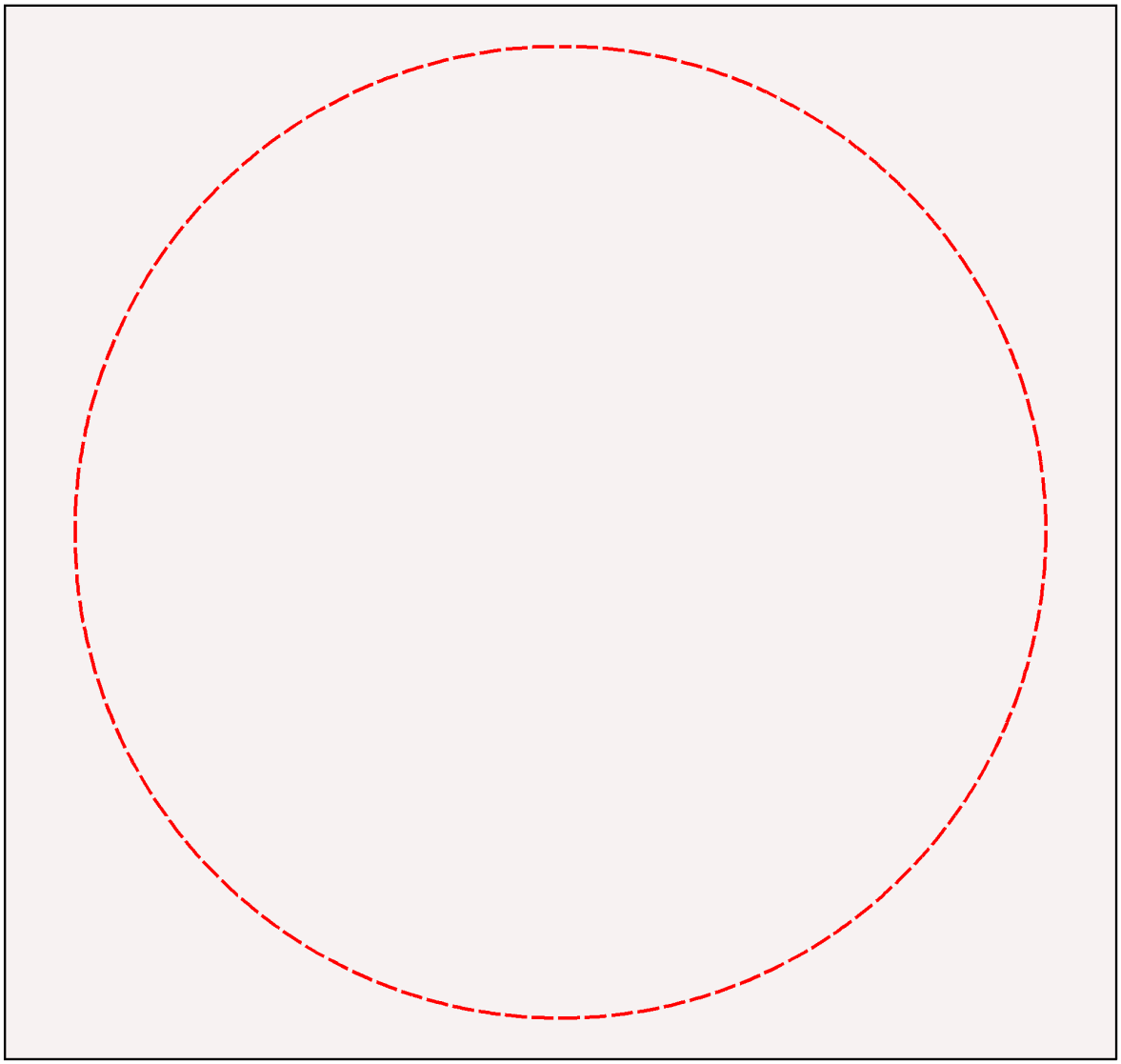
(no results)

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

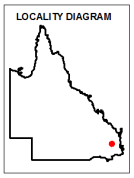


MSES - Wetlands and Waterways

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Declared high ecological value waters (watercourse)
- Strategic environmental area (designated precinct)
- Declared high ecological value waters (wetland)
- High ecological significance wetlands

LOCALITY DIAGRAM



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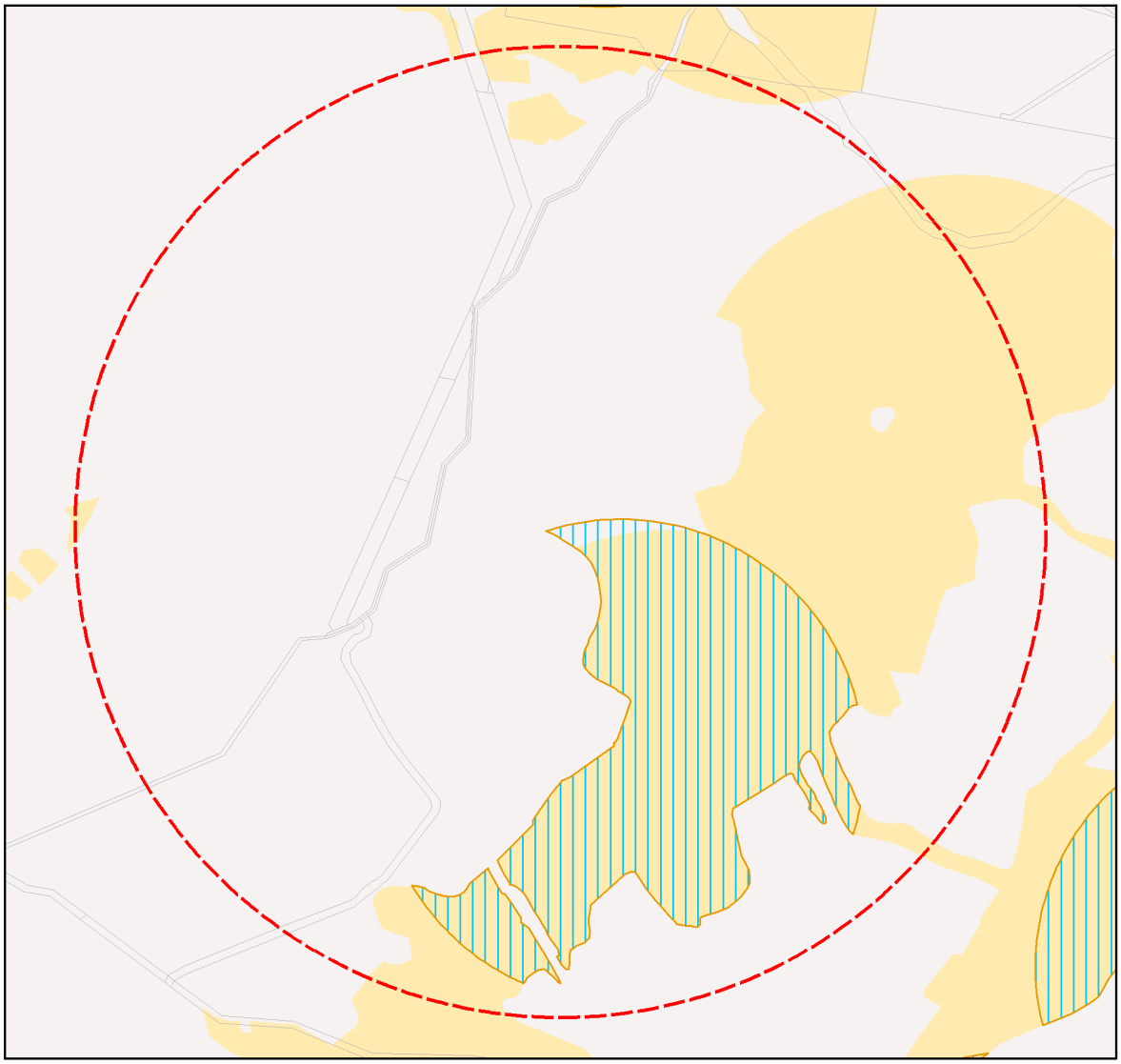
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals

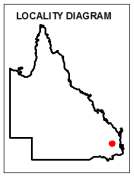


MSES - Species
Threatened (endangered or vulnerable) wildlife and special least concern animals

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (special least concern)
- Wildlife habitat (endangered or vulnerable)

LOCALITY DIAGRAM



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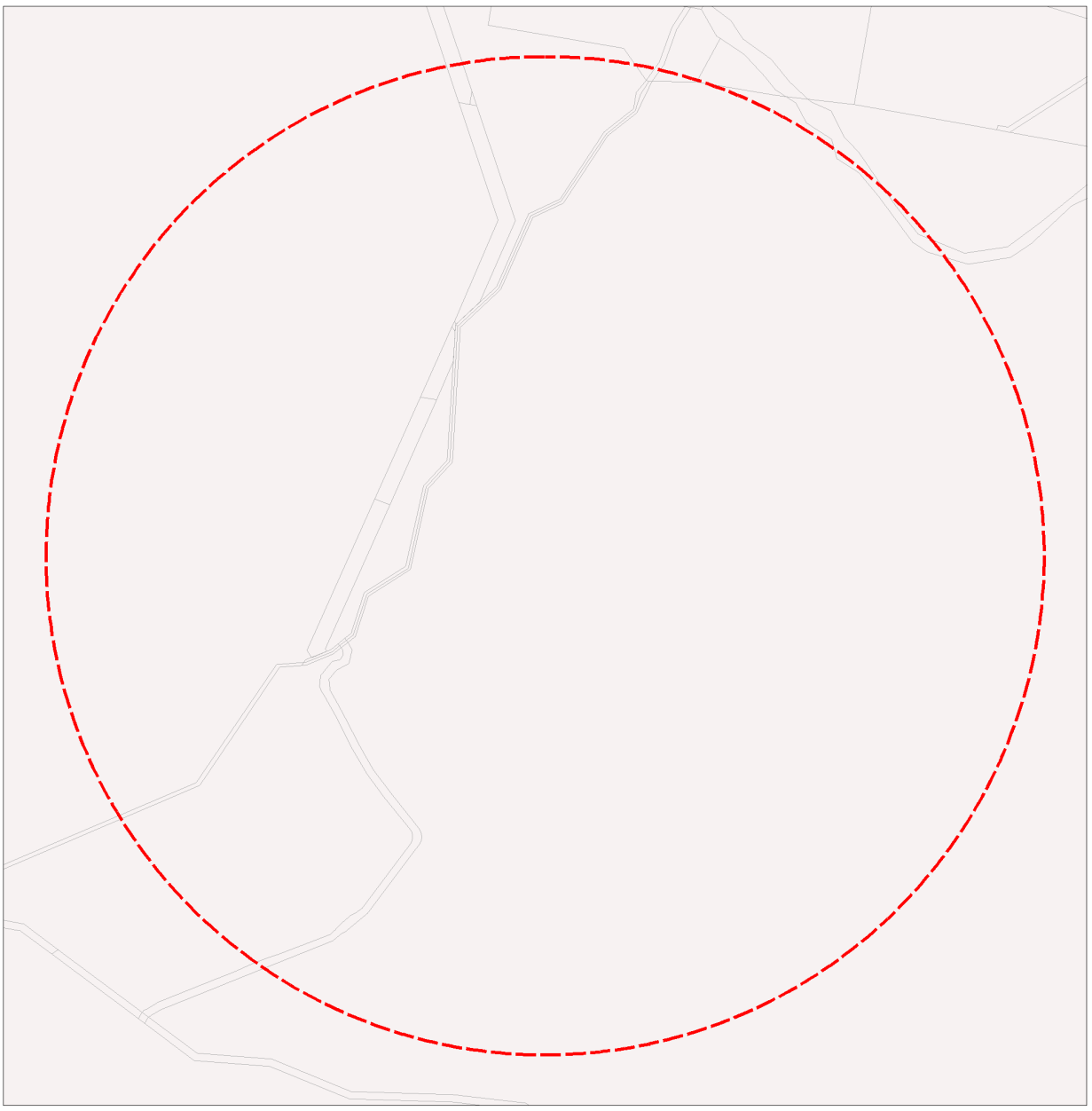
This product is projected into GDA 1994 Queensland Albers

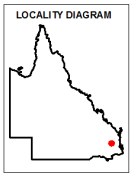
Map 3b - MSES - Species - Koala habitat area (SEQ)



MSES - Species
Koala habitat area (SEQ)

Area of Interest
- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Koala habitat area (core)
- Koala habitat area (locally refined)

LOCALITY DIAGRAM



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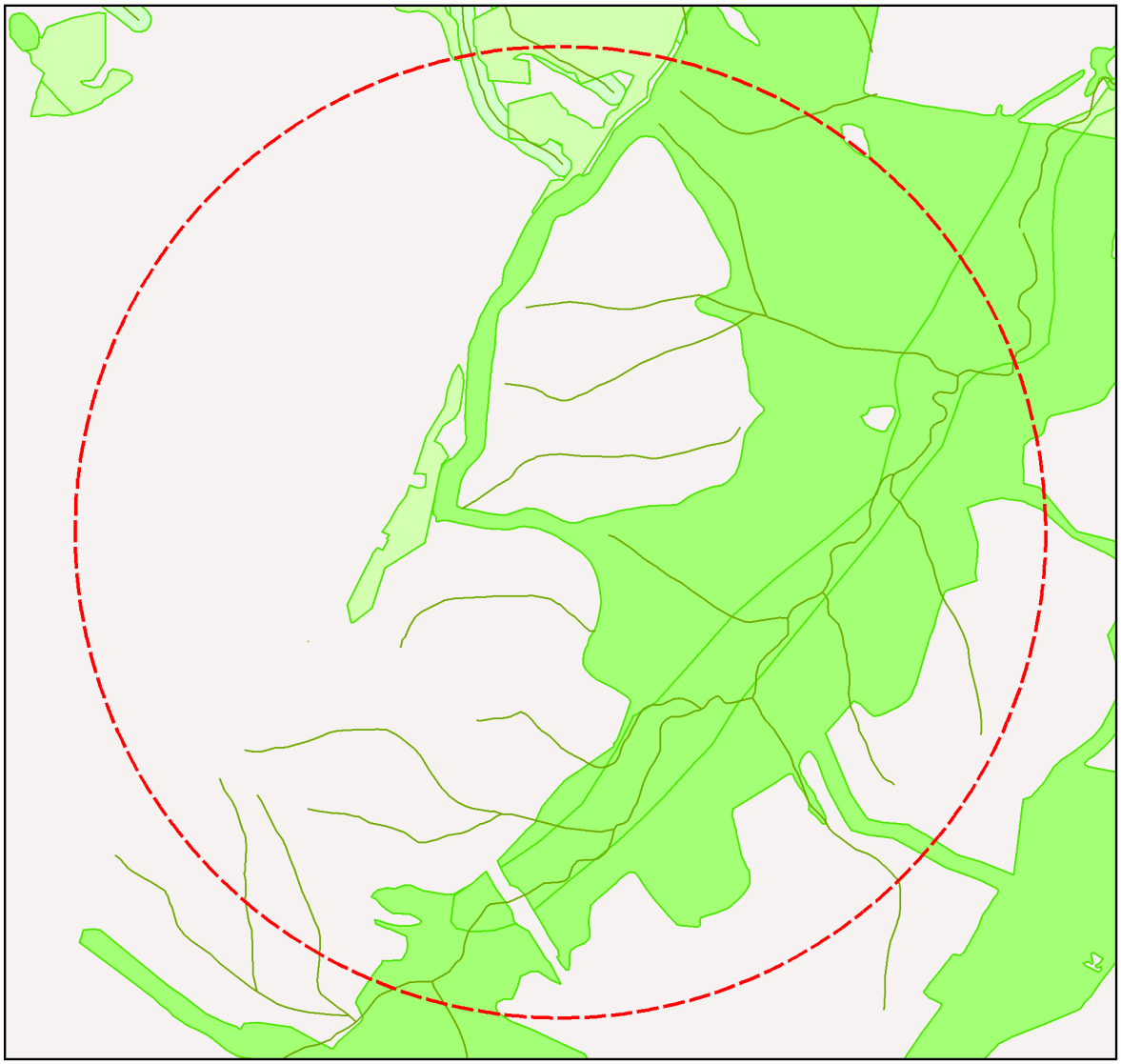
The represented layers for SEQ 'koala habitat area-core' and 'koala habitat area- locally refined' in MSES are sourced directly from the regulatory mapping under the Nature Conservation (Koala) Conservation Plan 2017. Whilst every effort is made to ensure the information remains current, there may be delays between updating versions. Please refer to the original mapping for the most recent version. See https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

0 225 450 675 900 1,125 m

This product is projected into GDA 1994 Queensland Albers

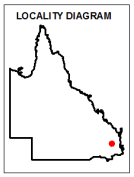
Map 4 - MSES - Regulated Vegetation



MSES - Regulated Vegetation

Area of Interest
- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Regulated vegetation (intersecting a watercourse)
- Regulated vegetation (100m from wetland)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (category R - GBR riverine)
- Regulated vegetation (essential habitat)

LOCALITY DIAGRAM



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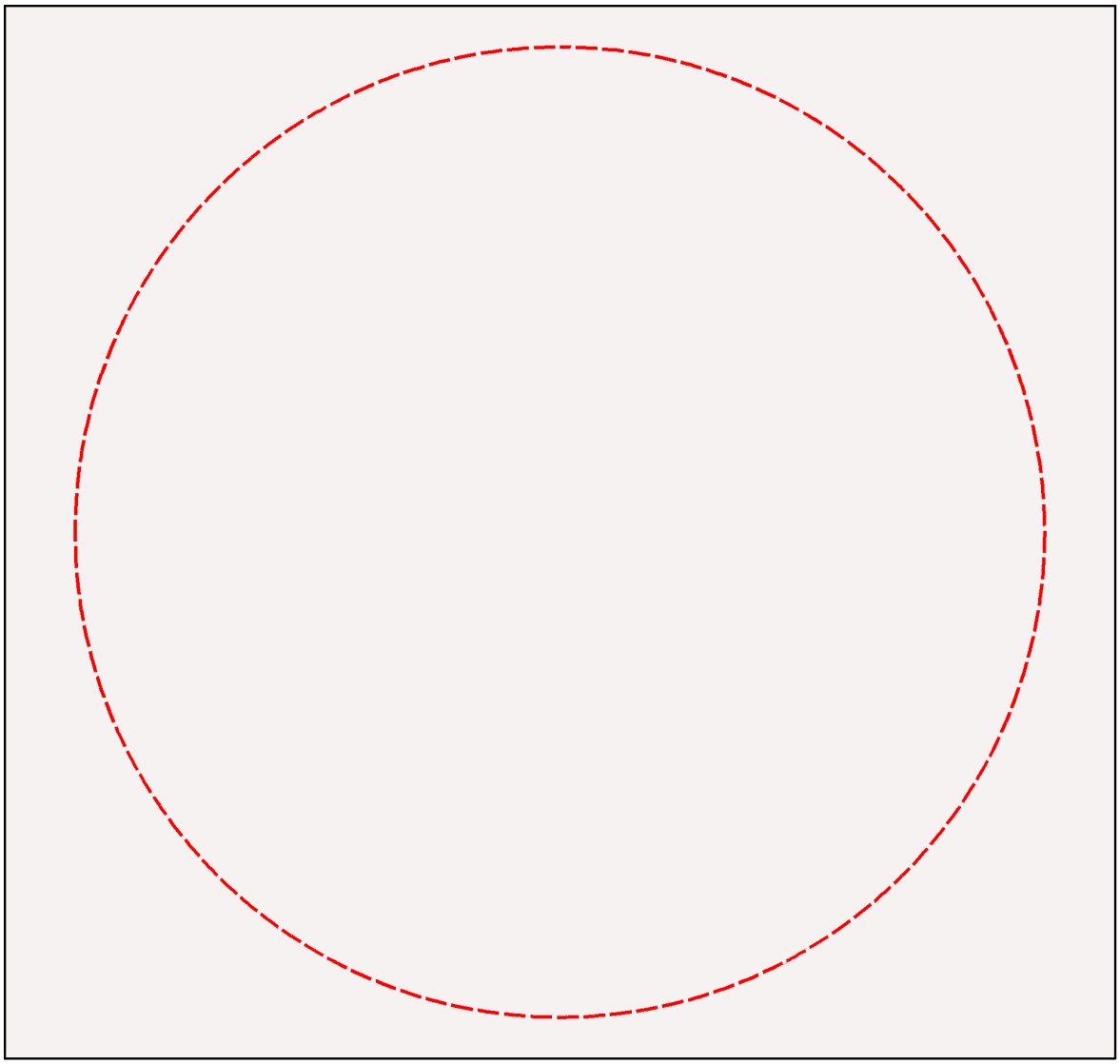
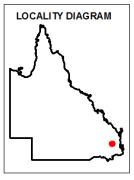
Map 5 - MSES - Offset Areas



MSES - Offsets

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Legally secured offset area (offset register)
- Legally secured offset area (vegetation offsets)



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This product is projected into GDA 1994 Queensland Albers

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

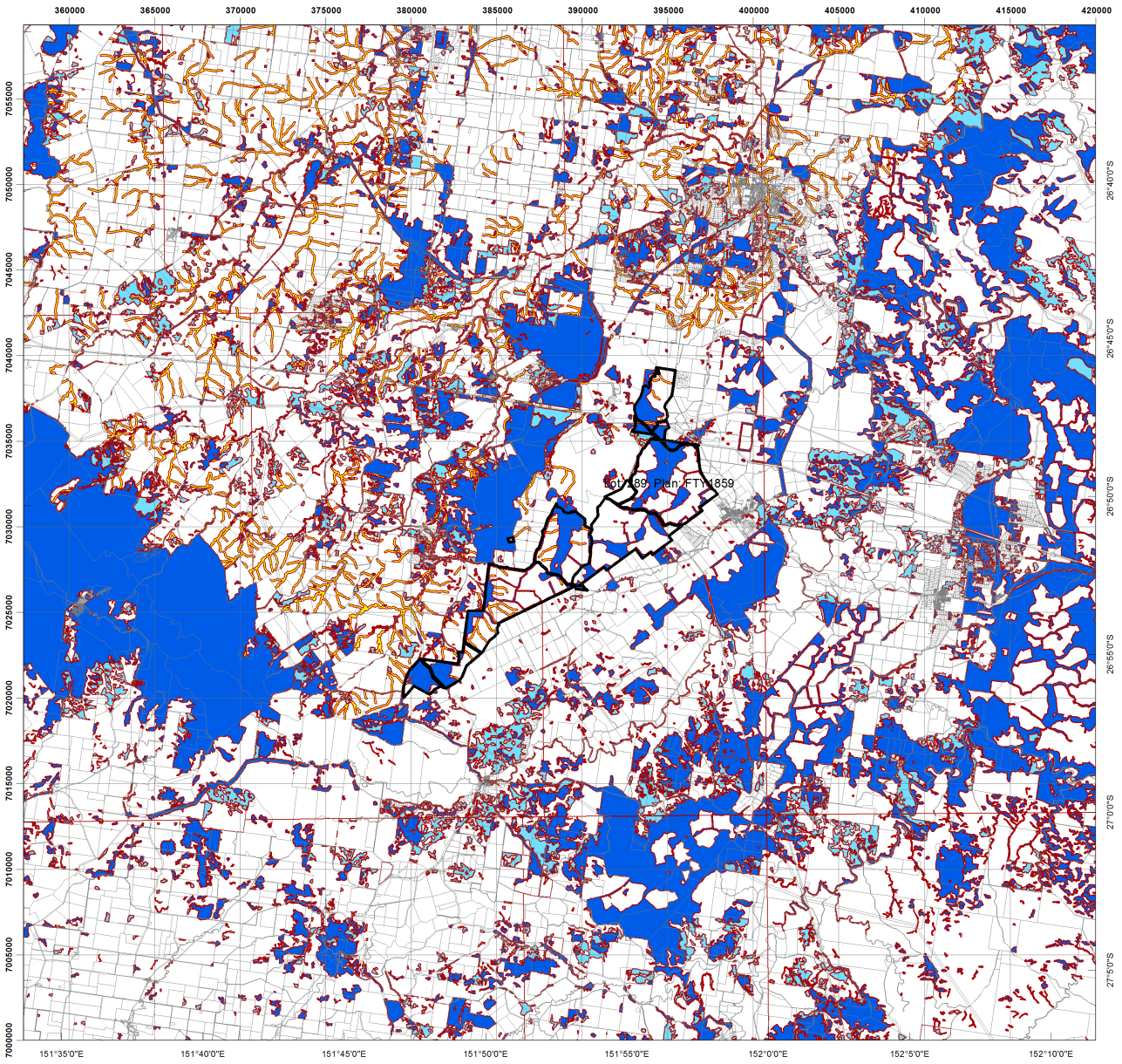
Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying 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, Nature Refuges, Special Wildlife Reserves	- Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- 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 intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 5) 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

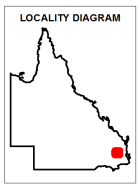
AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- *Environmental Protection Act 1994*
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental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



Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries



N

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This product is projected into:
GDA 1994 MGA Zone 56

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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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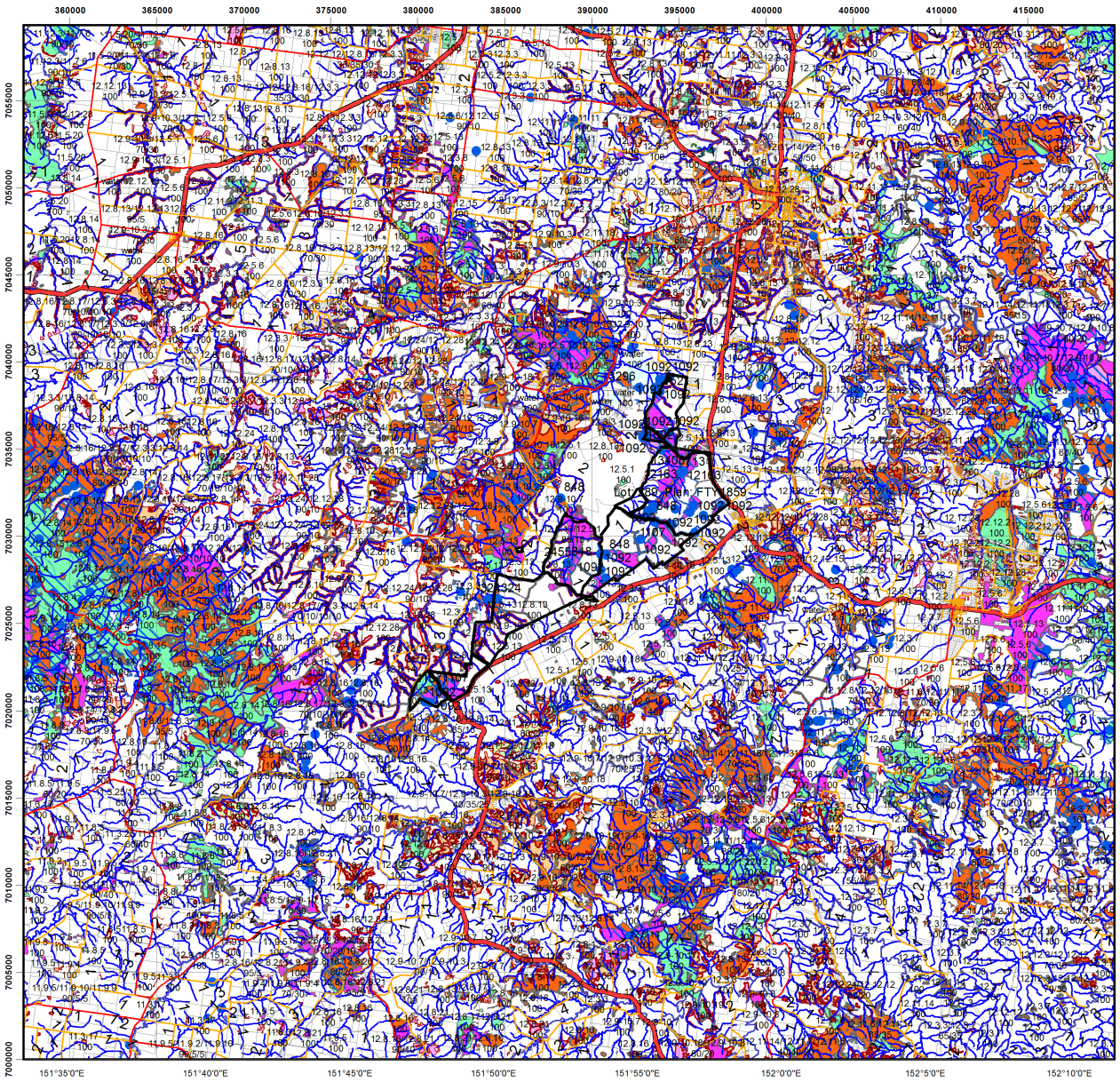

Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

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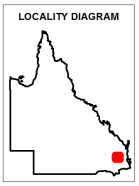
LOCALITY DIAGRAM



N

0 2,400 4,800 7,200 9,600 12,000 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Resources website (http://www.resources.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
324	Delma torquata	collared delma	V	Under rocks or in soil cracks in well-drained areas, in grassy open eucalypt (Eucalyptus tereticornis, E. crebra, E, populnea)/Acacia forest/woodland including Brigalow, occasionally adjacent to semi-evergreen vine thicket.	Sea level to 800m.	Basaltic, lateritic, deeply cracking and sandstone-derived substrates.	Hillsides and ridges.
848	Petauroides volans	greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None
1092	Turnix melanogaster	black-breasted button-quail	V	Dry types of closed forest (> 70-80% cover) including Acacia harpophylla/Brachychiton softwood scrub, semi-evergreen vine thicket, low microphyll and araucarian micro- and notophyll vine forest; scrub breaks (including Lantana camara thicket) in Hoop Pine Araucaria cunninghamii plantations and where shrub layer has developed inside same plantations; and regenerating vine forest with eucalypts, adjacent open forest, Lophostemon confertus and Corymbia intermedia with dense understorey of Allocasuarina littoralis and acacia; Acacia and Austromyrtus scrubs on sandy coastal soils.	Sea level to 1100m.	None	None
1107	Ninox strenua	powerful owl	V	Wet and dry tall open eucalypt forest (Eucalyptus pilularis, E. acmenoides, E. tereticornis, E. camaldulensis, E. crebra, E. melliodora, Corymbia citriodora & C. intermedia), including mountain forest gullies/gorges; forests aged 60+ years (large & old) on fertile soils with suitable hollows; roosting in dense foliage of closed forest (occasionally caves) and foraging in open forest and woodland including areas adjacent to urban/rural development. Nest in large hollows (45-75cm diameter, 50-180cm deep) 6-45m above ground, in large (>100cm dbh) old eucalypts on the side or at the head of heavily wooded gully.	Sea level to 1000m.	None	Gully.
1521	Grantiella picta	painted honeyeater	V	Box, ironbark and yellow gum forest and woodland, also melaleuca (e.g. Melaleuca decora), casuarina (bulloak, belah) callitris and acacia (Acacia harpophylla) woodland; usually mature trees with flowering and/or fruiting mistletoe (especially Amyema spp.). Nest in outer drooping foliage of eucalypt (occasionally mistletoe); 2-20m above ground.	100-400m.	None	None
2455	Petauroides volans volans	southern greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None
3296	Zieria verrucosa	None	V	brigalow/softwood scrub; semi-evergreen vine thicket; woodland of Eucalyptus creba, E. exserta, Acacia tenuinervis with scrubby understorey; tall woodland to open forest of Eucalyptus fibrosa, Eucalyptus melanoleuca with shrubby understorey; woodland or Acacia/Aphitonia	300 to 550 m	ranging from red krasnozem to black earths or clay loam or sandy loam	ridge line, hill slope
7131	Picris conyzoides	None	V	open forest of Eucalyptus tereticornis	0 to 600 m	loam	alliuval flat
12163	Haloragis exalata subsp. velutina	None	V	open eucalypt forest with mixed shrub and grass understorey; open forest of Eucalytpus tereticornis, Angophora subvelutina, Acacia irrorata; wet sclerophyll forest; grassland of Poa/Themeda; eucalypt forest/rainforest margin	0 to 1100 m	loam, sometimes shallow and rocky	rocky hill slope, creek bank, alluvial terrace, ridge line
13406	Rhodamnia dumicola	rib-fruited malletwood	CE	notophyll or microphyll vine thicket or low vine forest	0 to 700 m	sand, loam	hill slope, ridge line, alluvial flat

Label	Regional Ecosystem (mandatory unless otherwise specified)
324	11.2.1, 11.2.2, 11.2.3, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.8, 11.3.9, 11.3.10, 11.3.11, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.20, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.32, 11.3.33, 11.3.34, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.3.40, 11.4.1, 11.4.2, 11.4.3, 11.4.5, 11.4.6, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.15, 11.5.16, 11.5.17, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.3, 11.8.4, 11.8.5, 11.8.6, 11.8.8, 11.8.9, 11.8.11, 11.8.12, 11.8.13, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.4, 11.9.5, 11.9.6, 11.9.7, 11.9.8, 11.9.9, 11.9.10, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.3, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.8, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.2, 11.11.3, 11.11.4, 11.11.5, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.18, 11.11.19, 11.11.20, 11.11.21, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 11.12.1, 11.12.2, 11.12.3, 11.12.4, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.12, 11.12.13, 11.12.14, 11.12.15, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.9, 12.2.10, 12.2.11, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.16, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.5.13, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.16, 12.8.17, 12.8.18, 12.8.19, 12.8.20, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.7, 12.9-10.8, 12.9-10.9, 12.9-10.10, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.15, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.13, 12.12.14, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.7, 13.11.8, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.8, 13.12.9, 13.12.10, 13.12.11

Label	Regional Ecosystem (mandatory unless otherwise specified)
848	7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.38, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 9.3.1, 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.8, 9.3.10, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.24, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.13, 9.5.14, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.40, 9.12.44, 10.3.2, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.20, 11.7.1, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.7, 11.9.9, 11.9.10, 11.9.13, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.13, 11.12.14, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.2.11, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.8, 12.8.10, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10
1092	11.2.2, 11.2.3, 11.3.1, 11.3.11, 11.3.12, 11.3.25, 11.3.26, 11.3.40, 11.4.1, 11.4.3, 11.4.6, 11.4.7, 11.4.9, 11.5.2, 11.5.7, 11.5.15, 11.5.16, 11.7.1, 11.8.1, 11.8.3, 11.8.6, 11.8.13, 11.9.1, 11.9.4, 11.9.5, 11.9.6, 11.9.8, 11.9.10, 11.9.11, 11.9.13, 11.10.1, 11.10.2, 11.10.5, 11.10.8, 11.10.9, 11.10.13, 11.11.3, 11.11.4, 11.11.5, 11.11.13, 11.11.14, 11.11.18, 11.11.21, 11.12.4, 11.12.13, 11.12.19, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.7, 12.2.8, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.15, 12.3.16, 12.3.17, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.3, 12.5.6, 12.5.7, 12.5.13, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.18, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.14, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.11, 12.12.13, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.26, 12.12.28
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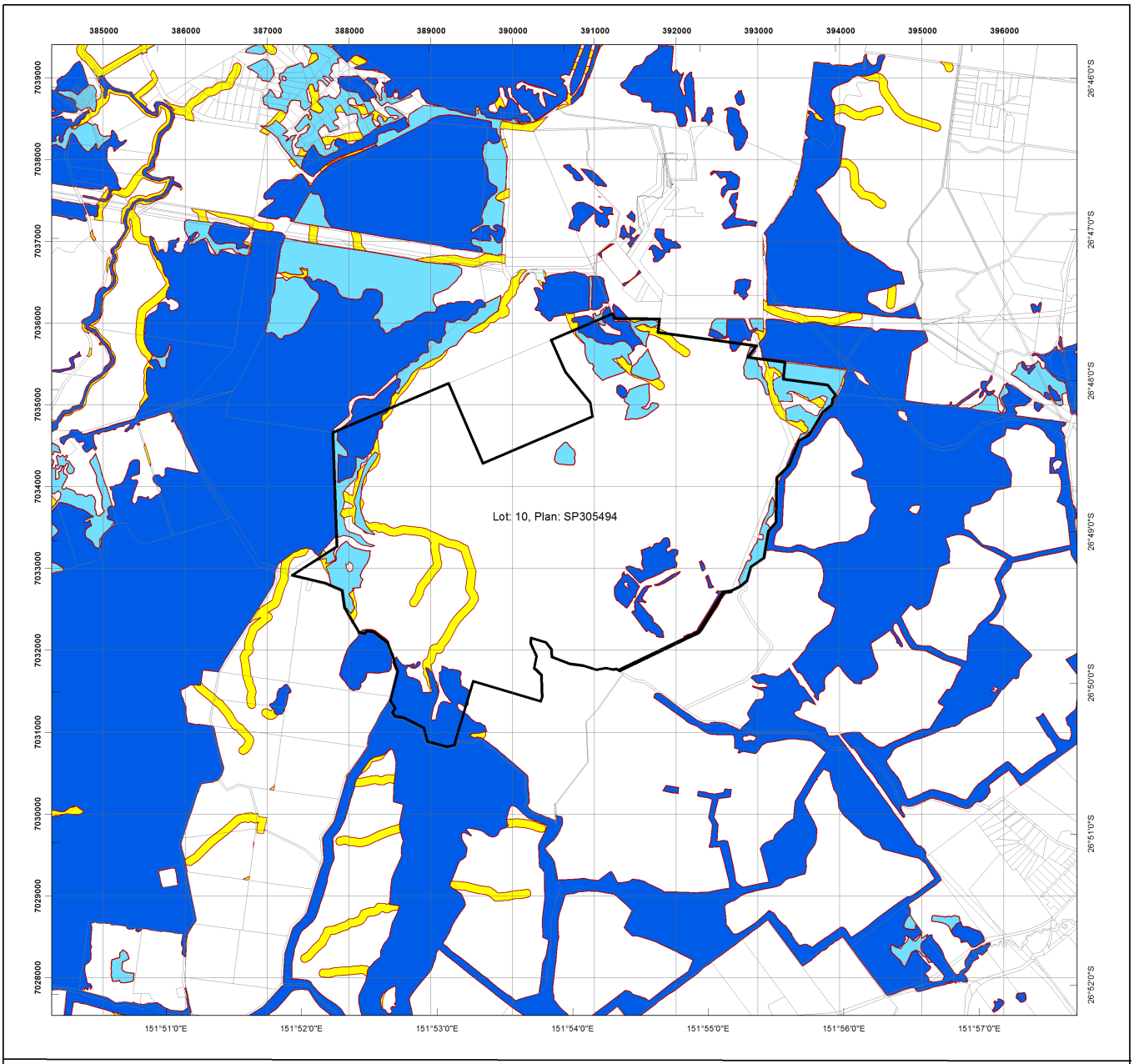
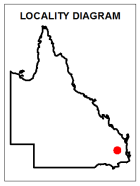


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries



N

0 675 1,350 2,025 2,700 3,375 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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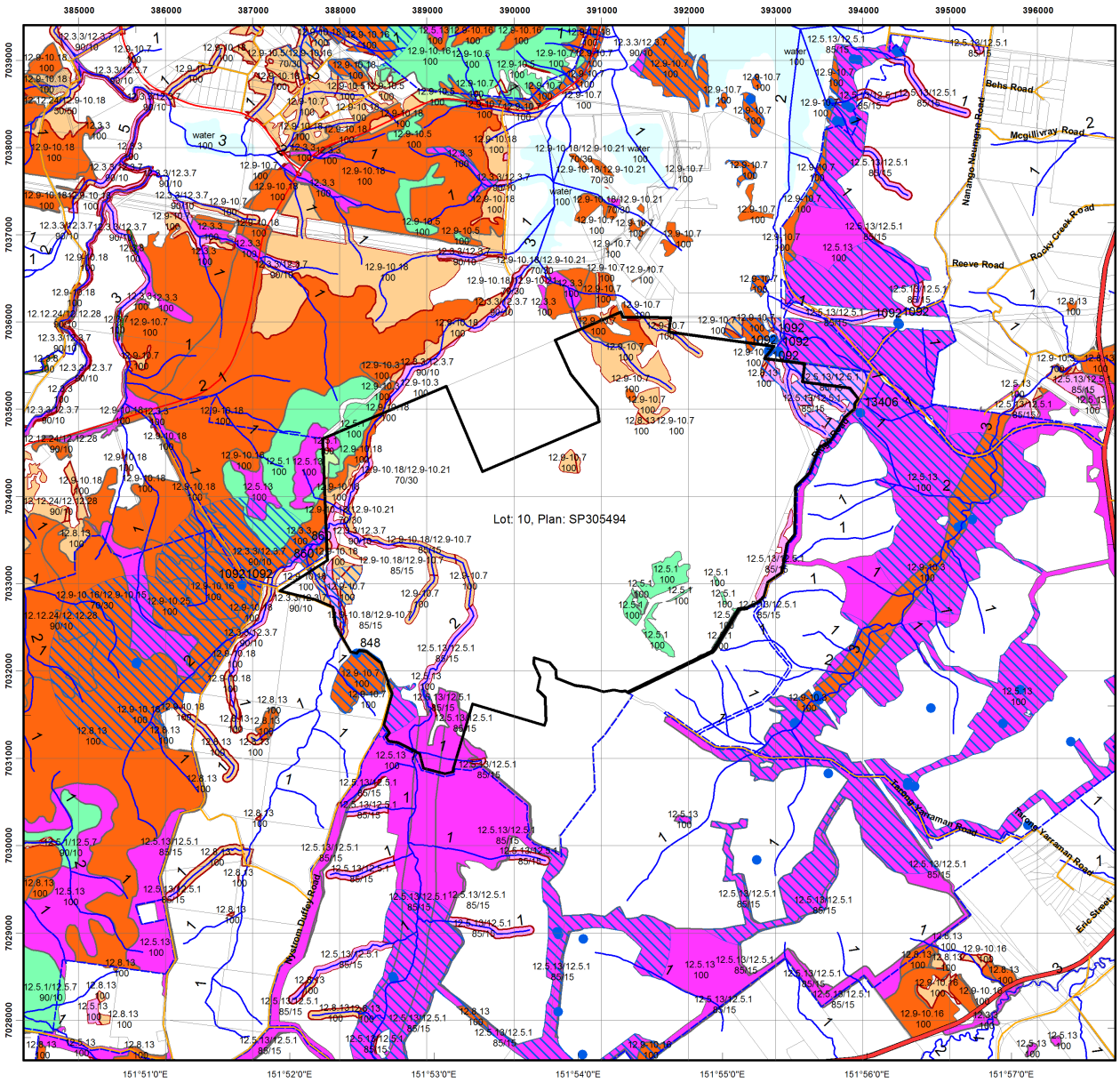

Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features maps (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

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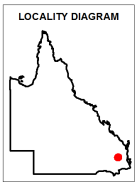
LOCALITY DIAGRAM



N

0 480 960 1,440 1,920 2,400 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Resources website (http://www.resources.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	V	Open forests and woodlands containing Eucalyptus, Corymbia, Lophostemon or Melaleuca trees having a trunk of a diameter of more than 10cm at 1.3m above the ground. Tree species used for food and habitat varies across the state and can include: Corymbia citriodora, Corymbia henryi, Corymbia intermedia, Eucalyptus acmenoides, Eucalyptus bancroftii, Eucalyptus biturbinata, Eucalyptus blakelyi, Eucalyptus brownii, Eucalyptus camaldulensis, Eucalyptus carnea, Eucalyptus chloroclada, Eucalyptus coolabah, Eucalyptus crebra, Eucalyptus dealbata, Eucalyptus drepanophylla, Eucalyptus dunnii, Eucalyptus eugenioides, Eucalyptus exserta, Eucalyptus fibrosa, Eucalyptus grandis, Eucalyptus helidonica, Eucalyptus latisinensis, Eucalyptus longirostrata, Eucalyptus major, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus microcarpa, Eucalyptus microcorys, Eucalyptus microtheca, Eucalyptus moluccana, Eucalyptus montivaga, Eucalyptus orgadophila, Eucalyptus papuana, Eucalyptus pilularis, Eucalyptus platyphylla, Eucalyptus populnea, Eucalyptus portuensis, Eucalyptus propinqua, Eucalyptus racemosa, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus saligna, Eucalyptus seeana, Eucalyptus siderophloia, Eucalyptus sideroxylon, Eucalyptus tereticornis, Eucalyptus thozetiana, Eucalyptus tindaliae, Eucalyptus umbra, Lophostemon confertus, Melaleuca leucadendra, Melaleuca quinquenervia.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
848	Petauroides volans	greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None
1092	Turnix melanogaster	black-breasted button-quail	V	Dry types of closed forest (> 70-80% cover) including Acacia harpophylla/Brachychiton softwood scrub, semi-evergreen vine thicket, low microphyll and araucarian micro- and notophyll vine forest; scrub breaks (including Lantana camara thicket) in Hoop Pine Araucaria cunninghamii plantations and where shrub layer has developed inside same plantations; and regenerating vine forest with eucalypts, adjacent open forest, Lophostemon confertus and Corymbia intermedia with dense understorey of Allocasuarina littoralis and acacia; Acacia and Austromyrtus scrubs on sandy coastal soils.	Sea level to 1100m.	None	None
13406	Rhodamnia dumicola	rib-fruited malletwood	CE	notophyll or microphyll vine thicket or low vine forest	0 to 700 m	sand, loam	hill slope, ridge line, alluvial flat

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 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Label	Regional Ecosystem (mandatory unless otherwise specified)
848	7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.38, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 9.3.1, 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.8, 9.3.10, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.24, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.13, 9.5.14, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.40, 9.12.44, 10.3.2, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.20, 11.7.1, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.7, 11.9.9, 11.9.10, 11.9.13, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.13, 11.12.14, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.2.11, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.8, 12.8.10, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10
1092	11.2.2, 11.2.3, 11.3.1, 11.3.11, 11.3.12, 11.3.25, 11.3.26, 11.3.40, 11.4.1, 11.4.3, 11.4.6, 11.4.7, 11.4.9, 11.5.2, 11.5.7, 11.5.15, 11.5.16, 11.7.1, 11.8.1, 11.8.3, 11.8.6, 11.8.13, 11.9.1, 11.9.4, 11.9.5, 11.9.6, 11.9.8, 11.9.10, 11.9.11, 11.9.13, 11.10.1, 11.10.2, 11.10.5, 11.10.8, 11.10.9, 11.10.13, 11.11.3, 11.11.4, 11.11.5, 11.11.13, 11.11.14, 11.11.18, 11.11.21, 11.12.4, 11.12.13, 11.12.19, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.7, 12.2.8, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.15, 12.3.16, 12.3.17, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.3, 12.5.6, 12.5.7, 12.5.13, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.18, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.14, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.11, 12.12.13, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.26, 12.12.28
13406	11.5.15, 12.2.2, 12.3.3, 12.3.16, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.8.21, 12.9-10.14, 12.9-10.15, 12.9-10.16, 12.11.1, 12.11.3, 12.11.10, 12.11.11, 12.11.12, 12.12.13, 12.12.15, 12.12.16, 12.12.17

resources.QLD.GOV.AU

Vegetation management report

For Lot: 289 Plan: FTY1859

22/04/2022

Queensland Government

Recent changes

Updated mapping

Updated vegetation mapping was released on 8 September 2021 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

The Department of Environment and Science have also updated their protected plant and koala protection mapping to align with the Queensland Herbarium scientific updates.

