

Prepared for Jinko Power

# Matters of National Environmental Significance - Ecological Assessment Report

## Beebo Solar Farm and Battery Energy Storage System

Goondiwindi Region, Beebo, QLD

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## Document verification

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## Acknowledgement of Country

NGH recognises Aboriginal and Torres Strait Islander peoples as the first people of Australia.

We acknowledge the traditional owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations people of Australia manage the resources of this land in a sustainable way and that they are the original stewards of the Australian environment.

We understand the importance of increasing our knowledge and understanding of the connection between First Nations peoples across Australia and the lands on which we live and work.

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## Acronyms and Abbreviations

BOM	Australian Bureau of Meteorology
CE	Critically endangered
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DAWE	Department of Agriculture, Water and the Environment (Cwth) (formerly DoEE)
DBH	Diameter at breast height
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DES	Department of Environment and Science (Qld)
DR	Department of Resources (Qld)
E	Endangered
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwth)
EVNT	Endangered, Vulnerable, or Near Threatened
GDA	Geographic Datum of Australia
GIS	Geographic information system
GPS	Geographical positioning system
ha	hectares
HDD	Horizontal Directional Drilling
km	kilometres
LGA	Local government area
m	metres
MW	Megawatt
MNES	matters of national environmental significance
NC Act	<i>Nature Conservation Act 1992</i>
PMST	Protected matters search tool
PV	photovoltaic
SIA	Significant impact assessment
Sp/spp	Species/multiple species

TEC	Threatened ecological community
VM Act	<i>Vegetation Management Act 1999</i>
V	Vulnerable

## Executive summary

NGH Consulting was engaged by Jinko Power Australia Pty Ltd. to conduct an ecological assessment for the proposed Beebo solar farm in southern Queensland, within the Goondiwindi local government area (LGA). This ecological assessment was conducted to determine if any Endangered, Vulnerable, or Near Threatened (EVNT) species that are matters of national environmental significance (MNES) under the *Environmental Protection of Biodiversity and Conservation* (EPBC) Act are located on the Project Area. Furthermore, this assessment forms the basis for a referral application to the Department of Climate Change, Energy, Environment and Water (DCCEEW), to assess significant impacts to MNES.

Survey for MNES were conducted in March and April 2024 and were conducted in accordance with the relevant survey guidelines for flora and fauna assessments. Field surveys confirmed that most of the habitat across the Project Area is disturbed and modified from its original remnant state. Most habitat types included modified cattle grazing grasslands and cropping fields. Two threatened species, the Greater Glider and Latham's snipe and one Threatened Ecological Community (TEC), the Brigalow woodlands, was confirmed present within the Project Area. The Greater Glider habitat within the Disturbance Footprint mainly consists of sparse remnant trees in cleared agricultural land or edge vegetation that may be affected by the proposed development. Approximately 1.15 hectares of marginally suitable habitat for the Greater Glider and 0.177 hectares of Brigalow woodlands intersect with the proposed Disturbance Footprint, comprising about six individual trees. Due to infrastructure setbacks from the outer fence line of the Disturbance Footprint, most of this 0.177 hectares will remain intact despite the intersection with the Disturbance Footprint. In light of this, the proponent will microsite the distance area so as to completely avoid any contact within this vegetation community.

Latham's snipe was observed within a dam on the site. The Disturbance Footprint avoids all natural and non-natural wetlands. Since most of the habitat on the site is non-remnant, and the Distance Footprint avoids all areas of potential habitat, a significant impact on these matters is not expected.

Seven fauna species listed under the EPBC Act are considered to have a high likelihood of occurring within the Project Area. These species include the Koala, Squatter Pigeon, Diamond Firetail, Grey Snake, Dunmall's Snake, South-eastern Long-eared Bat, and the South-eastern Glossy Black-cockatoo. To minimize impacts on these species, the project will locate the solar farm and ancillary infrastructure entirely within non-remnant vegetation, consisting of open cattle grazing pastures and cropping fields. It is noted that some species, particularly the Diamond Firetail, Squatter Pigeon, Grey Snake, and Dunmall's Snake, may still utilize the open pasture fields. The solar array will cover 835.34 hectares of the Disturbance Footprint, with solar panels installed via pile driving and no major earthworks beneath the array. Total ground cover disturbance from pile driving for solar array and tracker installation is approximately 0.4557. The total area of ancillary infrastructure, which includes the BESS, accommodation areas, substation, laydown area and cable trenching is 69.33 hectares of the Disturbance Footprint. Construction of the ancillary infrastructure will involve major earthworks and clearing of the ground cover layer, all within non-remnant open pastures.