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

Property details - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s) and catchment(s);

Vegetation management framework - an explanation of the application of the framework and contact details for the Department of Resources who administer the framework;

Vegetation management framework details for the specified Lot on Plan including:

- the vegetation management categories on the property;
- the vegetation management regional ecosystems on the property;
- vegetation management watercourses or drainage features on the property;
- vegetation management wetlands on the property;
- vegetation management essential habitat on the property;
- whether any area management plans are associated with the property;
- whether the property is coastal or non-coastal; and
- whether the property is mapped as Agricultural Land Class A or B;

Protected plant framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework, including:

- high risk areas on the protected plant flora survey trigger map for the property;

Koala protection framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework; and

Koala protection framework details for the specified Lot on Plan including:

- the koala district the property is located in;
- koala priority areas on the property;
- core and locally refined koala habitat areas on the property;
- whether the lot is located in an identified koala broad-hectare area; and
- koala habitat regional ecosystems on the property for core koala habitat areas.

This information will assist you to determine your options for managing vegetation under:

- the vegetation management framework, which may include:

- exempt clearing work;
- accepted development vegetation clearing code;
- an area management plan;
- a development approval;

- the protected plant framework, which may include:

- the need to undertake a flora survey;
- exempt clearing;
- a protected plant clearing permit;

- the koala protection framework, which may include:

- exempted development;
- a development approval;
- the need to undertake clearing sequentially and in the presence of a koala spotter.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 8 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

Table of Contents

1. Property details

1.1 Tenure and title area

All of the lot, plan, tenure and title area information associated with property Lot: 289 Plan: FTY1859, are listed in Table 1.

Table 1: Lot, plan, tenure and title area information for the property

Lot	Plan	Tenure	Property title area (sq metres)
289	FTY1859	State Forest	69,700,000
A	FY2218	Lands Lease	219,000
B	AP21896	Easement	18,910

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

1.2 Property location

Table 2 provides a summary of the locations for property Lot: 289 Plan: FTY1859, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
South Burnett Regional
Toowoomba Regional

Bioregion(s)	Subregion(s)
Southeast Queensland	South Burnett

Catchment(s)
Brisbane
Burnett

2. Vegetation management framework (administered by the Department of Resources)

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

2.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify the Department of Resources or obtain an approval under the vegetation management framework. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 4.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval under the vegetation management framework. For all other land tenures, contact the Department of Resources before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/exemptions.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact the Department of Resources prior to clearing in any of these areas.

2.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/codes

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify the Department of Resources before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing under the vegetation management framework. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an Area Management Plan applies to your property for which you can make a new notification, it will be listed in Section 3.6 of this report. Before clearing under one of these AMPs, you must first notify the Department of Resources and then follow the conditions and requirements listed in the AMP.
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/area-management-plans

2.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development

2.5. Contact information for the Department of Resources

For further information on the vegetation management framework:
Phone 135VEG (135 834)
Email vegetation@resources.qld.gov.au
Visit https://www.resources.qld.gov.au/?contact=vegetation to submit an online enquiry.

3. Vegetation management framework for Lot: 289 Plan: FTY1859

3.1 Vegetation categories

The vegetation categories on your property are shown on the regulated vegetation management map in section 4.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 6957.0ha

Vegetation category	Area (ha)
Category B	2614.7
Category C	0.0
Category R	223.2
Category X	4119.1

Table 4: Description of vegetation categories

Category	Colour on Map	Description	Requirements / options under the vegetation management framework
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact the Department of Resources to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing on freehold land, indigenous land and leasehold land for agriculture and grazing purposes is considered exempt clearing work under the vegetation management framework. Contact the Department of Resources to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

The following Property Map of Assessable Vegetation (PMAVs) may be present on this property:

Reference number

2010/005036

2009/009792

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 4.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.5.1	Least concern	B	26.50	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.1	Least concern	C	less than 0.01	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.1	Least concern	R	18.25	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.13	Endangered	B	2,079.19	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.5.13	Endangered	C	less than 0.01	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.5.13	Endangered	R	104.33	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.8.13	Of concern	B	255.85	Araucarian complex microphyll vine forest on Cainozoic igneous rocks	Dense
12.8.13	Of concern	R	67.84	Araucarian complex microphyll vine forest on Cainozoic igneous rocks	Dense
12.8.14	Least concern	B	79.23	Eucalyptus eugenioides, E. biturbinata, E. melliodora +/- E. tereticornis, Corymbia intermedia open forest on Cainozoic igneous rocks	Mid-dense
12.8.14	Least concern	R	0.46	Eucalyptus eugenioides, E. biturbinata, E. melliodora +/- E. tereticornis, Corymbia intermedia open forest on Cainozoic igneous rocks	Mid-dense
12.8.16	Of concern	B	10.58	Eucalyptus crebra +/- E. melliodora, E. tereticornis woodland on Cainozoic igneous rocks	Sparse
12.8.16	Of concern	R	2.58	Eucalyptus crebra +/- E. melliodora, E. tereticornis woodland on Cainozoic igneous rocks	Sparse
12.9-10.16	Of concern	B	44.91	Araucarian microphyll to notophyll vine forest on Cainozoic and Mesozoic sediments	Dense
12.9-10.16	Of concern	R	29.30	Araucarian microphyll to notophyll vine forest on Cainozoic and Mesozoic sediments	Dense

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.9-10.18	Of concern	B	6.18	Angophora leiocarpa, Eucalyptus crebra woodland on sedimentary rocks	Sparse
12.9-10.18	Of concern	R	0.05	Angophora leiocarpa, Eucalyptus crebra woodland on sedimentary rocks	Sparse
12.9-10.3	Of concern	B	100.13	Eucalyptus moluccana open forest on sedimentary rocks	Mid-dense
12.9-10.3	Of concern	C	less than 0.01	Eucalyptus moluccana open forest on sedimentary rocks	Mid-dense
12.9-10.3	Of concern	R	0.01	Eucalyptus moluccana open forest on sedimentary rocks	Mid-dense
12.9-10.7	Of concern	B	12.10	Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks	Sparse
12.9-10.7	Of concern	R	0.42	Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks	Sparse
non-rem	None	X	298.82	None	None
plantation	None	X	3,820.29	None	None

Please note:

1. All area and area derived figures included in this table 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.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work;
- accepted development vegetation clearing codes;
- performance outcomes in State Code 16 of the State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 4.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Under the VMA, essential habitat for protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA) as critically endangered, endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 4.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
324	Delma torquata	collared delma	V	Under rocks or in soil cracks in well-drained areas, in grassy open eucalypt (Eucalyptus tereticornis, E. crebra, E, populnea)/Acacia forest/woodland including Brigalow, occasionally adjacent to semi-evergreen vine thicket.	Sea level to 800m.	Basaltic, lateritic, deeply cracking and sandstone-derived substrates.	Hillsides and ridges.
848	Petauroides volans	greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None
1092	Turnix melanogaster	black-breasted button-quail	V	Dry types of closed forest (> 70-80% cover) including Acacia harpophylla/Brachychiton softwood scrub, semi-evergreen vine thicket, low microphyll and araucarian micro- and notophyll vine forest; scrub breaks (including Lantana camara thicket) in Hoop Pine Araucaria cunninghamii plantations and where shrub layer has developed inside same plantations; and regenerating vine forest with eucalypts, adjacent open forest, Lophostemon confertus and Corymbia intermedia with dense understorey of Allocasuarina littoralis and acacia; Acacia and Austromyrtus scrubs on sandy coastal soils.	Sea level to 1100m.	None	None
1107	Ninox strenua	powerful owl	V	Wet and dry tall open eucalypt forest (Eucalyptus pilularis, E. acmenoides, E. tereticornis, E. camaldulensis, E. crebra, E. melliodora, Corymbia citriodora & C. intermedia), including mountain forest gullies/gorges; forests aged 60+ years (large & old) on fertile soils with suitable hollows; roosting in dense foliage of closed forest (occasionally caves) and foraging in open forest and woodland including areas adjacent to urban/rural development. Nest in large hollows (45-75cm diameter, 50-180cm deep) 6-45m above ground, in large (>100cm dbh) old eucalypts on the side or at the head of heavily wooded gully.	Sea level to 1000m.	None	Gully.
1521	Grantiella picta	painted honeyeater	V	Box, ironbark and yellow gum forest and woodland, also melaleuca (e.g. Melaleuca decora), casuarina (bulloak, belah) callitris and acacia (Acacia harpophylla) woodland; usually mature trees with flowering and/or fruiting mistletoe (especially Amyema spp.). Nest in outer drooping foliage of eucalypt (occasionally mistletoe); 2-20m above ground.	100-400m.	None	None
2455	Petauroides volans volans	southern greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
3296	Zieria verrucosa	None	V	brigalow/softwood scrub; semi-evergreen vine thicket; woodland of Eucalyptus creba, E. exserta, Acacia tenuinervis with scrubby understorey; tall woodland to open forest of Eucalyptus fibrosa, Eucalyptus melanoleuca with shrubby understorey; woodland or Acacia/Aphitonia	300 to 550 m	ranging from red krasnozem to black earths or clay loam or sandy loam	ridge line, hill slope
7131	Picris conyzoides	None	V	open forest of Eucalyptus tereticornis	0 to 600 m	loam	alliuval flat
12163	Haloragis exalata subsp. velutina	None	V	open eucalypt forest with mixed shrub and grass understorey; open forest of Eucalytpus tereticornis, Angophora subvelutina, Acacia irrorata; wet sclerophyll forest; grassland of Poa/Themeda; eucalypt forest/rainforest margin	0 to 1100 m	loam, sometimes shallow and rocky	rocky hill slope, creek bank, alluvial terrace, ridge line
13406	Rhodamnia dumicola	rib-fruited malletwood	CE	notophyll or microphyll vine thicket or low vine forest	0 to 700 m	sand, loam	hill slope, ridge line, alluvial flat

Label	Regional Ecosystem (mandatory unless otherwise specified)
324	11.2.1, 11.2.2, 11.2.3, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.8, 11.3.9, 11.3.10, 11.3.11, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.20, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.32, 11.3.33, 11.3.34, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.3.40, 11.4.1, 11.4.2, 11.4.3, 11.4.5, 11.4.6, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.15, 11.5.16, 11.5.17, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.3, 11.8.4, 11.8.5, 11.8.6, 11.8.8, 11.8.9, 11.8.11, 11.8.12, 11.8.13, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.4, 11.9.5, 11.9.6, 11.9.7, 11.9.8, 11.9.9, 11.9.10, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.3, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.8, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.2, 11.11.3, 11.11.4, 11.11.5, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.18, 11.11.19, 11.11.20, 11.11.21, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 11.12.1, 11.12.2, 11.12.3, 11.12.4, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.12, 11.12.13, 11.12.14, 11.12.15, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.9, 12.2.10, 12.2.11, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.16, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.5.13, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.16, 12.8.17, 12.8.18, 12.8.19, 12.8.20, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.7, 12.9-10.8, 12.9-10.9, 12.9-10.10, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.15, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.13, 12.12.14, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.7, 13.11.8, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.8, 13.12.9, 13.12.10, 13.12.11
848	7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.38, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 9.3.1, 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.8, 9.3.10, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.24, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.13, 9.5.14, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.40, 9.12.44, 10.3.2, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.20, 11.7.1, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.7, 11.9.9, 11.9.10, 11.9.13, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.13, 11.12.14, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.2.11, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.8, 12.8.10, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10
1092	11.2.2, 11.2.3, 11.3.1, 11.3.11, 11.3.12, 11.3.25, 11.3.26, 11.3.40, 11.4.1, 11.4.3, 11.4.6, 11.4.7, 11.4.9, 11.5.2, 11.5.7, 11.5.15, 11.5.16, 11.7.1, 11.8.1, 11.8.3, 11.8.6, 11.8.13, 11.9.1, 11.9.4, 11.9.5, 11.9.6, 11.9.8, 11.9.10, 11.9.11, 11.9.13, 11.10.1, 11.10.2, 11.10.5, 11.10.8, 11.10.9, 11.10.13, 11.11.3, 11.11.4, 11.11.5, 11.11.13, 11.11.14, 11.11.18, 11.11.21, 11.12.4, 11.12.13, 11.12.19, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.7, 12.2.8, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.15, 12.3.16, 12.3.17, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.3, 12.5.6, 12.5.7, 12.5.13, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.18, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.14, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.11, 12.12.13, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.26, 12.12.28

Label	Regional Ecosystem (mandatory unless otherwise specified)
1107	8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.13, 8.2.14, 8.3.1, 8.3.3, 8.3.6, 8.3.8, 8.3.9, 8.3.10, 8.3.11, 8.5.1, 8.8.1, 8.10.1, 8.11.2, 8.11.3, 8.11.5, 8.12.1, 8.12.2, 8.12.3, 8.12.4, 8.12.5, 8.12.7, 8.12.8, 8.12.11, 8.12.12, 8.12.14, 8.12.16, 8.12.17, 8.12.18, 8.12.19, 8.12.26, 8.12.27, 8.12.28, 8.12.29, 8.12.30, 8.12.31, 8.12.32, 11.2.2, 11.2.3, 11.3.1, 11.3.11, 11.3.12, 11.3.25, 11.3.26, 11.3.40, 11.4.1, 11.4.3, 11.4.7, 11.4.9, 11.5.7, 11.5.16, 11.8.1, 11.8.13, 11.9.1, 11.9.4, 11.9.5, 11.9.6, 11.9.10, 11.9.13, 11.10.1, 11.10.2, 11.10.5, 11.10.8, 11.10.9, 11.10.13, 11.11.3, 11.11.5, 11.11.13, 11.11.14, 11.11.18, 11.12.4, 11.12.13, 11.12.19, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.7, 12.2.8, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.15, 12.3.16, 12.3.17, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.3, 12.5.6, 12.5.7, 12.5.13, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.18, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.14, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.11, 12.12.13, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.26, 12.12.28, 13.3.2, 13.3.3, 13.3.5, 13.9.2, 13.11.2, 13.11.5, 13.11.6, 13.11.7, 13.12.1, 13.12.4, 13.12.11
1521	1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.3.6, 1.3.7, 1.3.8, 1.3.9, 1.3.11, 1.3.12, 1.3.13, 1.3.14, 1.3.15, 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.9, 1.5.10, 1.5.11, 1.5.12, 1.5.13, 1.15.14, 1.5.15, 1.5.16, 1.5.17, 1.5.18, 1.5.19, 1.6.1, 1.7.1, 1.7.2, 1.7.3, 1.7.4, 1.7.5, 1.7.6, 1.7.7, 1.9.1, 1.9.2, 1.9.3, 1.9.4, 1.9.5, 1.9.6, 1.9.7, 1.9.9, 1.9.10, 1.9.11, 1.9.12, 1.9.13, 1.9.14, 1.10.1, 1.10.2, 1.10.3, 1.10.4, 1.10.5, 1.10.6, 1.10.7, 1.10.8, 1.10.9, 1.11.1, 1.11.2, 1.11.3, 1.11.4, 1.11.6, 1.11.7, 1.11.8, 1.11.9, 1.11.10, 1.11.11, 1.11.12, 1.11.13, 1.11.14, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.12.5, 1.12.6, 1.12.7, 2.2.1, 2.2.7, 2.3.1, 2.3.5, 2.3.6, 2.3.7, 2.3.8, 2.3.9, 2.3.10, 2.3.11, 2.3.12, 2.3.13, 2.3.15, 2.3.17, 2.3.18, 2.3.19, 2.3.20, 2.3.21, 2.3.22, 2.3.23, 2.3.24, 2.3.25, 2.3.26, 2.3.27, 2.3.28, 2.3.29, 2.3.30, 2.3.31, 2.3.33, 2.3.34, 2.3.35, 2.3.36, 2.3.37, 2.3.39, 2.3.40, 2.3.41, 2.3.42, 2.3.43, 2.3.44, 2.3.45, 2.3.46, 2.3.47, 2.3.49, 2.3.50, 2.3.51, 2.3.52, 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Label	Regional Ecosystem (mandatory unless otherwise specified)
2455	7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.38, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 9.3.1, 9.3.2, 9.3.3, 9.3.5, 9.3.6, 9.3.8, 9.3.10, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.24, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.13, 9.5.14, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.40, 9.12.44, 10.3.2, 11.2.1, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.7, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.7, 11.4.8, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.17, 11.5.20, 11.7.1, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.7, 11.9.9, 11.9.10, 11.9.13, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.13, 11.12.14, 11.12.16, 11.12.17, 11.12.19, 11.12.20, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.10, 12.2.11, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.14, 12.3.15, 12.3.18, 12.3.19, 12.3.20, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.8, 12.8.10, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.17, 12.8.20, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.7, 12.9-10.8, 12.9-10.11, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.27, 12.9-10.28, 12.9-10.29, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10
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7131	12.3.7, 12.3.19, 12.9-10.3
12163	11.3.25, 11.8.4, 12.8.14, 12.8.15, 12.8.16, 12.9-10.3, 12.11.3, 12.12.15
13406	11.5.15, 12.2.2, 12.3.3, 12.3.16, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.8.21, 12.9-10.14, 12.9-10.15, 12.9-10.16, 12.11.1, 12.11.3, 12.11.10, 12.11.11, 12.11.12, 12.12.13, 12.12.15, 12.12.16, 12.12.17

3.6 Area Management Plan(s)

Necessary environmental clearing in the Burnett and Kolan catchments

3.7 Coastal or non-coastal

For the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP), this property is regarded as*

Coastal

*See also Map 4.3

3.8 Agricultural Land Class A or B

The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

Class A (with urban areas masked as per SPP): 2726.53ha

Class B (with urban areas masked as per SPP): 2006.39ha

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See Map 4.4 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 289 Plan: FTY1859.

4. Vegetation management framework maps

Vegetation management maps included in this report may also be requested individually at:
https://www.resources.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

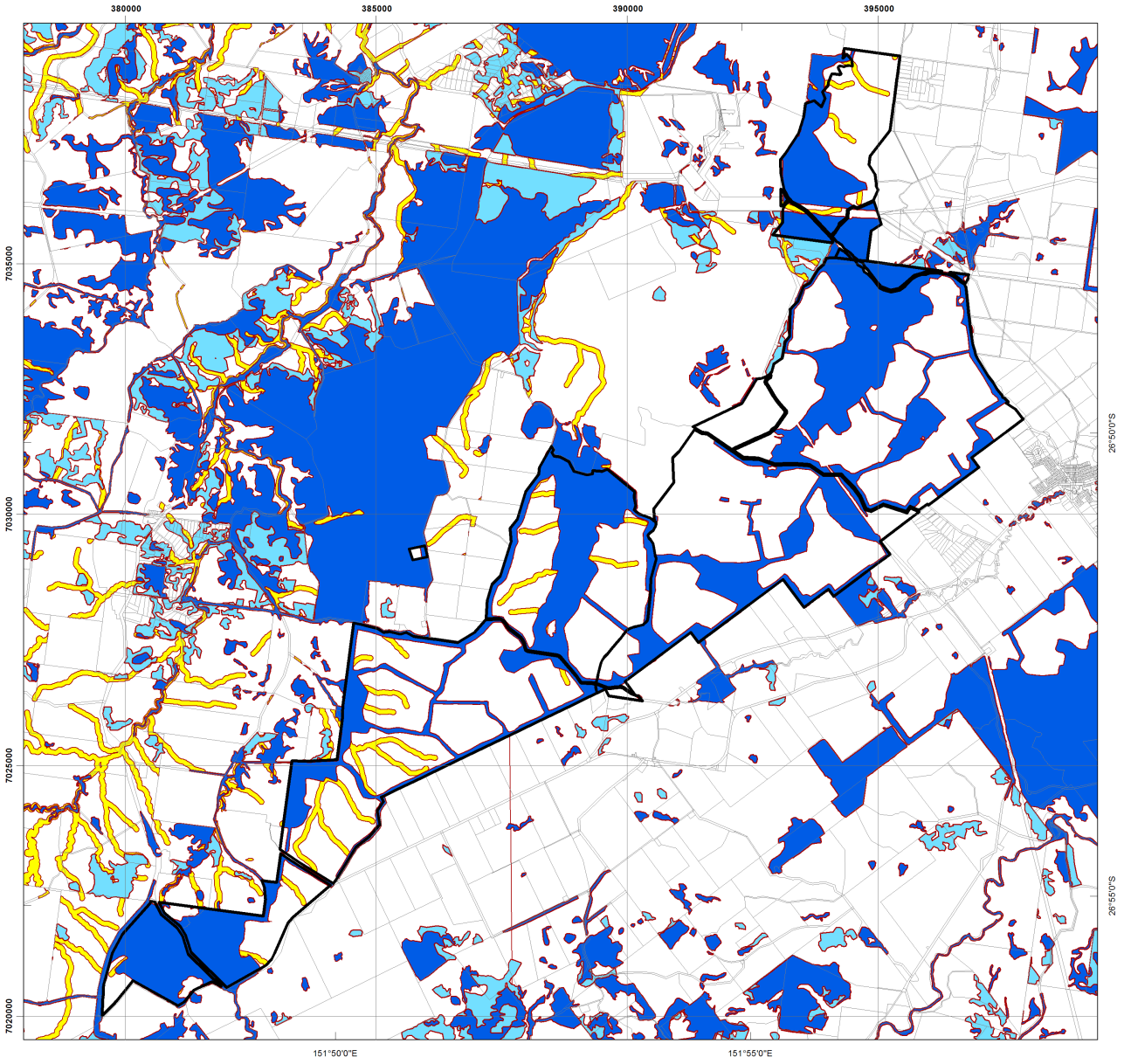
Coastal/non-coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP).

Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

4.1 Regulated vegetation management map

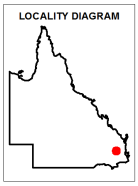


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries

LOCALITY DIAGRAM



N

0 1,100 2,200 3,300 4,400 5,500 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

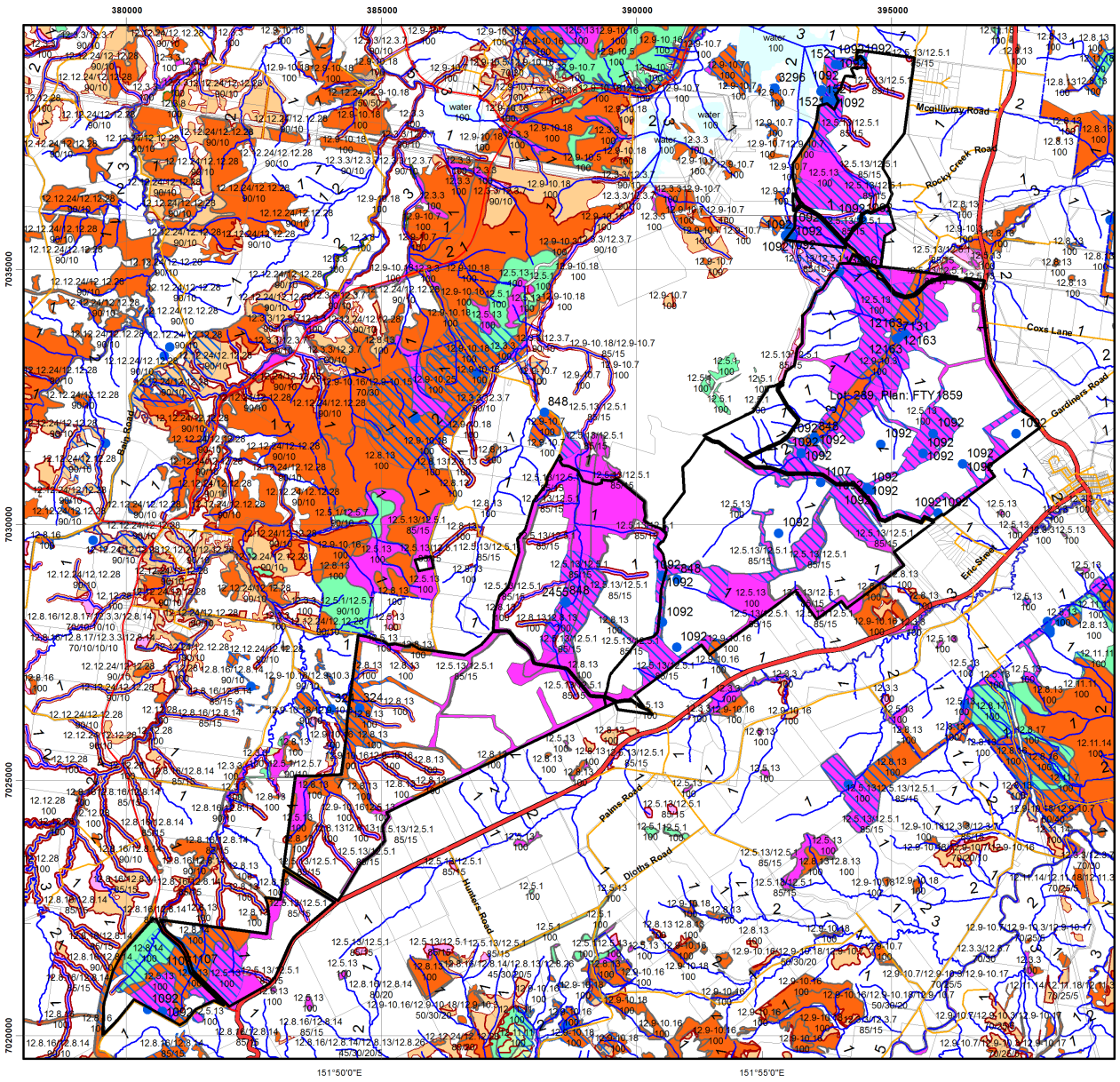
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

4.2 Vegetation management supporting map



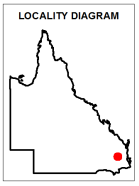
Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

Queensland Government

LOCALITY DIAGRAM



N

0 830 1,660 2,490 3,320 4,150 m

This product is projected into: GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

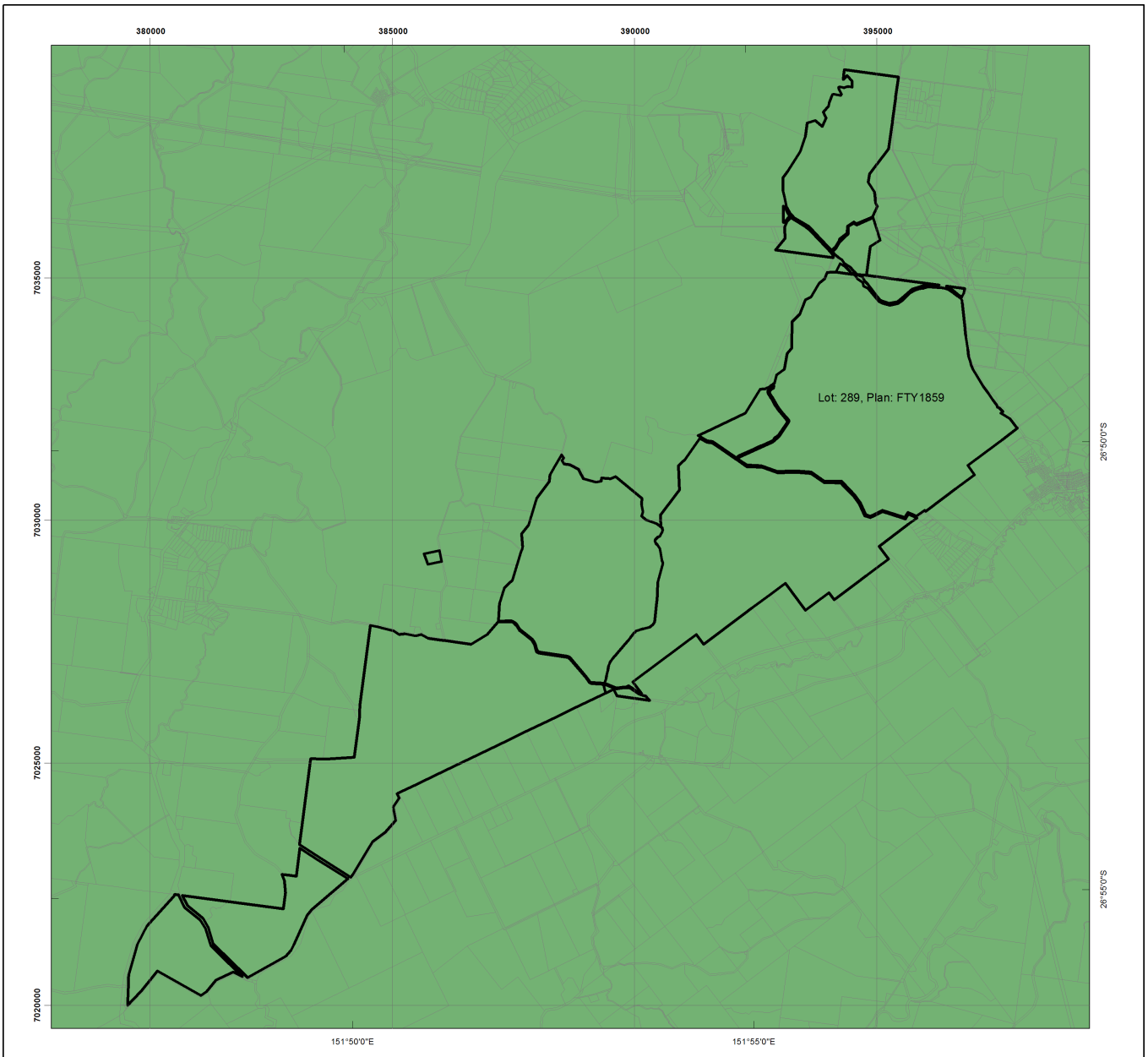
Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

4.3 Coastal/non-coastal map

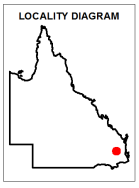


Coastal/Non Coastal Map

Legend

- Selected Lot and Plan
- Coastal
- Non Coastal
- Other land parcel boundaries

LOCALITY DIAGRAM



N

0 1,100 2,200 3,300 4,400 5,500 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
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Land parcel boundaries shown are provided as a locational aid only.

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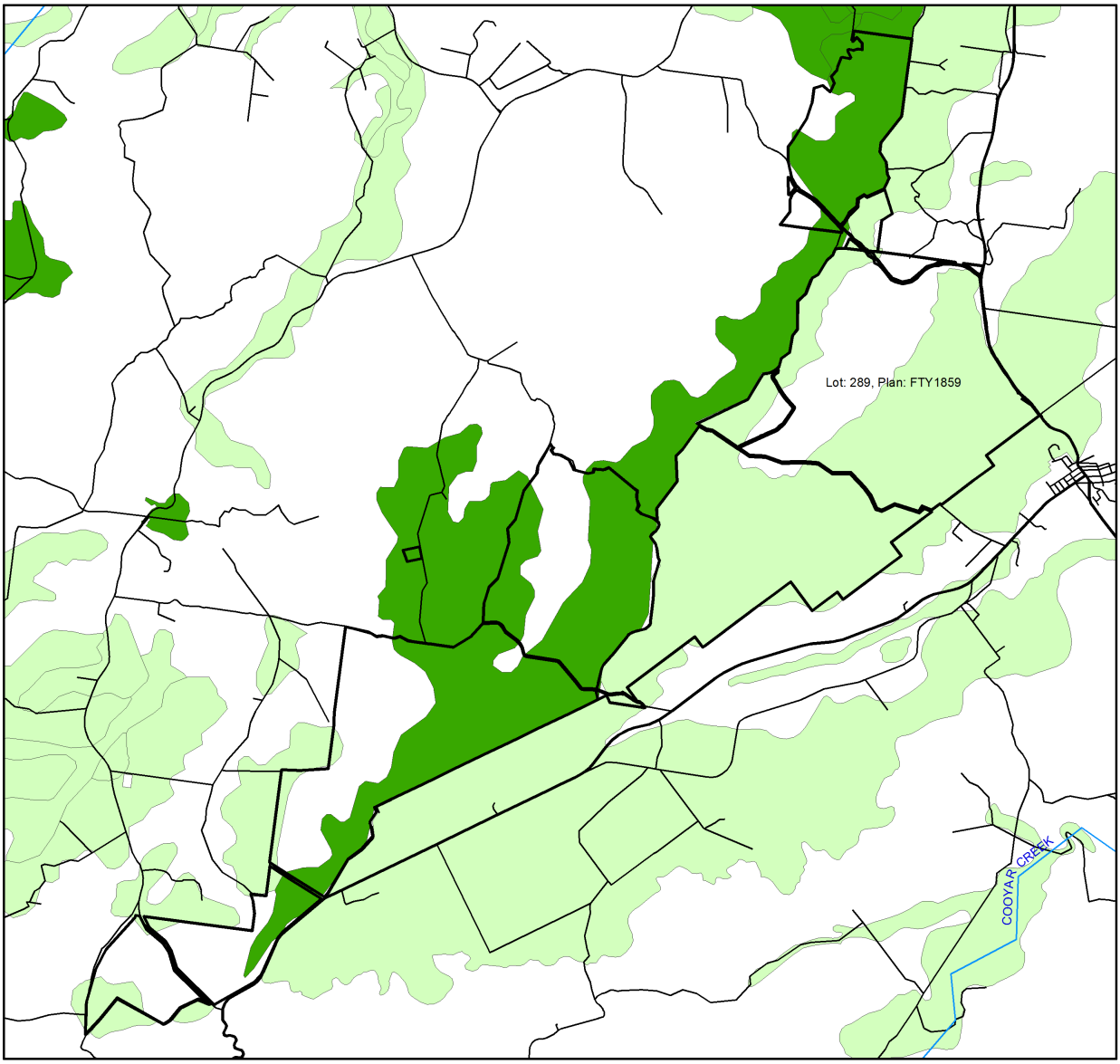
4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



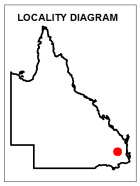
Agricultural Land Class A or B
as per State Planning Policy: State Interest for Agriculture

Legend

- Selected Lot and Plan
- Towns
- Rivers and creeks
- Freeways / motorways; Highways
- Secondary roads; Streets

Agricultural land class A or B

- A
- B
- Not class A or B



N

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0 1100 2200 3300 4400 5500 m

This product is projected into GDA 1994 MGA Zone 56

5. Protected plants framework (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA). The NCA regulates the clearing of protected plants 'in the wild' (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') that are listed as critically endangered, endangered, vulnerable or near threatened under the Act.

Please note that the protected plant clearing framework applies irrespective of the classification of the vegetation under the *Vegetation Management Act 1999* and any approval or exemptions given under another Act, for example, the *Vegetation Management Act 1999* or *Planning Regulation 2017*.

5.1 Clearing in high risk areas on the flora survey trigger map

The flora survey trigger map identifies high-risk areas for endangered, vulnerable or near threatened (EVNT) plants. These are areas where EVNT plants are known to exist or are likely to exist based on the habitat present. The flora survey trigger map for this property is provided in section 5.5.

If you are proposing to clear an area shown as high risk on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken by a suitably qualified person in accordance with the Flora survey guidelines. The main objective of a flora survey is to locate any EVNT plants that may be present in the clearing impact area.

If the flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing.

If the flora survey identifies that EVNT plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the clearing permit application form.

5.2 Clearing outside high risk areas on the flora survey trigger map

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

5.3 Exemptions

Many activities are 'exempt' under the protected plant clearing framework, which means that clearing of native plants that are in the wild can be undertaken for these activities with no need for a flora survey or a protected plant clearing permit. The Information sheet - General exemptions for the take of protected plants provides some of these exemptions.

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) under the *Vegetation Management Act 1999* (i.e. listed in Schedule 21 of the Planning Regulations 2017) while some are different.

5.4 Contact information for DES

For further information on the protected plants framework:
Phone 1300 130 372 (and select option four)
Email palm@des.qld.gov.au
Visit https://www.qld.gov.au/environment/plants-animals/plants/protected-plants

5.5 Protected plants flora survey trigger map

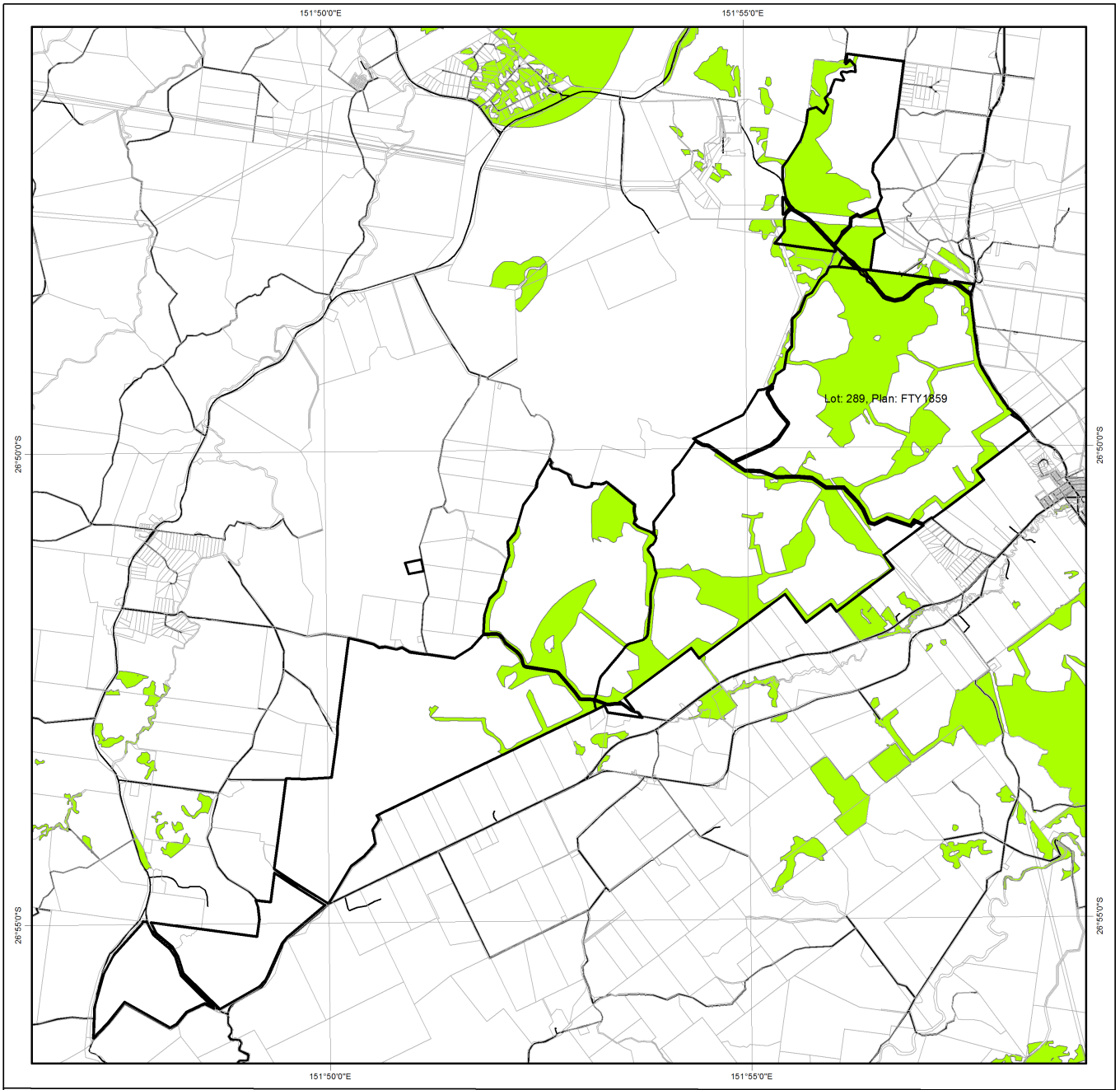
This map included may also be requested individually at: https://apps.des.qld.gov.au/map-request/flora-survey-trigger/.

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.

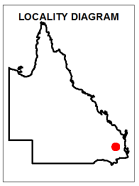


Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets

LOCALITY DIAGRAM



N

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This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

6. Koala protection framework (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as vulnerable by the Queensland Government under *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Queensland Government's koala protection framework is comprised of the *Nature Conservation Act 1992*, the Nature Conservation (Animals) Regulation 2020, the Nature Conservation (Koala) Conservation Plan 2017, the *Planning Act 2016* and the Planning Regulation 2017.

6.1 Koala mapping

6.1.1 Koala districts

The parts of Queensland where koalas are known to occur has been divided into three koala districts - koala district A, koala district B and koala district C. Each koala district is made up of areas with comparable koala populations (e.g. density, extent and significance of threatening processes affecting the population) which require similar management regimes.

Section 7.1 identifies which koala district your property is located in.

6.1.2 Koala habitat areas

Koala habitat areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). In order to protect this important koala habitat, clearing controls have been introduced into the Planning Regulation 2017 for development in koala habitat areas.

Please note that koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

There are two different categories of koala habitat area (core koala habitat area and locally refined koala habitat), which have been determined using two different methodologies. These methodologies are described in the document Spatial modelling in South East Queensland.

Section 7.2 shows any koala habitat area that exists on your property.

Under the Nature Conservation (Koala) Conservation Plan 2017, an owner of land (or a person acting on the owner's behalf with written consent) can request to make, amend or revoke a koala habitat area determination if they believe, on reasonable grounds, that the existing determination for all or part of their property is incorrect.

More information on requests to make, amend or revoke a koala habitat area determination can be found in the document Guideline - Requests to make, amend or revoke a koala habitat area determination.

The koala habitat area map will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

Changes to the koala habitat area map which occur between annual updates because of a request to make, amend or revoke a koala habitat area determination can be viewed on the register of approved requests to make, amend or revoke a koala habitat area available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/koalamaps. The register includes the lot on plan for the change, the date the decision was made and the map issued to the landholder that shows areas determined to be koala habitat areas.

6.1.3 Koala priority areas

Koala priority areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Conservation efforts will be prioritised in these areas to ensure the conservation of viable koala populations in the wild including a focus on management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring. This includes a prohibition on clearing in koala habitat areas that are in koala priority areas under the Planning Regulation 2017 (subject to some exemptions).

Please note that koala priority areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley,

Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

Section 7.2 identifies if your property is in a koala priority area.

6.1.4 Identified koala broad-hectare areas

There are seven identified koala broad-hectare areas in SEQ. These are areas of koala habitat that are located in areas committed to meet development targets in the SEQ Regional Plan to accommodate SEQ's growing population including bring-forward Greenfield sites under the Queensland Housing Affordability Strategy and declared master planned areas under the repealed *Sustainable Planning Act 2009* and the repealed *Integrated Planning Act 1997*.

Specific assessment benchmarks apply to development applications for development proposed in identified koala broad-hectare areas to ensure koala conservation measures are incorporated into the proposed development.

Section 7.2 identifies if your property is in an identified koala broad-hectare area.

6.2 Koala habitat planning controls

On 7 February 2020, the Queensland Government introduced new planning controls to the Planning Regulation 2017 to strengthen the protection of koala habitat in South East Queensland (i.e. koala district A).

More information on these planning controls can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

As a high-level summary, the koala habitat planning controls make:

- development that involves interfering with koala habitat (defined below) in an area that is both a koala priority area and a koala habitat area, prohibited development (i.e. development for which a development application cannot be made);
- development that involves interfering with koala habitat (defined below) in an area that is a koala habitat area but is not a koala priority area, assessable development (i.e. development for which development approval is required); and
- development that is for extractive industries where the development involves interfering with koala habitat (defined below) in an area that is both a koala habitat area and a key resource area, assessable development (i.e. development for which development approval is required).

Interfering with koala habitat means:

1) Removing, cutting down, ringbarking, pushing over, poisoning or destroying in anyway, including by burning, flooding or draining native vegetation in a koala habitat area; but
2) Does not include destroying standing vegetation by stock or lopping a tree.

However, these planning controls do not apply if the development is exempted development as defined in Schedule 24 of the Planning Regulation 2017. More information on exempted development can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

There are also assessment benchmarks that apply to development applications for:

- building works, operational works, material change of use or reconfiguration of a lot where:
  - the local government planning scheme makes the development assessable;
  - the premises includes an area that is both a koala priority area and a koala habitat area; and
  - the development does not involve interfering with koala habitat (defined above); and

- development in identified koala broad-hectare areas.

The Guideline - Assessment Benchmarks in relation to Koala Habitat in South East Queensland assessment benchmarks outlines these assessment benchmarks, the intent of these assessment benchmarks and advice on how proposed development may meet these assessment benchmarks.

6.3 Koala Conservation Plan clearing requirements

Section 10 and 11 of the Nature Conservation (Koala) Conservation Plan 2017 prescribes requirements that must be met when clearing koala habitat in koala district A and koala district B.

These clearing requirements are independent to the koala habitat planning controls introduced into the Planning Regulation 2017, which means they must be complied with irrespective of any approvals or exemptions offered under other legislation.

Unlike the clearing controls prescribed in the Planning Regulation 2017 that are to protect koala habitat, the clearing requirements prescribed in the Nature Conservation (Koala) Conservation Plan 2017 are in place to prevent the injury or death of koalas when koala habitat is being cleared.

6.4 Contact information for DES

For further information on the koala protection framework:
Phone 13 QGOV (13 74 68)
Email koala.assessment@des.qld.gov.au
Visit https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

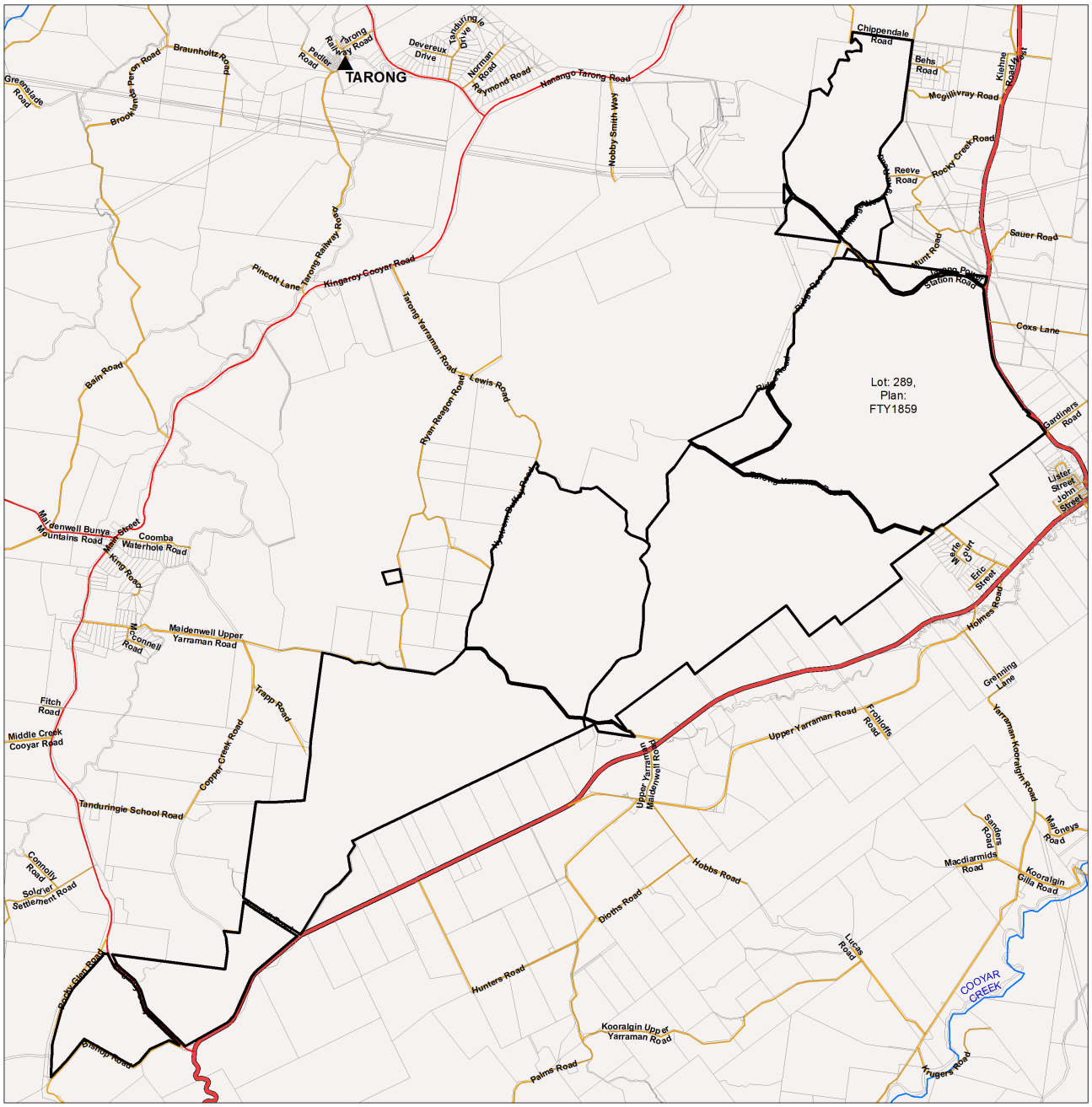
7. Koala protection framework details for Lot: 289 Plan: FTY1859

7.1 Koala districts

Koala District C

Koala District B

7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map



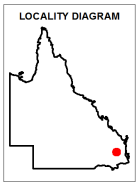
Koala priority area, koala habitat area and identified koala broad-hectare area map

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Koala habitat area (locally refined)
- Koala priority area
- Identified koala broad-hectare area
- Cadastral Boundaries
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

LOCALITY DIAGRAM



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This product is projected into GDA 1994 MGA Zone 56

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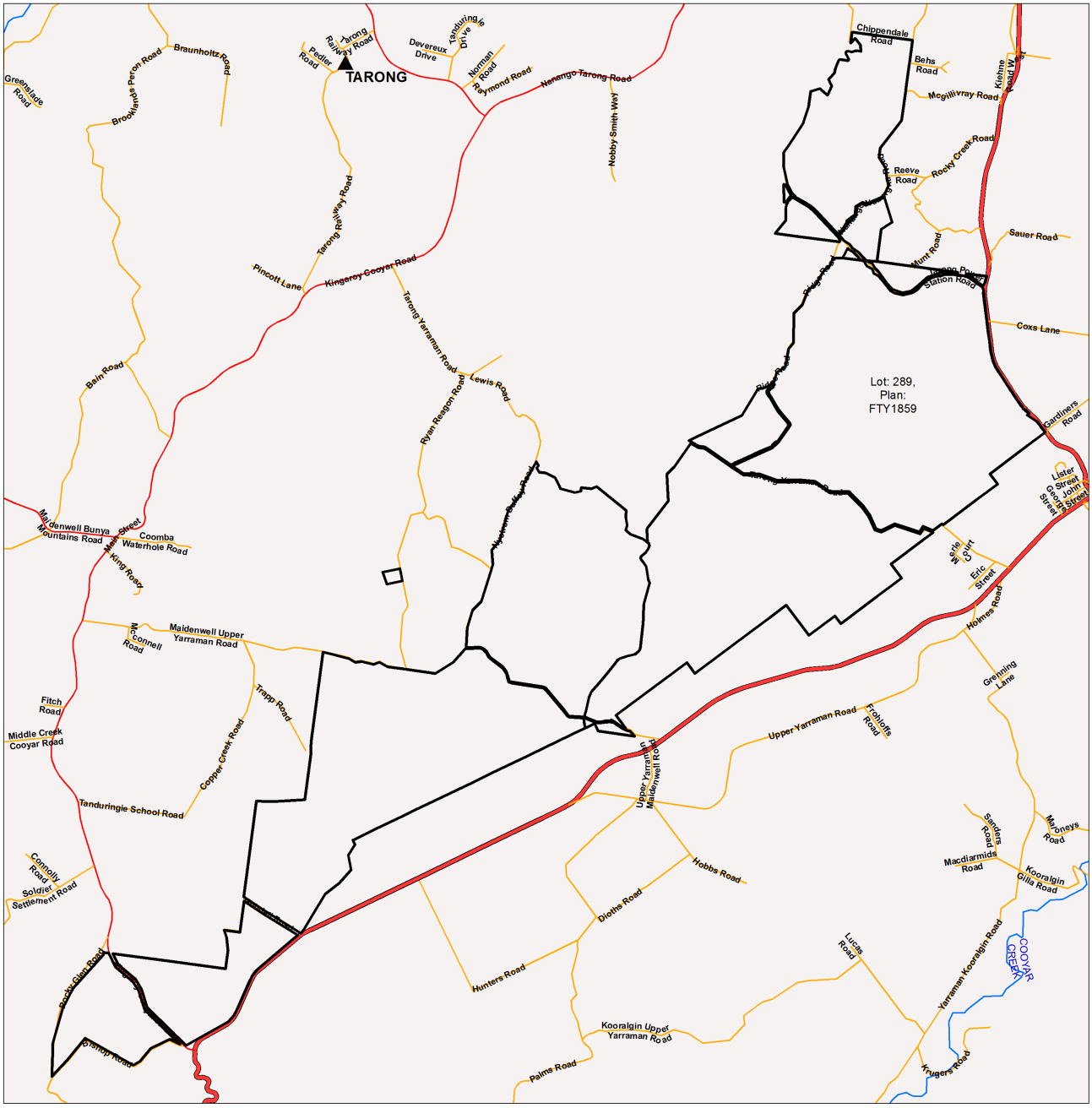
The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/. The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

7.3 Koala habitat regional ecosystems for core koala habitat areas



Koala habitat regional ecosystems for core koala habitat areas

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The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

This product is projected into GDA 1994 MGA Zone 56

8. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
• Interference with overland flow • Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Regional Development, Manufacturing and Water (Queensland Government) Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au www.resources.qld.gov.au
• Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
• Mining and environmentally relevant activities • Infrastructure development (coastal) • Heritage issues	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
• Protected plants and protected areas	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 1300 130 372 (option 4) palm@des.qld.gov.au www.des.qld.gov.au
• Koala mapping and regulations	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.qld.gov.au
• Interference with fish passage in a watercourse, mangroves • Forestry activities on State land tenures	*Fisheries Act 1994* *Forestry Act 1959*	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
• Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of Agriculture, Water and the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
• Development and planning processes	*Planning Act 2016* *State Development and Public Works Organisation Act 1971*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
• Local government requirements	*Local Government Act 2009* *Planning Act 2016*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office
• Harvesting timber in the Wet Tropics of Qld World Heritage area	*Wet Tropics World Heritage Protection and Management Act 1993*	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au

resources.QLD.GOV.AU

Vegetation management report

For Lot: 10 Plan: SP305494

22/04/2022

Queensland Government

Recent changes

Updated mapping

Updated vegetation mapping was released on 8 September 2021 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

The Department of Environment and Science have also updated their protected plant and koala protection mapping to align with the Queensland Herbarium scientific updates.

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

Property details - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s) and catchment(s);

Vegetation management framework - an explanation of the application of the framework and contact details for the Department of Resources who administer the framework;

Vegetation management framework details for the specified Lot on Plan including:

- the vegetation management categories on the property;
- the vegetation management regional ecosystems on the property;
- vegetation management watercourses or drainage features on the property;
- vegetation management wetlands on the property;
- vegetation management essential habitat on the property;
- whether any area management plans are associated with the property;
- whether the property is coastal or non-coastal; and
- whether the property is mapped as Agricultural Land Class A or B;

Protected plant framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework, including:

- high risk areas on the protected plant flora survey trigger map for the property;

Koala protection framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework; and

Koala protection framework details for the specified Lot on Plan including:

- the koala district the property is located in;
- koala priority areas on the property;
- core and locally refined koala habitat areas on the property;
- whether the lot is located in an identified koala broad-hectare area; and
- koala habitat regional ecosystems on the property for core koala habitat areas.

This information will assist you to determine your options for managing vegetation under:

- the vegetation management framework, which may include:

- exempt clearing work;
- accepted development vegetation clearing code;
- an area management plan;
- a development approval;

- the protected plant framework, which may include:

- the need to undertake a flora survey;
- exempt clearing;
- a protected plant clearing permit;

- the koala protection framework, which may include:

- exempted development;
- a development approval;
- the need to undertake clearing sequentially and in the presence of a koala spotter.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 8 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

Table of Contents

1. Property details

1.1 Tenure and title area

All of the lot, plan, tenure and title area information associated with property Lot: 10 Plan: SP305494, are listed in Table 1.

Table 1: Lot, plan, tenure and title area information for the property

Lot	Plan	Tenure	Property title area (sq metres)
10	SP305494	Freehold	18,850,000
C	RP194488	Easement	40,570
A	RP194488	Easement	21,060
B	RP194488	Easement	1,378
E	RP194487	Easement	57,890
F	RP194487	Easement	17,500
G	RP194486	Easement	29,210
J	RP840564	Easement	408
H	RP194486	Easement	44,040
D	RP194488	Easement	754

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

1.2 Property location

Table 2 provides a summary of the locations for property Lot: 10 Plan: SP305494, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
South Burnett Regional
Toowoomba Regional

Bioregion(s)	Subregion(s)
Southeast Queensland	South Burnett

Catchment(s)
Brisbane
Burnett

2. Vegetation management framework (administered by the Department of Resources)

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

2.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify the Department of Resources or obtain an approval under the vegetation management framework. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 4.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval under the vegetation management framework. For all other land tenures, contact the Department of Resources before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/exemptions.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact the Department of Resources prior to clearing in any of these areas.

2.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/codes

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify the Department of Resources before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing under the vegetation management framework. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an Area Management Plan applies to your property for which you can make a new notification, it will be listed in Section 3.6 of this report. Before clearing under one of these AMPs, you must first notify the Department of Resources and then follow the conditions and requirements listed in the AMP.
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/area-management-plans

2.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development

2.5. Contact information for the Department of Resources

For further information on the vegetation management framework:
Phone 135VEG (135 834)
Email vegetation@resources.qld.gov.au
Visit https://www.resources.qld.gov.au/?contact=vegetation to submit an online enquiry.

3. Vegetation management framework for Lot: 10 Plan: SP305494

3.1 Vegetation categories

The vegetation categories on your property are shown on the regulated vegetation management map in section 4.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 1879.3ha

Vegetation category	Area (ha)
Category B	140.4
Category C	139.4
Category R	72.8
Category X	1526.7

Table 4: Description of vegetation categories

Category	Colour on Map	Description	Requirements / options under the vegetation management framework
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact the Department of Resources to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing on freehold land, indigenous land and leasehold land for agriculture and grazing purposes is considered exempt clearing work under the vegetation management framework. Contact the Department of Resources to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

There is no Property Map of Assessable Vegetation (PMAV) present on this property.

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 4.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.3.3	Endangered	B	0.05	Eucalyptus tereticornis woodland on Quaternary alluvium	Sparse
12.3.3	Endangered	C	13.87	Eucalyptus tereticornis woodland on Quaternary alluvium	Sparse
12.3.3	Endangered	R	6.75	Eucalyptus tereticornis woodland on Quaternary alluvium	Sparse
12.3.7	Least concern	C	1.54	Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland	Sparse
12.3.7	Least concern	R	0.75	Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland	Sparse
12.5.1	Least concern	B	53.64	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.1	Least concern	C	9.11	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.1	Least concern	R	3.50	Open forest complex with Corymbia citriodora subsp. variegata on subcoastal remnant Tertiary surfaces. Usually deep red soils	Mid-dense
12.5.13	Endangered	B	57.49	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.5.13	Endangered	C	35.14	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.5.13	Endangered	R	19.82	Microphyll to notophyll vine forest +/- Araucaria cunninghamii on remnant Tertiary surfaces	Dense
12.8.13	Of concern	C	3.05	Araucarian complex microphyll vine forest on Cainozoic igneous rocks	Dense
12.9-10.18	Of concern	B	10.53	Angophora leiocarpa, Eucalyptus crebra woodland on sedimentary rocks	Sparse
12.9-10.18	Of concern	C	19.97	Angophora leiocarpa, Eucalyptus crebra woodland on sedimentary rocks	Sparse
12.9-10.18	Of concern	R	14.70	Angophora leiocarpa, Eucalyptus crebra woodland on sedimentary rocks	Sparse
12.9-10.21	Least concern	C	0.74	Eucalyptus acmenoides or E. portuensis woodland usually with Corymbia trachyphloia subsp. trachyphloia on Cainozoic to Proterozoic sediments	Sparse

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.9-10.21	Least concern	R	0.45	Eucalyptus acmenoides or E. portuensis woodland usually with Corymbia trachyphloia subsp. trachyphloia on Cainozoic to Proterozoic sediments	Sparse
12.9-10.7	Of concern	B	18.67	Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks	Sparse
12.9-10.7	Of concern	C	56.01	Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks	Sparse
12.9-10.7	Of concern	R	26.84	Eucalyptus crebra +/- E. tereticornis, Corymbia tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks	Sparse
non-rem	None	X	1,526.56	None	None
plantation	None	X	0.11	None	None

Please note:

1. All area and area derived figures included in this table 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.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work;
- accepted development vegetation clearing codes;
- performance outcomes in State Code 16 of the State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 4.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Under the VMA, essential habitat for protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA) as critically endangered, endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 4.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	V	Open forests and woodlands containing Eucalyptus, Corymbia, Lophostemon or Melaleuca trees having a trunk of a diameter of more than 10cm at 1.3m above the ground. Tree species used for food and habitat varies across the state and can include: Corymbia citriodora, Corymbia henryi, Corymbia intermedia, Eucalyptus acmenoides, Eucalyptus bancroftii, Eucalyptus biturbinata, Eucalyptus blakelyi, Eucalyptus brownii, Eucalyptus camaldulensis, Eucalyptus carnea, Eucalyptus chloroclada, Eucalyptus coolabah, Eucalyptus crebra, Eucalyptus dealbata, Eucalyptus drepanophylla, Eucalyptus dunnii, Eucalyptus eugenioides, Eucalyptus exserta, Eucalyptus fibrosa, Eucalyptus grandis, Eucalyptus helidonica, Eucalyptus latisinensis, Eucalyptus longirostrata, Eucalyptus major, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus microcarpa, Eucalyptus microcorys, Eucalyptus microtheca, Eucalyptus moluccana, Eucalyptus montivaga, Eucalyptus orgadophila, Eucalyptus papuana, Eucalyptus pilularis, Eucalyptus platyphylla, Eucalyptus populnea, Eucalyptus portuensis, Eucalyptus propinqua, Eucalyptus racemosa, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus saligna, Eucalyptus seeana, Eucalyptus siderophloia, Eucalyptus sideroxylon, Eucalyptus tereticornis, Eucalyptus thozetiana, Eucalyptus tindaliae, Eucalyptus umbra, Lophostemon confertus, Melaleuca leucadendra, Melaleuca quinquenervia.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
848	Petauroides volans	greater glider	V	Tall mature open wet and dry eucalypt forest (Eucalyptus &/or Corymbia spp.) to low open eucalypt woodland; presence of hollow-bearing trees.	Sea level to 1300m.	Usually on soils of relatively high fertility.	None
1092	Turnix melanogaster	black-breasted button-quail	V	Dry types of closed forest (> 70-80% cover) including Acacia harpophylla/Brachychiton softwood scrub, semi-evergreen vine thicket, low microphyll and araucarian micro- and notophyll vine forest; scrub breaks (including Lantana camara thicket) in Hoop Pine Araucaria cunninghamii plantations and where shrub layer has developed inside same plantations; and regenerating vine forest with eucalypts, adjacent open forest, Lophostemon confertus and Corymbia intermedia with dense understorey of Allocasuarina littoralis and acacia; Acacia and Austromyrtus scrubs on sandy coastal soils.	Sea level to 1100m.	None	None
13406	Rhodamnia dumicola	rib-fruited malletwood	CE	notophyll or microphyll vine thicket or low vine forest	0 to 700 m	sand, loam	hill slope, ridge line, alluvial flat

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 8.1.5, 8.2.3, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.5.7, 8.9.1, 8.10.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.11.10, 8.11.12, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.29, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.10, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.27, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.8.13, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.44, 10.3.2, 10.3.3, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.17, 10.3.20, 10.3.27, 10.3.28, 10.4.3, 10.4.9, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.8, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.7.5, 10.7.9, 10.7.10, 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13406	11.5.15, 12.2.2, 12.3.3, 12.3.16, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.8.21, 12.9-10.14, 12.9-10.15, 12.9-10.16, 12.11.1, 12.11.3, 12.11.10, 12.11.11, 12.11.12, 12.12.13, 12.12.15, 12.12.16, 12.12.17

3.6 Area Management Plan(s)

Necessary environmental clearing in the Burnett and Kolan catchments

3.7 Coastal or non-coastal

For the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP), this property is regarded as*

Coastal

*See also Map 4.3

3.8 Agricultural Land Class A or B

The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

Class A (with urban areas masked as per SPP): 5.69ha

Class B (with urban areas masked as per SPP): 356.4ha

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See Map 4.4 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 10 Plan: SP305494.

4. Vegetation management framework maps

Vegetation management maps included in this report may also be requested individually at:
https://www.resources.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

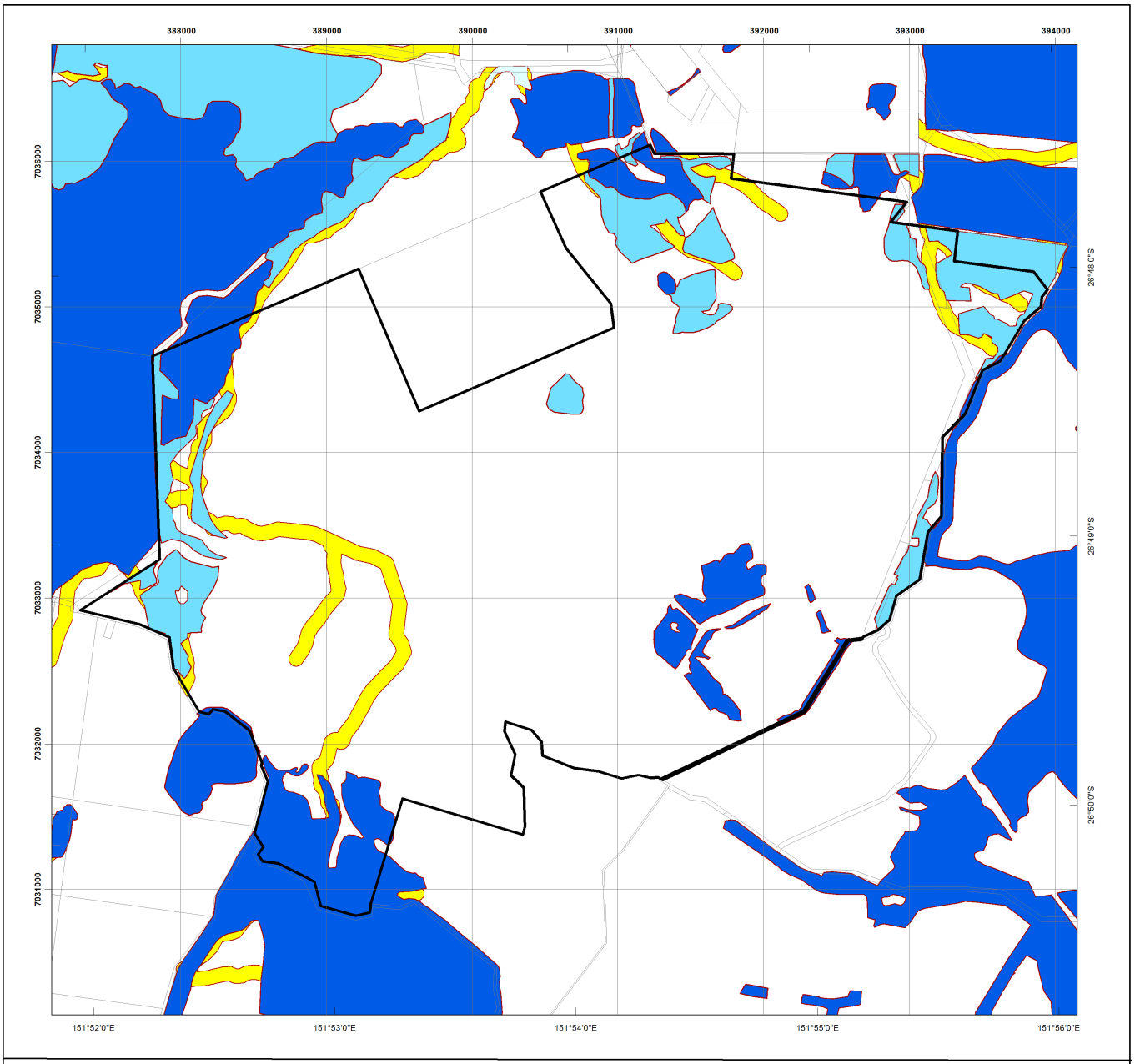
Coastal/non-coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP).

Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

4.1 Regulated vegetation management map

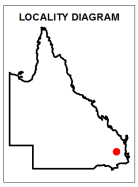


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries

LOCALITY DIAGRAM



N

0 380 760 1,140 1,520 1,900 m

This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

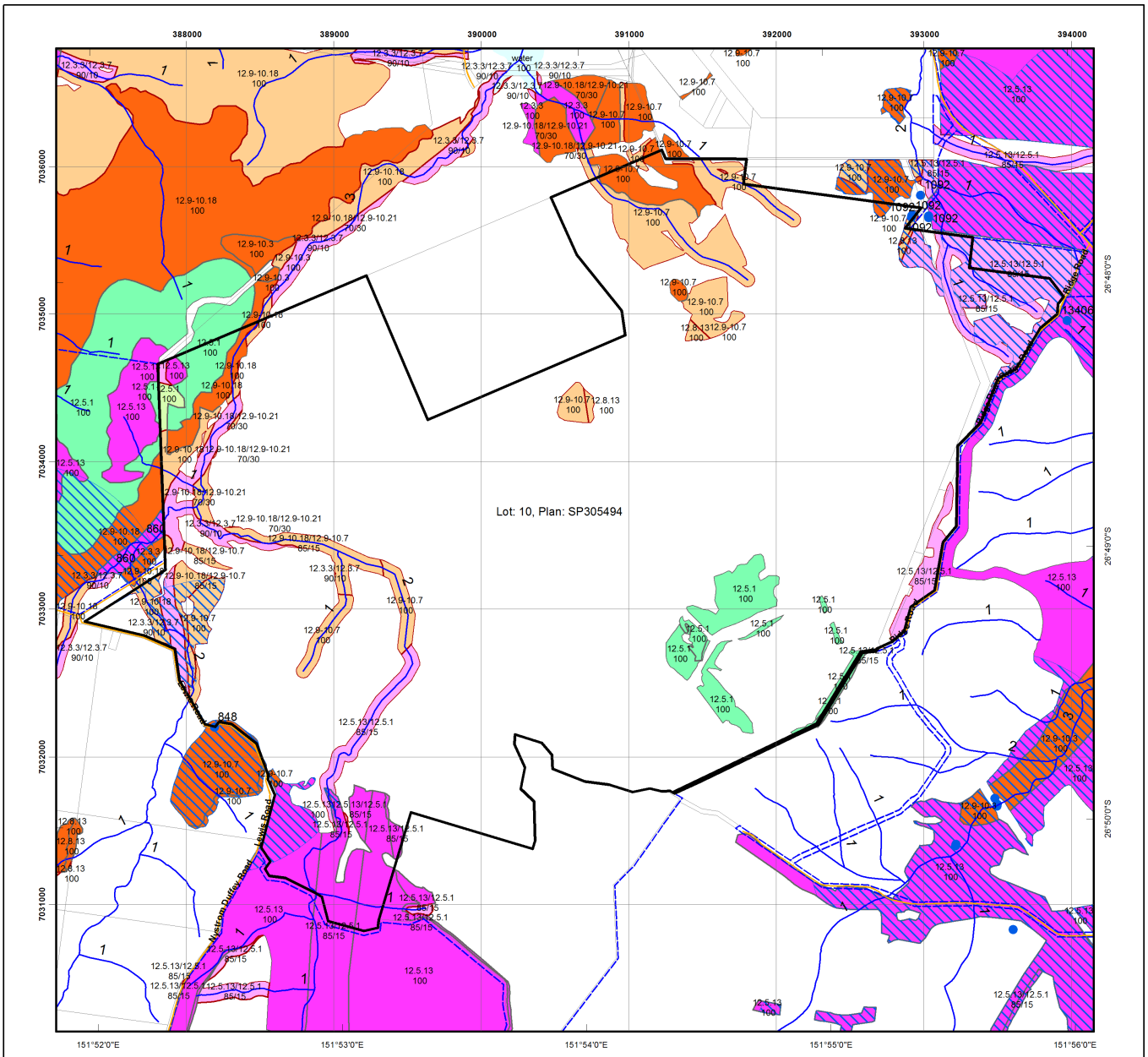
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

4.2 Vegetation management supporting map



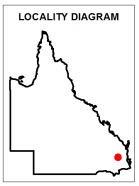
Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

Queensland Government

LOCALITY DIAGRAM



N

0 270 540 810 1,080 1,350 m

This product is projected into: GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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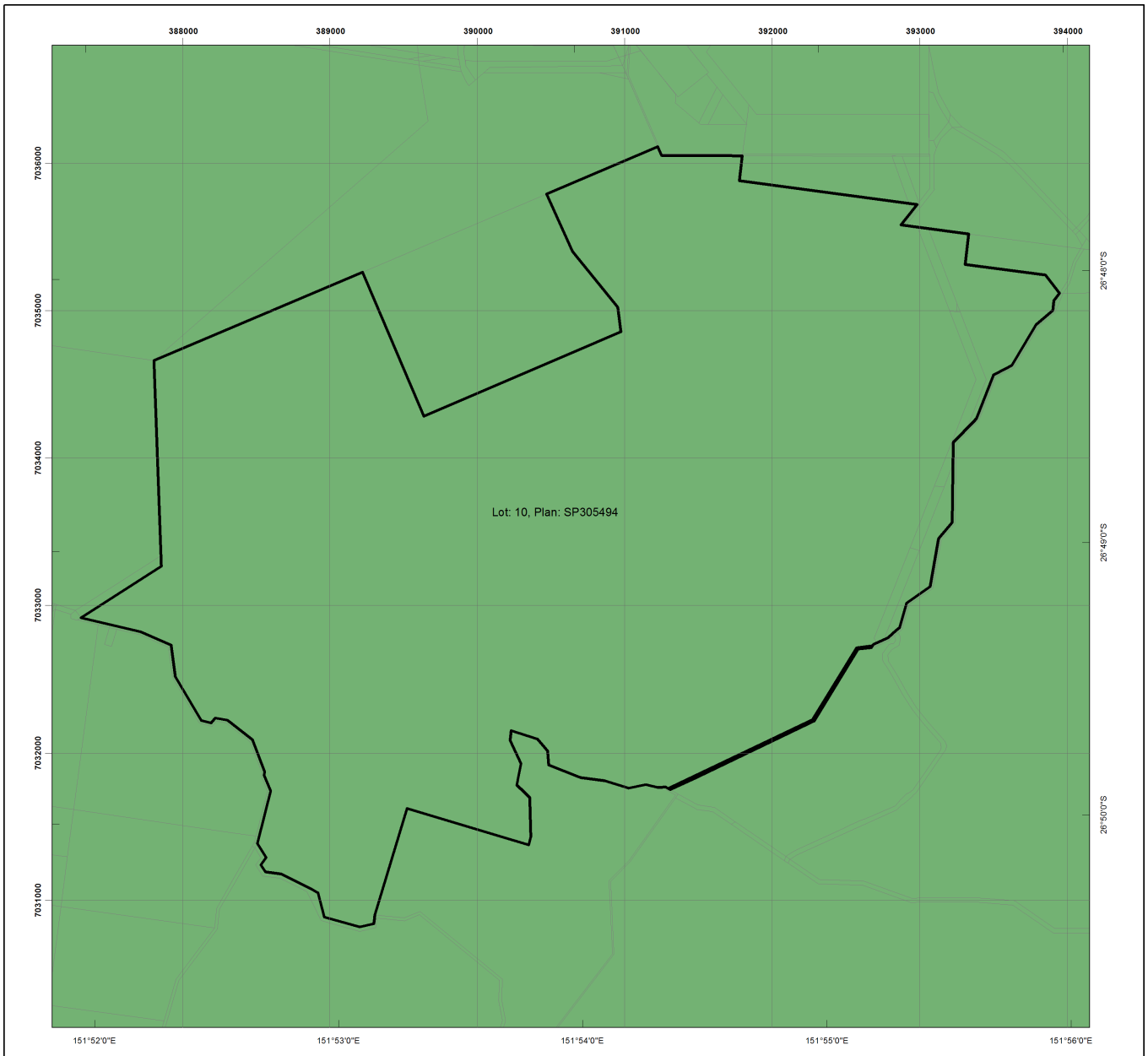
Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

4.3 Coastal/non-coastal map

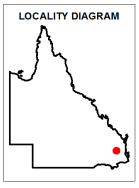


Coastal/Non Coastal Map

Legend

- Selected Lot and Plan
- Coastal
- Non Coastal
- Other land parcel boundaries

LOCALITY DIAGRAM



N

0 380 760 1,140 1,520 1,900 m

This product is projected into:
GDA 1994 MGA Zone 56

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Land parcel boundaries shown are provided as a locational aid only.

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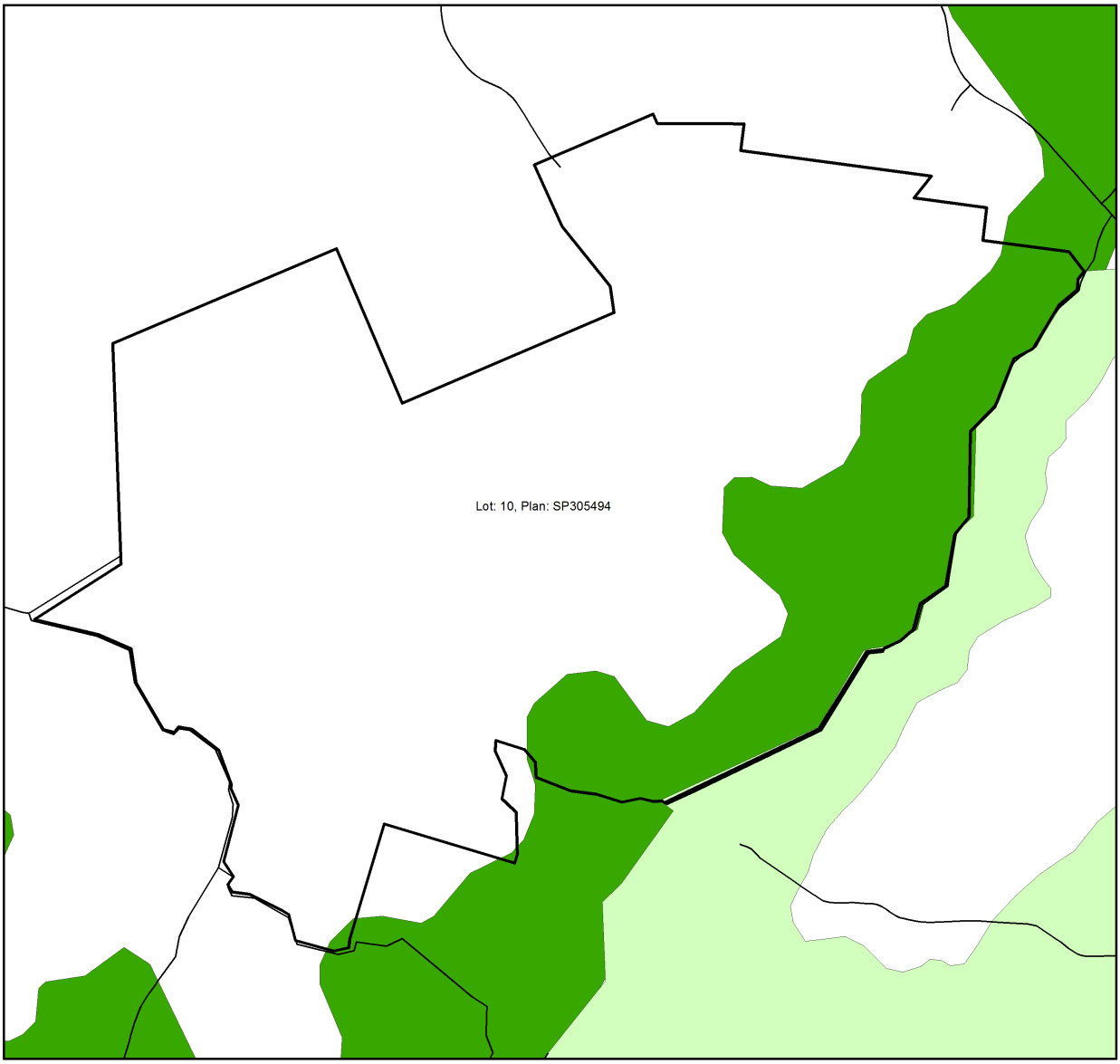
4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



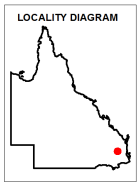
Agricultural Land Class A or B
as per State Planning Policy: State Interest for Agriculture

Legend

- Selected Lot and Plan
- Towns
- Rivers and creeks
- Freeways / motorways; Highways
- Secondary roads; Streets

Agricultural land class A or B

- A
- B
- Not class A or B



N

Disclaimer
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0 380 760 1140 1520 1900 m

This product is projected into GDA 1994 MGA Zone 56

5. Protected plants framework (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA). The NCA regulates the clearing of protected plants 'in the wild' (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') that are listed as critically endangered, endangered, vulnerable or near threatened under the Act.

Please note that the protected plant clearing framework applies irrespective of the classification of the vegetation under the *Vegetation Management Act 1999* and any approval or exemptions given under another Act, for example, the *Vegetation Management Act 1999* or *Planning Regulation 2017*.

5.1 Clearing in high risk areas on the flora survey trigger map

The flora survey trigger map identifies high-risk areas for endangered, vulnerable or near threatened (EVNT) plants. These are areas where EVNT plants are known to exist or are likely to exist based on the habitat present. The flora survey trigger map for this property is provided in section 5.5.

If you are proposing to clear an area shown as high risk on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken by a suitably qualified person in accordance with the Flora survey guidelines. The main objective of a flora survey is to locate any EVNT plants that may be present in the clearing impact area.

If the flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing.

If the flora survey identifies that EVNT plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the clearing permit application form.

5.2 Clearing outside high risk areas on the flora survey trigger map

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

5.3 Exemptions

Many activities are 'exempt' under the protected plant clearing framework, which means that clearing of native plants that are in the wild can be undertaken for these activities with no need for a flora survey or a protected plant clearing permit. The Information sheet - General exemptions for the take of protected plants provides some of these exemptions.

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) under the *Vegetation Management Act 1999* (i.e. listed in Schedule 21 of the Planning Regulations 2017) while some are different.

5.4 Contact information for DES

For further information on the protected plants framework:
Phone 1300 130 372 (and select option four)
Email palm@des.qld.gov.au
Visit https://www.qld.gov.au/environment/plants-animals/plants/protected-plants

5.5 Protected plants flora survey trigger map

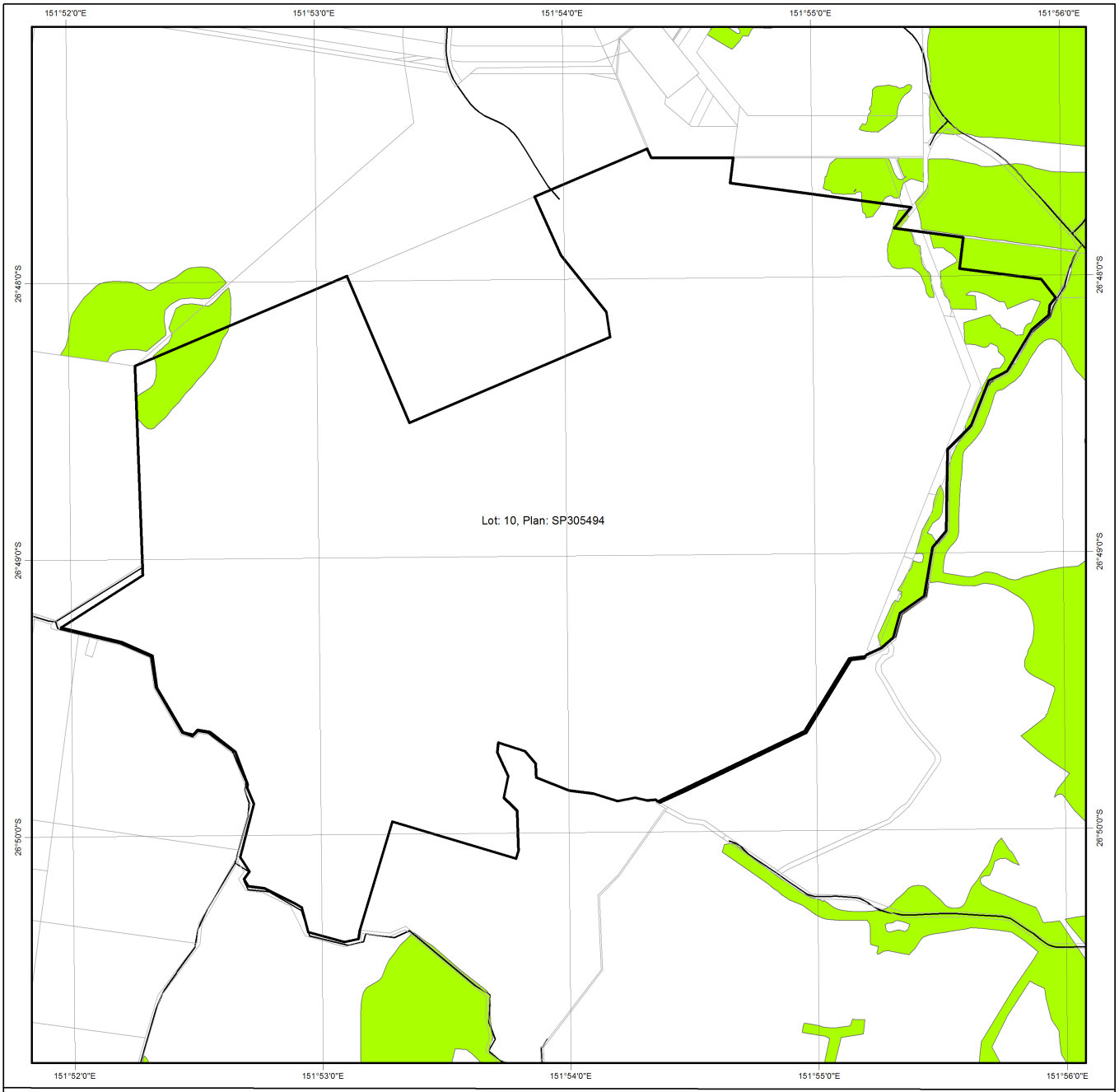
This map included may also be requested individually at: https://apps.des.qld.gov.au/map-request/flora-survey-trigger/.

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.

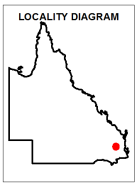


Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets

LOCALITY DIAGRAM



N

0 260 520 780 1,040 1,300 m

This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

6. Koala protection framework (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as vulnerable by the Queensland Government under *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Queensland Government's koala protection framework is comprised of the *Nature Conservation Act 1992*, the Nature Conservation (Animals) Regulation 2020, the Nature Conservation (Koala) Conservation Plan 2017, the *Planning Act 2016* and the Planning Regulation 2017.

6.1 Koala mapping

6.1.1 Koala districts

The parts of Queensland where koalas are known to occur has been divided into three koala districts - koala district A, koala district B and koala district C. Each koala district is made up of areas with comparable koala populations (e.g. density, extent and significance of threatening processes affecting the population) which require similar management regimes.

Section 7.1 identifies which koala district your property is located in.

6.1.2 Koala habitat areas

Koala habitat areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). In order to protect this important koala habitat, clearing controls have been introduced into the Planning Regulation 2017 for development in koala habitat areas.

Please note that koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

There are two different categories of koala habitat area (core koala habitat area and locally refined koala habitat), which have been determined using two different methodologies. These methodologies are described in the document Spatial modelling in South East Queensland.

Section 7.2 shows any koala habitat area that exists on your property.

Under the Nature Conservation (Koala) Conservation Plan 2017, an owner of land (or a person acting on the owner's behalf with written consent) can request to make, amend or revoke a koala habitat area determination if they believe, on reasonable grounds, that the existing determination for all or part of their property is incorrect.

More information on requests to make, amend or revoke a koala habitat area determination can be found in the document Guideline - Requests to make, amend or revoke a koala habitat area determination.

The koala habitat area map will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

Changes to the koala habitat area map which occur between annual updates because of a request to make, amend or revoke a koala habitat area determination can be viewed on the register of approved requests to make, amend or revoke a koala habitat area available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/koalamaps. The register includes the lot on plan for the change, the date the decision was made and the map issued to the landholder that shows areas determined to be koala habitat areas.

6.1.3 Koala priority areas

Koala priority areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Conservation efforts will be prioritised in these areas to ensure the conservation of viable koala populations in the wild including a focus on management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring. This includes a prohibition on clearing in koala habitat areas that are in koala priority areas under the Planning Regulation 2017 (subject to some exemptions).

Please note that koala priority areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley,

Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

Section 7.2 identifies if your property is in a koala priority area.

6.1.4 Identified koala broad-hectare areas

There are seven identified koala broad-hectare areas in SEQ. These are areas of koala habitat that are located in areas committed to meet development targets in the SEQ Regional Plan to accommodate SEQ's growing population including bring-forward Greenfield sites under the Queensland Housing Affordability Strategy and declared master planned areas under the repealed *Sustainable Planning Act 2009* and the repealed *Integrated Planning Act 1997*.

Specific assessment benchmarks apply to development applications for development proposed in identified koala broad-hectare areas to ensure koala conservation measures are incorporated into the proposed development.

Section 7.2 identifies if your property is in an identified koala broad-hectare area.

6.2 Koala habitat planning controls

On 7 February 2020, the Queensland Government introduced new planning controls to the Planning Regulation 2017 to strengthen the protection of koala habitat in South East Queensland (i.e. koala district A).

More information on these planning controls can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

As a high-level summary, the koala habitat planning controls make:

- development that involves interfering with koala habitat (defined below) in an area that is both a koala priority area and a koala habitat area, prohibited development (i.e. development for which a development application cannot be made);
- development that involves interfering with koala habitat (defined below) in an area that is a koala habitat area but is not a koala priority area, assessable development (i.e. development for which development approval is required); and
- development that is for extractive industries where the development involves interfering with koala habitat (defined below) in an area that is both a koala habitat area and a key resource area, assessable development (i.e. development for which development approval is required).

Interfering with koala habitat means:

1) Removing, cutting down, ringbarking, pushing over, poisoning or destroying in anyway, including by burning, flooding or draining native vegetation in a koala habitat area; but
2) Does not include destroying standing vegetation by stock or lopping a tree.

However, these planning controls do not apply if the development is exempted development as defined in Schedule 24 of the Planning Regulation 2017. More information on exempted development can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

There are also assessment benchmarks that apply to development applications for:

- building works, operational works, material change of use or reconfiguration of a lot where:
  - the local government planning scheme makes the development assessable;
  - the premises includes an area that is both a koala priority area and a koala habitat area; and
  - the development does not involve interfering with koala habitat (defined above); and

- development in identified koala broad-hectare areas.