Suitable habitat for the Grey Snake and Dunmall's Snake occurs within the cracking clay soils and associated gilgais on Lot 54 CVE91. The proponent has committed to siting the solar array to avoid the high quality gilgais, and instead situate the solar array within part of the lot that has been raked and levelled, which has reduced the quality of the gilgais within this part of the lot. Approximately 168.03 hectares of Grey Snake and Dunmall's Snake habitat intersects with the Disturbance Footprint, however this area occurs entirely within the part of the lot that has been raked and levelled for agriculture.

High quality koala habitat in the Project Area occurs within remnant vegetation associated with Brush Creek, and within wooded areas on the periphery of the Project Area. Dispersal habitat and suboptimal foraging habitat occurs within the non-remnant portions of the site as isolated stands of eucalypt paddock trees. Since

the Disturbance Footprint is outside of any foraging and breeding habitat a significant impact to the Koala on the site will be unlikely.

# 1. Introduction

Jinko Power (Jinko) are developing Beebo Solar Farm (the Project), in southern Queensland. The Project will consist of a utility-scale solar farm, standalone battery energy storage system (BESS), and a long-term lease on 23 lots of land in the Goondiwindi LGA. The solar farm will generate up to 600MW of renewable energy, and the standalone BESS will have a maximum stored capacity of 800MWh.

NGH Pty Ltd has been engaged by Jinko to assess the potential impacts associated with the Project’s development on ecological values, including those MNES which are listed as threatened under the EPBC Act. The scope of work included undertaking ecological surveys, impact assessment and reporting to support a referral to DCCEEW for potential impacts to MNES under the EPBC Act.

## 1.1. Project location

The Project is located approximately 34km south south-west of Inglewood and 70km east south-east of Goondiwindi, in the Goondiwindi region of southern Queensland (Figure A-1).

The Project is bordered by the Yelarbon State Forest to the west and north, and Texas State Forest to the east. The Queensland/New South Wales border is 1km south of the Project, approximately 6km further south is the Dthinna Dthinnawan National Park

The landscape is broadly defined by low hills and open, flat plains intersected by narrow watercourses flanked by riparian vegetation of variable quality and disturbance. The Project Area and its surrounds form part of the Southern Downs: a sub-bioregion of the Brigalow Belt South Bioregion. The size of the Disturbance Footprint, which includes the solar array and ancillary infrastructure (which includes the BESS, accommodation areas, substation, laydown area and cable trenching) is 904.54 hectares large. Total avoidance area across the Project Area is 1291.32 hectares. The Project Area, encompassing 23 individually titled lots, spans 2195.85 hectares

### 1.1.1. Project Area

The Project Area encompasses 23 lots. The Disturbance Footprint is located on agricultural land. Lot on Plan numbers within the Project Area are listed in Table 1-1.

Table 1-1 Subject lots within the Project Area

Lot on Plan	Tenure	Lot on Plan	Tenure
9CLV34121	Freehold	2SP245641	Freehold
10CLV34121	Freehold	1SP178932	Freehold
11CLV34122	Freehold	37SP274199	Freehold
1SP310351	Freehold	22CVE219	Freehold
1RP74835	Freehold	19SP151284	Freehold
2RP74835	Freehold	41CVE49	Freehold

Lot on Plan	Tenure	Lot on Plan	Tenure
<b>39CVE63</b>	Freehold	<b>12CLV34122</b>	Freehold
<b>67CVE171</b>	Freehold	68CVE129	Freehold
<b>54CVE91</b>	Freehold	<b>3SP310351</b>	Freehold
<b>14CLV34122</b>	Freehold	<b>23CLV34133</b>	Freehold
<b>73CLV34123</b>	Freehold	<b>18CLV34123</b>	Freehold