The Guideline - Assessment Benchmarks in relation to Koala Habitat in South East Queensland assessment benchmarks outlines these assessment benchmarks, the intent of these assessment benchmarks and advice on how proposed development may meet these assessment benchmarks.

6.3 Koala Conservation Plan clearing requirements

Section 10 and 11 of the Nature Conservation (Koala) Conservation Plan 2017 prescribes requirements that must be met when clearing koala habitat in koala district A and koala district B.

These clearing requirements are independent to the koala habitat planning controls introduced into the Planning Regulation 2017, which means they must be complied with irrespective of any approvals or exemptions offered under other legislation.

Unlike the clearing controls prescribed in the Planning Regulation 2017 that are to protect koala habitat, the clearing requirements prescribed in the Nature Conservation (Koala) Conservation Plan 2017 are in place to prevent the injury or death of koalas when koala habitat is being cleared.

6.4 Contact information for DES

For further information on the koala protection framework:
Phone 13 QGOV (13 74 68)
Email koala.assessment@des.qld.gov.au
Visit https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

7. Koala protection framework details for Lot: 10 Plan: SP305494

7.1 Koala districts

Koala District C

Koala District B

7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map

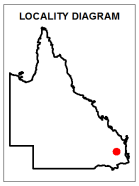
Koala priority area, koala habitat area and identified koala broad-hectare area map

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Koala habitat area (locally refined)
- Koala priority area
- Identified koala broad-hectare area
- Cadastral Boundaries
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

LOCALITY DIAGRAM



N

0 360 720 1,080 1,440 1,800 m

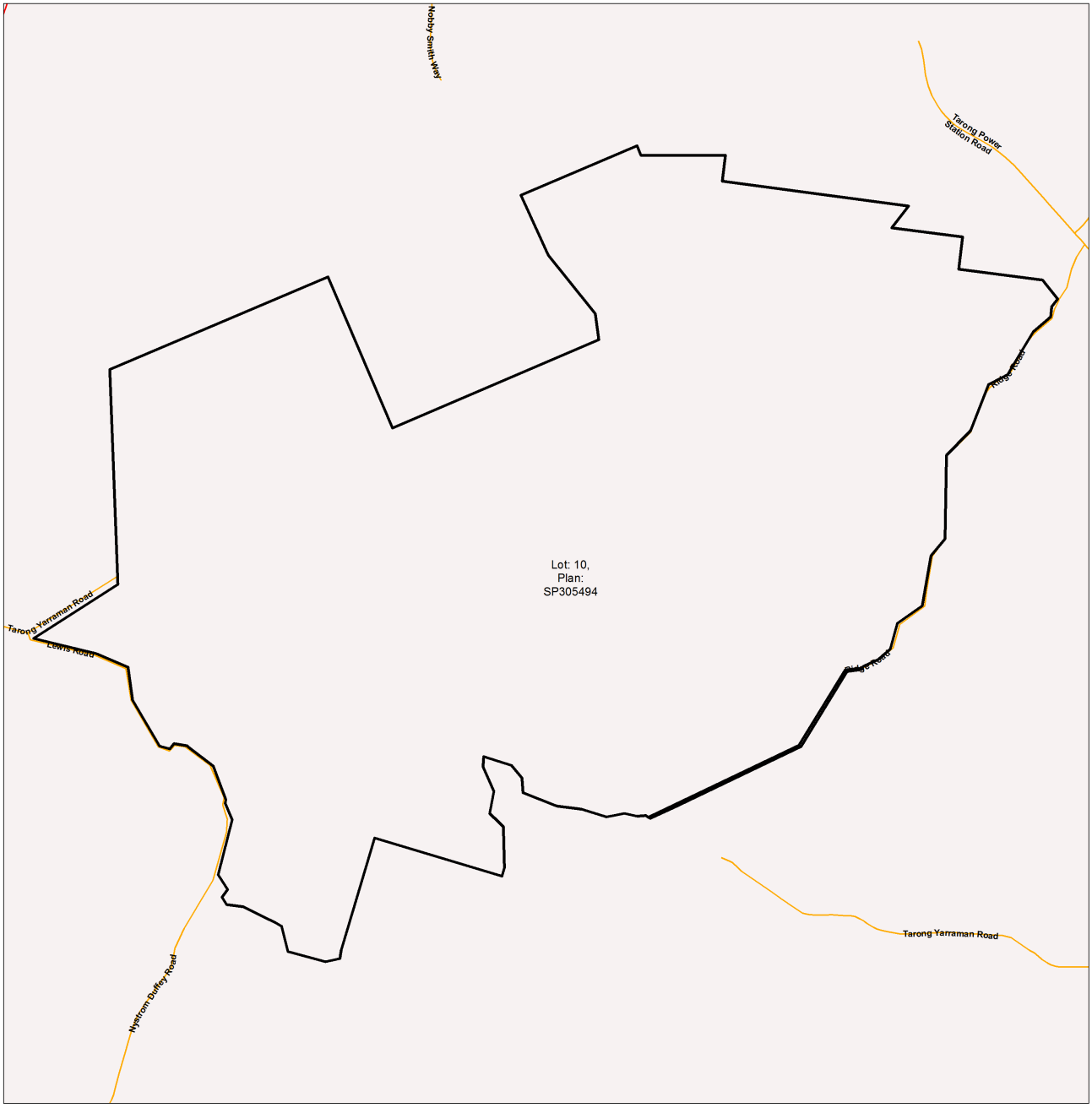
Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Environment and Science acting on behalf of the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/. The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

This product is projected into GDA 1994 MGA Zone 56

7.3 Koala habitat regional ecosystems for core koala habitat areas

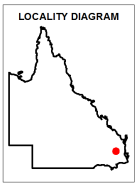


Koala habitat regional ecosystems for core koala habitat areas

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

LOCALITY DIAGRAM



N

0 360 720 1,080 1,440 1,800 m

This product is projected into GDA 1994 MGA Zone 56

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8. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
• Interference with overland flow • Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Regional Development, Manufacturing and Water (Queensland Government) Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au www.resources.qld.gov.au
• Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
• Mining and environmentally relevant activities • Infrastructure development (coastal) • Heritage issues	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
• Protected plants and protected areas	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 1300 130 372 (option 4) palm@des.qld.gov.au www.des.qld.gov.au
• Koala mapping and regulations	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.qld.gov.au
• Interference with fish passage in a watercourse, mangroves • Forestry activities on State land tenures	*Fisheries Act 1994* *Forestry Act 1959*	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
• Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of Agriculture, Water and the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
• Development and planning processes	*Planning Act 2016* *State Development and Public Works Organisation Act 1971*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
• Local government requirements	*Local Government Act 2009* *Planning Act 2016*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office
• Harvesting timber in the Wet Tropics of Qld World Heritage area	*Wet Tropics World Heritage Protection and Management Act 1993*	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: All
Date: All
Latitude: -26.8187
Longitude: 151.9296
Distance: 20
Email: laura.dee@wsp.com
Date submitted: Tuesday 12 Apr 2022 15:37:07
Date extracted: Tuesday 12 Apr 2022 15:40:02

The number of records retrieved = 33

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		1
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	2
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	75
animals	birds	Ardeidae	*Botaurus poiciloptilus*	Australasian bittern		E	E	10
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		85
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	7
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		V	V	4
animals	birds	Podargidae	*Podargus ocellatus plumiferus*	plumed frogmouth		V		1
animals	birds	Procellariidae	*Ardenna pacifica*	wedge-tailed shearwater		V		1/1
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	CE	1
animals	birds	Psittacidae	*Psephotus pulcherrimus*	paradise parrot		PE	EX	2
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		10
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	191
animals	mammals	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)		E	E	1
animals	mammals	Macropodidae	*Petrogale penicillata*	brush-tailed rock-wallaby		V	V	13/5
animals	mammals	Petauridae	*Petaurus australis australis*	yellow-bellied glider (southern subspecies)		V	V	1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	54/1
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	V	6
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1/1
animals	reptiles	Elapidae	*Furina dunmalli*	Dunmall's snake		V	V	2
animals	reptiles	Pygopodidae	*Delma torquata*	collared delma		V	V	2/1
plants	land plants	Asteraceae	*Picris conyzoides*			V		1/1
plants	land plants	Cupressaceae	*Callitris baileyi*	Bailey's cypress		NT		5/5
plants	land plants	Haloragaceae	*Haloragis exalata subsp. velutina*			V	V	3/3
plants	land plants	Myrtaceae	*Melaleuca formosa*			NT		4/3
plants	land plants	Myrtaceae	*Rhodamnia dumicola*	rib-fruited malletwood		E		3/2
plants	land plants	Myrtaceae	*Rhodamnia rubescens*	scrub turpentine		CR	CE	1/1
plants	land plants	Orchidaceae	*Sarcochilus weinthalii*	blotched sarcochilus		E	V	2/2
plants	land plants	Poaceae	*Paspalidium grandispiculatum*			V	V	2/2
plants	land plants	Rhamnaceae	*Polianthion minutiflorum*			V	V	1/1
plants	land plants	Rhamnaceae	*Pomaderris coomingalensis*			E		1/1
plants	land plants	Rutaceae	*Zieria verrucosa*			V	V	1/1
plants	land plants	Santalaceae	*Thesium australe*	toadflax		V	V	2/1

CODES

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

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

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

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: All
Records: All
Date: All
Latitude: -26.8187
Longitude: 151.9296
Distance: 20
Email: laura.dee@wsp.com
Date submitted: Tuesday 12 Apr 2022 15:21:46
Date extracted: Tuesday 12 Apr 2022 15:30:02

The number of records retrieved = 1436

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			49
animals	amphibians	Hylidae	*Litoria balatus*	slender bleating tree frog		C		9
animals	amphibians	Hylidae	*Litoria brevipalmata*	green thighed frog		C		5
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		14
animals	amphibians	Hylidae	*Litoria chloris*	orange eyed treefrog		C		3
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		24/4
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		9
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		24
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		4
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		14/1
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		26/3
animals	amphibians	Hylidae	*Litoria verreauxii*	whistling treefrog		C		9
animals	amphibians	Hylidae	*Litoria wilcoxii*	eastern stony creek frog		C		10
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		1
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		22
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		8
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		24
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		9
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		8
animals	amphibians	Myobatrachidae	*Crinia signifera*	clicking froglet		C		4
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		21
animals	amphibians	Myobatrachidae	*Mixophyes sp.*			C		1
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		5/1
animals	amphibians	Myobatrachidae	*Pseudophryne raveni*	copper backed broodfrog		C		2
animals	amphibians	Myobatrachidae	*Uperoleia fusca*	dusky gungan		C		7
animals	amphibians	Myobatrachidae	*Uperoleia laevigata*	eastern gungan		C		2
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		3
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		283
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		29
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		127
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		171
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		27
animals	birds	Acanthizidae	*Gerygone fusca*	western gerygone		C		1
animals	birds	Acanthizidae	*Gerygone mouki*	brown gerygone		C		192
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		679
animals	birds	Acanthizidae	*Pyrrholaemus sagittatus*	speckled warbler		C		196
animals	birds	Acanthizidae	*Sericornis citreogularis*	yellow-throated scrubwren		C		54
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		542
animals	birds	Acanthizidae	*Sericornis magnirostra*	large-billed scrubwren		C		93
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		191
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		62
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		46
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		17
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		114
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		55
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		12
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		38
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	2
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		14
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		2
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		8
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		18
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		1
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		4
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		C		555
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		111
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		5
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		58
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		3
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		47
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		146
animals	birds	Anatidae	*Aythya australis*	hardhead		C		32
animals	birds	Anatidae	*Biziura lobata*	musk duck		C		2
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		678
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		29
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		62
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		38
animals	birds	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck		C		2
animals	birds	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose		C		3
animals	birds	Anatidae	*Spatula rhynchotis*	Australasian shoveler		C		2
animals	birds	Anatidae	*Stictonetta naevosa*	freckled duck		C		2
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		23
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		19
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		SL		9
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		V	V	75
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		31
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		22
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		63
animals	birds	Ardeidae	*Botaurus poiciloptilus*	Australasian bittern		E	E	10
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		88
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		2
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		4
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		153
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		4
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		22
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		2
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		5
animals	birds	Artamidae	*Artamus minor*	little woodswallow		C		3
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		3
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		737
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		936

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		1246
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		1518
animals	birds	Artamidae	*Strepera graculina graculina*	pied currawong (eastern Australia)		C		3
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		161
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		570
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		6
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		116
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		196
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		85
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		1148
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		92
animals	birds	Campephagidae	*Coracina lineata*	barred cuckoo-shrike		C		12
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		44
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		771
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		19
animals	birds	Campephagidae	*Edolisoma tenuirostre*	common cicadabird		C		63
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		67
animals	birds	Campephagidae	*Lalage tricolor*	white-winged triller		C		63
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		22
animals	birds	Charadriidae	*Erythrogonys cinctus*	red-kneed dotterel		C		2
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		447
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		143
animals	birds	Charadriidae	*Vanellus tricolor*	banded lapwing		C		3
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		C		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		65
animals	birds	Climacteridae	*Climacteris affinis*	white-browed treecreeper		C		1
animals	birds	Climacteridae	*Climacteris erythrops*	red-browed treecreeper		C		1
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		7
animals	birds	Climacteridae	*Cormobates leucophaea*	white-throated treecreeper		C		34
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		109
animals	birds	Columbidae	*Chalcophaps longirostris*	Pacific emerald dove		C		36
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		10
animals	birds	Columbidae	*Columba livia*	rock dove	Y			3
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		2
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		890
animals	birds	Columbidae	*Geopelia placida*	peaceful dove		C		690
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	7
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		122
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		10
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		96
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1156
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		628
animals	birds	Columbidae	*Phaps elegans*	brush bronzewing		C		3
animals	birds	Columbidae	*Ptilinopus magnificus*	wompoo fruit-dove		C		8
animals	birds	Columbidae	*Ptilinopus regina*	rose-crowned fruit-dove		C		14
animals	birds	Columbidae	*Ptilinopus superbus*	superb fruit-dove		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			130
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		416
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		531
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		943
animals	birds	Corvidae	*Corvus bennetti*	little crow		C		2
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		77
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		1415
animals	birds	Corvidae	*Corvus sp.*			C		1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		251
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		48
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		47
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		402/1
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		58
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		79
animals	birds	Cuculidae	*Chalcites minutillus barnardi*	Eastern little bronze-cuckoo		C		38
animals	birds	Cuculidae	*Chalcites osculans*	black-eared cuckoo		C		8
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		313
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		291
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		62
animals	birds	Dicruridae	*Dicrurus bracteatus bracteatus*	spangled drongo (eastern Australia)		C		5
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		231
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		12
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		888
animals	birds	Estrildidae	*Stagonopleura guttata*	diamond firetail		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1685
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		43
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		63
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		23
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		92
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		25
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		7
animals	birds	Falconidae	*Falco subniger*	black falcon		C		2
animals	birds	Gruidae	*Antigone rubicunda*	brolga		C		1
animals	birds	Halcyonidae	*Dacelo leachii*	blue-winged kookaburra		C		17
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		1023
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		23
animals	birds	Halcyonidae	*Todiramphus pyrrhopygius*	red-backed kingfisher		C		2
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		712
animals	birds	Hirundinidae	*Cheramoeca leucosterna*	white-backed swallow		C		6
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		334
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		26
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		7
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		2
animals	birds	Laridae	*Chlidonias hybrida*	whiskered tern		C		2
animals	birds	Laridae	*Chroicocephalus novaehollandiae*	silver gull		C		4

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		SL		1
animals	birds	Laridae	*Thalasseus bergii*	crested tern		SL		1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		691
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		370
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		384
animals	birds	Megaluridae	*Cincloramphus cruralis*	brown songlark		C		5
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		4
animals	birds	Megaluridae	*Cincloramphus timoriensis*	tawny grassbird		C		54
animals	birds	Megaluridae	*Poodytes gramineus*	little grassbird		C		10
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		347/1
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		100
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		288
animals	birds	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird		C		3
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		496
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		891
animals	birds	Meliphagidae	*Gavicalis virescens*	singing honeyeater		C		1
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		V	V	4
animals	birds	Meliphagidae	*Lichenostomus melanops*	yellow-tufted honeyeater		C		2
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		475
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		1152
animals	birds	Meliphagidae	*Manorina melanophrys*	bell miner		C		6
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		896
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		127
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		19
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		C		6
animals	birds	Meliphagidae	*Melithreptus gularis gularis*	black-chinned honeyeater (eastern)		C		2
animals	birds	Meliphagidae	*Melithreptus lunatus*	white-naped honeyeater		C		12
animals	birds	Meliphagidae	*Myzomela obscura*	dusky honeyeater		C		12
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		211
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		19
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		618
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		582
animals	birds	Meliphagidae	*Phylidonyris niger*	white-cheeked honeyeater		C		5
animals	birds	Meliphagidae	*Phylidonyris novaehollandiae*	New Holland honeyeater		C		1
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		880
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		28
animals	birds	Meliphagidae	*Ptilotula penicillata*	white-plumed honeyeater		C		7
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		173
animals	birds	Monarchidae	*Carterornis leucotis*	white-eared monarch		C		5
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		1188
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		108
animals	birds	Monarchidae	*Myiagra alecto*	shining flycatcher		C		1
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		67
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		183
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		124
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		18

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		33
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		695
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		70
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		636
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		187
animals	birds	Orthonychidae	*Orthonyx temminckii*	Australian logrunner		C		1
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		313
animals	birds	Pachycephalidae	*Colluricincla megarhyncha*	little shrike-thrush		C		22
animals	birds	Pachycephalidae	*Falcunculus frontatus*	crested shrike-tit		C		42
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		272
animals	birds	Pachycephalidae	*Pachycephala pectoralis youngi*	golden whistler (south-eastern Australia)		C		3
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		573
animals	birds	Paradisaeidae	*Ptiloris magnificus*	magnificent riflebird		C		1
animals	birds	Paradisaeidae	*Ptiloris paradiseus*	paradise riflebird		C		33
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		162
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		858
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			121
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		18
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		245
animals	birds	Petroicidae	*Melanodryas cucullata*	hooded robin		C		5
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		26
animals	birds	Petroicidae	*Petroica boodang*	scarlet robin		C		5
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		21
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		33
animals	birds	Petroicidae	*Tregellasia capito*	pale-yellow robin		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		119
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		10
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		67
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		66
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		9
animals	birds	Phasianidae	*Pavo cristatus*	Indian peafowl	Y			2
animals	birds	Phasianidae	*Synoicus ypsilophorus*	brown quail		C		59
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		36
animals	birds	Podargidae	*Podargus ocellatus plumiferus*	plumed frogmouth		V		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		177
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		9
animals	birds	Podicipedidae	*Poliocephalus poliocephalus*	hoary-headed grebe		C		2
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		117
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		868
animals	birds	Pomatostomidae	*Pomatostomus temporalis temporalis*	grey-crowned babbler (eastern)		C		2
animals	birds	Procellariidae	*Ardenna pacifica*	wedge-tailed shearwater		V		1/1
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		911
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		63
animals	birds	Psittacidae	*Glossopsitta concinna*	musk lorikeet		C		1
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	CE	1

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animals	birds	Psittacidae	*Melopsittacus undulatus*	budgerigar		C		3
animals	birds	Psittacidae	*Neophema pulchella*	turquoise parrot		C		3
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		189
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		1087
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		1
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		3
animals	birds	Psittacidae	*Platycercus eximius*	eastern rosella		C		13
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		37
animals	birds	Psittacidae	*Psephotus pulcherrimus*	paradise parrot		PE	EX	2
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		446
animals	birds	Psittacidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		863
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		407
animals	birds	Ptilonorhynchidae	*Ailuroedus crassirostris*	green catbird		C		50
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus violaceus*	satin bowerbird		C		61
animals	birds	Ptilonorhynchidae	*Sericulus chrysocephalus*	regent bowerbird		C		75
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		5
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		17
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		85
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		4
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		48
animals	birds	Rallidae	*Tribonyx ventralis*	black-tailed native-hen		C		2
animals	birds	Rallidae	*Zapornia pusilla*	Baillon's crake		C		2
animals	birds	Rallidae	*Zapornia tabuensis*	spotless crake		C		6
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		20
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		392
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		1045
animals	birds	Rhipiduridae	*Rhipidura leucophrys leucophrys*	willie wagtail (southern)		C		4
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		118
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		SL		13
animals	birds	Scolopacidae	*Tringa stagnatilis*	marsh sandpiper		SL		1
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		330
animals	birds	Strigidae	*Ninox connivens*	barking owl		C		5
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		10
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			14
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			58
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		99
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		44
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		SL		7
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		91
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		151
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		1532
animals	birds	Timaliidae	*Zosterops lateralis cornwalli*	silvereye (eastern)		C		13
animals	birds	Turdidae	*Turdus philomelos*	song thrush	Y			3
animals	birds	Turdidae	*Zoothera heinei*	russet-tailed thrush		C		4
animals	birds	Turdidae	*Zoothera lunulata*	Bassian thrush		C		3
animals	birds	Turdidae	*Zoothera sp.*			C		3/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Turnicidae	*Turnix maculosus*	red-backed button-quail		C		1
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	191
animals	birds	Turnicidae	*Turnix sp.*			C		5
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		23
animals	birds	Turnicidae	*Turnix velox*	little button-quail		C		7
animals	birds	Tytonidae	*Tyto javanica*	eastern barn owl		C		21
animals	birds	Tytonidae	*Tyto novaehollandiae*	masked owl		C		7
animals	birds	Tytonidae	*Tyto novaehollandiae novaehollandiae*	masked owl (southern subspecies)		C		1
animals	birds	Tytonidae	*Tyto tenebricosa tenebricosa*	sooty owl		C		2
animals	insects	Synlestidae	*Synlestes selysi*	forest needle				1
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		2
animals	mammals	Bovidae	*Bos taurus*	European cattle	Y			3
animals	mammals	Canidae	*Canis familiaris*	dog	Y			21
animals	mammals	Canidae	*Canis familiaris (dingo)*	dingo				12
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			13
animals	mammals	Cervidae	*Cervus elaphus*	red deer	Y			8
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		3
animals	mammals	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)		E	E	1
animals	mammals	Dasyuridae	*Phascogale tapoatafa tapoatafa*	brush-tailed phascogale		C		4
animals	mammals	Equidae	*Equus caballus*	horse	Y			1
animals	mammals	Felidae	*Felis catus*	cat	Y			8
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			16
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			6
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		10
animals	mammals	Macropodidae	*Notamacropus dorsalis*	black-striped wallaby		C		18
animals	mammals	Macropodidae	*Notamacropus parryi*	whiptail wallaby		C		5
animals	mammals	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby		C		18
animals	mammals	Macropodidae	*Petrogale herberti*	Herbert's rock-wallaby		C		17/11
animals	mammals	Macropodidae	*Petrogale penicillata*	brush-tailed rock-wallaby		V	V	13/5
animals	mammals	Macropodidae	*Thylogale stigmatica*	red-legged pademelon		C		5
animals	mammals	Macropodidae	*Thylogale thetis*	red-necked pademelon		C		16
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		27/1
animals	mammals	Miniopteridae	*Miniopterus australis*	little bent-wing bat		C		32
animals	mammals	Miniopteridae	*Miniopterus sp.*			C		1
animals	mammals	Molossidae	*Austronomus australis*	white-striped freetail bat		C		6
animals	mammals	Molossidae	*Mormopterus sp.*			C		10
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		2
animals	mammals	Muridae	*Melomys cervinipes*	fawn-footed melomys		C		12/1
animals	mammals	Muridae	*Melomys sp.*			C		1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			11
animals	mammals	Muridae	*Rattus fuscipes*	bush rat		C		4
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			1
animals	mammals	Muridae	*Rattus tunneyi*	pale field-rat		C		31/14
animals	mammals	Ornithorhynchidae	*Ornithorhynchus anatinus*	platypus		SL		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		18
animals	mammals	Peramelidae	*Isoodon sp.*			C		1
animals	mammals	Peramelidae	*Perameles nasuta*	long-nosed bandicoot		C		16
animals	mammals	Petauridae	*Petaurus australis australis*	yellow-bellied glider (southern subspecies)		V	V	1
animals	mammals	Petauridae	*Petaurus breviceps sensu lato*	sugar glider		C		1
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		2
animals	mammals	Petauridae	*Petaurus notatus*	Krefft's glider		C		15
animals	mammals	Petauridae	*Petaurus sp.*			C		2
animals	mammals	Phalangeridae	*Trichosurus caninus*	short-eared possum		C		10
animals	mammals	Phalangeridae	*Trichosurus sp.*			C		3
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		27/1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	54/1
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		11
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		E	V	6
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		18
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		14
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	20
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		3
animals	mammals	Pteropodidae	*Pteropus sp.*			C		1
animals	mammals	Rhinolophidae	*Rhinolophus megaphyllus*	eastern horseshoe-bat		C		6
animals	mammals	Suidae	*Sus scrofa*	pig	Y			2
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		24
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		6
animals	mammals	Vespertilionidae	*Chalinolobus morio*	chocolate wattled bat		C		1
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		C		1
animals	mammals	Vespertilionidae	*Kerivoula papuensis*	golden-tipped bat		C		9
animals	mammals	Vespertilionidae	*Nyctophilus bifax*	northern long-eared bat		C		1
animals	mammals	Vespertilionidae	*Nyctophilus geoffroyi*	lesser long-eared bat		C		11
animals	mammals	Vespertilionidae	*Nyctophilus gouldi*	Gould's long-eared bat		C		33
animals	mammals	Vespertilionidae	*Nyctophilus sp.*			C		2
animals	mammals	Vespertilionidae	*Scoteanax rueppellii*	greater broad-nosed bat		C		1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Scotorepens sp.*			C		11
animals	mammals	Vespertilionidae	*Scotorepens sp. (Parnaby)*	central-eastern broad-nosed bat		C		8
animals	mammals	Vespertilionidae	*Vespadelus pumilus*	eastern forest bat		C		12
animals	mammals	Vespertilionidae	*Vespadelus vulturnus*	little forest bat		C		14
animals	ray-finned fishes	Ambassidae	*Ambassis agassizii*	Agassiz's glassfish				11
animals	ray-finned fishes	Anguillidae	*Anguilla reinhardtii*	longfin eel				10
animals	ray-finned fishes	Atherinidae	*Craterocephalus marjoriae*	silverstreak hardyhead				1
animals	ray-finned fishes	Atherinidae	*Craterocephalus stercusmuscarum*	flyspecked hardyhead				9
animals	ray-finned fishes	Clupeidae	*Nematalosa erebi*	bony bream				9
animals	ray-finned fishes	Cyprinidae	*Carassius auratus*	goldfish	Y			1
animals	ray-finned fishes	Eleotridae	*Hypseleotris compressa*	empire gudgeon				6
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				22
animals	ray-finned fishes	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon				13

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	ray-finned fishes	Eleotridae	*Hypseleotris sp.*					7
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				9
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				26
animals	ray-finned fishes	Percichthyidae	*Macquaria ambigua*	golden perch				8
animals	ray-finned fishes	Percichthyidae	*Macquaria novemaculeata*	Australian bass				12
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				28
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			25
animals	ray-finned fishes	Retropinnidae	*Retropinna semoni*	Australian smelt				3
animals	ray-finned fishes	Terapontidae	*Bidyanus bidyanus*	silver perch			CE	3
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				10
animals	reptiles	Agamidae	*Diporiphora australis*	tommy roundhead		C		6
animals	reptiles	Agamidae	*Diporiphora nobbi*	nobbi		C		8/1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		4
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		5
animals	reptiles	Boidae	*Antaresia maculosa*	spotted python		C		2
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		29/1
animals	reptiles	Carphodactylidae	*Underwoodisaurus milii*	thick-tailed gecko		C		4
animals	reptiles	Chelidae	*Chelodina expansa*	broad-shelled river turtle		C		2
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		4
animals	reptiles	Chelidae	*Emydura macquarii krefftii*	Krefft's river turtle		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		5/1
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		2
animals	reptiles	Diplodactylidae	*Amalosia rhombifer*	zig-zag gecko		C		1
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		3
animals	reptiles	Diplodactylidae	*Nebulifera robusta*	robust velvet gecko		C		5
animals	reptiles	Diplodactylidae	*Oedura tryoni*	southern spotted velvet gecko		C		6
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		1/1
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		1/1
animals	reptiles	Elapidae	*Cacophis squamulosus*	golden crowned snake		C		1
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		7
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		2
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		2
animals	reptiles	Elapidae	*Furina dunmalli*	Dunmall's snake		V	V	2
animals	reptiles	Elapidae	*Hemiaspis signata*	black-bellied swamp snake		C		1
animals	reptiles	Elapidae	*Oxyuranus scutellatus*	coastal taipan		C		1
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		3
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		15
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		2
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		9/1
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		7
animals	reptiles	Pygopodidae	*Delma torquata*	collared delma		V	V	2/1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		2
animals	reptiles	Scincidae	*Anomalopus leuckartii*	two-clawed worm-skink		C		9
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	*Bellatorias frerei*	major skink		C		3
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		33/14
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		13
animals	reptiles	Scincidae	*Carlia sp.*			C		2
animals	reptiles	Scincidae	*Carlia vivax*	tussock rainbow-skink		C		7
animals	reptiles	Scincidae	*Concinnia martini*	dark bar-sided skink		C		1
animals	reptiles	Scincidae	*Concinnia tenuis*	bar-sided skink		C		12
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		10
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		2
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		8
animals	reptiles	Scincidae	*Egernia striolata*	tree skink		C		4
animals	reptiles	Scincidae	*Lampropholis amicula*	friendly sunskink		C		8
animals	reptiles	Scincidae	*Lampropholis couperi*	plain-backed sunskink		C		1
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		1
animals	reptiles	Scincidae	*Lampropholis sp.*			C		2
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		13
animals	reptiles	Scincidae	*Morethia boulengeri*	south-eastern morethia skink		C		1
animals	reptiles	Scincidae	*Morethia taeniopleura*	fire-tailed skink		C		4
animals	reptiles	Scincidae	*Pygmaeascincus timlowi*	dwarf litter-skink		C		2
animals	reptiles	Scincidae	*Saiphos equalis*	three-toed skink		C		1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		4
animals	reptiles	Typhlopidae	*Anilios proximus*	proximus blind snake		C		1/1
animals	reptiles	Typhlopidae	*Anilios wiedii*	brown-snouted blind snake		C		3/2
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		3
animals	reptiles	Varanidae	*Varanus panoptes*	yellow-spotted monitor		C		1
animals	reptiles	Varanidae	*Varanus sp.*	goanna		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		25
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending				4
fungi	Agaricomycetes	Agaricaceae	*Agaricus*					1/1
fungi	Agaricomycetes	Agaricaceae	*Agaricus arvensis*			C		2/2
fungi	Agaricomycetes	Agaricaceae	*Agaricus augustus*			C		1/1
fungi	Agaricomycetes	Agaricaceae	*Agaricus campestris var. campestris*			C		1/1
fungi	Agaricomycetes	Agaricaceae	*Agaricus xanthodermus*	yellow staining mushroom		C		4/4
fungi	Agaricomycetes	Agaricaceae	*Calvatia*					1/1
fungi	Agaricomycetes	Agaricaceae	*Chlorophyllum molybdites*	green-spored parasol		C		2/2
fungi	Agaricomycetes	Agaricaceae	*Coprinus hemerobius*			C		1/1
fungi	Agaricomycetes	Agaricaceae	*Coprinus truncorum*			C		1/1
fungi	Agaricomycetes	Agaricaceae	*Crucibulum laeve*			C		1/1
fungi	Agaricomycetes	Agaricaceae	*Lepiota*					4/4
fungi	Agaricomycetes	Agaricaceae	*Leucoagaricus fimetarius*			C		2/2
fungi	Agaricomycetes	Agaricaceae	*Leucocoprinus birnbaumii*			C		5/5
fungi	Agaricomycetes	Agaricaceae	*Macrolepiota dolichaula*			C		3/3
fungi	Agaricomycetes	Agaricaceae	*Tulostoma obesum*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita*			C		9/9
fungi	Agaricomycetes	Amanitaceae	*Amanita egreginus*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita flavella*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
fungi	Agaricomycetes	Amanitaceae	*Amanita murinoflammeum*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita roseolamellata*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita striatuloides*			C		1/1
fungi	Agaricomycetes	Amanitaceae	*Amanita umbrinella*			C		2/2
fungi	Agaricomycetes	Amanitaceae	*Limacella*					3/3
fungi	Agaricomycetes	Amanitaceae	*Limacella pitereka*			C		1/1
fungi	Agaricomycetes	Auriculariaceae	*Auricularia cornea*			C		8/8
fungi	Agaricomycetes	Boletaceae	*Boletus*					3/3
fungi	Agaricomycetes	Boletaceae	*Tylopilus*					6/6
fungi	Agaricomycetes	Clavariaceae	*Clavaria*					1/1
fungi	Agaricomycetes	Clavariaceae	*Clavulinopsis amoena*			C		2/2
fungi	Agaricomycetes	Clavariaceae	*Clavulinopsis sulcata*			C		1/1
fungi	Agaricomycetes	Cortinariaceae	*Cortinarius*					1/1
fungi	Agaricomycetes	Cortinariaceae	*Gymnopilus*					2/2
fungi	Agaricomycetes	Cortinariaceae	*Tubaria*					1/1
fungi	Agaricomycetes	Cortinariaceae	*Tubaria conspersa*			C		1/1
fungi	Agaricomycetes	Entolomataceae	*Entoloma*					4/4
fungi	Agaricomycetes	Entolomataceae	*Entoloma lampropus*			C		1/1
fungi	Agaricomycetes	Fomitopsidaceae	*Piptoporus australiensis*			C		1/1
fungi	Agaricomycetes	Ganodermataceae	*Ganoderma*					2/2
fungi	Agaricomycetes	Ganodermataceae	*Ganoderma australe*			C		2/2
fungi	Agaricomycetes	Geastraceae	*Geastrum*			C		1/1
fungi	Agaricomycetes	Geastraceae	*Geastrum campestre*			C		1/1
fungi	Agaricomycetes	Geastraceae	*Geastrum javanicum*			C		1/1
fungi	Agaricomycetes	Geastraceae	*Geastrum saccatum*			C		1/1
fungi	Agaricomycetes	Gloeophyllaceae	*Gloeophyllum*			C		1/1
fungi	Agaricomycetes	Gloeophyllaceae	*Gloeophyllum abietinum*			C		1/1
fungi	Agaricomycetes	Gomphaceae	*Ramaria sp. (Blackbutt A.M.Young+ 1334)*			C		1/1
fungi	Agaricomycetes	Hydnangiaceae	*Laccaria lateritia*			C		4/4
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe austrolutea*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe badioclavata*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe conica var. conica*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe conica var. tierneyi*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe cystidiorubra*			C		2/2
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe hayi*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe minutula var. nanangensis*			C		1/1
fungi	Agaricomycetes	Hygrophoraceae	*Hygrocybe rubrolutea*			C		4/4
fungi	Agaricomycetes	Hymenochaetaceae	*Fomitiporia robusta*			C		1/1
fungi	Agaricomycetes	Hymenochaetaceae	*Phellinus*					2/2
fungi	Agaricomycetes	Hymenochaetaceae	*Phellinus badius*			C		2/2
fungi	Agaricomycetes	Inocybaceae	*Inocybe*			C		2/2
fungi	Agaricomycetes	Inocybaceae	*Inocybe australiensis*			C		1/1
fungi	Agaricomycetes	Inocybaceae	*Inocybe curvipes*			C		1/1
fungi	Agaricomycetes	Marasmiaceae	*Marasmius elegans*			C		1/1
fungi	Agaricomycetes	Mycenaceae	*Mycena*					1/1
fungi	Agaricomycetes	Omphalotaceae	*Marasmiellus*					1/1

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fungi	Agaricomycetes	Panaeolaceae	*Copelandia cyanescens*			C		2/2
fungi	Agaricomycetes	Panaeolaceae	*Panaeolina foenisecii*			C		1/1
fungi	Agaricomycetes	Panaeolaceae	*Panaeolus*					1/1
fungi	Agaricomycetes	Panaeolaceae	*Panaeolus antillarum*			C		6/6
fungi	Agaricomycetes	Panaeolaceae	*Panaeolus fimicola*			C		4/4
fungi	Agaricomycetes	Panaeolaceae	*Panaeolus sphinctrinus*			C		5/5
fungi	Agaricomycetes	Peniophoraceae	*Peniophora*					1/1
fungi	Agaricomycetes	Phallaceae	*Colus pusillus*			C		1/1
fungi	Agaricomycetes	Phallaceae	*Ileodictyon gracile*			C		1/1
fungi	Agaricomycetes	Phallaceae	*Lysurus mokusin*			C		1/1
fungi	Agaricomycetes	Phallaceae	*Phallus multicolor*			C		1
fungi	Agaricomycetes	Phallaceae	*Phallus rubicundus*			C		1/1
fungi	Agaricomycetes	Phallaceae	*Pseudocolus fusiformis*			C		3/3
fungi	Agaricomycetes	Phanerochaetaceae	*Oxychaete cervinogilva*			C		2/2
fungi	Agaricomycetes	Pleurotaceae	*Pleurotus tuber-regium*			C		2/2
fungi	Agaricomycetes	Pluteaceae	*Volvariella taylorii*			C		1/1
fungi	Agaricomycetes	Podoscyphaceae	*Podoscypha involuta*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Earliella scabrosa*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Fomes*					1/1
fungi	Agaricomycetes	Polyporaceae	*Hymenogramme crustacea*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Laccocephalum tumulosum*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Lenzites acuta*			C		3/3
fungi	Agaricomycetes	Polyporaceae	*Lenzites betulina*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Nigroporus vinosus*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Panus fasciatus*			C		2/2
fungi	Agaricomycetes	Polyporaceae	*Panus fulvus*			C		3/3
fungi	Agaricomycetes	Polyporaceae	*Polyporus arcularius*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Poria*					1/1
fungi	Agaricomycetes	Polyporaceae	*Pycnoporus cinnabarinus*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Trametes*					1/1
fungi	Agaricomycetes	Polyporaceae	*Trametes elegans*			C		3/3
fungi	Agaricomycetes	Polyporaceae	*Trametes hirsuta*			C		7/7
fungi	Agaricomycetes	Polyporaceae	*Trametes lactinea*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Trametes ochracea*			C		3/3
fungi	Agaricomycetes	Polyporaceae	*Trametes versicolor*			C		1/1
fungi	Agaricomycetes	Polyporaceae	*Trichaptum biforme*			C		2/2
fungi	Agaricomycetes	Polyporaceae	*Tyromyces*					1/1
fungi	Agaricomycetes	Psathyrellaceae	*Coprinellus disseminatus*			C		2/2
fungi	Agaricomycetes	Psathyrellaceae	*Psathyrella candolleana*			C		3/3
fungi	Agaricomycetes	Russulaceae	*Russula*			C		4/4
fungi	Agaricomycetes	Russulaceae	*Russula lenkunya*			C		3/3
fungi	Agaricomycetes	Russulaceae	*Russula purpureoflava*			C		1/1
fungi	Agaricomycetes	Schizophyllaceae	*Schizophyllum commune*			C		2/1
fungi	Agaricomycetes	Schizoporaceae	*Hyphodontia flavipora*			C		1/1
fungi	Agaricomycetes	Sclerodermataceae	*Pisolithus*					1/1
fungi	Agaricomycetes	Sclerodermataceae	*Pisolithus microcarpus*			C		1/1

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fungi	Agaricomycetes	Sclerodermataceae	*Scleroderma cepa*			C		1/1
fungi	Agaricomycetes	Sclerodermataceae	*Scleroderma polyrhizum*			C		1/1
fungi	Agaricomycetes	Sclerodermataceae	*Scleroderma verrucosum*			C		1/1
fungi	Agaricomycetes	Stephanosporaceae	*Stephanospora*					1/1
fungi	Agaricomycetes	Stephanosporaceae	*Stephanospora flava*			C		1/1
fungi	Agaricomycetes	Strophariaceae	*Agrocybe*					1/1
fungi	Agaricomycetes	Strophariaceae	*Psilocybe pseudobullacea*			C		1/1
fungi	Agaricomycetes	Strophariaceae	*Stropharia umbonatescens*			C		1/1
fungi	Agaricomycetes	Suillaceae	*Suillus*					1/1
fungi	Agaricomycetes	Suillaceae	*Suillus granulatus*			C		1/1
fungi	Agaricomycetes	Suillaceae	*Suillus luteus*			C		1/1
fungi	Agaricomycetes	Tricholomataceae	*Clitocybe*					1/1
fungi	Agaricomycetes	Tricholomataceae	*Collybia*					2/2
fungi	Agaricomycetes	Tricholomataceae	*Lepista*					2/2
fungi	Agaricomycetes	Tricholomataceae	*Lepista sublilacina*			C		1/1
fungi	Agaricomycetes	Tricholomataceae	*Macrocybe gigantea*			C		1/1
fungi	Agaricomycetes	Tricholomataceae	*Melanoleuca*					2/2
fungi	Agaricomycetes	Tricholomataceae	*Omphalina*					1/1
fungi	Agaricomycetes	Tricholomataceae	*Tricholoma*					1/1
fungi	Pezizomycetes	Morchellaceae	*Morchella elata*			C		1/1
fungi	Pezizomycetes	Morchellaceae	*Morchella esculenta*			C		1/1
fungi	arthoniomycetes	Chrysothricaceae	*Chrysothrix*					1/1
fungi	arthoniomycetes	Opegraphaceae	*Opegrapha*					1/1
fungi	eurotiomycetes	Pyrenulaceae	*Pyrenula anomala*			C		1/1
fungi	eurotiomycetes	Pyrenulaceae	*Pyrenula finitima*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Amandinea endachroa*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Buellia*					1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia spuria var. spuria*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Dirinaria applanata*			C		6/6
fungi	lecanoromycetes	Caliciaceae	*Dirinaria confluens*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Dirinaria consimilis*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Dirinaria picta*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Pyxine cocoes*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Pyxine plumea*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladia aggregata*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladia glaucolivida*			C		2/2
fungi	lecanoromycetes	Cladoniaceae	*Cladia muelleri*			C		3/3
fungi	lecanoromycetes	Cladoniaceae	*Cladonia cervicornis subsp. verticillata*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladonia floerkeana*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladonia praetermissa var. praetermissa*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Diploschistes sp. (Callide H.Streimann 52528)*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Glyphis cicatricosa*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Sarcographa labyrinthica*			C		2/2
fungi	lecanoromycetes	Haematommataceae	*Haematomma collatum*			C		1/1
fungi	lecanoromycetes	Haematommataceae	*Haematomma infuscum*			C		1/1
fungi	lecanoromycetes	Haematommataceae	*Haematomma persoonii*			C		1/1

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fungi	lecanoromycetes	Lecanoraceae	*Lecanora argentata*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora helva*			C		2/2
fungi	lecanoromycetes	Lecanoraceae	*Lecanora leprosa*			C		2/2
fungi	lecanoromycetes	Lecanoraceae	*Lecanora novaehollandiae*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora plumosa*			C		1/1
fungi	lecanoromycetes	Lecideaceae	*Poeltiaria turgescens*			C		1/1
fungi	lecanoromycetes	Lobariaceae	*Lobaria rhaphispora*			C		1/1
fungi	lecanoromycetes	Ochrolechiaceae	*Ochrolechia*					1/1
fungi	lecanoromycetes	Parmeliaceae	*Canoparmelia texana*			C		5/5
fungi	lecanoromycetes	Parmeliaceae	*Flavoparmelia rutidota*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Notoparmelia erumpens*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema austrosinense*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema cooperi*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema judithae*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema parahypotropum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema reticulatum*			C		4/4
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema tinctorum*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Punctelia borreri*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Punctelia subflava*			C		3/3
fungi	lecanoromycetes	Parmeliaceae	*Usnea angulata*			C		4/4
fungi	lecanoromycetes	Parmeliaceae	*Usnea baileyi*			C		3/3
fungi	lecanoromycetes	Parmeliaceae	*Usnea bicolorata var. australiensis*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Usnea bismolliuscula*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Usnea dasaea*			C		8/8
fungi	lecanoromycetes	Parmeliaceae	*Usnea himantodes*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Usnea molliuscula subsp. queenslandica*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Usnea rubicunda*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Usnea scabrida subsp. elegans*			C		3/3
fungi	lecanoromycetes	Parmeliaceae	*Usnea trichodeoides*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia ballingalliana*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia obscurata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia speciosa*			C		3/3
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia adglutinata*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Physcia jackii*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalina celastri subsp. celastri*			C		2/2
fungi	lecanoromycetes	Ramalinaceae	*Ramalina inflata subsp. inflata*			C		2/2
fungi	lecanoromycetes	Ramalinaceae	*Ramalina inflata subsp. perpusilla*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalina peruviana*			C		4/4
fungi	lecanoromycetes	Ramalinaceae	*Ramalina sp. (Eimeo G.N.Stevens 3129)*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalina subfraxinea*			C		2/2
fungi	lecanoromycetes	Ramboldiaceae	*Ramboldia haematites*			C		1/1
fungi	lecanoromycetes	Ramboldiaceae	*Ramboldia laeta*			C		2/2
fungi	lecanoromycetes	Schaereriaceae	*Schaereria xerophila*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Teloschistes flavicans*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Teloschistes xanthoroides*			C		1/1
fungi	sordariomycetes	Cordycipitaceae	*Cordyceps militaris*			C		1/1

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fungi	sordariomycetes	Xylariaceae	*Daldinia concentrica*			C		1/1
fungi	sordariomycetes	Xylariaceae	*Daldinia eschscholzii*			C		1/1
fungi	sordariomycetes	Xylariaceae	*Entonaema*			C		1/1
fungi	sordariomycetes	Xylariaceae	*Penzigia compuncta*			C		1/1
fungi	sordariomycetes	Xylariaceae	*Poronia oedipus*			C		1/1
plants	land plants	Acanthaceae	*Brunoniella australis*	blue trumpet		C		1
plants	land plants	Acanthaceae	*Harnieria hygrophiloides*	white karambal		C		3/2
plants	land plants	Acanthaceae	*Hypoestes floribunda*			C		2/1
plants	land plants	Acanthaceae	*Hypoestes floribunda var. pubescens*			C		2/2
plants	land plants	Acanthaceae	*Pseuderanthemum tenellum*			C		1
plants	land plants	Acanthaceae	*Pseuderanthemum variabile*	pastel flower		C		7/4
plants	land plants	Aizoaceae	*Tetragonia tetragonoides*	New Zealand spinach		C		5/4
plants	land plants	Alliaceae	*Nothoscordum borbonicum*		Y			1/1
plants	land plants	Amaranthaceae	*Alternanthera nana*	hairy joyweed		C		1/1
plants	land plants	Amaranthaceae	*Deeringia amaranthoides*	redberry		C		2/1
plants	land plants	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1
plants	land plants	Amaranthaceae	*Guilleminea densa*	small matweed	Y			2/2
plants	land plants	Amaranthaceae	*Nyssanthes diffusa*	barbed-wire weed		C		3/1
plants	land plants	Amaryllidaceae	*Crinum flaccidum*	Murray lily		SL		1
plants	land plants	Anacardiaceae	*Euroschinus falcatus*			C		4
plants	land plants	Anacardiaceae	*Rhodosphaera rhodanthema*	tulip satinwood		C		6
plants	land plants	Anacardiaceae	*Schinus terebinthifolius*		Y			1
plants	land plants	Annonaceae	*Melodorum leichhardtii*			C		4
plants	land plants	Apiaceae	*Centella asiatica*			C		1
plants	land plants	Apiaceae	*Eryngium expansum*	Queensland eryngo		C		1/1
plants	land plants	Apocynaceae	*Alstonia constricta*	bitterbark		C		7/2
plants	land plants	Apocynaceae	*Alyxia ruscifolia*			C		10/4
plants	land plants	Apocynaceae	*Araujia sericifera*	white moth vine	Y			5/4
plants	land plants	Apocynaceae	*Asclepias curassavica*	red-head cottonbush	Y			1/1
plants	land plants	Apocynaceae	*Carissa ovata*	currantbush		C		7/2
plants	land plants	Apocynaceae	*Cryptostegia grandiflora*	rubber vine	Y			1
plants	land plants	Apocynaceae	*Cynanchum viminale subsp. australe*			C		1
plants	land plants	Apocynaceae	*Gymnema pleiadenium*			C		2
plants	land plants	Apocynaceae	*Leichhardtia lloydii*			C		3/1
plants	land plants	Apocynaceae	*Leichhardtia micradenia*			C		3/1
plants	land plants	Apocynaceae	*Parsonsia brisbanensis*	broad-leaved monkey vine		C		2/2
plants	land plants	Apocynaceae	*Parsonsia lanceolata*	northern silkpod		C		1
plants	land plants	Apocynaceae	*Parsonsia latifolia*	green-leaved silkpod		C		1
plants	land plants	Apocynaceae	*Parsonsia leichhardtii*	black silkpod		C		4/3
plants	land plants	Apocynaceae	*Parsonsia lilacina*	crisped silkpod		C		1
plants	land plants	Apocynaceae	*Parsonsia longipetiolata*			C		2/2
plants	land plants	Apocynaceae	*Parsonsia paulforsteri*			C		3/1
plants	land plants	Apocynaceae	*Parsonsia rotata*	veinless silkpod		C		3/2
plants	land plants	Apocynaceae	*Parsonsia straminea*	monkey rope		C		5/1
plants	land plants	Apocynaceae	*Parsonsia velutina*	hairy silkpod		C		6/2
plants	land plants	Apocynaceae	*Secamone elliptica*			C		2

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plants	land plants	Apocynaceae	*Vincetoxicum grandiflorum*			C		3
plants	land plants	Apocynaceae	*Vincetoxicum ovatum*			C		1
plants	land plants	Araceae	*Alocasia brisbanensis*			C		1
plants	land plants	Araliaceae	*Astrotricha longifolia*	star hair bush		C		1/1
plants	land plants	Araliaceae	*Hydrocotyle laxiflora*	stinking pennywort		C		3/3
plants	land plants	Araliaceae	*Hydrocotyle paludosa*			C		2/2
plants	land plants	Araliaceae	*Polyscias elegans*	celery wood		C		3
plants	land plants	Araliaceae	*Trachymene incisa subsp. incisa*			C		1/1
plants	land plants	Araucariaceae	*Araucaria bidwillii*	bunya pine		C		7/3
plants	land plants	Araucariaceae	*Araucaria cunninghamii*	hoop pine		C		5
plants	land plants	Arecaceae	*Archontophoenix cunninghamiana*	piccabeen palm		C		2/1
plants	land plants	Aristolochiaceae	*Aristolochia meridionalis subsp. centralis*			C		1/1
plants	land plants	Aristolochiaceae	*Aristolochia pubera*			C		1
plants	land plants	Asparagaceae	*Asparagus africanus*	ornamental asparagus	Y			5/1
plants	land plants	Asphodelaceae	*Bulbine bulbosa*	golden lily		C		1/1
plants	land plants	Aspleniaceae	*Asplenium attenuatum*	walking fern		C		2
plants	land plants	Aspleniaceae	*Asplenium australasicum*			C		2
plants	land plants	Aspleniaceae	*Asplenium flabellifolium*	necklace fern		C		1/1
plants	land plants	Aspleniaceae	*Asplenium polyodon*	mare's tail fern		C		1
plants	land plants	Aspleniaceae	*Asplenium subglandulosum subsp. subglandulosum*			C		1/1
plants	land plants	Asteraceae	*Ageratum conyzoides subsp. conyzoides*		Y			1/1
plants	land plants	Asteraceae	*Arctotheca calendula*	Cape weed	Y			1/1
plants	land plants	Asteraceae	*Baccharis halimifolia*	groundsel bush	Y			2
plants	land plants	Asteraceae	*Bidens pilosa*		Y			1
plants	land plants	Asteraceae	*Brachyscome microcarpa*			C		1
plants	land plants	Asteraceae	*Calotis cuneifolia*	burr daisy		C		3/3
plants	land plants	Asteraceae	*Calotis dentex*	white burr daisy		C		1/1
plants	land plants	Asteraceae	*Calotis lappulacea*	yellow burr daisy		C		1/1
plants	land plants	Asteraceae	*Carduus thoermeri*	nodding thistle	Y			5/5
plants	land plants	Asteraceae	*Cassinia laevis*			C		1
plants	land plants	Asteraceae	*Cassinia quinquefaria*			C		1
plants	land plants	Asteraceae	*Cassinia straminea*			C		1/1
plants	land plants	Asteraceae	*Centipeda minima*			C		1/1
plants	land plants	Asteraceae	*Centratherum riparium*			C		2/2
plants	land plants	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		4/3
plants	land plants	Asteraceae	*Coreopsis lanceolata*		Y			3/3
plants	land plants	Asteraceae	*Cotula australis*	common cotula		C		2/2
plants	land plants	Asteraceae	*Crassocephalum crepidioides*	thickhead	Y			1/1
plants	land plants	Asteraceae	*Eclipta platyglossa subsp. platyglossa*			C		1/1
plants	land plants	Asteraceae	*Erechtites valerianifolius forma valerianifolius*		Y			1/1
plants	land plants	Asteraceae	*Erigeron canadensis*		Y			1/1
plants	land plants	Asteraceae	*Erigeron primulifolius*		Y			1/1
plants	land plants	Asteraceae	*Erigeron pusillus*		Y			1/1
plants	land plants	Asteraceae	*Erigeron sumatrensis*		Y			2/2
plants	land plants	Asteraceae	*Gamochaeta purpurea*		Y			1/1
plants	land plants	Asteraceae	*Glossocardia bidens*	native cobbler's pegs		C		3/2

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plants	land plants	Asteraceae	*Hypochaeris albiflora*		Y			1/1
plants	land plants	Asteraceae	*Olearia canescens subsp. discolor*			C		2/2
plants	land plants	Asteraceae	*Olearia fulgens*			C		3/3
plants	land plants	Asteraceae	*Ozothamnus bidwillii*	climbing daisy		C		1
plants	land plants	Asteraceae	*Parthenium hysterophorus*	parthenium weed	Y			1/1
plants	land plants	Asteraceae	*Picris angustifolia subsp. carolorum-henricorum*			C		2/2
plants	land plants	Asteraceae	*Picris conyzoides*			V		1/1
plants	land plants	Asteraceae	*Podolepis arachnoidea*	clustered copper-wire daisy		C		2/2
plants	land plants	Asteraceae	*Senecio esleri*			C		1/1
plants	land plants	Asteraceae	*Sigesbeckia orientalis*	Indian weed		C		1
plants	land plants	Asteraceae	*Sonchus oleraceus*	common sowthistle	Y			1/1
plants	land plants	Asteraceae	*Tagetes minuta*	stinking roger	Y			1/1
plants	land plants	Asteraceae	*Vittadinia dissecta var. hirta*			C		1/1
plants	land plants	Asteraceae	*Vittadinia sulcata*	native daisy		C		3/3
plants	land plants	Asteraceae	*Xanthium occidentale*		Y			1
plants	land plants	Asteraceae	*Xerochrysum bracteatum*	golden everlasting daisy		C		1
plants	land plants	Asteraceae	*Xerochrysum viscosum*			C		1/1
plants	land plants	Asteraceae	*Zinnia peruviana*	wild zinnia	Y			2/2
plants	land plants	Bignoniaceae	*Dolichandra unguis-cati*	cat's claw creeper	Y			9
plants	land plants	Bignoniaceae	*Pandorea jasminoides*			C		6/2
plants	land plants	Bignoniaceae	*Pandorea pandorana*	wonga vine		C		6
plants	land plants	Bignoniaceae	*Tecoma stans*	tecoma	Y			2
plants	land plants	Blechnaceae	*Blechnum neohollandicum*			C		3
plants	land plants	Boraginaceae	*Cynoglossum australe*			C		1/1
plants	land plants	Boraginaceae	*Ehretia acuminata*			C		1
plants	land plants	Boraginaceae	*Ehretia membranifolia*	weeping koda		C		2/1
plants	land plants	Boraginaceae	*Hackelia suaveolens*			C		3/3
plants	land plants	Braithwaiteaceae	*Braithwaitea sulcata*			C		1/1
plants	land plants	Brassicaceae	*Capsella bursa-pastoris*	shepherd's purse	Y			1/1
plants	land plants	Brassicaceae	*Lepidium bonariense*	Argentine peppercress	Y			1/1
plants	land plants	Brassicaceae	*Lepidium pseudohyssopifolium*			C		1/1
plants	land plants	Brassicaceae	*Lepidium virginicum*	Virginian peppercress	Y			1/1
plants	land plants	Brassicaceae	*Raphanus raphanistrum*	wild radish	Y			1/1
plants	land plants	Bryaceae	*Rosulabryum billarderii*			C		1/1
plants	land plants	Cactaceae	*Opuntia*					25
plants	land plants	Cactaceae	*Opuntia stricta*		Y			1
plants	land plants	Cactaceae	*Opuntia tomentosa*	velvety tree pear	Y			18
plants	land plants	Campanulaceae	*Wahlenbergia*					1/1
plants	land plants	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		SL		1
plants	land plants	Campanulaceae	*Wahlenbergia graniticola*	granite bluebell		SL		1/1
plants	land plants	Capparaceae	*Capparis arborea*	brush caper berry		C		7/2
plants	land plants	Capparaceae	*Capparis sarmentosa*	scrambling caper		C		9/4
plants	land plants	Caryophyllaceae	*Petrorhagia dubia*		Y			1/1
plants	land plants	Caryophyllaceae	*Stellaria angustifolia subsp. angustifolia*			C		1/1
plants	land plants	Caryophyllaceae	*Stellaria media*	chickweed	Y			1/1
plants	land plants	Casuarinaceae	*Allocasuarina torulosa*			C		3/1

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plants	land plants	Casuarinaceae	*Casuarina cunninghamiana*			C		1
plants	land plants	Celastraceae	*Celastrus subspicata*	large-leaved staffvine		C		4/2
plants	land plants	Celastraceae	*Denhamia bilocularis*			C		17/13
plants	land plants	Celastraceae	*Denhamia disperma*			C		7/5
plants	land plants	Celastraceae	*Denhamia pittosporoides subsp. pittosporoides*			C		7/7
plants	land plants	Celastraceae	*Elaeodendron australe*			C		3
plants	land plants	Celastraceae	*Elaeodendron australe var. australe*			C		1/1
plants	land plants	Celastraceae	*Elaeodendron australe var. integrifolium*			C		7/6
plants	land plants	Celastraceae	*Hippocratea barbata*	knotvine		C		1
plants	land plants	Celastraceae	*Siphonodon australis*	ivorywood		C		5
plants	land plants	Ceratophyllaceae	*Ceratophyllum demersum*	hornwort		C		1/1
plants	land plants	Chenopodiaceae	*Dysphania carinata*			C		2/2
plants	land plants	Chenopodiaceae	*Einadia hastata*			C		2/2
plants	land plants	Chenopodiaceae	*Einadia nutans*			C		2
plants	land plants	Chenopodiaceae	*Einadia nutans subsp. linifolia*			C		1
plants	land plants	Chenopodiaceae	*Maireana microphylla*			C		1/1
plants	land plants	Chenopodiaceae	*Salsola australis*			C		1/1
plants	land plants	Clusiaceae	*Hypericum gramineum*			C		2/1
plants	land plants	Commelinaceae	*Aneilema biflorum*			C		1/1
plants	land plants	Commelinaceae	*Aneilema sp. (Tower LA P.I.Forster+ PIF14846)*			C		1/1
plants	land plants	Commelinaceae	*Commelina diffusa*	wandering jew		C		5/2
plants	land plants	Commelinaceae	*Murdannia graminea*	murdannia		C		1
plants	land plants	Commelinaceae	*Pollia crispata*	pollia		C		1
plants	land plants	Convolvulaceae	*Convolvulus erubescens*	Australian bindweed		C		1/1
plants	land plants	Convolvulaceae	*Cuscuta campestris*	dodder	Y			1/1
plants	land plants	Convolvulaceae	*Dichondra repens*	kidney weed		C		3/1
plants	land plants	Convolvulaceae	*Evolvulus alsinoides*			C		1
plants	land plants	Convolvulaceae	*Ipomoea lonchophylla*			C		1/1
plants	land plants	Convolvulaceae	*Ipomoea quamoclit*	star of Bethlehem	Y			1/1
plants	land plants	Cornaceae	*Alangium polyosmoides subsp. tomentosum*			C		1
plants	land plants	Crassulaceae	*Bryophyllum delagoense*		Y			3
plants	land plants	Crassulaceae	*Crassula tetramera*			C		1/1
plants	land plants	Cucurbitaceae	*Diplocyclos palmatus*			C		1
plants	land plants	Cucurbitaceae	*Diplocyclos palmatus subsp. palmatus*			C		1/1
plants	land plants	Cupressaceae	*Callitris baileyi*	Bailey's cypress		NT		5/5
plants	land plants	Cupressaceae	*Callitris columellaris*			C		1/1
plants	land plants	Cyatheaceae	*Sphaeropteris cooperi*			C		1
plants	land plants	Cyperaceae	*Bolboschoenus fluviatilis*			C		1/1
plants	land plants	Cyperaceae	*Carex appressa*			C		1/1
plants	land plants	Cyperaceae	*Carex fascicularis*	tassel sedge		C		1/1
plants	land plants	Cyperaceae	*Carex gaudichaudiana*			C		1/1
plants	land plants	Cyperaceae	*Cyperus curvistylis*			C		1/1
plants	land plants	Cyperaceae	*Cyperus cyperoides*			C		1/1
plants	land plants	Cyperaceae	*Cyperus exaltatus*	tall flatsedge		C		1/1
plants	land plants	Cyperaceae	*Cyperus fulvus*			C		3/3
plants	land plants	Cyperaceae	*Cyperus gracilis*			C		3/3

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plants	land plants	Cyperaceae	*Cyperus leiocaulon*			C		2/2
plants	land plants	Cyperaceae	*Cyperus lucidus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus mirus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus nervulosus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus procerus*			C		2/2
plants	land plants	Cyperaceae	*Cyperus sanguinolentus*			C		1
plants	land plants	Cyperaceae	*Cyperus squarrosus*	bearded flatsedge		C		1/1
plants	land plants	Cyperaceae	*Cyperus vaginatus*			C		1/1
plants	land plants	Cyperaceae	*Eleocharis cylindrostachys*			C		2/2
plants	land plants	Cyperaceae	*Eleocharis dietrichiana*			C		1/1
plants	land plants	Cyperaceae	*Eleocharis philippinensis*			C		1/1
plants	land plants	Cyperaceae	*Fimbristylis dichotoma*	common fringe-rush		C		1/1
plants	land plants	Cyperaceae	*Gahnia aspera*			C		4/3
plants	land plants	Cyperaceae	*Lepidosperma laterale*			C		3/3
plants	land plants	Cyperaceae	*Schoenoplectus subulatus*			C		1/1
plants	land plants	Cyperaceae	*Schoenoplectus tabernaemontani*			C		1/1
plants	land plants	Cyperaceae	*Schoenus yarrabensis*			C		1/1
plants	land plants	Cyperaceae	*Scleria mackaviensis*			C		2/1
plants	land plants	Cyperaceae	*Scleria sphacelata*			C		1/1
plants	land plants	Dennstaedtiaceae	*Pteridium esculentum*	common bracken		C		1
plants	land plants	Dicranaceae	*Sclerodontium pallidum*			C		1/1
plants	land plants	Dilleniaceae	*Hibbertia*					1/1
plants	land plants	Dilleniaceae	*Hibbertia cistoidea*			C		1/1
plants	land plants	Dilleniaceae	*Hibbertia linearis var. obtusifolia*			C		2/2
plants	land plants	Dilleniaceae	*Hibbertia patens*			C		2/2
plants	land plants	Dilleniaceae	*Hibbertia sp. (Carnarvon Range C.T.White 11332)*			C		1/1
plants	land plants	Dilleniaceae	*Hibbertia sp. (Isla Gorge P.Sharpe 598)*			C		1/1
plants	land plants	Dilleniaceae	*Hibbertia stricta*			C		1/1
plants	land plants	Dioscoreaceae	*Dioscorea bulbifera var. bulbifera*			C		1/1
plants	land plants	Dioscoreaceae	*Dioscorea transversa*	native yam		C		3
plants	land plants	Droseraceae	*Drosera burmanni*			SL		1/1
plants	land plants	Dryopteridaceae	*Lastreopsis decomposita*	trim shield fern		SL		2
plants	land plants	Ebenaceae	*Diospyros australis*	black plum		C		2
plants	land plants	Ebenaceae	*Diospyros geminata*	scaly ebony		C		3
plants	land plants	Ebenaceae	*Diospyros pentamera*	myrtle ebony		C		3
plants	land plants	Elaeocarpaceae	*Elaeocarpus obovatus*	blueberry ash		C		1
plants	land plants	Elaeocarpaceae	*Elaeocarpus obovatus subsp. obovatus*			C		1/1
plants	land plants	Entodontaceae	*Entodon mackaviensis*			C		4/4
plants	land plants	Ericaceae	*Monotoca scoparia*	prickly broom heath		C		1/1
plants	land plants	Ericaceae	*Styphelia trichostyla*			C		4/4
plants	land plants	Erythroxylaceae	*Erythroxylum australe*	cocaine tree		C		2/1
plants	land plants	Erythroxylaceae	*Erythroxylum sp. (Splityard Creek L.Pedley 5360)*			C		7/7
plants	land plants	Euphorbiaceae	*Acalypha capillipes*	small-leaved acalypha		C		8/3
plants	land plants	Euphorbiaceae	*Acalypha eremorum*	soft acalypha		C		1/1
plants	land plants	Euphorbiaceae	*Acalypha nemorum*	hairy acalypha		C		3/3
plants	land plants	Euphorbiaceae	*Alchornea ilicifolia*	native holly		C		8/4

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plants	land plants	Euphorbiaceae	*Baloghia inophylla*	scrub bloodwood		C		7/2
plants	land plants	Euphorbiaceae	*Beyeria viscosa*			C		4/4
plants	land plants	Euphorbiaceae	*Claoxylon australe*	brittlewood		C		4
plants	land plants	Euphorbiaceae	*Croton acronychioides*	thick-leaved croton		C		2
plants	land plants	Euphorbiaceae	*Croton insularis*	Queensland cascarilla		C		9/5
plants	land plants	Euphorbiaceae	*Croton phebalioides*	narrow-leaved croton		C		1
plants	land plants	Euphorbiaceae	*Croton stigmatosus*	white croton		C		1
plants	land plants	Euphorbiaceae	*Euphorbia maculata*		Y			1/1
plants	land plants	Euphorbiaceae	*Euphorbia prostrata*		Y			1/1
plants	land plants	Euphorbiaceae	*Euphorbia tannensis subsp. eremophila*			C		1/1
plants	land plants	Euphorbiaceae	*Excoecaria dallachyana*	scrub poison tree		C		8/4
plants	land plants	Euphorbiaceae	*Homalanthus populifolius*			C		1
plants	land plants	Euphorbiaceae	*Mallotus claoxyloides*	green kamala		C		2/1
plants	land plants	Euphorbiaceae	*Mallotus philippensis*	red kamala		C		6/1
plants	land plants	Euphorbiaceae	*Manihot grahamii*		Y			1/1
plants	land plants	Euphorbiaceae	*Ricinus communis*	castor oil bush	Y			1
plants	land plants	Euphorbiaceae	*Tragia novae-hollandiae*	stinging-vine		C		4/1
plants	land plants	Gentianaceae	*Centaurium tenuiflorum*		Y			2/2
plants	land plants	Goodeniaceae	*Goodenia paniculata*			C		1/1
plants	land plants	Goodeniaceae	*Goodenia paradoxa*			C		1
plants	land plants	Goodeniaceae	*Goodenia rotundifolia*			C		1/1
plants	land plants	Grimmiaceae	*Grimmia laevigata*			C		1/1
plants	land plants	Gyrostemonaceae	*Codonocarpus attenuatus*			C		2
plants	land plants	Haloragaceae	*Haloragis exalata subsp. velutina*			V	V	3/3
plants	land plants	Haloragaceae	*Haloragis heterophylla*	rough raspweed		C		1/1
plants	land plants	Haloragaceae	*Myriophyllum gracile*			C		1/1
plants	land plants	Haloragaceae	*Myriophyllum verrucosum*	water milfoil		C		2/2
plants	land plants	Hemerocallidaceae	*Dianella*					1
plants	land plants	Hemerocallidaceae	*Dianella brevipedunculata*			C		2/2
plants	land plants	Hemerocallidaceae	*Dianella caerulea*			C		1
plants	land plants	Hemerocallidaceae	*Dianella caerulea var. assera*			C		1
plants	land plants	Hemerocallidaceae	*Dianella caerulea var. caerulea*			C		1
plants	land plants	Hemerocallidaceae	*Dianella longifolia*			C		1
plants	land plants	Hemerocallidaceae	*Dianella longifolia var. longifolia*			C		2/2
plants	land plants	Hemerocallidaceae	*Dianella rara*			C		2/2
plants	land plants	Hemerocallidaceae	*Geitonoplesium cymosum*	scrambling lily		C		5/1
plants	land plants	Hypoxidaceae	*Hypoxis pratensis*			C		1
plants	land plants	Iridaceae	*Sisyrinchium rosulatum*		Y			1/1
plants	land plants	Juncaceae	*Juncus continuus*			C		1/1
plants	land plants	Juncaceae	*Juncus polyanthemus*			C		1/1
plants	land plants	Juncaceae	*Juncus usitatus*			C		2/1
plants	land plants	Lamiaceae	*Ajuga australis*	Australian bugle		C		2
plants	land plants	Lamiaceae	*Clerodendrum floribundum*			C		5/2
plants	land plants	Lamiaceae	*Clerodendrum tomentosum*			C		3
plants	land plants	Lamiaceae	*Coleus australis*			C		2/1
plants	land plants	Lamiaceae	*Lamium amplexicaule*	deadnettle	Y			1/1

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plants	land plants	Lamiaceae	*Mentha satureioides*	native pennyroyal		C		1/1
plants	land plants	Lamiaceae	*Salvia coccinea*	red salvia	Y			2/2
plants	land plants	Lamiaceae	*Salvia plebeia*	common sage		C		1/1
plants	land plants	Lamiaceae	*Salvia reflexa*		Y			1/1
plants	land plants	Lamiaceae	*Teucrium argutum*			C		1/1
plants	land plants	Lamiaceae	*Teucrium junceum*			C		8/4
plants	land plants	Lamiaceae	*Vitex lignum-vitae*			C		5
plants	land plants	Lamiaceae	*Westringia longifolia*			C		1/1
plants	land plants	Lauraceae	*Cryptocarya bidwillii*	yellow laurel		C		2
plants	land plants	Lauraceae	*Cryptocarya obovata*	pepperberry		C		1
plants	land plants	Lauraceae	*Cryptocarya sclerophylla*	totempole		C		2/1
plants	land plants	Lauraceae	*Cryptocarya triplinervis*			C		2
plants	land plants	Lauraceae	*Cryptocarya triplinervis var. pubens*			C		1
plants	land plants	Lauraceae	*Litsea reticulata*			C		1
plants	land plants	Lauraceae	*Neolitsea dealbata*	white bolly gum		C		1
plants	land plants	Laxmanniaceae	*Cordyline petiolaris*	large-leaved palm lily		C		5/1
plants	land plants	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		6
plants	land plants	Laxmanniaceae	*Laxmannia gracilis*	slender wire lily		C		1/1
plants	land plants	Laxmanniaceae	*Lomandra confertifolia subsp. pallida*			C		1/1
plants	land plants	Laxmanniaceae	*Lomandra laxa*	broad-leaved matrush		C		3/2
plants	land plants	Laxmanniaceae	*Lomandra leucocephala subsp. leucocephala*			C		1/1
plants	land plants	Laxmanniaceae	*Lomandra longifolia*			C		4/3
plants	land plants	Laxmanniaceae	*Lomandra multiflora*			C		1
plants	land plants	Laxmanniaceae	*Thysanotus tuberosus*			C		1
plants	land plants	Laxmanniaceae	*Thysanotus tuberosus subsp. tuberosus*			C		1/1
plants	land plants	Leguminosae	*Acacia adsurgens*			C		1/1
plants	land plants	Leguminosae	*Acacia aulacocarpa*			C		5
plants	land plants	Leguminosae	*Acacia bancroftiorum*			C		2/2
plants	land plants	Leguminosae	*Acacia blakei subsp. blakei*			C		2/2
plants	land plants	Leguminosae	*Acacia burrowii*			C		1/1
plants	land plants	Leguminosae	*Acacia buxifolia subsp. pubiflora*			C		1/1
plants	land plants	Leguminosae	*Acacia concurrens*			C		1
plants	land plants	Leguminosae	*Acacia crassa*			C		1/1
plants	land plants	Leguminosae	*Acacia disparrima subsp. disparrima*			C		3/3
plants	land plants	Leguminosae	*Acacia falcata*	sickle wattle		C		3/3
plants	land plants	Leguminosae	*Acacia fimbriata*	Brisbane golden wattle		C		3/2
plants	land plants	Leguminosae	*Acacia glaucocarpa*	hickory wattle		C		3/2
plants	land plants	Leguminosae	*Acacia implexa*	lightwood		C		1
plants	land plants	Leguminosae	*Acacia irrorata*			C		1
plants	land plants	Leguminosae	*Acacia leiocalyx*			C		1
plants	land plants	Leguminosae	*Acacia leiocalyx subsp. leiocalyx*			C		3/2
plants	land plants	Leguminosae	*Acacia ligulata*			C		1/1
plants	land plants	Leguminosae	*Acacia loroloba*	Ma Ma Creek wattle		C		1/1
plants	land plants	Leguminosae	*Acacia maidenii*	Maiden's wattle		C		5/1
plants	land plants	Leguminosae	*Acacia melanoxylon*	blackwood		C		1
plants	land plants	Leguminosae	*Acacia neriifolia*	pechey wattle		C		2/2

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plants	land plants	Leguminosae	*Acacia pustula*			C		1/1
plants	land plants	Leguminosae	*Acacia striatifolia*			C		1/1
plants	land plants	Leguminosae	*Aotus subglauca var. filiformis*			C		1/1
plants	land plants	Leguminosae	*Austrosteenisia blackii*	bloodvine		C		4
plants	land plants	Leguminosae	*Castanospermum australe*	black bean		C		1
plants	land plants	Leguminosae	*Chamaecrista rotundifolia var. rotundifolia*		Y			1/1
plants	land plants	Leguminosae	*Crotalaria incana subsp. incana*		Y			1/1
plants	land plants	Leguminosae	*Daviesia ulicifolia subsp. ulicifolia*			C		1/1
plants	land plants	Leguminosae	*Daviesia wyattiana*	long-leaved bitter pea		C		1/1
plants	land plants	Leguminosae	*Desmodium rhytidophyllum*			C		1
plants	land plants	Leguminosae	*Desmodium varians*	slender tick trefoil		C		1/1
plants	land plants	Leguminosae	*Erythrina crista-galli*		Y			1/1
plants	land plants	Leguminosae	*Erythrina numerosa*			C		1/1
plants	land plants	Leguminosae	*Erythrina vespertilio*			C		1
plants	land plants	Leguminosae	*Galactia tenuiflora*			C		1/1
plants	land plants	Leguminosae	*Glycine clandestina var. sericea*			C		1/1
plants	land plants	Leguminosae	*Glycine microphylla*			C		1/1
plants	land plants	Leguminosae	*Glycine sp. (Laglan Station L.S.Smith 10302)*			C		1/1
plants	land plants	Leguminosae	*Glycine tomentella*	woolly glycine		C		1/1
plants	land plants	Leguminosae	*Hardenbergia violacea*			C		1
plants	land plants	Leguminosae	*Hovea lorata*			C		3/3
plants	land plants	Leguminosae	*Hovea tholiformis*			C		2/2
plants	land plants	Leguminosae	*Indigofera australis subsp. australis*			C		2/2
plants	land plants	Leguminosae	*Jacksonia scoparia*			C		2/1
plants	land plants	Leguminosae	*Lespedeza juncea subsp. sericea*	perennial lespedeza		C		1
plants	land plants	Leguminosae	*Medicago lupulina*	black medic	Y			1/1
plants	land plants	Leguminosae	*Mezoneuron scortechinii*			C		1/1
plants	land plants	Leguminosae	*Mirbelia speciosa subsp. ringrosei*			C		1/1
plants	land plants	Leguminosae	*Pararchidendron pruinosum*			C		2
plants	land plants	Leguminosae	*Phyllota phylicoides*	yellow peabush		C		1/1
plants	land plants	Leguminosae	*Pultenaea cunninghamii*	prickly pea		C		2/2
plants	land plants	Leguminosae	*Pultenaea flexilis*			C		1/1
plants	land plants	Leguminosae	*Pultenaea microphylla*			C		1/1
plants	land plants	Leguminosae	*Pultenaea villosa*	hairy bush pea		C		2/2
plants	land plants	Leguminosae	*Rhynchosia minima var. minima*			C		4/4
plants	land plants	Leguminosae	*Robinia pseudoacacia*	black locust	Y			1/1
plants	land plants	Leguminosae	*Senna barclayana*			C		1
plants	land plants	Leguminosae	*Senna didymobotrya*		Y			1/1
plants	land plants	Leguminosae	*Senna pendula var. glabrata*	Easter cassia	Y			1/1
plants	land plants	Leguminosae	*Senna sophera var. sophera*			C		2/2
plants	land plants	Leguminosae	*Solori involuta*			C		4/1
plants	land plants	Leguminosae	*Tephrosia filipes subsp. filipes*			C		1/1
plants	land plants	Leguminosae	*Tipuana tipu*	tipuana	Y			1/1
plants	land plants	Leguminosae	*Trifolium arvense var. arvense*		Y			1/1
plants	land plants	Leguminosae	*Zornia dyctiocarpa*			C		1
plants	land plants	Leguminosae	*Zornia muriculata subsp. angustata*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Lembophyllaceae	*Camptochaete curvata*			C		2/2
plants	land plants	Leptodontaceae	*Forsstroemia producta*			C		1/1
plants	land plants	Leptodontaceae	*Forsstroemia trichomitria subsp. australis*			C		1/1
plants	land plants	Liliaceae	*Lilium formosanum*		Y			1/1
plants	land plants	Linderniaceae	*Artanema fimbriatum*			C		1/1
plants	land plants	Linderniaceae	*Lindernia sp. (Tingoora A.R.Bean 10311)*			C		1/1
plants	land plants	Loganiaceae	*Strychnos psilosperma*	strychnine tree		C		5/2
plants	land plants	Loranthaceae	*Amyema*					1
plants	land plants	Loranthaceae	*Amyema congener subsp. rotundifolia*			C		1
plants	land plants	Loranthaceae	*Amyema miquelii*			C		1/1
plants	land plants	Loranthaceae	*Amyema quandang var. bancroftii*	broad-leaved grey mistletoe		C		1/1
plants	land plants	Loranthaceae	*Benthamina alyxifolia*			C		1/1
plants	land plants	Malvaceae	*Abutilon oxycarpum*			C		3
plants	land plants	Malvaceae	*Abutilon oxycarpum var. oxycarpum*			C		5/2
plants	land plants	Malvaceae	*Hibiscus sturtii var. sturtii*			C		3/3
plants	land plants	Malvaceae	*Malvastrum americanum var. stellatum*			C		3/3
plants	land plants	Malvaceae	*Modiola caroliniana*	red-flowered mallow	Y			1/1
plants	land plants	Malvaceae	*Pavonia hastata*	pink pavonia	Y			1/1
plants	land plants	Malvaceae	*Sida*					1/1
plants	land plants	Meliaceae	*Melia azedarach*	white cedar		C		3/1
plants	land plants	Meliaceae	*Owenia venosa*	crow's apple		C		11/6
plants	land plants	Meliaceae	*Synoum glandulosum subsp. glandulosum*			C		1
plants	land plants	Meliaceae	*Toona ciliata*	red cedar		C		2
plants	land plants	Meliaceae	*Turraea pubescens*	native honeysuckle		C		3
plants	land plants	Menispermaceae	*Legnephora moorei*			C		4/2
plants	land plants	Menispermaceae	*Pleogyne australis*	wiry grape		C		1
plants	land plants	Menispermaceae	*Stephania japonica*			C		2
plants	land plants	Menispermaceae	*Stephania japonica var. discolor*			C		1
plants	land plants	Menispermaceae	*Tinospora smilacina*	snakevine		C		3
plants	land plants	Menyanthaceae	*Nymphoides geminata*			SL		1/1
plants	land plants	Meteoriaceae	*Papillaria crocea*			C		1/1
plants	land plants	Meteoriaceae	*Papillaria leuconeura*			C		1/1
plants	land plants	Meteoriaceae	*Papillaria zeloflexicaulis*			C		1/1
plants	land plants	Moraceae	*Ficus coronata*	creek sandpaper fig		C		3/1
plants	land plants	Moraceae	*Ficus macrophylla*			C		1
plants	land plants	Moraceae	*Ficus macrophylla forma macrophylla*	Moreton Bay fig		C		1
plants	land plants	Moraceae	*Ficus obliqua*			C		3/1
plants	land plants	Moraceae	*Ficus virens var. virens*			C		1
plants	land plants	Moraceae	*Ficus watkinsiana*	green-leaved Moreton Bay fig		C		1
plants	land plants	Moraceae	*Maclura cochinchinensis*	cockspur thorn		C		3
plants	land plants	Moraceae	*Morus alba*	white mulberry	Y			1
plants	land plants	Moraceae	*Streblus brunonianus*	whalebone tree		C		3
plants	land plants	Moraceae	*Trophis scandens*			C		3
plants	land plants	Moraceae	*Trophis scandens subsp. scandens*			C		2
plants	land plants	Myrsinaceae	*Embelia australiana*	embelia		C		3
plants	land plants	Myrsinaceae	*Lysimachia arvensis*		Y			1/1

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plants	land plants	Myrsinaceae	*Myrsine variabilis*			C		4
plants	land plants	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		3/3
plants	land plants	Myrtaceae	*Angophora subvelutina*			C		3
plants	land plants	Myrtaceae	*Corymbia gummifera*	red bloodwood		C		2/1
plants	land plants	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		2
plants	land plants	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1
plants	land plants	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus biturbinata*			C		1
plants	land plants	Myrtaceae	*Eucalyptus conica*	fuzzy box		C		1/1
plants	land plants	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		5
plants	land plants	Myrtaceae	*Eucalyptus decorticans*			C		4/3
plants	land plants	Myrtaceae	*Eucalyptus dura*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus eugenioides*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus fibrosa*			C		1
plants	land plants	Myrtaceae	*Eucalyptus longirostrata*			C		5/4
plants	land plants	Myrtaceae	*Eucalyptus major*	mountain grey gum		C		1/1
plants	land plants	Myrtaceae	*Eucalyptus melanoleuca*	Nanango ironbark		C		16/16
plants	land plants	Myrtaceae	*Eucalyptus microcorys*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus moluccana*	gum-topped box		C		4
plants	land plants	Myrtaceae	*Eucalyptus pilularis*	blackbutt		C		2/1
plants	land plants	Myrtaceae	*Eucalyptus saligna*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus siderophloia*			C		3
plants	land plants	Myrtaceae	*Eucalyptus sideroxylon subsp. sideroxylon*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus tereticornis*			C		3
plants	land plants	Myrtaceae	*Gossia bidwillii*			C		6/1
plants	land plants	Myrtaceae	*Leptospermum polygalifolium*	tantoon		C		1/1
plants	land plants	Myrtaceae	*Lophostemon confertus*	brush box		C		1
plants	land plants	Myrtaceae	*Lophostemon suaveolens*	swamp box		C		1
plants	land plants	Myrtaceae	*Melaleuca bracteata*			C		1
plants	land plants	Myrtaceae	*Melaleuca formosa*			NT		4/3
plants	land plants	Myrtaceae	*Melaleuca viminalis*			C		1
plants	land plants	Myrtaceae	*Rhodamnia dumicola*	rib-fruited malletwood		E		3/2
plants	land plants	Myrtaceae	*Rhodamnia rubescens*	scrub turpentine		CR	CE	1/1
plants	land plants	Myrtaceae	*Sannantha collina*			C		1/1
plants	land plants	Myrtaceae	*Syzygium australe*	scrub cherry		C		1
plants	land plants	Myrtaceae	*Syzygium crebrinerve*	purple cherry		C		1
plants	land plants	Oleaceae	*Jasminum dianthifolium*			C		1/1
plants	land plants	Oleaceae	*Jasminum dianthifolium x Jasminum simplicifolium subsp. australiense*			C		1/1
plants	land plants	Oleaceae	*Jasminum didymum*			C		2
plants	land plants	Oleaceae	*Jasminum didymum subsp. racemosum*			C		7/4
plants	land plants	Oleaceae	*Jasminum simplicifolium*			C		2
plants	land plants	Oleaceae	*Jasminum simplicifolium subsp. australiense*			C		6/4
plants	land plants	Oleaceae	*Jasminum simplicifolium subsp. australiense x J.suavissimum*			C		1
plants	land plants	Oleaceae	*Ligustrum lucidum*	large-leaved privet	Y			2/1

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plants	land plants	Oleaceae	*Notelaea longifolia*			C		1
plants	land plants	Oleaceae	*Notelaea microcarpa*			C		4/3
plants	land plants	Oleaceae	*Olea paniculata*			C		2
plants	land plants	Onagraceae	*Epilobium billardierianum subsp. cinereum*			C		1/1
plants	land plants	Onagraceae	*Ludwigia peploides subsp. montevidensis*			C		1
plants	land plants	Onagraceae	*Oenothera indecora subsp. bonariensis*		Y			2/2
plants	land plants	Onagraceae	*Oenothera rosea*	rose evening primrose	Y			2/2
plants	land plants	Orchidaceae	*Dendrobium gracilicaule*	slender orchid		SL		6/3
plants	land plants	Orchidaceae	*Dendrobium monophyllum*			SL		2/1
plants	land plants	Orchidaceae	*Dendrobium speciosum*			SL		3
plants	land plants	Orchidaceae	*Dendrobium x gracillimum*			SL		1/1
plants	land plants	Orchidaceae	*Dockrillia cucumerina*			SL		2/1
plants	land plants	Orchidaceae	*Dockrillia linguiformis*	tongue orchid		SL		1/1
plants	land plants	Orchidaceae	*Dockrillia schoenina*	pencil orchid		SL		3/2
plants	land plants	Orchidaceae	*Dockrillia teretifolia*	rat's tail orchid		SL		4/2
plants	land plants	Orchidaceae	*Microtis parviflora*	slender onion orchid		SL		1/1
plants	land plants	Orchidaceae	*Microtis unifolia*	common onion orchid		SL		1
plants	land plants	Orchidaceae	*Plectorrhiza tridentata*	tangle orchid		SL		4/2
plants	land plants	Orchidaceae	*Pterostylis erecta*			SL		1/1
plants	land plants	Orchidaceae	*Rhinerrhiza divitiflora*			SL		3
plants	land plants	Orchidaceae	*Sarcochilus dilatatus*	brown sarcochilus		SL		1/1
plants	land plants	Orchidaceae	*Sarcochilus falcatus*	orange blossom orchid		SL		2/2
plants	land plants	Orchidaceae	*Sarcochilus hillii*			SL		1
plants	land plants	Orchidaceae	*Sarcochilus weinthalii*	blotched sarcochilus		E	V	2/2
plants	land plants	Orobanchaceae	*Striga parviflora*			C		1/1
plants	land plants	Orthotrichaceae	*Macromitrium*					3/3
plants	land plants	Orthotrichaceae	*Macromitrium involutifolium subsp. involutifolium*			C		1/1
plants	land plants	Oxalidaceae	*Oxalis chnoodes*			C		1/1
plants	land plants	Oxalidaceae	*Oxalis corniculata*		Y			1
plants	land plants	Passifloraceae	*Passiflora aurantia*			C		3
plants	land plants	Passifloraceae	*Passiflora aurantia var. aurantia*			C		1/1
plants	land plants	Passifloraceae	*Passiflora aurantia var. pubescens*			C		2/2
plants	land plants	Passifloraceae	*Passiflora edulis*		Y			1
plants	land plants	Passifloraceae	*Passiflora herbertiana subsp. herbertiana*	native passionfruit		C		2/1
plants	land plants	Passifloraceae	*Passiflora morifolia*		Y			1/1
plants	land plants	Passifloraceae	*Passiflora suberosa subsp. litoralis*		Y			1
plants	land plants	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1/1
plants	land plants	Petiveriaceae	*Monococcus echinophorus*	burr bush		C		1
plants	land plants	Petiveriaceae	*Rivina humilis*		Y			1/1
plants	land plants	Phyllanthaceae	*Breynia oblongifolia*			C		10/6
plants	land plants	Phyllanthaceae	*Bridelia exaltata*			C		3
plants	land plants	Phyllanthaceae	*Bridelia leichhardtii*			C		3/1
plants	land plants	Phyllanthaceae	*Cleistanthus cunninghamii*	omega		C		6/1
plants	land plants	Phyllanthaceae	*Phyllanthus*					1/1
plants	land plants	Phyllanthaceae	*Phyllanthus gunnii*			C		5/3
plants	land plants	Phyllanthaceae	*Phyllanthus microcladus*			C		1/1

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plants	land plants	Phyllanthaceae	*Phyllanthus similis*			C		1/1
plants	land plants	Phyllanthaceae	*Phyllanthus subcrenulatus*			C		3/1
plants	land plants	Phytolaccaceae	*Phytolacca octandra*	inkweed	Y			1/1
plants	land plants	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		2/1
plants	land plants	Pittosporaceae	*Auranticarpa rhombifolia*			C		5/2
plants	land plants	Pittosporaceae	*Billardiera rubens*			C		3/3
plants	land plants	Pittosporaceae	*Bursaria incana*			C		4/2
plants	land plants	Pittosporaceae	*Bursaria spinosa subsp. spinosa*			C		1/1
plants	land plants	Pittosporaceae	*Pittosporum lancifolium*			C		3/2
plants	land plants	Pittosporaceae	*Pittosporum multiflorum*			C		3/3
plants	land plants	Pittosporaceae	*Pittosporum revolutum*	yellow pittosporum		C		3/1
plants	land plants	Pittosporaceae	*Pittosporum spinescens*			C		5
plants	land plants	Pittosporaceae	*Pittosporum viscidum*	black-fruited thornbush		C		9/4
plants	land plants	Plantaginaceae	*Gratiola pedunculata*			C		1/1
plants	land plants	Plantaginaceae	*Linaria texana*		Y			1/1
plants	land plants	Plantaginaceae	*Plantago debilis*	shade plantain		C		2/1
plants	land plants	Plantaginaceae	*Plantago lanceolata*		Y			1/1
plants	land plants	Plantaginaceae	*Veronica plebeia*	trailing speedwell		C		2/1
plants	land plants	Plumbaginaceae	*Plumbago zeylanica*	native plumbago		C		1/1
plants	land plants	Poaceae	*Ancistrachne uncinulata*	hooky grass		C		2/1
plants	land plants	Poaceae	*Aristida gracilipes*			C		2/2
plants	land plants	Poaceae	*Aristida personata*			C		1/1
plants	land plants	Poaceae	*Austrostipa ramosissima*	bamboo grass		C		3/1
plants	land plants	Poaceae	*Cenchrus caliculatus*	hillside burrgrass		C		1/1
plants	land plants	Poaceae	*Cenchrus robustus*			C		1/1
plants	land plants	Poaceae	*Chloris gayana*	rhodes grass	Y			3
plants	land plants	Poaceae	*Chloris ventricosa*	tall chloris		C		1
plants	land plants	Poaceae	*Chrysopogon fallax*			C		1/1
plants	land plants	Poaceae	*Chrysopogon sylvaticus*			C		1/1
plants	land plants	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		3/1
plants	land plants	Poaceae	*Cynodon dactylon*		Y			1
plants	land plants	Poaceae	*Dichelachne micrantha*	shorthair plumegrass		C		1/1
plants	land plants	Poaceae	*Dichelachne montana*			C		1/1
plants	land plants	Poaceae	*Digitaria abyssinica*		Y			1/1
plants	land plants	Poaceae	*Digitaria diffusa*			C		1/1
plants	land plants	Poaceae	*Digitaria parviflora*			C		1/1
plants	land plants	Poaceae	*Diplachne fusca var. uninervia*		Y			1/1
plants	land plants	Poaceae	*Enneapogon pallidus*	conetop nineawn		C		1/1
plants	land plants	Poaceae	*Enteropogon unispiceus*			C		3/3
plants	land plants	Poaceae	*Entolasia stricta*	wiry panic		C		1/1
plants	land plants	Poaceae	*Eragrostis brownii*	Brown's lovegrass		C		1/1
plants	land plants	Poaceae	*Eragrostis curvula*		Y			6/3
plants	land plants	Poaceae	*Eragrostis elongata*			C		1
plants	land plants	Poaceae	*Heteropogon contortus*	black speargrass		C		1
plants	land plants	Poaceae	*Hyparrhenia hirta*	coolati grass	Y			1/1
plants	land plants	Poaceae	*Imperata cylindrica*	blady grass		C		2