### 1.1.2. Disturbance Footprint

The Disturbance Footprint is the area which will contain all project related infrastructure and will entail the direct impacts associated from construction activities (such as vegetation clearing). The Disturbance Footprint will be wholly located within the Project Area. The location of impacts within the Disturbance Footprint may vary during detailed design and construction to further enable avoidance, minimisation and mitigation measures. It is not anticipated that the total impact area, or total areas of impact on individual matters of national environmental significance will increase. The Disturbance Footprint includes tracks, laydown areas, powerlines, substations, standalone BESS and auxiliary facilities. The Disturbance Footprint is shown in Figure A- 2.

### 1.1.3. Avoidance Area

The avoidance area is the area within the Project Area that does not intersect with the Disturbance Footprint and will be avoided during construction and operation of the solar farm. Table 1-2 below details the total areas for the Disturbance Footprint, Avoidance area and Project Area.

Table 1-2 Project Area components

Project component	Area (hectares)
Project Area	2195.86 hectares
Disturbance Footprint	904.64 hectares
Avoidance Area	1291.32 hectares

## 1.2. Project description

### 1.2.1. Project infrastructure

The Project comprises the installation of a solar farm with a nameplate capacity of 508MW at Point of Connection that would supply to the national electricity grid. A standalone 400MW/800MWh BESS will provide frequency regulation services to support grid reliability.

Key infrastructure components are listed below. Major ancillary infrastructure (such as the BESS, substation and laydown areas) are shown in the map in Figure A-3.

- Solar PV modules and single axis mounting framework for trackers
- Inverters and medium voltage step-up transformers
- BESS and associated infrastructure
- Temporary non-resident workforce accommodation during construction period
- Underground electrical conduits and cabling to connect the arrays to the inverters and transformers
- Onsite 33/330 kV substation with transformer station and switchgear
- Underground lines to connect into the existing electrical network
- A supervisory control and data acquisition (SCADA) control system
- A site office and maintenance building
- Main site access points from Beebo Seventeen Mile Road (to Lot 1 SP310351, Lot 54 CVE91, Lot 18 CLV34123 and Lot 10 CLV34121) and McNulty's Road (to Lot 1 SP178932, Lot 2 SP245641, Lot 9 CLV34121)
- Access from Texas-Yelarbon Road (to Lot 1 SP178932 on the western side of the road and Lot 2 RP74835)
- Security cameras
- Internal access tracks
- Laydown area
- Perimeter security fencing.

### **1.2.2. Solar panels**

Single axis tracking solar panels will be installed in rows with the panels mounted on a steel supporting framework (tracker) above the ground. Each tracker will be installed via pile driving using a solar pile driver, to depths of up to 1.5 meters.

The top edge of the panels will reach approximately 2.5m. They will be installed in rows parallel to each other and connected by cabling.

### **1.2.3. Inverters and transformers**

Power conversion blocks (PCBs), consisting of inverters and transformers, will be constructed to convert the direct current (DC) electricity output from the panels to alternating current (AC) electricity and transform the voltage to the collection system voltage of 33 kV. Each PCB will be mounted on a concrete slab or on steel piles.

### **1.2.4. Cabling**

Underground DC electrical cabling will be installed to connect the solar panels to the PCBs. A collection system of AC cables will connect the PCBs to the site substation. All other cabling to connect individual solar panels and solar trackers will be installed above ground via cradles to further minimise earthworks. The trenching for the underground cabling is expected to be no more than 2.3m wide totalling 11.96ha of disturbance.

### **1.2.5. Site substation**

A switch station and a site substation (33/330 kV) will be constructed within the Disturbance Footprint (on lot 1 SP 310351, see Figure A-3) for direct connection into the existing 330kV overhead transmission lines. The substation will receive all AC electricity that has been collected from the PCBs and transform it to a voltage of 330kV for export into the grid through the switch station. The site substation will contain electrical infrastructure designed to relevant industry standards. The substation will occupy an area of 2.1ha.