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plants	land plants	Poaceae	*Lolium perenne*	perennial ryegrass	Y			1/1
plants	land plants	Poaceae	*Megathyrsus maximus var. pubiglumis*		Y			1/1
plants	land plants	Poaceae	*Melinis repens*	red natal grass	Y			1/1
plants	land plants	Poaceae	*Oplismenus aemulus*	creeping shade grass		C		4/1
plants	land plants	Poaceae	*Panicum pygmaeum*	dwarf panic		C		1
plants	land plants	Poaceae	*Panicum simile*			C		1/1
plants	land plants	Poaceae	*Paspalidium constrictum*			C		2/2
plants	land plants	Poaceae	*Paspalidium criniforme*			C		2/2
plants	land plants	Poaceae	*Paspalidium distans*	shotgrass		C		1/1
plants	land plants	Poaceae	*Paspalidium grandispiculatum*			V	V	2/2
plants	land plants	Poaceae	*Phragmites australis*	common reed		C		1
plants	land plants	Poaceae	*Setaria pumila subsp. pumila*		Y			1/1
plants	land plants	Poaceae	*Sorghum halepense*	Johnson grass	Y			2/2
plants	land plants	Poaceae	*Sporobolus creber*			C		1/1
plants	land plants	Poaceae	*Sporobolus pyramidalis*		Y			2/2
plants	land plants	Poaceae	*Themeda triandra*	kangaroo grass		C		2
plants	land plants	Poaceae	*Urochloa decumbens*		Y			1/1
plants	land plants	Polygalaceae	*Polygala virgata*		Y			2/2
plants	land plants	Polygonaceae	*Muehlenbeckia gracillima*			C		1/1
plants	land plants	Polygonaceae	*Rumex brownii*	swamp dock		C		1
plants	land plants	Polypodiaceae	*Dendroconche scandens*			SL		1/1
plants	land plants	Polypodiaceae	*Platycerium superbum*	staghorn fern		SL		1
plants	land plants	Polypodiaceae	*Pyrrosia confluens*			SL		4
plants	land plants	Polypodiaceae	*Pyrrosia confluens var. confluens*			SL		1/1
plants	land plants	Polypodiaceae	*Pyrrosia rupestris*	rock felt fern		SL		5
plants	land plants	Porellaceae	*Porella crawfordii*			C		1/1
plants	land plants	Portulacaceae	*Portulaca oleracea*	pigweed	Y			1
plants	land plants	Potamogetonaceae	*Potamogeton crispus*	curly pondweed		SL		1
plants	land plants	Proteaceae	*Banksia spinulosa var. collina*			C		2/2
plants	land plants	Proteaceae	*Grevillea floribunda subsp. floribunda*			C		2/2
plants	land plants	Proteaceae	*Grevillea robusta*			C		5
plants	land plants	Proteaceae	*Persoonia sericea*	silky geebung		C		2/2
plants	land plants	Psilotaceae	*Psilotum nudum*	skeleton fork fern		SL		1/1
plants	land plants	Pteridaceae	*Adiantum formosum*			C		3/1
plants	land plants	Pteridaceae	*Adiantum hispidulum*			SL		2
plants	land plants	Pteridaceae	*Adiantum hispidulum var. hispidulum*			SL		1/1
plants	land plants	Pteridaceae	*Cheilanthes distans*	bristly cloak fern		C		2/1
plants	land plants	Pteridaceae	*Cheilanthes sieberi subsp. sieberi*			C		1/1
plants	land plants	Pteridaceae	*Pellaea falcata*			SL		2
plants	land plants	Pteridaceae	*Pellaea nana*			SL		1
plants	land plants	Pteridaceae	*Pellaea paradoxa*	heart fern		SL		3
plants	land plants	Ptychomitriaceae	*Ptychomitrium*					1/1
plants	land plants	Ptychomitriaceae	*Ptychomitrium acutifolium*			C		1/1
plants	land plants	Ptychomitriaceae	*Ptychomitrium australe*			C		2/2
plants	land plants	Ptychomniaceae	*Garovaglia*					1/1
plants	land plants	Putranjivaceae	*Drypetes deplanchei*	grey boxwood		C		6/1

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plants	land plants	Ranunculaceae	*Clematis glycinoides*			C		1
plants	land plants	Ranunculaceae	*Ranunculus inundatus*	river buttercup		C		1/1
plants	land plants	Ranunculaceae	*Ranunculus lappaceus*	common buttercup		C		1
plants	land plants	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		9/1
plants	land plants	Rhamnaceae	*Alphitonia petriei*	pink ash		C		1
plants	land plants	Rhamnaceae	*Polianthion minutiflorum*			V	V	1/1
plants	land plants	Rhamnaceae	*Pomaderris coomingalensis*			E		1/1
plants	land plants	Rhamnaceae	*Pomaderris queenslandica*			C		5/5
plants	land plants	Ripogonaceae	*Ripogonum brevifolium*	small-leaved supplejack		C		3/1
plants	land plants	Rosaceae	*Cotoneaster pannosus*		Y			1/1
plants	land plants	Rosaceae	*Prunus persica var. persica*		Y			1
plants	land plants	Rosaceae	*Rubus anglocandicans*	blackberry	Y			3
plants	land plants	Rubiaceae	*Asperula conferta*			C		1/1
plants	land plants	Rubiaceae	*Cyclophyllum coprosmoides*			C		1
plants	land plants	Rubiaceae	*Cyclophyllum coprosmoides var. coprosmoides*			C		2/2
plants	land plants	Rubiaceae	*Everistia vacciniifolia forma vacciniifolia*			C		1
plants	land plants	Rubiaceae	*Everistia vacciniifolia var. nervosa*			C		7/5
plants	land plants	Rubiaceae	*Gynochthodes canthoides*			C		4/1
plants	land plants	Rubiaceae	*Gynochthodes jasminoides*			C		2
plants	land plants	Rubiaceae	*Ixora beckleri*	brown coffeewood		C		3
plants	land plants	Rubiaceae	*Mitracarpus hirtus*		Y			1/1
plants	land plants	Rubiaceae	*Opercularia hispida*	hairy stinkweed		C		1/1
plants	land plants	Rubiaceae	*Pavetta australiensis*			C		4
plants	land plants	Rubiaceae	*Pavetta australiensis var. australiensis*			C		1/1
plants	land plants	Rubiaceae	*Pomax umbellata*			C		1/1
plants	land plants	Rubiaceae	*Psychotria daphnoides*			C		4/2
plants	land plants	Rubiaceae	*Psychotria daphnoides var. daphnoides*			C		1
plants	land plants	Rubiaceae	*Psychotria loniceroides*	hairy psychotria		C		1
plants	land plants	Rubiaceae	*Psydrax lamprophylla*			C		4
plants	land plants	Rubiaceae	*Psydrax odorata*			C		2
plants	land plants	Rubiaceae	*Psydrax odorata forma (Brigooda P.I.Forster PIF5657)*			C		1/1
plants	land plants	Rubiaceae	*Psydrax odorata forma australiana*			C		1/1
plants	land plants	Rubiaceae	*Psydrax odorata forma buxifolia*			C		4/1
plants	land plants	Rubiaceae	*Triflorensia cameronii*			C		11/6
plants	land plants	Rutaceae	*Acronychia laevis*	glossy acronychia		C		8/3
plants	land plants	Rutaceae	*Acronychia pauciflora*	soft acronychia		C		2
plants	land plants	Rutaceae	*Boronia glabra*			C		4/4
plants	land plants	Rutaceae	*Boronia rosmarinifolia*	forest boronia		C		1/1
plants	land plants	Rutaceae	*Citrus australis*			C		7/4
plants	land plants	Rutaceae	*Clausena brevistyla*	clausena		C		2/2
plants	land plants	Rutaceae	*Coatesia paniculata*			C		5/2
plants	land plants	Rutaceae	*Dinosperma erythrococcum*			C		5/3
plants	land plants	Rutaceae	*Flindersia australis*	crow's ash		C		6
plants	land plants	Rutaceae	*Flindersia collina*	broad-leaved leopard tree		C		7/2
plants	land plants	Rutaceae	*Flindersia xanthoxyla*	yellow-wood		C		4/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Rutaceae	*Geijera salicifolia*	brush wilga		C		7/2
plants	land plants	Rutaceae	*Melicope micrococca*	white evodia		C		7/2
plants	land plants	Rutaceae	*Phebalium nottii*	pink phebalium		C		2/2
plants	land plants	Rutaceae	*Sarcomelicope simplicifolia subsp. simplicifolia*	yellow aspen		C		3/1
plants	land plants	Rutaceae	*Zanthoxylum brachyacanthum*			C		4
plants	land plants	Rutaceae	*Zieria cytisoides*	downy zieria		C		2/2
plants	land plants	Rutaceae	*Zieria verrucosa*			V	V	1/1
plants	land plants	Salicaceae	*Casearia multinervosa*	casearia		C		11/6
plants	land plants	Salicaceae	*Homalium alnifolium*	homalium		C		3/2
plants	land plants	Salicaceae	*Scolopia braunii*	flintwood		C		1
plants	land plants	Salicaceae	*Xylosma terrae-reginae*	xylosma		C		3/3
plants	land plants	Salviniaceae	*Azolla pinnata*	ferny azolla		C		1
plants	land plants	Santalaceae	*Choretrum candollei*	white sour bush		C		4/4
plants	land plants	Santalaceae	*Exocarpos cupressiformis*	native cherry		C		5/2
plants	land plants	Santalaceae	*Exocarpos latifolius*			C		3/1
plants	land plants	Santalaceae	*Thesium australe*	toadflax		V	V	2/1
plants	land plants	Sapindaceae	*Alectryon connatus*	grey birds-eye		C		3
plants	land plants	Sapindaceae	*Alectryon diversifolius*	scrub boonaree		C		3
plants	land plants	Sapindaceae	*Alectryon subdentatus*			C		4
plants	land plants	Sapindaceae	*Alectryon tomentosus*			C		2
plants	land plants	Sapindaceae	*Arytera distylis*	twin-leaved coogera		C		1
plants	land plants	Sapindaceae	*Arytera divaricata*	coogera		C		4
plants	land plants	Sapindaceae	*Arytera foveolata*	pitted coogera		C		4/1
plants	land plants	Sapindaceae	*Arytera microphylla*			C		3/2
plants	land plants	Sapindaceae	*Atalaya salicifolia*			C		3
plants	land plants	Sapindaceae	*Cardiospermum grandiflorum*	heart seed vine	Y			1
plants	land plants	Sapindaceae	*Cupaniopsis parvifolia*	small-leaved tuckeroo		C		8/2
plants	land plants	Sapindaceae	*Diploglottis australis*	native tamarind		C		2
plants	land plants	Sapindaceae	*Dodonaea tenuifolia*			C		1/1
plants	land plants	Sapindaceae	*Dodonaea triangularis*			C		6/6
plants	land plants	Sapindaceae	*Dodonaea viscosa subsp. angustifolia*			C		1/1
plants	land plants	Sapindaceae	*Dodonaea viscosa subsp. cuneata*			C		3/3
plants	land plants	Sapindaceae	*Elattostachys xylocarpa*	white tamarind		C		11/5
plants	land plants	Sapindaceae	*Guioa semiglauca*	guioa		C		1
plants	land plants	Sapindaceae	*Harpullia hillii*			C		2
plants	land plants	Sapindaceae	*Harpullia pendula*			C		2
plants	land plants	Sapindaceae	*Jagera pseudorhus*			C		5
plants	land plants	Sapindaceae	*Jagera pseudorhus var. pseudorhus*			C		1/1
plants	land plants	Sapindaceae	*Mischocarpus anodontus*	veiny pearfruit		C		2/1
plants	land plants	Sapotaceae	*Planchonella cotinifolia var. cotinifolia*			C		3/3
plants	land plants	Sapotaceae	*Planchonella cotinifolia var. pubescens*			C		5
plants	land plants	Sapotaceae	*Planchonella myrsinifolia subsp. myrsinifolia*			C		2/2
plants	land plants	Sapotaceae	*Planchonella pohlmaniana*			C		3
plants	land plants	Scrophulariaceae	*Eremophila debilis*	winter apple		C		1
plants	land plants	Scrophulariaceae	*Myoporum acuminatum*	coastal boobialla		C		1/1
plants	land plants	Scrophulariaceae	*Verbascum virgatum*	twiggy mullein	Y			2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Simaroubaceae	*Ailanthus triphysa*	white siris		C		1
plants	land plants	Smilacaceae	*Smilax australis*	barbed-wire vine		C		4
plants	land plants	Solanaceae	*Duboisia leichhardtii*			C		6/6
plants	land plants	Solanaceae	*Nicandra physalodes*	apple of Peru	Y			1/1
plants	land plants	Solanaceae	*Nicotiana forsteri*			C		1/1
plants	land plants	Solanaceae	*Solanum americanum*		Y			1/1
plants	land plants	Solanaceae	*Solanum aviculare*	kangaroo apple		C		2/1
plants	land plants	Solanaceae	*Solanum chrysotrichum*		Y			1/1
plants	land plants	Solanaceae	*Solanum corifolium*	straggling nightshade		C		9/4
plants	land plants	Solanaceae	*Solanum densevestitum*			C		1/1
plants	land plants	Solanaceae	*Solanum latens*			C		3/3
plants	land plants	Solanaceae	*Solanum mauritianum*	wild tobacco	Y			3/1
plants	land plants	Solanaceae	*Solanum nemophilum*			C		7/7
plants	land plants	Solanaceae	*Solanum rixosum*			C		2/2
plants	land plants	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			6/3
plants	land plants	Solanaceae	*Solanum semiarmatum*	prickly nightshade		C		1
plants	land plants	Solanaceae	*Solanum stelligerum*	devil's needles		C		9/4
plants	land plants	Solanaceae	*Solanum stupefactum*			C		11/10
plants	land plants	Solanaceae	*Solanum tetrathecum*			C		4/4
plants	land plants	Sparrmanniaceae	*Grewia latifolia*	dysentery plant		C		1/1
plants	land plants	Stackhousiaceae	*Stackhousia muricata*			C		1/1
plants	land plants	Stackhousiaceae	*Stackhousia viminea*	slender stackhousia		C		1/1
plants	land plants	Sterculiaceae	*Argyrodendron trifoliolatum*	booyong		C		7/2
plants	land plants	Sterculiaceae	*Brachychiton discolor*			SL		5/1
plants	land plants	Sterculiaceae	*Brachychiton populneus subsp. populneus*			SL		1
plants	land plants	Sterculiaceae	*Brachychiton rupestris*			SL		2/1
plants	land plants	Sterculiaceae	*Sterculia quadrifida*	peanut tree		C		3
plants	land plants	Stylidiaceae	*Stylidium debile*	frail trigger plant		SL		1
plants	land plants	Stylidiaceae	*Stylidium graminifolium*	grassy-leaved trigger-flower		C		1/1
plants	land plants	Thelypteridaceae	*Christella dentata*	creek fern		SL		1
plants	land plants	Thuidiaceae	*Thuidium*					1/1
plants	land plants	Thymelaeaceae	*Phaleria chermsideana*	scrub daphne		C		2/1
plants	land plants	Thymelaeaceae	*Pimelea altior*			C		3/3
plants	land plants	Thymelaeaceae	*Pimelea curviflora subsp. divergens*			C		1/1
plants	land plants	Thymelaeaceae	*Pimelea glauca*	smooth riceflower		C		1/1
plants	land plants	Thymelaeaceae	*Pimelea mollis*			C		2/2
plants	land plants	Thymelaeaceae	*Pimelea neoanglica*	poison pimelea		C		5/3
plants	land plants	Thymelaeaceae	*Wikstroemia indica*	tie bush		C		5/1
plants	land plants	Typhaceae	*Typha domingensis*			C		1/1
plants	land plants	Ulmaceae	*Aphananthe philippinensis*			C		4/1
plants	land plants	Ulmaceae	*Trema tomentosa*			C		3
plants	land plants	Urticaceae	*Dendrocnide excelsa*	giant stinging tree		C		4
plants	land plants	Urticaceae	*Dendrocnide photiniphylla*	shiny-leaved stinging tree		C		4
plants	land plants	Urticaceae	*Parietaria debilis*	native pellitory		C		1/1
plants	land plants	Urticaceae	*Urtica incisa*	stinging nettle		C		2/2
plants	land plants	Urticaceae	*Urtica urens*	small nettle	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Verbenaceae	*Glandularia aristigera*		Y			1
plants	land plants	Verbenaceae	*Lantana camara*	lantana	Y			79
plants	land plants	Verbenaceae	*Verbena incompta*		Y			1/1
plants	land plants	Verbenaceae	*Verbena litoralis var. litoralis*		Y			2/2
plants	land plants	Viburnaceae	*Sambucus australasica*	native elderberry		C		1
plants	land plants	Violaceae	*Pigea enneasperma*			C		1
plants	land plants	Violaceae	*Pigea monopetala*			C		1/1
plants	land plants	Violaceae	*Pigea stellarioides*			C		1
plants	land plants	Viscaceae	*Korthalsella breviarticulata*			C		1/1
plants	land plants	Viscaceae	*Viscum articulatum*	flat mistletoe		C		1/1
plants	land plants	Vitaceae	*Causonis clematidea*			C		3
plants	land plants	Vitaceae	*Cayratia acris*	hairy grape		C		3/1
plants	land plants	Vitaceae	*Cayratia saponaria*			C		1
plants	land plants	Vitaceae	*Cissus antarctica*			C		5/1
plants	land plants	Vitaceae	*Tetrastigma nitens*	shining grape		C		4
plants	land plants	Xanthorrhoeaceae	*Xanthorrhoea*					1/1
plants	land plants	Zingiberaceae	*Alpinia caerulea*	wild ginger		C		1

CODES

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

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

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

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Attachment B

Likelihood of Occurrence Assesment

B1. Flora likelihood of occurrence assessment

Table B.1 Flora likelihood of occurrence assessment

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Asteraceae	*Picris conyzoides*		V	-	Dry grassy Eucalypt forests and native grasslands on fertile soils.	Wildlife Online	**Moderate** Potential habitat within the Study area. Records within Locality.	**Moderate** Potential habitat within the Eucalypt Forest habitat.
Asteraceae	*Rhaponticum australe*	Austral Cornflower	V	V	The Austral Cornflower is known to occur in the Carnarvon National Park and in East Haldon State Forest, where it usually grows on heavy black or red-brown clay, or clay loams derived from basalt. It is often found in woodland and grassland and in association with *Eucalyptus crebra* (Narrow-leaved Ironbark), *E. orgadophila* (Mountain Coolibah), *E. populnea* (Poplar Box), *E. tereticornis* (Forest Red Gum), *E. melanophloia* (Silver-leaved Ironbark), *Angophora subvelutina* (Broad-leaved Apple), *A. floribunda* (Rough-barked Apple), *Cirsium vulgare* (Spear Thistle - introduced species), *Dichanthium sericeum* (Queensland Bluegrass) and *Themeda triandra* (Kangaroo Grass) (Department of the Environment, 2015).	PMST	**Moderate** Potential habitat within the Study area.	**Moderate** Potential habitat within the Eucalypt Forest habitat.
Brassicaceae	*Lepidium peregrinum*	Wandering Pepper-cress	-	E	Previously thought to be extinct, yet in 2001 scattered sub-populations were found in north-eastern NSW and south-eastern Queensland. Occurs in open riparian forest on sandy alluvium, and especially in tussock grass fringes of riparian forest along Tenterfield Creek at Clifton (Department of Environment and Climate Change 2007).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Celastraceae	*Denhamia parvifolia*	Small-leaved Denhamia	V	V	Endemic to south-east Queensland, the Small-leaved Denhamia has been recorded from the Eidsvold area, south to Chinchilla, and east to near Kingaroy (Forster et al. 1991; Jessup 1984; Pollock 1997b; Smith 1956). The species has been recorded at seven locations, with only 23 individuals found in total. The Small-leaved Denhamia grows on soils derived from various geological substrates including labile to sub-labile sandstone, siltstone and shale, as well as basic and acidic igneous rocks (Barry & Thomas 1994). It has been recorded on fertile, red-brown, sandy, clay loams on hill slopes and crests of variable aspect (Pollock 1997b). The species is restricted to semi-evergreen vine thickets (softwood scrub) and *Acacia harpophylla* (Brigalow) - softwood scrub communities, at elevations of 160–560 m above sea level.	PMST	Low Study area is beyond limit of known distribution.	Low Project footprint is beyond limit of known distribution.
Cupressaceae	*Callitris baileyi*	Bailey's Cypress	NT	-	*Callitris baileyi* grows on rocky slopes, hilly or mountainous areas, in shallow and often clay soils. It is found in eucalypt woodland, commonly associated with ironbark, blue gum and spotted gum. The New South Wales population occurs in an open grassy eucalypt forest near a creek. (DEC 2005; Stanley & Ross 1983) It has been noted to occur in Araucarian microphyll to notophyll vine forest. (Parker C, Hauser J, Grodecki A, 2008).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Euphorbiaceae	*Fontainea venosa*		V	V	This species occurs within microphyll vine forests on alluvial soils along creeks, associated with rainfall of 1,000mm (http://www.environment.gov.au/biodiversity/threatened/species/pubs/24040-conservation-advice.pdf).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Fabaceae (Faboideae)	*Sophora fraseri*	Brush Sophora	V	V	Occurs north from Casino district, in moist situations, often in or near subtropical & dry rainforest. It has been recorded from Eucalypt-Brushbox forest on ridges and in mixed tall forest of Ironbark & Brushbox on a steep south facing slope on loam. Likely habitat for this species is rainforest, wet and dry sclerophyll forest (NSW National Parks and Wildlife Service, 2002; Harden, 2002; NSW National Parks and Wildlife Service, 1999).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Haloragaceae	*Haloragis exalata* subsp. *velutina*	Tall Velvet Sea-berry	V	V	Damp places near watercourses (Royal Botanic Gardens, 2005). This subspecies of Tall Sea-berry occurs on the north coast of NSW and south-eastern Queensland. It is plentiful in inaccessible areas of the upper Macleay River. This subspecies also occurs in woodland on the steep rocky slopes of gorges (Department of Environment and Conservation, 2006).	PMST, Wildlife Online	**Recorded** Population recorded in Eucalypt Forest habitat within Study area.	**Recorded** Population recorded in Eucalypt Forest habitat.
Myrtaceae	*Melaleuca formosa*	White Cliff Bottlebrush	NT	-	This species has been found in or around vine forest, on occasion in open forest, woodland and shrubby woodland with a heathy understorey. The habitats occur on shallow to deep sandy loamy or gravelly soils, at altitudes of 350-600 metres (https://www.southburnett.qld.gov.au/downloads/file/3936/melaleuca-formosa).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Myrtaceae	*Rhodamnia dumicola*	Rib-fruited Malletwood	E	-	Occurs in dry rainforest as a shrub or small tree. Populations in wetter, eastern areas show more severe myrtle rust impacts than those in drier, western rainforest. This species can still produce viable seed, although seedlings have not been observed in the wild.	Wildlife Online	**Recorded** Recorded from within RE12.5.13c during surveys undertaken for the K2E Project and from adjacent to the Project footprint during the protected plant flora survey. Potential habitat within the Study area. Essential habitat mapped within the Study area.	Moderate Species habitat is present.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Myrtaceae	*Rhodamnia rubescens*	Scrub Turpentine	CE	CE	Occurs in coastal districts north from Batemans Bay in New South Wales, approximately 280 km south of Sydney, to areas inland of Bundaberg in Queensland. Populations of R. rubescens typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils (OEH, 2019).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Orchidaceae	*Cryptostylis hunteriana*	Leafless Tongue-orchid	-	V	The distribution of the Leafless Tongue-orchid extends from Orbost in East Gippsland in Victoria through coastal NSW and up in to the Tin Can Bay area of southern Queensland. It has been reported to occur in a wide variety of habitats including heathlands, heathy woodlands, sedgelands, Xanthorrheoa spp. plains, dry sclerophyll forests (shrub/grass sub-formation and shrubby sub-formation), forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests (grassy sub-formation). Soils are generally considered to be moist and sandy, however, this species is also known to grow in dry or peaty soils. (DAWE, 2020).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Orchidaceae	*Sarcochilus weinthalii*	Blotched Sarcochilus	E	V	Grows on the upper branches of rainforest trees. It occurs in the dry rainforest of sub-coastal ranges and associated foothills well inland from the coast and to approximately 700 m above sea level. It grows in araucarian microphyll vine forest, araucarian notophyll vine forest or in patches of isolated scrub. (Barker & Borsboom 1997).	PMST, Wildlife Online	Low Lack of large rainforest trees in Project footprint.	Low Lack of large rainforest trees in Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Poaceae	*Arthraxon hispidus*	Hairy-joint Grass	V	V	Hairy-joint Grass has a wide distribution overseas from tropical Africa to Asia. In Australia, the species has been recorded from scattered locations throughout Queensland and on the northern tablelands and north coast of NSW. In Queensland it occurs north to Port Douglas, and west to disjunct occurrences around mound springs in Carnavon National Park (NP); however, most occurrences are from Noosa southwards. This species occurs within the Border River–Gwydir, Northern Rivers (NSW), Fitzroy, Border Rivers–Maranoa Balonne, Condamine, South East, Burnett Mary and Wet Tropics (Queensland) Natural Resource Management Regions. Hairy-joint Grass is known to be reserved in Carnarvon Cooloola NP, Noosa NP, Carnarvon NP, and Daintree NP. In south-east Queensland, Hairy-joint Grass has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullies, on creek banks, and on sandy alluvium in creek beds in open forests, and also with bog mosses in mound springs (Department of Agriculture, Water and the Environment, 2020).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Poaceae	*Bothriochola bunyensis*	Satin-top Grass	V	V	Satin-top Grass is an endemic species of Queensland and populations occur within the Bunya Mountains, nearby to Toowoomba, Crows Nest and Main Range. This species takes place on fertile krasnozem soils, originating from basalt on upper slopes, hill crests with altitudes of 600-1100metres, woodlands with a grassy understorey and grasslands. Satin-top Grass' distribution overlaps with Semi-evergreen vine thickets of the Brigalow Belt, Brigalow and White Box-Yellow Box-Blakely's Red Gum Grass Woodland and Derived Native Grassland.	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Poaceae	*Dichanthium queenslandicum*	King Blue-grass	V	E	Occurs within the South Eastern Queensland, Brigalow Belt South, Brigalow Belt North, Central Mackay Coast, Desert Uplands, Mitchell Grass Downs and Einasleigh Uplands Bioregions; and the South East Queensland, Condamine, Border Rivers Maranoa-Balonne, Burnett Mary, Fitzroy, Burdekin, Mackay Whitsunday, Southern Gulf and Desert Channels Natural Resource Management Regions.	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Poaceae	*Dichanthium setosum*	bluegrass	-	V	Grows in woodland and grassland (Harden, 1993). On the New England Tablelands and North West Slopes it grows on stony red-brown hard-setting soils over basalt, or on black soil (Department of Environment and Conservation, 2006).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Poaceae	*Paspalidium grandispiculatum*	a grass	V	V	Tall woodland with associated species including *Eucalyptus fibrosa* subsp. *fibrosa, E. major, E. longirostrata, Acacia blakei*; in open forest of *Corymbia trachyphloia, Eucalyptus carnea, E. siderophloia, Casuarina torulosa, Dodonaea triangularis* growing on sandy soil over sandstone; dry sclerophyll forest in rocky granite gorge on granite-derived sands; upper slope below sandstone outcrop with *Eucalyptus microcorys, E. planchoniana, Angophora woodsiana, E. pilularis.*	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Proteaceae	*Macadamia integrifolia*	Macadamia Nut	V	V	Occurs in rainforest at Mount Bauple and north of Gympie to Beechman (Stanley, 1986).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Ranunculaceae	*Clematis fawcettii*	Stream Clematis	V	V	Usually found near streams, in drier rainforest north of the Richmond River (Royal Botanic Gardens, 2005).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Rhamnaceae	*Polianthion minutiflorum*		V	V	Forest and woodland on sandstone slopes and gullies with skeletal soil, or sometimes deeper sands adjacent to deeply weathered laterite. Associated species and vegetation includes: open woodland of *Acacia shirleyi, Lysicarpus angustifolius, Corymbia aureola*; woodland of *Eucalyptus corynodes, Corymbia trachyphloia, E. cloezianaon* sandy soil over sandstone.; sandstone plateau with *Eucalyptus dura, E. fibrosa, Angophora leiocarpa, E. major* (Queensland Herbarium, 2012).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Rhamnaceae	*Pomaderris coomingalensis*		E	-	Has been recorded from *Eucalyptus decorticans* and *Corymbia citriodora* subspecies. *variegata* open forest, occurring on red soils. Additionally, the species has been recorded on *E. cebra* / *fibrosa* subspecies *nubila* woodland on stony brown clay loams (https://apps.des.qld.gov.au/species-search/details/?id=18233).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Rutaceae	*Phebalium distans*	Mt Berryman Phebalium	E	CE	Occurs in semi-evergreen vine thicket on red volcanic soils, or in communities adjacent to this vegetation type. Geology of the area in which this species occurs is deeply weathered basalt with undulating to hilly terrain. Soils range from red-brown earths to brown clays (derived from siltstone and mudstones), and lithosols to shallow, gravelly krasnozems (very dark brown loam), derived from the Main Range Volcanics of the Tertiary period (Department of Environment, 2015).	PMST	Low Study area is beyond limit of known distribution.	Low Project footprint is beyond limit of known distribution.
Rutaceae	*Zieria verrucosa*		V	V	This species is restricted to south-eastern Queensland, with a distributional range of c. 100 km in the Mundubbera and Chinchilla Shires (BRI undated; Armstrong 2002). It has been recorded at seven locations in the Proston-Abbeywood area and single locations at Monogorilby and Narayen Stations, south and west of Mundubbera respectively. occurs on gently inclined hillslopes at elevations between 360 and 500 m asl. The predominant soil types are brown to dark reddish brown sandy loams and clay loams (pH 5.0-5.5) formed on a variety of parent materials (Barry & Thomas 1994; BRI undated). It grows in semi-evergreen vine thicket or eucalypt open forest or woodland communities with a shrubby vine thicket understorey.	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Santalaceae	*Thesium australe*	Austral Toadflax	V	V	Grows in grassland or woodland often in damp sites. It is a semi-parasitic herb and hosts are likely to be *Themeda australis* and *Poa* spp. (Harden, 1992; Department of Environment and Climate Change, 2008).	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

FAMILY NAME	SPECIES NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
							STUDY AREA	PROJECT FOOTPRINT
Sapindaceae	*Cossinia australiana*	Cossinia	E	E	Cossinia is known from fragmented relict patches of Araucarian vine forests or vine thickets on fertile soils in central and southern Queensland. The species' distribution is from Rockhampton to Kingaroy, east of the Great Dividing Range (approximately 300 km). At most sites it is recorded as uncommon, usually as scattered individuals. Six sites are recorded from State Forests. Fewer than 10 individuals were located at three freehold sites and one road reserve, along with an unconfirmed (no specimen record) population of no more than 150 individuals in Cania Gorge National Park. Some of the populations occur in remnant vegetation and are therefore protected from broad-scale clearing under the VM Act (Queensland). This species occurs within the Fitzroy, Burnett Mary and South East Queensland Natural Resource Management Regions (Department of Agriculture, Water and the Environment, 2020).	PMST	**Moderate** Potential habitat within the Study area. Closest record approximately 35 km to the north.	**Moderate** Potential habitat within the Project footprint.
Surianaceae	*Cadellia pentastylis*	Ooline	V	V	Occurs west from near Tenterfield and north from Terry Hie Hie (Royal Botanic Gardens, 2005). Grows mainly in vine thickets or dry rainforest, and more rarely occurs in woodlands. It is a relict rainforest species and tends to favour upper and mid slope positions, often with a northerly aspect. It commonly occurs on sandy-loam to clay soils of low to medium fertility. It can occur in pure stands or in a mixed community on the slopes of residual sandstone ranges and scarps (Department of Environment and Conservation, 2006).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

Key: CE = Critically Endangered, E = Endangered, V = Vulnerable, NT = Near Threatened

Table B.2 Assessment of risk of impact to threatened fauna species listed under the EPBC Act

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Falco hypoleucos	Grey Falcon	V	**Recorded** Recorded during field survey	**Moderate** Species habitat is present within the Project footprint.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will not be impacted by the Project, which is unlikely to place the species at risk of Project-related impacts. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.
Dasyurus maculatus maculatus	Spotted-tail Quoll	E	**Moderate** Suitable habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the potentially suitable Eucalypt open forest habitat. Therefore, this species is unlikely to be impacted by the Project. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.
Nyctophilus corbeni	Corben's Long-eared Bat	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	Despite targeted surveys, this species has not been recorded in the potentially suitable Eucalypt open forest habitat. Therefore, this species is unlikely to be impacted by the Project. Species is at low risk of project-related impacts and an EPBC Act significant impact assessment is not required.
Petaurus australis australis	Yellow-bellied Glider	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will not be impacted by the Project, which is unlikely to place the species at risk of Project-related impacts. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.
Petauroides volans (P. armillatus)	Greater Glider	V	**Recorded** Recorded during K2E field surveys (WSP, 2021)	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will be impacted by the Project, which is unlikely to place the species at risk of Project-related impacts. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.

Species Name	Common name	EPBC Act	Likelihood of occurrence		Risk of impact
			Study area	Project footprint	
Phascolarctos cinereus	Koala	E	**High** Suitable habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will not be impacted by the Project, which is unlikely to place the species at risk of Project-related impacts. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.
Pteropus poliocephalus	Grey-headed Flying-fox	V	**Moderate** Potential habitat present within the Study area	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.	The species has been confirmed within the Study area. The Eucalypt open forest habitat that supports this species will not be impacted by the Project, which is unlikely to place the species at risk of project-related impacts. Species is at low risk of Project-related impacts and an EPBC Act significant impact assessment is not required.
Turnix melanogaster	Black-breasted Button-quail	V	**Recorded** Several individuals recorded during K2E field surveys (WSP, 2021)	**Recorded** Several individuals recorded during K2E field surveys (WSP, 2021)	The regenerating Acacia and low vine forest habitat (7.1 ha) that supports only foraging resources for this species will be impacted by the Project where transmission line infrastructure is proposed. An additional 1.2 ha of Hoop Pine plantation buffer zone habitat that provides supplementary foraging habitat for the species will also be impacted. Therefore, the species is potentially at risk of impact from the Project. **EPBC Act significant impact assessment required (refer Attachment D)**