### **1.2.6. Site office**

A site office will be established to house monitoring and control equipment, computers, communications equipment, supplies, spares, and crew facilities. It will be used during commissioning of the solar farm and as a maintenance facility during the operational phase.

### **1.2.7. Battery Energy Storage System (BESS)**

A BESS plant, that will consist of batteries contained in enclosures will be installed at the site near the substation (Figure 1-2). The BESS will be constructed over an area of 7.7ha.

### **1.2.8. Fencing, setbacks, and fire breaks**

Fencing will be installed around the solar farm for security and public safety. Gates will be installed in the fencing to allow for multiple site egress options in the event a fire blocks access from the site via the main gate. Fauna friendly fencing will be installed except where safety requirements may prevent this type of fencing from being used (i.e. around the substation).

A 10 - 20 m setback from the perimeter fence will apply to the solar infrastructure depending on setback requirements at each location. These would serve the dual purpose of vehicle access and a fire break.

### **1.2.9. Access**

#### **Primary Access Routes**

Access to the site for both construction and operations will be primarily via Beebo Seventeen Mile Road and McNulty's Road (local road). These routes have been selected for their suitability in handling the anticipated traffic volumes and types of vehicles required for the project.

#### **Emergency Access Points**

To ensure safety and compliance with emergency response protocols, an emergency access/egress point will be strategically located at both Beebo Seventeen Mile Road as well as at McNulty's Road. These access points are designed to facilitate quick and efficient entry and exit for emergency services, ensuring that all safety measures are adhered to.

#### **Internal Access Roads**

Within the Disturbance Footprint, a network of internal access roads will be constructed to support both the construction phase and the ongoing operational maintenance of the solar PV equipment. These roads will be

a minimum 3.6m wide to accommodate specific site requirements. All roads will be constructed by surface clearing/scraping, followed by soil compaction to ensure durability and ease of maintenance.

### 1.2.10. Services

The following services will be available at the site during the construction and operation phases:

#### Construction Phase

During the construction phase, the following services will be available on-site to support staff and ensure the smooth progress of construction activities:

- **Water:** Water will be available for staff amenities, construction works, and firefighting purposes. It will be delivered to the site by a commercial operator as required and stored in tanks within the construction set-out area to ensure a reliable supply.
- **Telecommunications:** Mobile phones will be used for communication during construction. Additionally, two-way radios will be available on-site in areas where mobile reception is not reliable, ensuring continuous and effective communication.
- **Sewer:** Portable toilets will be provided in the construction set-out area for the convenience of the construction staff, ensuring proper sanitation and hygiene.
- **Electricity:** Staff buildings and site offices within the construction area will be powered by generators. Most equipment used on-site will be diesel-powered, providing the necessary energy for construction activities.

#### Operational Phase

During the operational phase, the site will be equipped with the following services to support ongoing operations and maintenance activities:

- **Water:** A rainwater tank will be incorporated into the control room design to provide a sustainable water source. If additional water is required for cleaning solar panels or other maintenance activities, it will be trucked to the site by a commercial operator. Additionally, minimum 5,000 litre rainwater tanks will be positioned at strategic locations for firefighting purposes, ensuring preparedness for emergency situations.
- **Telecommunications:** Mobile phones and two-way radios will continue to be used for communication. A landline connection may also be established in the control room to ensure reliable and consistent communication capabilities.
- **Sewer:** An on-site effluent disposal system will be connected to the control room to manage wastewater effectively, ensuring compliance with environmental and health regulations.
- **Electricity:** Electricity for the site will be provided by the solar farm development itself. Additionally, the control room may be connected to mains electricity to ensure a stable and reliable power supply.

### 1.2.11. Compounds

Several compounds will be established across the Disturbance Footprint of the Project. This will consist of a labour accommodation zone, BESS (and BESS substation) and a Powerlink substation area with a total construction area of approximately 29 ha. All surfaces for compound structures will be compacted gravel though no surface clearance or compacted gravel are required for construction lay down area and labour accommodation zone. All buildings and equipment will be removed at the completion of the construction phase and the area rehabilitated. The lay down area and labour accommodation zone will be left as vacant land after construction. The nature of the BESS substation is like an inverter, which is a component of the project that will be decommissioned and removed from the site by the end of project lifetime. The Powerlink substation will be a permanent facility and will be under Powerlink’s operation. The location of the construction compounds is provided in Figure A-3.

## 1.3. Project construction

### 1.3.1. Staging and activities

The Project construction phase will be approximately 24 months. Key stages of construction are detailed in Table 1-3, noting that some activities in different stages will be undertaken concurrently:

Table 1-3 Construction stages and details

Stage	Timeframe	Activity
Pre-construction	4-5 months	<ul style="list-style-type: none"> <li>• Pre-construction approvals</li> <li>• Clearing for access roads, construction compound, substation, etc.</li> <li>• Site preparation and services connection</li> <li>• Installation of security fencing requiring minor excavation works and construction of concrete footings</li> <li>• Establishment of site construction compounds, parking, laydown areas, and site office</li> </ul>
Construction	15-18 months	<ul style="list-style-type: none"> <li>• Delivery of PV modules, frames, electrical conduits, and balance of equipment</li> <li>• Delivery of BESS components</li> <li>• Construction of footings</li> <li>• Fixing of modules:                             <ul style="list-style-type: none"> <li>- Site survey to determine levels and depth of steel posts (part of the mounting structure)</li> <li>- Pile driving of steel posts into the ground; posts may be driven into the ground up to 2m deep</li> </ul> </li> </ul>

Stage	Timeframe	Activity
		<ul style="list-style-type: none"> <li>- Installation of mounting structure on posts</li> <li>- Installation of tracking equipment and solar modules onto the mounting structure</li> <li>• Positioning of junction boxes, inverters, transformers</li> <li>• Connecting of cabling:                             <ul style="list-style-type: none"> <li>- Install low voltage DC wiring electric cable to each solar module and connection to collectors at the end of each row of panels</li> <li>- Install underground cabling to the PCBs in 2.3 m wide trenches</li> </ul> </li> <li>• Install medium voltage AC electric cables from the PCBs to the substation. Cable would be installed underground in trenches approximately 2.3m wide and up to 1.5m deep. Cabling across waterways will be conducted underground using horizontal directional drilling.</li> <li>• Construction of substation, BESS, and ancillary infrastructure</li> <li>• Grid connection construction works, connecting to the terminal station</li> <li>• Planting of trees and landscape buffers (if required), other rehabilitation</li> </ul>
Commissioning	6-7 months	<ul style="list-style-type: none"> <li>• Grid connection and commissioning of plant</li> <li>• Completion certificate</li> </ul>

A Construction Environmental Management Plan (CEMP) will be implemented throughout this phase to ensure construction activities are carried out in accordance with legislation and best practice environmental and safety standards.

### 1.3.2. Equipment

The following construction equipment will be used at the Project Area:

- Earthmoving equipment, such as excavators, bulldozers, backhoes, compactors, rollers, and graders
- Pile drivers, cranes, and forklifts
- Water trucks
- Diesel generators
- Articulated trucks for delivery of solar farm and BESS components
- Small vehicles, including cars and buses for staff access.

### **1.3.3. Staff**

Up to 500 personnel will be involved in the construction of the Project. The Applicant is committed to creating opportunities for local workers and suppliers and will use a local workforce to the greatest extent possible.

### **1.3.4. Timing, resourcing and accommodation**

Construction activities will take place during the prescribed hours for construction works:

- 7 am to 6 pm Monday to Friday;
- 8 am to 1 pm Saturdays; and
- at no time on Sundays and QLD public holidays.

Work outside of these hours will only occur in instances where:

- There is no noise disturbance to nearby neighbours/buildings
- Delivery of materials is required outside of normal hours for safety reasons, as requested by police or other authorities
- There is a need for emergency work to avoid loss of lives and/or equipment.
- Approval will be obtained from Council for any out of hours works.

Construction activities are expected to commence in 2026, subject to approvals and commercial considerations. The construction phase would last for a period of up to approximately 24 months and up to 500 full-time equivalent workers will be on site during the peak construction period. Local people, contractors and manufacturers would be utilised wherever possible, subject to suitable qualifications and commercial terms.