B2. Fauna likelihood of occurrence assessment

Table B.3 Fauna likelihood of occurrence assessment

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
AMPHIBIANS							
Adelotus brevis	Tusked Frog	V	-	Occur on the coast and adjacent ranges from central Queensland to southern NSW. Tusked Frogs were once found west to the New England Tablelands and North West Slopes (Nandewar bioregion) but are now very rare there, and the population in these regions has been listed as an Endangered Population under the Threatened Species Conservation Act. They remain more common in lower elevation coastal areas. They occur in rainforests, wet forests and flooded grassland and pasture, usually near creeks, ditches and ponds, and call while hidden amongst vegetation or debris (Department of Environment and Conservation, 2006).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
BIRDS							
Actitis hypoleucos	Common Sandpiper	SLC	M	The Common Sandpiper frequents a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity. It is mostly encountered along muddy margins or rocky shores and rarely on mudflats. It has been recorded in estuaries and deltas of streams, banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags (Geering, 2007; Higgins, 1996). Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks (Higgins, 1996).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Anthochaera phrygia	Regent Honeyeater	CE	CE	Occurs mostly in box-ironbark forests and woodland and prefers wet, fertile sites such as along creek flats, broad river valleys and foothills. Riparian forests with *Casuarina cunninghamiana* and *Amyema cambagei* are important for feeding and breeding. Spotted Gum and Swamp Mahogany forests are also important feeding areas in coastal areas. Important food trees include *Eucalyptus sideroxylon* (Mugga Ironbark), *E. albens* (White Box), *E. melliodora* (Yellow Box) and *E. leucoxylon* (Yellow Gum) (Garnett, 2000).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Apus pacificus	Fork-tailed Swift	SLC	M	Breeds in the northern hemisphere, wintering south to Australia. It is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground. It mostly occurs over inland plains but sometimes above foothills or in coastal areas over cliffs, beaches, islands and well out to sea. It also occurs over towns and cities. It mostly occurs over dry and/or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh, grassland, spinifex sandplains, farmland and sand-dunes. It sometimes occurs above forests. It probably roosts aerially, but has occasionally been observed to land (Higgins, 1999).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Ardenna pacifica	Wedge-tailed Shearwater	V	M	Returns from the North Pacific to their burrows on islands off the coast of NSW. Marine nomadic species that visits land to breed. Known breeding colony at Muttonbird island near Coffs Harbour and islands off Port Stephens in NSW (Garnett, 2000).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Botaurus poiciloptilus	Australasian Bittern	E	E	Occurs in shallow, vegetated freshwater or brackish swamps. Requires permanent wetlands with tall dense vegetation, particularly bulrushes and spikerushes. When breeding, pairs are found in areas with a mixture of tall and short sedges but will also feed in more open territory (Garnett, 2000; NSW National Parks and Wildlife Service, 2002).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Calidris acuminata	Sharp-tailed Sandpiper	SLC	M	Occurs in a variety of habitats: tidal mudflat, mangrove swamps, saltmarshes, shallow fresh, brackish, salt inland swamps and lakes; flooded and irrigated paddocks, sewage farms and commercial saltfields (Pizzey, 2007).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Calidris ferruginea	Curlew Sandpiper	CE	CE (M)	Occurs in inter-tidal mudflats of estuaries, lagoons, mangrove channels and also around lakes, dams, floodwaters and flooded saltbush surrounding inland lakes (Morcombe, 2003).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Calidris melanotos	Pectoral Sandpiper	SLC	M	In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species frequents coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. It is usually found in coastal or near coastal habitat but occasionally further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. It has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands (Higgins, 1996).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Calyptorhynchus lathami lathami	Glossy Black-Cockatoo (Eastern)	V	-	This species has a widespread but sparse distribution in the east of Australia, south from Paluma in northern Queensland to the Gippsland area of Victoria and inland to south-central Queensland, and the Central Western plains and Riverina of NSW. They have a strong preference for woodland dominated by Allocasuarina, or open sclerophyll forests or woodlands, with a middle stratum of Allocasuarina below Eucalyptus, Corymbia or Angophora (Conservancy, 2010).	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Cuculus optatus	Oriental Cuckoo	SLC	M	A non-breeding migrant to Australia, it often inhabits rainforest, vine thickets, wet sclerophyll forest and open woodland and sometimes occurs in mangroves, wooded swamps and as vagrants in gardens (Higgins, 1999). The population trend appears to be stable (BirdLife International, 2009).	PMST, Wildlife Online	**Moderate** Potential habitat is present within the Study area. Previously recorded within the Locality.	**Moderate** Potential habitat within the Project footprint, but not recorded during targeted surveys.
Cyclopsitta diophthalma coxeni	Coxen's Fig-parrot	E	CE	Recorded from the Maryborough - Gympie district in Queensland to the Macleay River on the NSW mid north coast. In NSW, the species is found in the Urbenville and Murwillumbah, and has been recorded in the Tweed, Brunswick, Richmond and Clarence valleys. Occurs in a range of habitats including lowland sub-tropical rainforest and dry rainforest, woodland, scrub, cleared land, urban and agricultural areas, from sea level to 900 metres asl. Microhabitat consists of areas where fig trees predominate. It feeds predominantly on fig seeds, but also feeds on fruit of other native and exotic trees as well as insect larvae. Nests are found in the canopy of tall trees in or near rainforest in the underside of a dead limb (NSW National Parks and Wildlife Service, 1999; Garnett, 2000).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Erythrotriorchis radiatus	Red Goshawk	E	V	Lives in coastal and sub-coastal tall open forests and woodlands, tropical savannas traversed by wooded or forested rivers and along edges of rainforest. Nests are only built in trees taller than 20 meters which occur within 1 kilometre of a watercourse or wetland. Has a home range of 200 square kilometres and hunts for medium to large birds in open forests and gallery forest (Garnett, 2000).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Falco hypoleucos	Grey Falcon	V	V	The Grey Falcon occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia. The species is mainly found where annual rainfall is less than 500 mm, except when wet years are followed by drought, when the species might become marginally more widespread, although it is essentially confined to the arid and semi-arid zones at all times. The species appears to be absent from Cape York Peninsula, areas east of the Great Dividing Range in Queensland and New South Wales, south of the Great Dividing Range in Victoria, and south of latitude 26ºS in Western Australia (TSSC, 2020).	PMST, Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during field survey within the Study area.	**Moderate** Potential habitat is present within the Project footprint
Gallinago hardwickii	Latham's Snipe	SLC	M	Occurs in freshwater or brackish wetlands generally near protective vegetation cover. This species feeds on small invertebrates, seeds and vegetation. It migrates to the northern hemisphere to breed (Garnett, 2000).	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Geophaps scripta scripta	Squatter Pigeon (southern subspecies)	V	V	The Squatter Pigeon (southern) occurs mainly in grassy woodlands and open forests that are dominated by eucalypts. It has also been recorded in sown grasslands with scattered remnant trees, disturbed habitats (i.e. around stockyards, along roads and railways, and around settlements), in scrub and acacia growth, and remains common in heavily-grazed country north of the Tropic of Capricorn. The species is commonly observed in habitats that are located close to bodies of water (Department of Sustainability Environment Water Population and Communities, 2011).	PMST, Wildlife Online	Low Species habitat is not present within the Study area. Previously recorded in Locality	Low Species habitat is not present within the Project footprint.
Grantiella picta	Painted Honeyeater	V	V	Lives in dry forests and woodlands. Primary food is the mistletoes in the genus Amyema, though it will take some nectar and insects. Its breeding distribution is dictated by presence of mistletoes which are largely restricted to older trees. Less likely to be found in in strips of remnant box-ironbark woodlands, such as occur along roadsides and in windbreaks, than in wider blocks (Garnett, 2000).	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Hirundapus caudacutus	White-throated Needletail	V	V (M)	Occurs in airspace over forests, woodlands, farmlands, plains, lakes, coasts and towns. Breeds in the northern hemisphere and migrates to Australia in October-April (Pizzey, 2007).	PMST, Wildlife Online	Low May periodically fly over Study area, but unlikely to use on ground habitats. Previously recorded within the Locality.	Low Species habitat is not present within the Project footprint.
Lathamus discolor	Swift Parrot	E	CE	Breeding occurs in Tasmania, majority migrates to mainland Australia in autumn, over-wintering, particularly in Victoria and central and eastern NSW, but also south-eastern Queensland as far north as Duaringa. Until recently it was believed that in New South Wales, swift parrots forage mostly in the western slopes region along the inland slopes of the Great Dividing Range but are patchily distributed along the north and south coasts including the Sydney region, but new evidence indicates that the forests on the coastal plains from southern to northern NSW are also extremely important. In mainland Australia it is semi-nomadic, foraging in flowering eucalypts in eucalypt associations, particularly box-ironbark forests and woodlands. Preference for sites with highly fertile soils where large trees have high nectar production, including along drainage lines and isolated rural or urban remnants, and for sites with flowering Acacia pycnantha, is indicated. Sites used vary from year to year. (Garnett, 2000; Swift Parrot Recovery Team, 2001).	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Monarcha melanopsis	Black-faced Monarch	SLC	M	Occurs in rainforests, eucalypt woodlands, coastal scrubs, damp gullies in rainforest, eucalypt forest and in more open woodland when migrating (Pizzey, 2007).	PMST, Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during field survey within the Study area.	**High** Potential habitat present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Monarcha trivirgatus	Spectacled Monarch	SLC	M	Occurs in the understorey of mountain/lowland rainforests, thickly wooded gullies and waterside vegetation. Migrates to NE NSW in summer to breed (Pizzey, 2007).	PMST, Wildlife Online	**High** Preferred habitat present within the Study area. Previously recorded within the Locality.	**High** Potential habitat present within the Project footprint.
Motacilla flava	Yellow Wagtail	SLC	M	This species occurs in a range of habitats including estuarine habitats such as sand dunes, mangrove forests and coastal saltmarshes. This species also occurs in open grassy areas including disturbed sites such as sports grounds and has been recorded on the edges of wetlands, swamps, lakes and farm dams. This species migrates from Asia to Australia in spring-summer. It has been recorded in the estuarine areas of the Hunter River in Newcastle NSW and in Queensland and the north of NT and WA (Higgins, 2006).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Myiagra cyanoleuca	Satin Flycatcher	SLC	M	Widespread in eastern Australia. In Queensland, it is widespread but scattered in the east. In NSW, they are widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains. In Victoria, the species is widespread in the south and east, in the area south of a line joining Numurkah, Maldon, the northern Grampians, Balmoral and Nelson. Inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. Satin Flycatchers mainly inhabit eucalypt forests, often near wetlands or watercourses. They generally occur in moister, taller forests, often occurring in gullies. They also occur in eucalypt woodlands with open understorey and grass ground cover, and are generally absent from rainforest. In south-eastern Australia, they occur at elevations of up to 1400 m above sea level, and in the ACT, they occur mainly between 800 m above sea level and the treeline (Department of the Environment, 2016; Pizzey, 2007).	PMST, Wildlife Online	**Moderate** Potential habitat present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Ninox strenua	Powerful Owl	V	-	A sedentary species with a home range of approximately 1000 hectares it occurs within open eucalypt, Casuarina or Callitris pine forest and woodland. It often roosts in denser vegetation including rainforest of exotic pine plantations. Generally feeds on medium-sized mammals such as possums and gliders but will also eat birds, flying-foxes, rats and insects. Prey are generally hollow dwelling and require a shrub layer and owls are more often found in areas with more old trees and hollows than average stands (Garnett, 2000).	Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during K2E field surveys (WSP, 2021)	**Moderate** Preferred habitat present within the Project footprint.
Numenius madagascariensis	Eastern Curlew	E	CE (M)	Inhabits coastal estuaries, mangroves, mud flats and sand pits. It is a migratory shorebird which generally inhabits sea and lake shore mud flats, deltas and similar areas, where it forages for crabs and other crustaceans, clam worms and other annelids, molluscs, insects and other invertebrates. Its migration route ranges from its wintering grounds in Australia to its breeding grounds in northern China, Korea and Russia (Pizzey, 2007).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Pandion haliaetus	Osprey	SLC	M	Generally a coastal species, occurring in estuaries, bays, inlets, islands and surrounding waters, coral atolls, reefs, lagoons, rock cliffs and stacks. Sometimes ascends larger rivers to far inland. Builds nests high in tree, on pylon or on ground on islands. Feeds on fish (Pizzey, 2007).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Rhipidura rufifrons	Rufous Fantail	SLC	M	Occurs in a range of habitats including the undergrowth of rainforests/wetter eucalypt forests/gullies, monsoon forests paperbarks, sub-inland and coastal scrubs, mangroves, watercourses, parks and gardens. When migrating they may also be recorded on farms, streets and buildings. Migrates to SE Australia in October-April to breed, mostly in or on the coastal side of the Great Dividing Range (Pizzey, 2007).	PMST, Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during field survey within the Study area.	**High** Potential habitat present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Rostratula australis	Australian Painted Snipe	E	E	Inhabits shallow, vegetated, temporary or infrequently filled wetlands, including where there are trees such as *Eucalyptus camaldulensis* (River Red Gum), *E. populnea* (Poplar Box) or shrubs such as *Muehlenbeckia florulenta* (Lignum) or *Sarcocornia quinqueflora* (Samphire). Feeds at the water's edge and on mudflats on seeds and invertebrates, including insects, worms, molluscs and crustaceans. Males incubate eggs in a shallow scrape nest (Garnett, 2000).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Turnix melanogaster	Black-breasted Button-quail	V	V	Patchily distributed in coastal and sub-coastal areas in south-east Queensland and far north-east NSW. In NSW it has been recorded in the Urbenville and Murwillumbah areas. Occurs in dry rainforest, dry sclerophyll forest, regenerating vine forest dominated by eucalypts and the margins of sub-tropical rainforests, typically at elevations of 200-700 metres asl. (Integrated Forestry Operations Approval for Upper North East Region, Appendix B, 1999). In NSW, this species occurs in wetter subtropical rainforest, often in association with moist eucalypt forest (Garnett, 2000). Favours the edge of the forest, in small grassy clearings, or in tangled vines with thick cover. A dense canopy layer and dense ground cover are critical, with a layer of moist leaf litter present (NSW National Parks and Wildlife Service, 1999). Feeds on invertebrates found in the leaf litter of the forest floor and sometimes seeds.	PMST, Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Several individuals recorded during K2E field surveys (WSP, 2021)	**Recorded** Potential foraging habitat present within the Project footprint where regenerating Acacia and vine forest species occur.
MAMMALS							
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Occurs in moderately wooded habitats, mainly in areas with extensive cliffs and caves and roosts in caves, mine tunnels and the abandoned, bottle-shaped mud nests of Fairy Martins (Churchill, 1998; Office of Environment and Heritage, 2011). Breeding habitat (maternity roosts) is located in roof domes in sandstone caves (Office of Environment and Heritage, 2011). Thought to forage below the forest canopy for small flying insects (Churchill, 1998).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Dasyurus hallucatus	Northern Quoll	-	E	The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert. Northern Quoll are also known to occupy non rocky lowland habitats such as beachscrub communities in central Queensland. Northern Quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Rocky habitats are usually of high relief, often rugged and dissected but can also include tor fields or caves in low lying areas such as in Western Australia. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds. Northern Quolls sometimes occur around human dwellings and campgrounds. Northern Quolls appear to be most abundant in habitats within 150 km of the coast (Department of Sustainability Environment Water Population and Communities, 2011).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Dasyurus maculatus maculatus	Spotted-tail Quoll (SE mainland population)	E	E	Occurs from the Bundaberg area in south-east Queensland, south through NSW to western Victoria and Tasmania. In NSW, it occurs on both sides of the Great Dividing Range and north-east NSW represents a national stronghold (NSW National Parks and Wildlife Service, 1999). Occurs in wide range of forest types, although appears to prefer moist sclerophyll and rainforest forest types, and riparian habitat. Most common in large unfragmented patches of forest. It has also been recorded from dry sclerophyll forest, open woodland and coastal heathland, and despite its occurrence in riparian areas, it also ranges over dry ridges. Nests in rock caves and hollow logs or trees. Feeds on a variety of prey including birds, terrestrial and arboreal mammals, small macropods, reptiles and arthropods (NSW National Parks and Wildlife Service, 1999; NSW National Parks and Wildlife Service, 1999).	PMST, Wildlife Online	**Moderate** Potential habitat is present within the Study area. Previously recorded within the Locality.	**Moderate** Potential habitat is present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Macroderma gigas	Ghost Bat	E	V	Ghost bats occur in a wide range of habitats from rainforest, monsoon and vine scrub, to open woodlands in arid areas. These habitats are used for foraging, while roost habitat is more specific. Favoured roosting sites of the ghost bat are undisturbed caves or mineshafts which have several openings (Department of Environment and Heritage Protection 2013).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, bulloke (*Allocasuarina leuhmanni*) and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark (Department of the Environment, 2016; Office of Environment & Heritage, 2012; Churchill, 2008).	PMST	**Moderate** Potential habitat within the Study area.	Low Species habitat is not present within the Project footprint.
Petauroides volans (Petauroides armillatus)	Greater Glider (Central Greater Glider)	E	V	The Greater Glider has a restricted distribution in eastern Australia, from the Windsor Tableland in north Queensland to central Victoria, with an elevated range from sea level to 1200m above sea level. The species is largely restricted to eucalypt forests and woodlands, with a diet comprising of eucalypt leaves and occasional flowers. It is found in abundance in montane eucalypt forest with relatively old trees and an abundance of hollows. It also favours forests with a diversity of eucalypts to cater for seasonal variation in food abundance (Department of the Environment, 2015).	PMST, Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during field survey within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Petaurus australis australis	Yellow-bellied Glider	E	V	The Yellow-bellied Glider (south-eastern) occurs within eucalypt dominated forests and woodlands, compromising of wet and dry sclerophyll forests. Numbers are highly reliant on the suitability of habitat which is influenced by forest age. The south-eastern subspecies displays a preference of large areas of old growth forests, providing foraging habitat and shelter. This subspecies also prefers winter flowering and smooth barked eucalyptus dominated forests, providing foraging substrates. The Yellow-bellied Glider (south-eastern) requires flowering species diversity, providing a year-round supply of food and are unlikely to persist in single species forests. This Yellow-bellied Glider (south-eastern) feeds on sap from trees, insects, spiders, nectar and pollen. Sap feeding trees are a critical habitat feature for this species and the tree species used for feeding vary between family groups. Most are Eucalyptus species **Invalid source specified.**	PMST	**Moderate** Potential habitat within the Study area.	Low Species habitat is not present within the Project footprint.
Petrogale penicillata	Brush-tailed Rock-wallaby	V	V	Occurs in inland and sub-coastal south eastern Australia where it inhabits rock slopes. It has a preference for rocks which receive sunlight for a considerable part of the day. Windblown caves, rock cracks or tumbled boulders are used for shelter. Occur in small groups or "colonies" each usually separated by hundreds of metres (NSW National Parks and Wildlife Service, 2003).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Phascolarctos cinereus	Koala	E	E	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. Inhabits eucalypt woodlands and forests. Koalas Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. The preferred tree species vary widely on a regional and local basis. Some preferred species include Forest Red Gum (*Eucalyptus tereticornis*), Grey Gum (*E. punctata*). In coastal areas, Tallowwood (*E. microcorys*) and Swamp Mahogany (*E. robusta*) are important food species, while in inland areas White Box (*E. albens*), Bimble Box (*E. populnea*) and River Red Gum (*E. camaldulensis*) are favoured (NSW National Parks and Wildlife Service, 1999; NSW National Parks and Wildlife Service, 2003; Office of Environment & Heritage, 2015).	PMST, Wildlife Online	**High** Preferred habitat present within the Study area. Previously recorded within the Locality.	Low Species habitat is not present within the Project footprint.
Pseudomys novaehollandiae	New Holland Mouse	V	V	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Genetic evidence indicates that the New Holland Mouse once formed a single continuous population on mainland Australia and the distribution of recent subfossils further suggest that the species has undergone a large range contraction since European settlement. Total population size of mature individuals is now estimated to be less than 10,000 individuals although, given the number of sites from which the species is known to have disappeared between 1999 and 2009, it is likely that the species' distribution is actually smaller than current estimates. Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes.	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Pteropus poliocephalus	Grey-headed Flying-fox	-	V	Occurs in the coastal belt from Rockhampton in central Queensland to Melbourne in Victoria. However, only a small proportion of this range is used at any one time, as the species selectively forages where food is available. As a result, patterns of occurrence and relative abundance within its distribution vary widely between seasons and between years. At a local scale, the species is generally present intermittently and irregularly. The species is widespread throughout their range in summer, whilst in autumn it occupies coastal lowlands and is uncommon inland. In winter, the species congregates in coastal lowlands north of the Hunter Valley and is occasionally found on the south coast of NSW (associated with flowering Spotted Gum *Corymbia maculata*) and on the northwest slopes (generally associated with flowering White Box *Eucalyptus albens* or Mugga Ironbark *E. sideroxylon*). Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines (Office of Environment & Heritage, 2015; Department of the Environment, 2016).	PMST	**Moderate** Potential habitat present within the Study area. Previously recorded within the Locality.	Low Species habitat is not present within the Project footprint.
Tachyglossus aculeatus	Short-beaked Echidna	SLC	-	Occurs throughout most terrestrial habitats across mainland Australia and Tasmania, where its favoured ant and termite prey are available.	Wildlife Online	**Recorded** Preferred habitat present within the Study area. Previously recorded within the Locality. Recorded during K2E field surveys (WSP, 2021)	**High** Preferred habitat present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
REPTILES							
Acanthophis antarcticus	Common Death Adder	V	-	The Common Death Adder occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales, and through to the southern parts of South Australia and Western Australia. Once abundant in many areas, this species has experienced a dramatic reduction in numbers. Within this range the species is found in a wide variety of habitats in association with deep leaf litter, including rainforests, wet sclerophyll forests, woodland, grasslands, chenopod dominated shrublands, and coastal heathlands {Wilson, 2015 #3728}	Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Anomalopus mackayi	Five-clawed Worm-skink	E	V	This species occurs within a relatively small area adjoining the western edge of the Great Dividing Range, in north-eastern NSW and south-east Queensland. Habitat consists of lower slopes minor rises in grassy White Box woodland, open woodland and River Red Gum-Coolibah Bimble Box woodland. This woodland habitat is usually supported by red black to black clay-loam soils. The Five-clawed Worm-skink resides in tunnel shaped burrows and within deep soil crevices. Along the surface of the soils, the species use timber and fallen logs as shelter (http://www.environment.gov.au/biodiversity/threatened/species/pubs/25934-conservation-advice.pdf).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Delma torquata	Collared Delma	V	V	The presence of rocks, logs, bark and other coarse woody debris, and mats of leaf litter (typically 30–100 mm thick) appears to be an essential characteristic of the Collared Delma microhabitat and is always present where the species occurs. This may be the limiting factor for the Collared Delma recolonising in recently burnt areas. Queensland Regional Ecosystems which the Collared Delma is associated with include RE 11.3.2, 11.9.10, 11.10.1, and 11.10.4 (Department of the Environment, 2015).	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	HABITAT	DATA SOURCE	LIKELIHOOD OF OCCURRENCE	
						STUDY AREA	PROJECT FOOTPRINT
Egernia rugosa	Yakka Skink	V	V	The Yakka Skink is commonly found in cavities under and between partly buried rocks, logs or tree stumps, root cavities and abandoned animal burrows. The species often takes refuge in large hollow logs and has been known to excavate deep burrow systems, sometimes under dense ground vegetation. In cleared habitat, this species can persist where there are shelter sites such as raked log piles, deep gullies, tunnel erosion/sinkholes and rabbit warrens. The species has also been found sheltering under sheds and loading ramps. This species is not generally found in trees or rocky habitats (Department of Sustainability Environment Water Population and Communities, 2011).	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Elseya albagula	Southern Snapping Turtle	CE	CE	The white-throated snapping turtle is only found in the Burnett, Fitzroy, Raglan and Mary river drainages of south-east Queensland. It prefers permanent flowing water habitats where there are suitable shelters and refuges (e.g. fallen trees). (Department of Environment and Heritage Protection 2014)	PMST	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.
Furina dunmalli	Dunmall's Snake	V	V	Occurs in south-east interior of Queensland, including the Darling Downs, and is thought to potentially extend into inland north-eastern NSW. Most Locality records are between 200 and 500 m elevation. Preferred habitat is Brigalow forest and woodland with fallen timber and ground litter, growing on cracking clay soils and clay loam soils. Also occurs in eucalypt and Callitris woodland with fallen timber and ground litter. Nocturnal.	PMST, Wildlife Online	Low Species habitat is not present within the Study area.	Low Species habitat is not present within the Project footprint.

Key: CE = Critically Endangered, E = Endangered, V = Vulnerable, NT = Near Threatened, M = Migratory, SLC = Special Least Concern

Attachment C

Flora and Fauna Species Lists

C1. Flora species list

Table C.1 Fauna species recorded in Study area and K2E Study area

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Acacia deanei				✓	
Acacia disparrima subsp. disparrima				✓	✓
Acacia fimbriata				✓	
Acacia irrorata				✓	
Acacia leiocalyx	Black Wattle			✓	
Acacia maidenii	Maiden's Wattle			✓	✓
Acacia spp.				✓	✓
Acronychia laevis	Hard Aspen				✓
Afrohybanthus stellarioides				✓	
Alchornea ilicifolia	Native Holly			✓	✓
Alectryon diversifolius				✓	
Alectryon pubescens				✓	
Alectryon subcinereus					✓
Alectryon subdentatus				✓	✓
Alphitonia excelsa	Red Ash			✓	✓
Alstonia constricta	Bitterbark			✓	✓
Alyxia ruscifolia	Prickly Alyxia			✓	✓
Ancistrachne uncinulata					✓
Angophora subvelutina				✓	
Aphananthe philippinensis					✓
Araucaria cunninghamii	Hoop Pine			✓	✓
Aristida sp.				✓	
Arytera divaricata				✓	
Arytera foveolata	Pitted Coogera			✓	✓
Atalaya hemiglauca	Whitewood				✓
Atalaya salicifolia	Scrub Whitewood			✓	✓
Austrostipa ramosissima	Stout bamboo grass			✓	✓

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Auranticarpa rhombifolia					✓
Brachychiton australis				✓	✓
Brachychiton acerifolius	Illawarra Flame Tree				✓
Brachychiton discolor				✓	
Breynia oblongifolia				✓	
Bryophyllum delagoense **	Mother of Millions			✓	
Bursaria incana	Mock Orange			✓	✓
Bursaria spinosa				✓	
Capparis arborea				✓	✓
Carissa ovata	Bush Plum			✓	✓
Cassinia laevis				✓	
Casearia multinervosa					✓
Celastrus subspicata				✓	
*Chloris gayana**				✓	
Cleistanthus cunninghamii				✓	
Clerodendrum floribundum				✓	
Commelina diffusa				✓	
Corymbia citriodora subsp. variegata				✓	✓
Croton insularis	Silver Croton			✓	✓
Croton acronychioides					✓
Cryptocarya sclerophylla					✓
Cryptocarya sp.				✓	
Cupaniopsis parvifolia	Small Leaved Tuckeroo			✓	✓
Cymbopogon refractus				✓	
Cyperus gracilis				✓	
Dendrocnide excelsa				✓	
Denhamia bilocularis	Orangebark			✓	✓
Diospyros australis					✓
Ehretia membranifolia				✓	
Einadia nutans				✓	

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Elaeodendron australe var. integrifolium				✓	
Endiandra hayesii				✓	
*Eragrostis curvula***	African Lovegrass			✓	
*Erigeron bonariensis**				✓	
Eucalyptus biturbinata	Grey Gum			✓	
Eucalyptus crebra	Ironbark			✓	
Eucalyptus moluccana	Grey Box			✓	✓
Eucalyptus siderophloia	Grey Ironbark			✓	
Eucalyptus sideroxylon	Red Ironbark			✓	
Eucalyptus tereticornis	Forest Red Gum			✓	
Eragrostis curvula	African lovegrass				✓
Erythroxylum sp. (Splityard Creek L.Pedley 5360)					✓
Everistia vacciniifolia	Small-leaved canthium				✓
Everistia vacciniifolia var. nervosa				✓	
Exocarpos cupressiformis				✓	
Exocarpos latifolia	Scrub Sandal-wood			✓	
Excoecaria dallachyana	Brush Poison Tree				✓
Ficus sp.				✓	
Fimbristylis sp.				✓	
Flindersia australis	Crow's ash			✓	✓
Flindersia collina	Leopard Wood			✓	✓
Flindersia xanthoxyla				✓	
Gahnia aspera				✓	
Geitonoplesium cymosum					✓
Geijera salicifolia					✓
Gossia bidwillii	Python Tree			✓	✓
Grevillia robusta				✓	
Haloragis exalata subsp *velutina*	Tall Velvet Sea-berry	V	V	✓	
*Heliotropium amplexicaule**				✓	
Hydrocotyle sp.				✓	

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Imperata cylindrica	Blady Grass			✓	
Jagera pseudorhus	Foambark			✓	✓
Jasminum didymum				✓	
Jasminum didymum subsp. racemosum					✓
Jasminum simplicifolium subsp. australiense	Stiff Jasmine				✓
*Lantana camara***	Lantana			✓	✓
Lomandra longifolia				✓	
Lophostemon confertus	Brush Box			✓	
Maclura cochinchinensis				✓	
*Megathyrsus maximus var. pubiglumis**				✓	
*Melinis repens**				✓	
Olea paniculata	Native Olive				✓
Oplismenus aemulus				✓	
*Opuntia sp.***				✓	
*Opuntia tomentosa***				✓	
Owenia venosa	Crow's Apple			✓	✓
Pandorea pandorana	Wonga vine			✓	✓
Pandorea floribunda	Yellow-flowered Wonga Vine				✓
*Passiflora subpeltata**				✓	
Pennisetum spp.					✓
Pimelea neoanglica				✓	
Pittosporum multiflorum	Orange thorn				✓
Pittosporum spinescens					✓
Pomaderris argyrophylla				✓	
Pseuderanthemum sp.				✓	
Pstrychnes psilosperma				✓	
Psydrax odorata				✓	✓
Rhodosphaera rhodanthema					✓
Rhodamnia dumicola			E	✓	✓
Secamone elliptica					✓

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
*Senna septemtrionalis**				✓	
Solanum sp.				✓	
*Solanum mauritianum**				✓	
Solanum parvifolium					✓
*Solanum seaforthianum**	Brazilian Nightshade			✓	
Solanum semiarmatum					✓
*Solanum torvum**				✓	
Spartothamnella juncea				✓	
Stephania japonica				✓	
Streblus brunonianus				✓	
Strychnos psilosperma				✓	
Tetragonia tetragonoides				✓	
Turraea pubescens					✓
Trophis scandens					✓
Wikstroemia indica					✓
Ventilago viminalis	Supplejack				✓
Vitex lignum-vitae	Yellow Hollywood			✓	✓
Wikstroemia indica				✓	

Conservation status: Endangered (E), Vulnerable (V).

Invasive plant (*Biosecurity Act 2014*) **. Exotic spp. *.

C2. Fauna species list

Table C.2 Fauna species recorded in Study area and K2E Study area

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
AMPHIBIANS					
Limnodynastes salmini	Salmon-striped Frog				✓
Limnodynastes terraereginae	Scarlet-sided Pobblebonk			✓	✓
Litoria fallax	Eastern Sedge Frog			✓	✓
Litoria nasuta	Striped Rocket Frog			✓	

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Mixophyes fasciolatus	Great Barred Frog			✓	
Pseudophryne major	Major Broodfrog			✓	
BIRDS					
Acanthiza chrysorrhoa	Yellow-rumped Thornbill			✓	
Acanthiza nana	Yellow Thornbill				✓
Acanthiza pusilla	Brown Thornbill			✓	✓
Acanthorhynchus tenuirostris	Eastern Spinebill			✓	✓
Accipiter cirrocephalus	Collared Sparrowhawk				✓
Accipiter novaehollandiae	Grey Goshawk			✓	✓
Aegotheles cristatus	Australian Owlet-nightjar				✓
Ailuroedus crassirostris	Green Catbird			✓	✓
Alectura lathami	Australian Brush-turkey			✓	✓
Alisterus scapularis	Australian King-parrot				✓
Aquila audax	Wedge-tailed Eagle			✓	✓
Cacomantis flabelliformis	Fan-tailed Cuckoo			✓	✓
Calyptorhynchus funereu	Yellow-tailed Black-cockatoo			✓	✓
Centropus phasianinus	Pheasant Coucal			✓	✓
Chalcophaps indica	Emerald Dove				✓
Chrysococcyx lucidus	Shining Bronze-cuckoo				✓
Chrysococcyx minutillus	Little Bronze-cuckoo				✓
Climacteris erythrops	Red-browed Treecreeper				✓
Colluricincla harmonica	Grey Shrike-thrush				✓
Colluricincla megarhyncha	Little Shrike-thrush				✓
Coracina novaehollandiae	Black-faced Cuckoo-shrike			✓	✓
Cormobates leucophaea	White-throated Treecreeper				✓
Corvus orru	Torresian Crow			✓	✓
Coturnix ypsilophora	Brown Quail				✓
Cracticus tibicen	Australian Magpie			✓	✓
Dacelo novaeguineae	Laughing Kookaburra				✓

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Daphoenositta chrysoptera	Varied Sittella				✓
Dicaeum hirundinaceum	Mistletoe Bird			✓	✓
Dicrurus bracteatus	Spangled Drongo				✓
Eolophus roseicapilla	Galah				✓
Eopsaltria australis	Eastern Yellow Robin			✓	✓
Eurostopodus mystacalis	White-Throated Nightjar				✓
Eurystomus orientalis	Dollarbird				✓
Falco peregrinus	Peregrine Falcon				✓
Falcunculus frontatus	Crested Shrike-tit				✓
Geopelia humeralis	Bar-shouldered Dove			✓	✓
Geopelia placida	Peaceful Dove			✓	✓
Gerygone mouki	Brown Gerygone				✓
Gerygone olivacea	White-Throated Gerygone			✓	✓
Lalage leucomela	Varied Triller				✓
Leucosarcia melanoleuca	Wonga Pigeon			✓	✓
Lichenostomus chrysops	Yellow-faced Honeyeater				✓
Macropygia phasianella	Brown Cuckoo-dove				✓
Malurus cyaneus	Superb Fairy-wren			✓	✓
Malurus lamberti	Variegated Fairy-wren				✓
Manorina melanophrys	Bell Miner				✓
Meliphaga lewinii	Lewin's Honeyeater			✓	✓
Merops ornatus	Rainbow Bee-eater				✓
Monarcha melanopsis	Black-Faced Monarch	M	SLC	✓	✓
Myzomela sanguinolenta	Scarlet Honeyeater			✓	✓
Neochmia temporalis	Red-browed Finch				✓
Ninox connivens	Barking Owl				✓
Ninox novaeseelandiae	Southern Boobook			✓	
Ninox strenua	Powerful Owl		V		✓
Oriolus sagittatus	Olive-backed Oriole				✓
Pachycephala pectoralis	Golden Whistler			✓	✓
Pachycephala rufiventris	Rufous Whistler			✓	✓

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Pardalotus punctatus	Spotted Pardalote				✓
Pardalotus striatus	Striated Pardalote			✓	✓
Petrochelidon ariel	Fairy Martin				✓
Petroica rosea	Rose Robin				✓
Pitta versicolor	Noisy Pitta				✓
Phaps chalcoptera	Common Bronzewing			✓	
Philemon corniculatus	Noisy Friarbird			✓	✓
Platycercus elegans	Crimson Rosella				✓
Platycercus adscitus	Pale-headed Rosella				✓
Podargus strigoides	Tawny Frogmouth			✓	✓
Psophodes olivaceus	Eastern Whipbird			✓	✓
Ptilonorhynchus violaceus	Satin Bowerbird			✓	✓
Ptiloris paradiseus	Paradise Riflebird				✓
Rhipidura albiscapa	Grey Fantail			✓	✓
Rhipidura leucophrys	Willie Wagtail			✓	✓
Rhipidura rufifrons	Rufous Fantail	M	SLC	✓	✓
Sericornis citreogularis	Yellow-throated Scrubwren				✓
Sericornis frontalis	White-browed Scrubwren			✓	✓
Sericornis magnirostra	Large-billed Scrubwren				✓
Sericulus chrysocephalus	Regent Bowerbird				✓
Smicrornis brevirostris	Weebill				✓
Strepera graculina	Pied Currawong			✓	✓
Taeniopygia bichenovii	Double-barred Finch			✓	✓
Turnix melanogaster	Black-breasted Button-quail	V	V	✓	✓
Turnix varius	Painted Button Quail			✓	
Tyto tenebricosa	Sooty Owl				✓
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet				✓
Trichoglossus haematodus	Rainbow Lorikeet				✓
Zoothera heinei	Russet-tailed Thrush				✓
Zoothera lunulata	Bassian Thrush			✓	

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Zosterops lateralis	Silvereye				✓
MAMMALS					
Aepyprymnus rufescens	Rufous Bettong				✓
Antechinus flavipes	Yellow-footed Antechinus				✓
Antechinus stuarti	Brown Antechinus			✓	
Austronomus australis	White-striped Freetail-bat				✓
**Canis familiaris*	Wild Dog			✓	✓
Chalinolobus gouldii	Gould's Wattled Bat				✓
Chalinolobus morio	Chocolate Wattled Bat				✓
Chalinolobus picatus	Little Pied Bat				✓
**Felis catus*	Feral Cat			✓	✓
Isoodon macrourus	Northern Brown Bandicoot				✓
Macropus dorsalis	Black-striped Wallaby				✓
Melomys cervinipes	Fawn-footed Melomys			✓	✓
Miniopterus australis	Little Bentwing-Bat				✓
Notamacropus rufogriseus	Red-necked Wallaby			✓	
Nyctophilus bifax	Eastern Long-eared Bat				✓
Nyctophilus gouldii	Gould's Long-eared Bat				✓
Ozimops ridei	Ride's Free-tailed Bat				✓
Perameles nasuta	Long-Nosed Bandicoot			✓	✓
Petauroides volans	Greater Glider	V	E		✓
Petaurus breviceps	Sugar Glider			✓	✓
Pseudocheirus peregrinus	Common Ringtail Possum			✓	✓
Rhinolophus megaphyllus	Eastern Horseshoe-bat				✓
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat				✓
Scotorepens balstoni	Western Broad-nosed Bat				✓
Scotorepens greyii	Little Broad-nosed Bat				✓
Scotorepens orion	Eastern Broad-nosed Bat				✓
Tachyglossus aculeatus	Short-beaked Echidna		SLC		✓
Tadarida australis	White Striped Freetail Bat				✓

Scientific name	Common name	Conservation status		Study area	
		EPBC Act	NC Act	Transmission Line Project	K2E Project
Thylogale stigmatica	Red-legged Pademelon			✓	✓
Thylogale thetis	Red-necked Pademelon				✓
Trichosurus cunningham	Short-eared Brushtail Possum				✓
Trichosurus vulpecula	Common Brushtail Possum			✓	✓
Vespadelus baverstocki	Inland Forest Bat				✓
Vespadelus pumilus	Eastern Forest Bat				✓
Vespadelus troughtoni	Eastern Cave Bat				✓
Vespadelus vulturnus	Little Forest Bat				✓
Wallabia bicolor	Swamp Wallaby			✓	✓
REPTILES					
Demansia psammophis	Yellow-faced Whipsnake				✓
Cryptophis nigrescens	Eastern Small-eyed Snake			✓	
Morelia spilota	Carpet Python				✓
Varanus varius	Lace Monitor			✓	✓

Key: *Introduced species, E = Endangered, V = Vulnerable, M = Migratory, SLC = Special Least Concern

Attachment D

Significant Impact Assessments

D1. EPBC Act significant impact assessments

The *Matters of National Environmental Significance Significant Impact Guidelines 1.1 EPBC Act* (Significant Impact Guidelines) is designed to inform proponents who propose to undertake an action (development), to decide whether or not to submit a referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW). The purpose of the significant impact assessments is to inform an EPBC Referral to the Commonwealth Minister of Environment to assess the Project's eligibility as a controlled action under the EPBC Act. Under the EPBC Act an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a MNES.

D1.1 Proposed action

The extent (hectares) of potential Project-related impacts used for the significant impact assessments is based upon the current extent of the Project footprint where ground disturbance is to occur for the Project (proposed action). Potential impacts associated with the proposed action and suite of proposed mitigation measures are presented in Section 6. Each of these have collectively informed the significant impact assessments.

D1.2 Significant impact assessment definitions

The Significant Impact Guidelines provide definitions for the significant impact assessment criteria used herein:

- Population of a species
- Important population
- Habitat critical to the survival of a species or ecological community
- Important habitat for migratory species
- Ecologically significant proportion (migratory species)
- Population of a migratory species; and
- Invasive species.

These definitions are key considerations when conducting a significant impact assessment for threatened and migratory species listed under the EPBC Act. The definition for each is presented below.

D1.2.1 Population of a species

- A *'population of a species'* is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to: a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion.

D1.2.2 Important population

An *'important population'* is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

D1.2.3 Habitat critical to the survival of a species or ecological community

'*Habitat critical to the survival of a species or ecological community'* refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long-term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to:

- habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/ or
- habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

Critical habitat can be further explained as an identified area of viable habitat that contains habitat attributes that are essential for the conservation of a threatened species. These areas are typically under a regime of special protection and management to ensure the critical habitat remains a stronghold for the species to ensure its long-term survival and viability in the wild. Critical habitat may also include an area of land not currently occupied by the species but can act as a sanctuary by possessing the necessary whole of life cycle habitat attributes to facilitate the recovery of a declining population of the species.

D1.2.4 Important habitat for a migratory species

An area of '*important habitat for a migratory species'* is:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
- habitat that is of critical importance to the species at particular life-cycle stages, and/or
- habitat utilised by a migratory species which is at the limit of the species range, and/or
- habitat within an area where the species is declining.

D1.2.5 Ecologically significant proportion (Migratory species)

Listed migratory species cover a broad range of species with different life cycles and population sizes. Therefore, what is an '*ecologically significant proportion*' of the population varies with the species (each circumstance will need to be evaluated). Some factors that should be considered include the species' population status, genetic distinctiveness and species-specific behavioural patterns (for example, site fidelity and dispersal rates).

D1.2.6 Population of a migratory species

'*Population*', in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries including Australia.

D1.2.7 Invasive species

An '*invasive species'* is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

D1.2.8 Species at risk of significant impacts

The ecological assessment identified the following five species listed under the EPBC Act at risk of Project-related impacts:

- One threatened fauna species:
  - Black-breasted Button-quail (*Turnix melanogaster*) (Vulnerable).
- Three migratory fauna species:
  - Black-faced Monarch (*Monarcha melanopsis*)
  - Rufous Fantail (*Rhipidura rufifrons*)
  - Spectacled Monarch (*Symposiachrus trivirgatus*).

A significant impact assessment in accordance with the Significant Impact Guidelines has been undertaken for each of the above listed species against the significant impact criteria for their respective conservation status under the EPBC Act, as presented in the following sections.

D1.3 Black-breasted Button-quail (*Turnix melanogaster*)

Conservation Status

The Black-breasted Button-quail is listed as Vulnerable under the EPBC Act.

Likelihood of occurrence

Several Black-breasted Button-quails are known to be present within the Study area, based upon the presence of platelets in regrowth and remnant vegetation and motion sensor camera records in remnant vegetation and Hoop Pine plantation buffer zone (mature Hoop Pine plantation immediately adjacent to semi-evergreen vine thicket and dry rainforest habitat with a closed canopy and emergent rainforest species in the understorey) obtained during surveys in the Study area for the K2E Project and Yarraman State Forest.

Distribution

The Black-breasted Button-quail's overall distribution is restricted to coastal and near-coastal regions of south-eastern Queensland and north-eastern NSW. The current known distribution in Queensland extends from Byfield in the north, south to the NSW border and westwards to Palm Grove National Park and Barakula State Forest (DAWE, 2022).

The main Black-breasted Button-quail populations occur within south-east Queensland, with the most significant populations appearing to be in the Yarraman-Nanango, Jimna-Conondale and Great Sandy regions (DAWE, 2022).

Habitat

The Black-breasted Button-quail is restricted to forests and rainforests, and prefers drier low closed rainforests, particularly:

- Semi-evergreen vine thicket
- Low microphyll vine forest
- Araucarian microphyll vine forest
- Araucarian notophyll vine forest (DAWE, 2022).

The species occurs predominantly in areas with 770-1200 mm rainfall per annum. Their optimum habitat generally occurs on areas containing highly fertile soils with a deep leaf litter layer, which is crucial for foraging requirements. Fallen logs and a dense shrub layer are also considered to be important habitat requirements for shelter and breeding (DAWE, 2022).

Records from Googa State Forest in south-eastern Queensland show that Black-breasted Button-quails are most commonly associated with remnant microphyll vine forest with no Lantana (*Lantana camara*) in the understory, although Lantana is often used as a secondary habitat for diurnal foraging and nocturnal roosting. A mosaic of Lantana and emergent vine forest species appears to be important for cover (DAWE, 2022).

There have also been rare recordings of Black-breasted Button-quail in south-east Queensland occurring in open eucalypt forest with a low sparse shrub layer, likely using these forests as transient habitat (DAWE, 2022).

Ecology

Black-breasted Button-quail are shy, inconspicuous and highly cryptic. They are ground-dwelling and generally sedentary, although may appear intermittently or transiently in areas other than their preferred habitat. They are commonly seen in pairs or sometimes in small groups, with territorial females occasionally seen alone. Their typical home range is estimated to be between 1.9 and 6.2 ha (DAWE, 2022).

The Black-breasted Button-quail mainly feeds on invertebrates such as spiders, ants, centipedes, millipedes, beetles and snails, but may also feed on seeds. They forage in leaf litter on the forest floor, digging with their feet in a pivoting circular action, creating distinctive depressions in the leaf litter called platelets (DAWE, 2022).

Breeding season usually occurs from September to April-May, however breeding may occur throughout the year at certain localities. Nests are well-concealed and placed in the buttress roots of a tree or sapling, the base of a fern, or under a low bush or grass tussock. Nests consist of a scrape in the ground lined with leaves, grass or moss, and between 3 and 5 eggs are laid (DAWE, 2022).

Threats

The current threats listed for the Black-breasted Button-quail are:

- habitat loss and fragmentation caused by massive clearance of forests for agriculture and forestry (including ongoing timber harvesting), particularly clearing of forests on highly fertile soils
- grazing, trampling and other disturbances caused by cattle, horses and feral pigs around fragmented habitats
- frequent control burning of dry rainforest remnants, as it reduces the leaf litter layer
- agricultural intensification and plantation management (clearing, slashing and burning) in remnant vine forests adjacent to Hoop Pine plantations
- predation by cats, foxes and pigs on birds and nests; and
- urban development where suitable habitat occurs on the outskirts of population centers, due to the shy nature of the species (DAWE, 2022).

Potential Project-related impacts

Project-related impacts to the Black-breasted Button-quail are associated with habitat loss in association with land clearing for the proposed action.

Approximately 7.1 ha of regenerating Acacia and low vine forest habitat that provides foraging habitat for the Black-breasted Button-quail habitat will be impacted by the proposed action.

D1.3.1 Black-breasted Button-quail Significant impact assessment

The following assessment has been undertaken following the *Matters of National Environmental Significance, Significant Impact Guidelines 1.1* (Department of the Environment, 2013).

AN ACTION IS LIKELY TO HAVE A SIGNIFICANT IMPACT ON A VULNERABLE SPECIES IF THERE IS A REAL CHANCE OR POSSIBILITY THAT IT WILL:

CRITERION 1: LEAD TO A LONG-TERM DECREASE IN THE SIZE OF AN IMPORTANT POPULATION OF A SPECIES

Of the known 25 sub-populations in Australia, there are 14 known sub-populations in Queensland. The largest known sub-populations occur in the Great Sandy region (including Great Sandy National Park), the Yarraman-Nanango region (including Tarong National Park) and the Conondale Ranges region (DAWE, 2022). The proposed action is located within the notable Yarraman-Nanango sub-population.

The Yarraman-Nanango sub-population is recognised as being of 'key importance' to the species, due to its size and the land being State-owned tenure (i.e. State Forest) (DAWE, 2022). This Yarraman-Nanango sub-population is therefore recognised as an important key source population for breeding and dispersal and maintaining genetic diversity. This important population is not at or near the limit of the species range. Present-day known distribution extends from Byfield in Queensland to the north of the proposed action, and into New South Wales where the species is found as far south as the Walcha-Yarrowitch area and near Dorrigo (DAWE, 2022).

The regenerating Acacia and low vine forest habitat within the Study area is in the early stages of successional development, whereby it is dominated by *Acacia disparrima* subsp. *disparrima* that has colonised as a pioneer species within this area of habitat that was previously cleared (refer Photo 5.2). Subsequently, the foraging value is substantially limited by the Lantana infestations and the low diversity of vine forest species, dominated by *Acacia disparrima* subsp. *disparrima*, which in-turn reduces leaf litter diversity and limits the diversity of decomposer invertebrate prey species for the Black-breasted Button-quail. The Black-breasted Button-quail is unlikely to permanently reside in this habitat, due to the lack of invertebrate prey species diversity.

The number of Black-breasted Button-quails that may be foraging in the approximately 7.1 ha of regenerating Acacia and low vine forest habitat, to be impacted by the proposed action is estimated to be between 4 to 6 adults, based upon individuals being recorded on wildlife cameras that were placed in the adjacent remnant vine forest habitat for the K2E Project. Due to the open characteristics of the regenerating habitat, the Black-breasted Button-quails residing in the adjacent remnant habitat are unlikely to use this habitat for nesting and breeding, as it does not provide enough cover and shelter. The proposed action will also facilitate the clearing by HQPlantations of approximately 1.2 ha of Hoop Pine plantation buffer zone (Hoop Pine plantation adjacent to semi-evergreen vine thicket and dry rainforest habitat where there is an understorey of vine thicket and dry rainforest species) which provides only marginal temporary foraging/refuge habitat for the species.

These Black-breasted Button-quails are part of the larger Yarraman-Nanango sub-population, which is recognised as an important population of the species. The Yarraman-Nanango sub-population is crudely estimated to be approximately 2,000 adults (DAWE, 2022). The proposed action will impact 7.1 ha of regenerating Acacia and low vine forest habitat that mainly provides potential supplementary foraging resources for an estimated 4 to 6 individuals, which form part of the Yarraman-Nanango sub-population (~2,000), which is recognised as an important population of Black-breasted Button-quail in Queensland. A further 1.2 ha of Hoop Pine plantation buffer zone habitat which only provides supplementary foraging resources will also be impacted.

The proposed action will slightly reduce the 4,189 ha of available habitat within Yarraman State Forest, Tarong State Forest and Tarong National Park that supports the Yarraman-Nanango sub-population, by 8.3 ha, which equates to a reduction of 0.2 % of overall available foraging habitat. The individuals permanently residing in the adjacent remnant vine forest habitat, which provides for all of the species' lifecycle needs (foraging, breeding, nesting and sheltering), will not be displaced by the clearing of 8.3 ha of potential foraging habitat.

As no individuals will be permanently displaced by the removal of 8.3 ha of potential supplementary foraging habitat, intraspecific competition and potential mortality will not result within retained adjacent habitat where the individuals already reside. Therefore, the proposed action is unlikely to lead to a long-term decrease in the size of an important population of the species.

CRITERION 2: REDUCE THE AREA OF OCCUPANCY OF AN IMPORTANT POPULATION

As determined by Criterion 1, an estimated 4 to 6 individuals, which are part of an important population of the Black-breasted Button-quail (the Yarraman-Nanango sub-population) reside within the Study area. These individuals may utilise the 7.1 ha of habitat to be impacted by the proposed action as marginal supplementary foraging resource, as the foraging value is substantially limited by the Lantana infestations and the low diversity of vine forest species, dominated by *Acacia disparrima* subsp. *disparrima*, which in-turn reduces leaf litter diversity and limits the diversity of decomposer invertebrate prey species for the Black-breasted Button-quail. The Black-breasted Button-quail is unlikely to permanently reside in this habitat, due to the lack of invertebrate prey species diversity. The proposed action will also facilitate clearing of approximately 1.2 ha of Hoop Pine plantation buffer zone habitat which only provides supplementary foraging resources for the species.

The overall area of available foraging habitat (4,189 ha) available to the Yarraman-Nanango important population of the Black-breasted Button-quail will be reduced by 8.3 ha, which is a 0.2 % reduction of the overall availability of foraging habitat that is currently available to the important population. However, the loss of this marginal supplementary foraging resources will not reduce the area of occupancy for the important population, as this habitat is of no sheltering, breeding and nesting values for the species.

CRITERION 3: FRAGMENT AN EXISTING IMPORTANT POPULATION INTO TWO OR MORE

As determined by Criterion 1, an estimated 4 to 6 individuals, which are part of an important population of the Black-breasted Button-quail (the Yarraman-Nanango sub-population) reside within the Study area. These individuals may utilise the 7.1 ha of habitat to be impacted by the proposed action as a supplementary foraging resource. The estimated 4 to 6 individuals that may use the regenerating Acacia and low vine forest habitat as a marginal supplementary foraging resource, permanently reside in the adjacent remnant vine forest habitat. Therefore, the proposed action of clearing 7.1 ha of supplementary foraging habitat will not fragment the existing important sub-population onto two or more populations.

In addition, the proposed action will also facilitate clearing by HQPlantations of approximately 1.2 ha of Hoop Pine plantation buffer zone habitat that provides supplementary foraging resources for the species. No clearing of the adjacent semi-evergreen vine thicket and dry forest habitat where the Black-breasted Button-quail permanently resides will occur as a result of the proposed action. Therefore, the clearing 1.2 ha of supplementary foraging habitat will not fragment the existing important sub-population onto two or more populations.

CRITERION 4: ADVERSELY AFFECT HABITAT CRITICAL TO THE SURVIVAL OF A SPECIES

Habitat critical to the survival of the Black-breasted Button-quail is identified in the *National Recovery Plan for the Black-breasted Button-quail Turnix melanogaster* (DAWE, 2021) as:

- Vine thickets and rainforest vegetation types that are periodically water-stressed. These include semi-evergreen vine thicket, low microphyll vine forest, Araucarian microphyll vine forest, Araucarian notophyll vine forest and Brachychiton scrubs that may incorporate bottle trees (*Brachychiton* sp.), brigalow (*Acacia harpophylla*) and belah (*Casuarina cristata*).
- Low thickets or woodlands with a dense understorey but little ground cover, typically dominated by *Acacia* spp.
- In littoral situations, dry vine scrubs, acacia thickets and areas densely covered in shrubs, particularly midgen berry (*Austromyrtus dulcis)*
- Regrowth of the above vegetation groups, in most cases adjacent to intact remnants.
- Wetter subtropical rainforest sometimes in association with moist eucalypt forest in NSW.

The Black-breasted Button-quail prefers drier low closed forests, particularly semi-evergreen vine thicket, low microphyll vine forest, araucarian microphyll vine forest and araucarian notophyll vine forest (DAWE, 2022).

The regenerating Acacia and low vine forest habitat is in the early stages of successional development, whereby it is dominated by *Acacia disparrima* subsp. *disparrima* that has colonised as a pioneer species within this area of habitat that was previously cleared (refer Photo 5.2) and only provides marginal supplementary foraging resources for the Black-

breasted Button-quail. This regenerating / regrowth habitat with some minor elements of a low vine forest or semi-evergreen vine thicket habitat, which is adjacent to remnant vine forest habitat, and could potentially be recognised as habitat critical to the survival of the species. However, the very high density of Lantana and other weed species is a limiting factor to the progression and successional development of this habitat.

Without human intervention to control Lantana and other weeds, the regenerating Acacia and low vine forest habitat that provides marginal supplementary foraging resources, is unlikely to ever develop into habitat that resembles the adjacent remnant low vine forest habitat that provides for all the species' lifecycle needs (foraging, sheltering and breeding), which is an essential component in justifying the presence of habitat critical to the survival of a species.

The foraging value in the regenerating Acacia and low vine forest habitat is substantially limited by the Lantana infestations and the low diversity of vine forest species, dominated by *Acacia disparrima* subsp. *disparrima*, which in-turn reduces leaf litter diversity and limits the diversity of decomposer invertebrate prey species for the Black-breasted Button-quail. The Black-breasted Button-quail population permanently residing in the adjacent remnant vine forest habitat, is unlikely to be permanently reside in the regenerating Acacia and low vine forest habitat, due to the lack of invertebrate prey species diversity, and lack of canopy cover required for sheltering and breeding.

The approximately 7.1 ha of regenerating Acacia and low vine forest habitat to be impacted by the proposed action that provides marginal supplementary foraging habitat for the species (low diversity of invertebrate prey species). This habitat does not have a dense native understorey, lacks canopy cover for sheltering and breeding, and over the long-term is unlikely to develop into habitat that provides all the species lifecycle needs (foraging, sheltering and breeding). In this instance the regenerating Acacia and low vine forest habitat that may only ever provide marginal supplementary foraging habitat and is not habitat critical to the survival of the species.

In addition, the proposed action will also facilitate clearing by HQPlantations of approximately 1.2 ha of Hoop Pine plantation buffer zone habitat only provides supplementary foraging resources for the species. The Hoop Pine plantation buffer zone is not critical habitat, as critical habitat provides for all of a species lifecycle needs, foraging, sheltering, nesting/breeding and dispersing habitat. Motion camera survey results from the K2E Project confirmed minimal evidence of Black-breasted Button-quails using the adjacent Hoop Pine plantation buffer zone (20–50 m) within the K2E ASA, where an understorey of semi-evergreen vine thicket and dry rainforest species is present.

The proposed action will only be impacting potential supplementary foraging habitat and is avoiding preferred habitat that provides for all of the species' lifecycle needs. Therefore, the Project will not adversely affect habitat critical to the survival of the Black-breasted Button-quail.

CRITERION 5: DISRUPT THE BREEDING CYCLE OF AN IMPORTANT POPULATION

As determined by Criterion 1, an estimated 4 to 6 individuals, which are part of an important population of the Black-breasted Button-quail (the Yarraman-Nanango sub-population) reside within the Study area. These individuals may utilise the 7.1 ha of habitat to be impacted by the proposed action as a supplementary foraging resource.

Due to the absence of dense cover and understorey shelter within the regenerating Acacia and low vine forest habitat, the Black-breasted Button-quail is unlikely to breed and nest in this habitat, as it is too open and does not provide the required level of cover to successfully breed and nest.

A species management plan / program will be developed for the Black-breasted Button-quail. This plan will outline pre-clearing surveys by suitably qualified ecologists to search for potential nest sites and juvenile, Black-breasted Button-quails, and spotter-catcher procedures to handle any encountered eggs and juvenile birds. Even though the species is unlikely to breed in this habitat, the implementation of the above measures will significantly reduce the risk of impacting nests, eggs and juvenile, Black-breasted Button-quails.

Therefore, the proposed action is unlikely to disrupt the breeding cycle of an important sub-population of the species.

CRITERION 6: MODIFY, DESTROY, REMOVE OR ISOLATE OR DECREASE THE AVAILABILITY OR QUALITY OF HABITAT TO THE EXTENT THAT THE SPECIES IS LIKELY TO DECLINE

The approximately 7.1 ha of regenerating Acacia and low vine forest habitat and 1.2 ha of Hoop Pine Plantation buffer zone only provides potential marginal supplementary foraging resources for the Black-breasted Button-quail that permanently reside in the adjacent remnant vine forest habitat. Therefore, the clearing of 8.3 ha of potential supplementary foraging habitat, will not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

CRITERION 7: RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO A VULNERABLE SPECIES BECOMING ESTABLISHED IN THE VULNERABLE SPECIES' HABITAT

Being ground-nesters, Black-breasted Button-quail are affected by predation by cats, foxes and pigs although this may only pose a minor risk for this species (DAWE, 2022).

The Study area is occupied by feral cats and feral dogs (confirmed via motion sensor cameras), both of which are likely to predate on the Black-breasted Button-quail and its eggs. These pest animal species are already actively seeking prey through Yarraman State Forest and the Study area. The proposed action is not likely to increase the existing populations of feral cats and feral dogs and is not likely to facilitate the introduction of another invasive pest animal species.

CRITERION 8: INTRODUCE DISEASE THAT MAY CAUSE THE SPECIES TO DECLINE, OR INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

Not applicable, as there are no known diseases that are harmful to the Black-breasted Button-quail.

CRITERION 9: INTERFERE SUBSTANTIALLY WITH THE RECOVERY OF THE SPECIES

The *National Recovery Plan for the Black-breasted Button-quail Turnix melanogaster* (DERM, 2009) identifies six specific objectives to guide the recovery of the Black-breasted Button-quail, namely:

1. *Consolidate current knowledge and define assessment and monitoring strategies for Black-breasted Button-quail, including an assessment of current status throughout its range and clear definition of the habitats occupied by the species.*
2. *Protect key ecosystems/habitat that support populations of Black-breasted Button-quail from human induced threatening processes, thus maintaining current populations and habitats.*
3. *Maintain or improve the extent, condition (quality) and connectivity of Black-breasted Button-quail habitat.*
4. *Reduce the impacts of introduced predators and competitors.*
5. *Increase understanding of the ecology of the Black-breasted Button-quail.*
6. *Administer and review the operation of the recovery process.*

The National Recovery Plan for the Black-breasted Button-quail *Turnix melanogaster* also identifies management practices to protect the preferred habitat of the Black-breasted Button-quail. These species conservation practices are:

- *protection from fire incursions into preferred habitat;*
- *minimal thinning of preferred habitat to maintain habitat values;*
- *no roads through preferred habitat to prevent fragmentation;*
- *protection from stock trampling;*
- *retention of size and connectivity to neighbouring patches of suitable habitat (remnant and regrowth) and increase in connectivity;*
- *control of feral animals within and adjacent to suitable core habitat; and*
- *control of weeds, where these can impact on the ecology of the species.*

The proposed action will only be impacting potential supplementary foraging habitat and is avoiding preferred habitat that provides for all of the species lifecycle needs. The proposed action will also apply a suite of proposed mitigation measures to align with the specific objectives, in particular *Objectives 2 and 4*. A species management plan / program will be developed for the Black-breasted Button-quail. This plan will outline the requirements for pre-clearing surveys by suitably qualified ecologists to search for potential nest sites and juvenile Black-breasted Button-quails, and spotter-catcher procedures to handle any encountered eggs and juvenile birds. Therefore, the proposed action will not interfere with the recovery of the species.

CONCLUSION

The proposed action will remove approximately 7.1 ha of regenerating Acacia and low vine forest habitat and facilitate the removal of 1.2 ha of Hoop Pine plantation buffer zone habitat that only provides potential supplementary foraging resources for the Black-breasted Button-quail population that permanently reside in the adjacent remnant vine forest habitat. This will not adversely affect the resident population or place the species at risk of decline.

Therefore, the loss of this potential supplementary foraging habitat is of no consequence to the species over the medium to long-term and the proposed action is unlikely to have a significant impact on the Black-breasted Button-quail within the meaning of the Significant Impact Guidelines. Based on this outcome, an EPBC Referral for the proposed action is not required.

D1.4 Migratory bird species

D1.4.1 Black-faced Monarch (Monarcha melanopsis)

Conservation status

The Black-Faced Monarch is listed as Migratory under the EPBC Act.

Likelihood of occurrence

The Black-faced Monarch was recorded in the Study area for the proposed action.

Distribution

The Black-faced Monarch is recorded in Papua New Guinea; from Merauke and the Trans-Fly Region; north to the Star Mountains and the Hindenberg Range; also, around Finschhafen, and from Port Moresby east to the Louisiade Archipelago (DAWE, 2022a).

They are widespread in eastern Australia, and in Queensland are widespread from the islands of the Torres Strait and on Cape York Peninsula, south along the coasts (occasionally including offshore islands) and the eastern slopes of the Great Divide, to the New South Wales border. Specific locations where breeding has been recorded includes: Julatten south to the Paluma Range and inland to the Atherton Tableland, and from -26° South in south-eastern Queensland to near Lakes Entrance, Victoria (DAWE, 2022a).

Habitat

The Black-faced Monarch mainly occurs in rainforest ecosystems, including:

- Semi-deciduous vine-thickets
- Complex notophyll vine-forest
- Tropical mesophyll rainforest
- Subtropical notophyll rainforest
- Mesophyll thicket/shrubland
- Warm temperate rainforest
- Dry (monsoon) rainforest
- Occasionally cool temperate rainforest.

The species also occurs in selectively logged and 20 to 30 year old regrowth rainforest, and is also sometimes found in nearby open eucalypt forests (mainly wet sclerophyll forests), especially in gullies with a dense, shrubby understorey as well as in dry sclerophyll forests and woodlands, often with a patchy understorey. They particularly occur in marginal habitats during winter or during passage. They may also be found in gullies of mountain areas or coastal foothills, softwood scrub dominated by Brigalow (*Acacia harpophylla)*, coastal scrub dominated by Coast Banksia (*Banksia integrifolia*) and Southern Mahogany (*Eucalyptus botryiodes*), occasionally among mangroves, and sometimes in suburban parks and gardens (DAWE, 2022a).

Ecology

Black-faced Monarchs are usually seen singly or in pairs, however, during migration they sometimes join flocks of mixed species. The species exhibits migratory behaviour, leaving Australia to winter in Papua New Guinea between February and August, although some immature birds may remain in Australia over winter. In Queensland, birds usually leave between February and May (DAWE, 2022a).

The Black-faced Monarch feeds mostly in rainforest but also in open eucalypt forest. They are thought to be predominantly insectivorous, and are known to eat spiders, beetles, sawflies and wasps, grasshoppers, bugs, cicadas and lerps, moths and caterpillars, flies, and dragonflies. They forage at all vertical levels of the forest, though most often at low or middle levels, within 6 m of the ground. They collect most prey from the foliage, branches and crevices of trees and shrubs, but may also catch prey in the air. They very rarely feed on the ground, or from the trunks of trees and from loose bark (DAWE, 2022a).

The Black-faced Monarch breeds from October to March, with regional variation in the timing of egg laying. In north-east Queensland between Cooktown and Bowen, eggs are laid from November to January, and in south-east Queensland, eggs are laid from October to December and possibly into January. They breed in rainforest habitat, and generally nest near the top of trees with large leaves, in the tops of small saplings, or in lower shrubs, and may also occasionally nest on horizontal branches with thin lateral twigs or shoots (DAWE, 2022a).

Threats

The current threats listed for the Black-faced Monarch are associated with individuals occasionally colliding with windows and lighthouses (DAWE, 2022a).

D1.4.2 Rufous Fantail (Rhipidura rufifrons)

Conservation status

The Rufous Fantail is listed as Migratory under the EPBC Act.

Likelihood of occurrence

The Rufous Fantail was recorded within the Study area for the proposed action.

Distribution

The Rufous Fantail is widespread from the Mariana Islands, south through Yap (Caroline Islands), to Sulawesi, the Moluccas and Lesser Sundas, east through southern Papua New Guinea, Louisiade Archipelago and Santa Cruz, to the Solomon Islands and Micronesia, and south to Australia (DAWE, 2022b).

In Australia, it occurs in coastal and near-coastal districts of northern and eastern Australia. Breeding populations occur on and east of the Great Divide, occurring as far south/west as the South Australia-Victoria Border and as far north as the Cairns-Atherton region, Queensland. Rufous Fantails winter farther north from Cape York Peninsula in Queensland to Torres Strait and southern Papua New Guinea (DAWE, 2022b).

Habitat

In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts with a dense shrubby understorey often including ferns. They also occur in subtropical and temperate rainforests, and occasionally occur in secondary vine thickets or thickets of Paperbarks (*Melaleuca* spp.) (DAWE, 2022b).

The Rufous Fantail occasionally occurs in secondary regrowth, following logging or disturbance in forests or rainforests. They are sometimes recorded in parks and gardens when on migratory passage, as well as drier sclerophyll forests and woodlands, including Spotted Gum (*Eucalyptus citriodora*), Yellow Box (*E. melliodora*), ironbarks or stringybarks, often with a shrubby or heath understorey (DAWE, 2022b).

Ecology

The Rufous Fantail is usually seen singly or in pairs, but occasionally in small groups. They are migratory and virtually absent from south-east Australia in winter, leaving in March to early April and arriving back in September to November. Most spend the winter in coastal lowlands and off-shore islands in south-east Queensland and north to Cape York Peninsula and Torres Strait Island, although few remain in all months (DAWE, 2022b).

The Rufous Fantail is insectivorous, feeding on spiders and insects such as beetles, flies, mosquitoes, aphids, butterflies, bees, wasps and ants. They forage mainly in the low to middle strata of forests, sometimes in or below the canopy or on the ground; in northern Australia they also forage in mangroves. They mostly forage aerially by sallying, but also glean food items from foliage and occasionally from the ground and fallen debris (DAWE, 2022b).

The Rufous Fantail breeds from about September to February, with 81% of eggs laid November-December. At elevations of >600 m above sea level in south-east Australia, they breed from November to January. They lay 2-4 eggs in a small, cup-shaped nest, usually made from grass, roots, fine strips of bark, plant-fibre, decayed wood, moss and spider web. Nests are placed in a tree, shrub, or vine between 0.34-6.0 m (average 1.6 m), in a variety of plant species (DAWE, 2022b

Threats

The current threats listed for the Rufous Fantail are fragmentation and loss of core moist forest breeding habitat through land clearing and urbanisation (DAWE, 2022b).

D1.4.3 Spectacled Monarch (Symposiachrus trivirgatus)

Conservation status

The Spectacled Monarch is listed as Migratory under the EPBC Act.

Likelihood of occurrence

The Spectacled Monarch was not recorded within the Study area or the adjacent K2E ASA during field surveys but has been assessed as having a high likelihood of occurring in the Project footprint.

Distribution

The Spectacled Monarch has a large range, and occurs throughout Australia, Indonesia, Papua New Guinea, and Timor-Leste. In Australia, it is found along coastal regions east of the Great Dividing Range, from the Taree region (New South Wales) in the south to Cape York (Queensland) in the north (BirdLife International 2017).

Habitat

The Spectacled Monarch occurs in rainforest, mangroves, and moist gloomy gullies of dense eucalypt forest (Morcombe, 2011). Habitat types include:

- Subtropical/tropical dry forest
- Subtropical/moist lowland forest
- Subtropical/tropical mangrove vegetation above the high tide level
- Subtropical/tropical moist shrubland
- Artificial terrestrial urban areas (BirdLife International 2017).

Ecology

The Spectacled Monarch is insectivorous, and forages mostly below the canopy in foliage and on tree trunks and vines (Morcombe, 2011).

The Spectacled Monarch is migratory and is resident to north-east Queensland and a summer breeding migrant further south. They breed from September to February, laying two eggs in a cup shaped nest made of thin strips of bark, leaf skeletons, and moss bound with cobweb. The outside of the nest is decorated with a light covering of bright green moss and white silken spiders' cocoons and lined with black thread like fibre or fine dry grasses. Nests often located in a slender, upright fork or between the upright stems of a vine 1-4 m high, in dense scrub in gullies of coastal ranges (Morcombe, 2011).

Threats

There are no current threats listed for the Spectacled Monarch (BirdLife International 2017).

D1.4.4 Potential Project-related impacts

The potential Project-related impacts to the Black-Faced Monarch, Rufous Fantail and Spectacled Monarch are associated with habitat loss in association with land clearing.

Approximately 7.1 ha of regenerating Acacia and low vine forest habitat that provides potential habitat for the Black-Faced Monarch, Rufous Fantail and Spectacled Monarch, will be impacted by the proposed action.

D1.4.5 Migratory birds Significant impact assessment

As the Black-faced Monarch, Rufous Fantail and Spectacled Monarch are all supported by the regenerating Acacia and low vine forest habitat to be impacted by the proposed action, they have been assessed together in one significant impact assessment.

The following assessment has been undertaken following the *Matters of National Environmental Significance, Significant Impact Guidelines 1.1* (Department of the Environment, 2013).

AN ACTION IS LIKELY TO HAVE A SIGNIFICANT IMPACT ON A MIGRATORY SPECIES IF THERE IS A REAL CHANCE OR POSSIBILITY THAT IT WILL:

CRITERION 1: SUBSTANTIALLY MODIFY (INCLUDING BY FRAGMENTING, ALTERING FIRE REGIMES, ALTERING NUTRIENT CYCLES OR ALTERING HYDROLOGICAL CYCLES), DESTROY OR ISOLATE AN AREA OF IMPORTANT HABITAT FOR A MIGRATORY SPECIES

An area of *'important habitat for a migratory species'* is defined by the Significant Impact Guidelines as:

- **a** *habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or*
- **b** *habitat that is of critical importance to the species at particular life-cycle stages, and/or*
- **c** *habitat utilised by a migratory species which is at the limit of the species range, and/or*
- **d** *habitat within an area where the species is declining.*

The 7.1 ha regenerating Acacia and low vine forest habitat within the extent of the Project footprint, which is being used by the migratory species recorded (Black-faced Monarch and Rufous Fantail) and may be used by the species likely to occur (Spectacled Monarch), is a in a degraded but regenerative state and provides potential habitat for the three migratory bird species. The migratory species of relevance only use this habitat seasonally as part of their annual migration patterns for foraging, roosting, nesting and breeding.

This habitat is 7.1 ha in extent and only supports a small number of Black-faced Monarch and Rufous Fantail, and possibly individuals of Spectacled Monarch, which are not significant proportions of each species population. Even

though this habitat provides potential foraging, roosting, nesting and breeding habitat resources for the relevant migratory species, the lower habitat value of this habitat in comparison to the more contiguous habitats in the Locality and further afield, is not of critical importance to each species for all of their respective life-cycle stages.

Furthermore, the location of the proposed action is not at the limit of any of the three-species' known range or in a location where they are currently declining. All three species are relatively common in Australia, and Australia provides a seasonal stronghold for each species, in particular during the breeding season.

The proposed action will clear 7.1 ha of habitat for the Black-faced monarch and Rufous Fantail (both recorded), and potential habitat for the Spectacled Monarch (high likelihood of occurrence), but is unlikely to alter fire regimes, nutrient cycles or hydrological cycles, and is unlikely to isolate an area of important habitat, such as the larger contiguous habitats within Yarraman State Forest, the Locality and within their respective distributions in Australia.

Therefore, the proposed action is unlikely to substantially modify, by means of fragmentation beyond that already present, or destroy or isolate important habitat that support these highly mobile species.

CRITERION 2: RESULT IN AN INVASIVE SPECIES THAT IS HARMFUL TO THE MIGRATORY SPECIES BECOMING ESTABLISHED IN AN AREA OF IMPORTANT HABITAT FOR THE MIGRATORY SPECIES

The Study area does contain feral cats, which are likely to predate the Black-faced Monarch, Rufous Fantail and Spectacled Monarch and their eggs. The feral cat is already actively seeking prey through Yarraman State Forest and the Study area. Therefore, the proposed action is not likely to increase the existing populations of feral cats and is not likely to facilitate the introduction of another invasive pest animal species harmful to these migratory bird species.

No weed species are known to be harmful to the Black-faced Monarch, Rufous Fantail and Spectacled Monarch.

CRITERION 3: SERIOUSLY DISRUPT THE LIFECYCLE (BREEDING, FEEDING, MIGRATION OR RESTING BEHAVIOUR) OF AN ECOLOGICALLY SIGNIFICANT PROPORTION OF THE POPULATION OF A MIGRATORY SPECIES.

The Black-faced Monarch, Rufous Fantail and Spectacled Monarch are widespread and abundant in Australia, which provides them with a comparatively greater level of conservation security than what they may have in the other countries they reside during their annual migratory movements.

Each species' migratory behaviour, effective dispersal mechanisms and the availability of a wide range of adjacent contiguous habitat within the wider Study area and Locality, means that the 7.1 ha of regenerating Acacia and low vine forest habitat and remnant low vine forest habitat to be impacted by the proposed action supports only a small portion of larger ecologically significant populations of each species within this region of Australia. Therefore, the 7.1 ha of habitat to be impacted by the proposed action, is not likely to support an ecologically significant proportion of the larger populations of these migratory bird species.

CONCLUSION

An assessment of the above criteria has determined that the migratory populations of Black-faced Monarch, Rufous Fantail and Spectacled Monarch that have been recorded or are likely to occur in the regenerating Acacia and low vine forest habitat and remnant low vine forest habitat, are not ecologically significant proportions of each species population in the region or nationally. The proposed action is unlikely to substantially modify, by means of fragmentation beyond that already present, or destroy or isolate important habitat that supports (i.e. recorded Black-faced Monarch and Rufous Fantail) or may support (i.e. high likelihood of occurring Spectacled Monarch), local populations of these highly mobile migratory bird species.

In summary, the proposed action is unlikely to have a significant impact on the Black-faced Monarch, Rufous Fantail and/or Spectacled Monarch within the meaning of the Significant Impact Guidelines.

D2. EO Act significant residual impact assessments

To determine if the proposed action is likely to result in a significant impact on Protected Wildlife (threatened fauna species) listed under the *Nature Conservation Act 1992* (NC Act), significant residual impact assessments (SRIAs) have been conducted for the MSES threatened species, which are not also listed as MNES. The threatened species requiring significant residual impact assessments in accordance with the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline* (DEHP, 2014), include:

1. *Rhodamnia dumicola* (Rib-fruited Malletwood), listed as Endangered under the NC Act
2. Powerful Owl (*Ninox strenua*), listed as Vulnerable under NC Act
3. Short-beaked Echidna (*Tachyglossus aculeatus*) listed as Special Least Concern under NC Act.

The purpose of the SRIA is to assist DES assessing officers in the decision as to whether or not a prescribed activity will have a significant residual impact on an MSES, and whether an environmental offset condition may be imposed under the *Environmental Offsets Act 2014* (EO Act). The EO Act places limits on when a condition may be imposed and provides subsequent assessment, delivery and compliance with offset conditions once imposed.

D2.1 Project description

The extent (hectares) of potential Project-related impacts used for the significant impact assessments is based upon the current extent of the Project footprint where ground disturbance is to occur for the Project. Potential impacts associated with the Project are presented in Section 6, while the suite of proposed mitigation measures is presented in Section 7, which have collectively informed the SRIAs.

D2.2 Significant residual impact assessment definitions

The SRI Guideline provides definitions for '*habitat,*' '*long-term decrease,*' '*extent of occurrence,*' '*local population,*' and '*population*' applicable to the SRIA. These definitions are key considerations when conducting a SRIA for protected wildlife habitat supporting a threatened species listed as Endangered, Vulnerable or Special Least Concern under the NC Act. The definition of each is presented below.

D2.2.1 Habitat

Habitat is the area occupied, or periodically or occasionally occupied, by any species, population or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycles.

D2.2.2 Long-term decrease

Long-term decrease means any decline in a local population that is greater than which would be apparent without the action being present.

D2.2.3 Population

Population for a species is defined as an occurrence of the species in a particular area. In relation to endangered, vulnerable and special least concern species, occurrences include but are not limited to:

1. *a geographically distinct regional population, or collection of local populations; or*
2. *a population, or collection of local populations, that occurs within a particular bioregion.*

D2.3 Endangered species

D2.3.1 *Rhodamnia dumicola (Rib-fruited Malletwood)*

Conservation status

Rhodamnia dumicola is listed as Endangered under the NC Act.

Rhodamnia dumicola has been assessed as having a moderate likelihood of occurring in the Study area and low likelihood of occurring within potential regenerating Acacia and low vine forest habitat within the Project footprint. Targeted protected plant flora surveys did not record *Rhodamnia dumicola* within regenerating the Acacia and low vine forest habitat in the Project footprint. Three *Rhodamnia dumicola* individuals were recorded from adjacent remnant semi-evergreen vine thicket and dry rainforest habitat during field surveys. *Rhodamnia dumicola* was also recorded within the K2E ASA during studies undertaken for the K2E Project.

Approximately 7.1 ha of State mapped essential habitat for *Rhodamnia dumicola* will be impacted by the Project, hence triggering this significant residual impact assessment.

Distribution

Endemic to Queensland, *Rhodamnia dumicola* occurs north of the Beenleigh area (BRAIN, 2022).

Habitat

Rhodamnia dumicola inhabits dry rainforest (BRAIN, 2022).

Ecology

Flowers appear during spring to summer with fruit ripening April to May (BRAIN, 2022). Very little other information is known about the ecology of *Rhodamnia dumicola.*

Threats

Rhodamnia dumicola is highly susceptible to the disease Myrtle Rust (Logan City Council, n.d.). No other threats are recognised by the State Government or other web-based sources for *Rhodamnia dumicola*. It is however likely that land clearing is a key threat to the species.

Potential Project-related impacts

The potential Project-related impacts to the *Rhodamnia dumicola* are associated with habitat loss in association with land clearing for the proposed action.

Approximately 7.1 ha of State mapped essential habitat for *Rhodamnia dumicola* will be impacted by the proposed action.

D2.3.2 *Rhodamnia dumicola Significant Residual Impact Assessment*

The following assessment has been undertaken following the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline* (DES, 2014).

AN ACTION IS LIKELY TO HAVE A SIGNIFICANT IMPACT ON ENDANGERED AND VULNERABLE WILDLIFE IF THE IMPACT ON THE HABITAT IS LIKELY TO:

CRITERION 1 – LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A LOCAL POPULATION; OR

The area of State mapped essential habitat for *Rhodamnia dumicola* within the Project footprint is associated with regenerating Acacia and low vine forest habitat, which had been previously cleared and is in a degraded state compared to adjacent remnant habitats. Targeted surveys for the species for the species, did not record the species within the Project footprint. Three individuals of the species were however recorded in remnant vegetation outside of the Project footprint

during the protected plant flora survey. These *Rhodamnia dumicola* individuals will not be directly impacted by the proposed action.

Therefore, it is unlikely that the Project would lead to a long-term decrease in the size of a local of a population of the *Rhodamnia dumicola.*

CRITERION 2 – REDUCE THE EXTENT OF OCCURRENCE OF THE SPECIES; OR

The area of State mapped essential habitat for *Rhodamnia dumicola* within the Project footprint is associated with regenerating Acacia and low vine forest habitat, which had been previously cleared and is in a degraded state compared to adjacent remnant habitats. Targeted surveys for the species, did not record this species within the Project footprint. Three individuals of the species were recorded within remnant vegetation outside of the Project footprint during the protected plant flora survey. While the species is present within the Study area, no individuals of *Rhodamnia dumicola* are proposed to be cleared. Therefore, the Project is unlikely to reduce the extent of occurrence of *Rhodamnia dumicola*.

CRITERION 3 – FRAGMENT AN EXISTING POPULATION; OR

Targeted surveys for *Rhodamnia dumicola* did not record the species within the potential regenerating Acacia and low vine forest habitat within the Project footprint. The Project is unlikely to fragment an existing population of *Rhodamnia dumicola* as this species will not be cleared for the proposed action.

CRITERION 4 – RESULT IN GENETICALLY DISTINCT POPULATIONS FORMING AS A RESULT OF HABITAT ISOLATION; OR

Targeted surveys for *Rhodamnia dumicola,* did not record the species within the potential regenerating Acacia and low vine forest habitat associated within the Project footprint. As clearing of *Rhodamnia dumicola* will not occur from the proposed action, it is unlikely to result in genetically distinct populations forming as a result of habitat isolation.

CRITERION 5 – RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO AN ENDANGERED OR VULNERABLE SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR VULNERABLE SPECIES' HABITAT; OR

The area of State mapped essential habitat where impacts are to occur, is already subject to weed invasion (e.g. Lantana). The Project's clearing of regenerating Acacia and low vine forest habitat associated with the State mapped essential habitat, could result in invasive weeds colonising the species potential habitat. However, weed management measures will be applied to all areas of disturbance, which may reduce the current level of weed presence and invasion in the State mapped essential habitat. Additionally, an Impact Mitigation Plan and biosecurity measures will be implemented to minimise the risk of spread of invasive plants within the Project footprint.

As a result of mitigation measures to be employed, the proposed action is unlikely to result in the establishment of an invasive species that could be harmful to *Rhodamnia dumicola*.

CRITERION 6 – INTRODUCE DISEASE THAT MAY CAUSE THE POPULATION TO DECLINE, OR

Myrtle Rust is a recognised disease for *Rhodamnia dumicola,* which may cause the species population to decline. However, an Impact Mitigation Plan and biosecurity measures will be implemented to minimise the risk of spread of diseases within the Project footprint. Therefore, it is unlikely that the proposed action would introduce a disease like Myrtle Rust that could cause the population to decline.

CRITERION 7 – INTERFERE WITH THE RECOVERY OF THE SPECIES; OR

There is no recovery plan for *Rhodamnia dumicola.* However, as no *Rhodamnia dumicola* will be cleared by the proposed action, it is unlikely to interfere with the recovery of species.

CRITERION 8 – CAUSE DISRUPTION TO ECOLOGICALLY SIGNIFICANT LOCATIONS (BREEDING, FEEDING, NESTING, MIGRATION OR RESTING SITES) OF A SPECIES.

The proposed action is unlikely to disrupt ecologically significant locations for the species within the wider Study area or Yarraman State Forest where more viable habitats for the species may occur.

CONCLUSION

No individuals of *Rhodamnia dumincola* were recorded from the 7.1 ha of regenerating Acacia and low vine forest habitat within the Project footprint where *Rhodamnia dumicola* is predicted to occur. Three *Rhodamnia dumicola* individuals were recorded from within adjacent remnant habitat. These *Rhodamnia dumicola* individuals will not be cleared by the proposed action, and as such the proposed action is unlikely to have a significant residual impact on *Rhodamnia dumicola* within the meaning of the SRI Guideline.

D2.4 Vulnerable species

D2.4.1 Powerful Owl (Ninox strenua)

Conservation status

The Powerful Owl is listed as Vulnerable under the NC Act.

The Powerful Owl was recorded within the Study area during field surveys for the adjacent K2E Project. As such, it has been assessed as having a moderate likelihood of occurring in the Project footprint.

Distribution

The Powerful Owl occurs in eastern and south-eastern Australia from Mackay to south-western Victoria and is predominantly found on the eastern side of the Great Dividing Range. Known occurrence areas in south-east Queensland include the Burringbar-Conondale Ranges and the Scenic Rim (OEH, 2022).

Habitat

The Powerful Owl is found in a range of habitats, from woodland and open sclerophyll forest to tall open wet forest and rainforest. They require large tracts of forest or woodland, however may also be found in fragmented habitats (OEH, 2022).

Powerful Owls prefer tall wet forests of ranges around densely vegetated gullies with dense understories, particularly along watercourses (OEH, 2022; Morcombe, 2011). They may also be found marginally in lower or drier forest that holds both prey and large hollows, or open areas near forests such as farmland, parks and suburban areas, and remnant bushland patches (Morcombe, 2011; Australian Museum, 2022).

Ecology

Powerful Owls are nocturnally active, and roost during the day in dense vegetation. The main prey items for Powerful Owls include medium sized arboreal marsupials, particularly the Common Ringtail Possum (*Pseudocheirus pererinus*), Greater Glider (*Petauroides volans*) and Sugar Glider (*Petaurus breviceps*). They will also feed on Flying Foxes and birds. Hollow bearing trees are key habitat components for the Powerful Owl as their preferred prey items are predominately hollow dependent arboreal mammals, and Powerful Owls require large tree hollows for breeding (OEH, 2022).

Powerful Owls are sedentary and uncommon, and breeding pairs require large territories varying in size from 400 to 4000 ha, depending on habitat quality and prey availability (OEH, 2022). Breeding pairs are monogamous, with the breeding season occurring from April to September (Morcombe, 2011). Powerful Owls nest in large tree hollows at least 0.5 m deep, in large eucalypts that are at least 150 years old and 80-240 cm in diameter at breast height (OEH, 2022). They prefer nesting trees located on a hillside or head of a gully and lay a clutch of 1-2 eggs with chicks fledging at around 8 weeks of age (Morcombe, 2011).

Threats

Current threats listed for the Powerful Owl are:

- land clearing for residential and agricultural development, resulting in fragmentation and loss of suitable habitat and prey species habitat

- inappropriate forest harvesting resulting in changed forest structure and loss of old growth hollow bearing trees required for breeding
- vehicle strike
- secondary poisoning by consuming poisoned prey species; and
- predation of fledglings by foxes, dogs and cats (OEH, 2022).

Potential Project-related impacts

The potential Project-related impacts to the Powerful Owl are associated with habitat loss in association with land clearing.

Approximately 7.1 ha of regenerating Acacia and low vine forest habitat that provides potential foraging habitat for the Powerful Owl, will be impacted by the proposed action.

D2.4.2 Powerful Owl Significant Residual Impact Assessment

The following assessment has been undertaken following the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline* (DES, 2014).

AN ACTION IS LIKELY TO HAVE A SIGNIFICANT IMPACT ON ENDANGERED AND VULNERABLE WILDLIFE IF THE IMPACT ON THE HABITAT IS LIKELY TO:

CRITERION 1 – LEAD TO A LONG-TERM DECREASE IN THE SIZE OF A LOCAL POPULATION; OR

The seasonal fauna surveys recorded the Powerful Owl visually and via call playback in winter 2017 and again via call playback in summer 2018. At least one Powerful Owl or a breeding pair is residing permanently in Yarraman State Forest. The Project only provides foraging and temporary roosting habitat for the Powerful Owl within the regenerating Acacia and low vine forest habitat, which it would be using as part of a larger home range anywhere from 400 ha (high quality habitat) to 4,000 ha (poor quality habitat) (OEH, 2022).

The Powerful Owl within Yarraman State Forest would be part of local population within the Locality, such as Tarong National Park and Tarong State Forest, and other large contiguous habitats in the Locality. This local population would be just one of several Powerful Owl sub-populations within the SEQ Bioregion.

The Powerful Owl is unlikely to use the regenerating Acacia and low vine forest habitat as a nesting and breeding resource, as there are no large hollow bearing trees present in this habitat. The proposed action will only impact 7.16 ha of potential foraging habitat and will be avoiding viable roosting and breeding habitat, located in the woodland habitats of the wider Study area. Therefore, it is unlikely that the proposed action would lead to a long-term decrease in the size of a local of a population of the Powerful Owl.

CRITERION 2 – REDUCE THE EXTENT OF OCCURRENCE OF THE SPECIES; OR

The potential population identified within the Study area (perhaps one breeding pair) would form part of a larger population at the Local and regional scales within the SEQ Bioregion. This larger population is distributed in areas of suitable habitat across the species' known extent of occurrence within the SEQ Bioregion, which extends in all directions from the Study area.

In the context of the total extent of occurrence of the species where viable habitats occur (foraging, roosting, nesting and breeding), the removal of potential foraging and temporary roosting habitat only (avoiding nesting and breeding habitat) is unlikely to reduce the extent of occurrence of this highly mobile bird species.

CRITERION 3 – FRAGMENT AN EXISTING POPULATION; OR

The habitat supported by the Study area is within a fragmented and historically disturbed landscape (i.e. timber production, agriculture, mining and power generation). The Yarraman State Forest and patches of other contiguous

habitat within the Locality, being Tarong National Park and Tarong State Forest, collectively support the local Powerful Owl population.

The documented home range for the Powerful Owl is relatively large with a home range in the order of 400 ha in good quality habitat to 4,000 ha in poor quality habitat (OEH, 2022). The 7.1 ha of habitat (foraging and temporary roosting only) is only a small portion of the more viable habitat for foraging, roosting, nesting and breeding distributed throughout the wider Study area and Locality that is being actively used by the resident population.

Connectivity of natural habitats between the Study area and Yarraman State Forest is at the micro scale via regenerating Acacia and low vine forest habitat. This habitat currently provides potential foraging and temporary roosting habitat for the Powerful Owl. The proposed action will clear 7.1 ha of this habitat for the 60 m wide transmission line corridor, and in doing so the habitat will not be fragmented and is not likely to fragment population(s) of the Powerful Owl into two or more isolated populations.

CRITERION 4 – RESULT IN GENETICALLY DISTINCT POPULATIONS FORMING AS A RESULT OF HABITAT ISOLATION; OR

The Powerful Owl is a large bird capable of dispersing when seeking habitat to reside. The 7.1 ha of foraging habitat to be impacted by the proposed action is not isolated, nor will the impact create isolation of habitat. Therefore, due to the species being highly mobile and due to the proposed action not isolating habitat, it is unlikely the proposed action would result in the creation of genetically distinct isolated populations.

CRITERION 5 – RESULT IN INVASIVE SPECIES THAT ARE HARMFUL TO AN ENDANGERED OR VULNERABLE SPECIES BECOMING ESTABLISHED IN THE ENDANGERED OR VULNERABLE SPECIES' HABITAT; OR

The Powerful Owl is an apex predator and is unlikely to be harmed by invasive animal species, such as feral cats or feral dogs, which are already present in the Study area. Furthermore, competition for prey (e.g. possums) from feral cats or feral dogs, within the context of the Study area is negligible, as the Powerful Owl predates arboreal prey, while the feral cat is mainly limited to ground dwelling prey, and feral dog is entirely limited to ground dwelling prey.

CRITERION 6 – INTRODUCE DISEASE THAT MAY CAUSE THE POPULATION TO DECLINE, OR

There are no known diseases that affect the Powerful Owl, which may cause the species population to decline.

CRITERION 7 – INTERFERE WITH THE RECOVERY OF THE SPECIES; OR

The *Recovery Plan for the Large Forest Owls* (DoEC, 2006), prepared by the New South Wales Government, is considered relevant to the Powerful Owl in the context of south-east or southern Queensland. Of the recovery plan's eight objectives, the following two objectives are relevant to the proposed action:

- ensure the impacts on large forest owls and their habitats are adequately assessed during planning and environmental assessment processes; and
- minimise further loss and fragmentation of habitat by protection and more informed management of significant owl habitat (including protection of individual nest sites).

Targeted surveys were conducted for the Powerful Owl as part of the impact assessment and the more important breeding habitat for the Powerful Owl, especially roosting and breeding resources in large mature hollow bearing trees located in the woodland habitats of the wider Study area, which are being avoided by the proposed action. In doing so, the proposed action aligns with these key objectives of the recovery plan.

CRITERION 8 – CAUSE DISRUPTION TO ECOLOGICALLY SIGNIFICANT LOCATIONS (BREEDING, FEEDING, NESTING, MIGRATION OR RESTING SITES) OF A SPECIES.

The proposed action will impact 7.1 ha of foraging and temporary roosting habitat for the Powerful Owl. Viable nesting and breeding habitat will be avoided. It is therefore unlikely that the proposed action will cause disruption to any ecologically significant location for the Powerful Owl, such as the wider Study area and Yarraman State Forest that supports all the species life cycle requirements (foraging, roosting and breeding).

CONCLUSION

The 7.1 ha of Powerful Owl habitat to be impacted by the proposed action, may only be used by the species as a foraging and temporary roosting resource, as part of a larger home range. It does not support nesting and breeding resources.

While the Project will incrementally increase (by 7.1 ha) the loss of Powerful Owl habitat at the local, subregional and regional scales, the proposed action is generally mostly associated with periodically disturbed areas (forestry plantations), and it is not likely to further fragment or isolate Powerful Owl habitat or be detrimental to the long-term persistence of a local population of the species. In addition, the potentially affected habitat is unlikely to be important for the conservation of the local Powerful Owl population over the long-term.

In summary, the proposed action is unlikely to have a significant residual impact on the Powerful Owl within the meaning of the SRI Guideline.

D2.5 Special Least Concern species

D2.5.1 Short-beaked Echidna (Tachyglossus aculeatus)

Conservation status

The Short-beaked Echidna is listed Special Least Concern under the NC Act.

The Short-beaked Echidna was recorded in the Study area during field surveys for the adjacent K2E Project.

Distribution

The Short-beaked Echidna is widespread and found throughout mainland Australia, including Tasmania. They have also been found in southern New Guinea (ALA, 2022).

Habitat

The Short-beaked Echidna is primarily insectivorous, preferring ants and termites and can live anywhere with a good supply of food. In Australia, this predominantly includes forested areas containing termite filled fallen logs and terrestrial termite mounds. They also occur in agricultural areas containing uncleared scrub, grasslands, arid areas, and outer suburbs of capital cities (ALA, 2022).

They are not territorial, however have a home range of between 21 and 93 ha with a mean range of 40 to 60 ha, although one study on Kangaroo Island reported that the range was found to be between 9 and 192 ha. The home range areas of individuals may overlap (ALA, 2022).

Ecology

Five subspecies of the Short-beaked Echidna exist in different geographical locations, with *Tachyglossus aculeatus aculeatus* present in Queensland, New South Wales, South Australia and Victoria (ALA, 2022).

Short-beaked Echidnas are typically active during the daytime, although are known to become crepuscular or nocturnal during periods of warm weather to avoid heat during the day. When not foraging, they will shelter by digging burrows, or utilise fallen logs. They are primarily insectivorous and will forage by digging through terrestrial termitaria for termites, and digging through soil for ants, scarab beetle larvae, beetles and earthworms (ALA, 2022).

In cold and temperate regions, they will go into deep torpor and hibernation in covered shelter during the winter, with preparation for hibernation beginning between February and April, and hibernation finishing between June and October. Short-beaked Echidnas are solitary animals, and only meet during breeding season for courtship pursuits and mating. They breed between June and September, although precise mating time is geographically variable. Females will lay one egg a year, which is transferred directly in to a small, backwards facing pouch on the abdomen where the egg will also hatch. The young remain in a constructed nursery burrow until they are 6 months old, when they leave and have no further contact with the mother (ALA, 2022).

Threats

Threats listed for the Short-beaked Echidna include:

- vehicle strike
- habitat destruction caused by land clearing, where no fallen timber is left
- predation by Goannas, Dogs, Cats and Foxes
- hunting and eating of the species in New Guinea; and
- fatal infection by the parasitic tapeworm *Spirometra erinaceieuropaei*, transmitted to drinking water by dogs, cats and foxes (ALA, 2019)

Potential Project-related impacts

The potential Project-related impacts to the Short-beaked Echidna are associated with habitat loss in association with land clearing.

Approximately 7.1 ha of regenerating Acacia and low vine forest habitat that provides potential habitat for the Short-beaked Echidna, will be impacted by the proposed action.

D2.5.2 Short-beaked Echidna Significant Residual Impact Assessment

The following assessment has been undertaken following the Queensland Environmental Offsets Policy Significant Residual Impact Guideline (DES, 2014).

AN ACTION IS LIKELY TO HAVE A SIGNIFICANT IMPACT ON A SPECIAL LEAST CONCERN (NON-MIGRATORY) ANIMAL WILDLIFE HABITAT IF IT IS LIKELY THAT IT WILL RESULT IN:

CRITERION 1: A LONG-TERM DECREASE IN THE SIZE OF A LOCAL POPULATION; OR

The Short-beaked Echidna was recorded by several motion sensor cameras within the Study area during field surveys for the adjacent K2E Project. The Short-beaked Echidna is common and relatively abundant throughout its known distribution. There is likely to be a robust and healthy population of the Short-beaked Echidna within the Study area, Yarraman State Forest and Locality, which are associated with the relatively large contiguous habitats that connect to the Study area.

The clearing of 7.1 ha of regenerating Acacia and low vine forest habitat, which provides a portion of the overall habitat available for the local population of Short-beaked Echidna, is relatively small in comparison to what is available through the wider Study area, Yarraman State Forest and Locality. Therefore, the proposed action is unlikely to lead to a long-term decrease in the size of the local population.

CRITERION 2: A REDUCED EXTENT OF OCCURRENCE OF THE SPECIES; OR

The population identified within the Study area would form part of a larger local population. This larger population is distributed in areas of suitable like habitat throughout the Locality, which extends in all directions from the Study area.

In the context of the total extent of occurrence of the species where viable non-plantation habitats occur within the Locality, such as Yarraman State Forest, Tarong National Park and Tarong State Forest, the removal of 7.1 ha of habitat, is unlikely to reduce the overall extent of occurrence of the Short-beaked Echidna at the local scale.

The forestry Hoop Pine plantations are likely to be only used by the species as transitory / refuge habitat, when moving between habitats that provide viable prey resources (diversity of invertebrates) in the regenerating Acacia and low vine forest habitat.

CRITERION 3: FRAGMENTATION OF AN EXISTING POPULATION; OR

The habitat supported by the Study area is within a fragmented and historically disturbed landscape (i.e. timber production, agriculture, mining and power generation). The Yarraman State Forest and patches of other contiguous habitat within the Locality, being Tarong National Park and Tarong State Forest, collectively support the local Short-beaked Echidna population.

The 7.1 ha of habitat is only a small portion of the more viable habitat distributed throughout the wider Study area and Locality that would be used by the local population at the Locality scale.

Connectivity of natural habitats between the Study area and Yarraman State Forest is at the micro scale via regenerating Acacia and low vine forest habitat. This habitat currently provides potential foraging and temporary roosting habitat for the Short-beaked Echidna. The proposed action will clear 7.1 ha of this habitat for the 60 m wide transmission line corridor, and in doing so the remaining regenerating Acacia and low vine forest habitat will not be fragmented and is not likely to fragment population(s) of the Short-beaked Echidna into two or more isolated populations.

CRITERION 4: RESULT IN GENETICALLY DISTINCT POPULATIONS FORMING AS A RESULT OF HABITAT ISOLATION; OR

The Short-beaked Echidna has a home range of 40 – 60 ha, which is relatively large for the size of the species. The 7.1 ha of habitat to be impacted by the proposed action is not isolated, nor will the impact create isolation of habitat. Therefore, due to the species having a home range greater than the area being impacted and the proposed action not isolating habitat, it is unlikely the proposed action would result in the creation of genetically distinct isolated populations.

CRITERION 5: DISRUPTION TO ECOLOGICALLY SIGNIFICANT LOCATIONS (BREEDING, FEEDING OR NESTING SITES) OF A SPECIES.

The proposed action will impact 7.1 ha of habitat for the Short-beaked Echidna, which provides viable foraging resources and potentially denning and breeding resources for the species. However, this habitat is connected to larger more contiguous high quality remnant habitats within the wider Study area and Yarraman State Forest, which are being avoided. It is therefore unlikely that the proposed action of clearing 7.1 ha of habitat would cause disruption to any ecologically significant location for the Short-beaked Echidna.

CONCLUSION

The 7.1 ha of habitat to be impacted by the proposed action is in a regenerative state and holds low habitat values for the Short-beaked Echidna.

While the Project will incrementally increase (by 7.1 ha) the loss of Short-beaked Echidna habitat at the local scale, the proposed action is generally mostly associated with periodically disturbed areas (forestry plantations), and it is not likely to further fragment or isolate Short-beaked Echidna habitat or be detrimental to the long-term persistence of a local population of the species.

In summary, the proposed action is unlikely to have a significant impact on the Short-beaked Echidna within the meaning of the SRI Guidelines.