### **1.3.5. Operation**

The Project is expected to have an operational life of 40 years. Operational activities include:

- Monitoring and control of the solar farm. This would be undertaken both by on-site personnel and via a remote-control system accessed from a central, off-site facility providing real time and historical performance information.
- Maintenance activities:
  - General repair and maintenance of all solar farm and BESS infrastructure, as well as roads, drainage, grass, vegetated buffers, and fences
  - Replacement of modules, batteries repair of inverters, trackers and other equipment as required.
- Cleaning of solar panels. Details for panel cleaning would be confirmed prior to construction. If required, water would be sourced on site in accordance with the extraction permit allowances or from local commercial operations and delivered to site by truck as required. Alternatively, panels may be self-cleaning, supported by dry cleaning with high pressure air pistols if necessary.
- Landscaping and grass and weed management under and around the solar support structures. This would involve keeping grass down by slashing and controlling weeds using local best practice.
- Night lighting at the site would be minimal, likely motion sensor controlled and would be for security purposes only. Lighting design will conform with Local Government requirements and minimise impacts to fauna by applying the best practice lighting design principles referenced in the National Light Pollution Guidelines for Wildlife guideline prepared by the Department of Climate Change, Energy, the Environment and Water.

Procedures and management plans for all operational activities would be included in an Operational Environmental Management Plan (OEMP) that would be prepared prior to post-commissioning.

Approximately 30-40 full time staff will be employed during the operations period and local commercial entities will be utilised as required. Traffic during operations would mostly be light vehicles.

### **1.3.6. Decommissioning**

At the end of the operational phase, the solar farm will either be decommissioned or repowered with new solar equipment.

If decommissioning is proposed, all above ground infrastructure will be removed from the site and the land restored and/or rehabilitated in accordance with a Decommissioning and Rehabilitation Plan. Redundant infrastructure will be recycled or otherwise disposed of at approved facilities. Any assets transferred or under the operation by the Transmission Network Operator, such as a substation, may remain in place.

If continued operation and repowering of the Project is preferred, a relevant development application would be submitted at that time. It is possible that some of the infrastructure present at the site will be retained and incorporated into the new proposal.

## **2. Assessment and approvals framework**

### **2.1. Queensland**

The Project requires development approval from the appropriate assessment manager under the Planning Act 2016, which is the Goondiwindi Shire Council. The Planning Act is the overarching framework for Queensland's planning and development system.

### **2.2. Commonwealth**

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as MNES.

The EPBC Act establishes the process for environmental assessment and approval of proposed actions that have, will have or are likely to have a significant impact on MNES or on Commonwealth land. There are eight MNES protected under the EPBC 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 (listed under international agreements)
- Commonwealth Marine Areas
- Great Barrier Reef Marine Park
- A Water Resource, in relation to coal seam gas development and large coal mining development.

Although the Project aims to avoid impacts to MNES by design, an assessment through the EPBC Act referral process is planned to provide certainty to the Project. This EAR has been prepared to support the EPBC referral process.

### **2.3. Heritage**

#### **Commonwealth heritage places**

Searches of the Commonwealth heritage places list indicates that there is no Indigenous, historic or natural heritage places owned or controlled by the Australian Government within the intended project location.

There are no Commonwealth heritage places overseas within the intended project location, as it is located within the Australian jurisdiction.

### **Indigenous heritage values**

Aboriginal and Torres Strait Islander heritage is important to Jinko. The project is intended to be developed on the traditional Country of the Bigambul Nation Title Aboriginal Corporation (Bigambul People) (QUD101/2009). The Bigambul People assert their enduring connection to these traditional lands which hold significant history, cultural and spiritual attachment for their people.

Jinko is seeking ongoing partnership for the protection of Indigenous heritage values with the Bigambul People as they proceed through the planning, construction and operation of the project and are taking measures to form agreement for the management of heritage under the provisions of the *Aboriginal Cultural Heritage Act 2003 (Qld)*. Engagement under the Queensland Aboriginal cultural heritage protection framework is in early stages, however it is expected that a voluntary Cultural Heritage Management Plan under Part 7 of the ACHA will be developed, and all Indigenous heritage values associated with the project area will be identified and respectfully managed during the life of the project.

Preliminary cultural heritage assessments of the project area have been prepared by NGH Pty Ltd and form the foundation for continued engagement with the Bigambul People.

### 3. Methods

#### 3.1. Desktop assessment

A desktop assessment was undertaken in March 2024 and updated in April 2024 with the purpose of reviewing relevant environmental documents, databases, maps and legislation (Commonwealth, State and Local) to identify ecological values that may potentially occur within and around the Project Area. The assessment was based on a 30km radius of central site coordinate -28.6919, 150.9850 and the results were used to inform field survey methodology. The following resources were reviewed:

- EPBC Protected Matters Search Tool (PMST) with a 30km radius surrounding the Project Area (DCCEEW). Search results from April 2024 are provided within Appendix B;
- Department of Environment, Science and Innovation (DESI) Wildlife Online records, central coordinates with a 30km buffer. Search results from April 2024 are provided within Appendix B;
- Department of Resources (DR) Vegetation management, regulated vegetation management (RVM), regional ecosystem (RE) and pre-clear regional ecosystem, watercourse and drainage features, wetlands and essential habitat mapping;
- Atlas of Living Australia database, central coordinates with a 10km (maximum) buffer (ALA 2024);
- Nature Conservation Act 1992 (NC Act) Protected Plants Flora Survey Trigger Map;
- Aerial imagery (Google Earth, 2024).

##### 3.1.1. Likelihood of occurrence – threatened flora and fauna

Threatened flora and fauna species identified as potentially occurring within the 30km buffer of central site coordinate were assessed for the likelihood that they occur within the Project Area. The likelihood of occurrence assessment results are presented in Appendix C.

The likelihood of occurrence is initially determined on the results of the desktop assessment, based on potential presence of suitable habitat, proximity of nearest records and range of the species (where relevant). This directs the focus of the field survey whereby species that have potential to occur are targeted. The likelihood of occurrence is updated post-survey, informed by validated field data. The likelihood of occurrence is categorised in Table 3-1.

Table 3-1 Likelihood of occurrence criteria.

Likelihood of occurrence	Conditions
<b>Confirmed</b>	The species has been recorded (either an individual or sign (e.g., scat, bone or scratch) within the Project Area during a survey by known source (by ecologists and/or published in a report or scientific paper).
<b>High</b>	<ul style="list-style-type: none"> <li>• The species has been recorded in the Project Area by an unknown source (i.e., a record in ALA or Wildlife Online) OR;</li> <li>• Suitable good quality, preferred habitat (habitat that the majority of records for the</li> </ul>

Likelihood of occurrence	Conditions
	<p>species is found in) is known to be present within the Project Area AND the species has been recorded recently (within the last 20 years) in the locality (30km) OR;</p> <ul style="list-style-type: none"> <li>• The species has mapped habitat (e.g., essential habitat) in the Project Area.</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>• Preferred habitat is present in the Project Area but no recent (within the last 20 years) records of the species are located within 30km OR;</li> <li>• Suitable habitat (habitat that the species has been recorded in in the past but the majority of records are not found in this habitat) is present within the Project Area and the species has been recorded recently (within the last 20 years) in the locality (30km).</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Suitable habitat is not present (or if present, modified and degraded) in the Project Area AND the species has not been recorded recently in the locality (30 km) OR;</li> <li>• The species has records within 30 km but no suitable habitat or very limited, degraded or modified habitat occurs within the Project Area OR;</li> <li>• The species may be an occasional visitor but will not have a sedentary population OR;</li> <li>• The species may be restricted in range to discreet populations that do not occur within the Project Area OR;</li> <li>• The Project Area is outside the current known range of the species.</li> </ul>

The potential for the project to impact on each species is determined based on the nature of the proposal, the ecology of the species and its likelihood of occurrence. The potential to be impacted is categorised in Table 3-2. A Significant Impact Assessment (SIA) has been undertaken for each species confirmed or considered a high likelihood of occurrence on the Project Area and is detailed in Appendix F.

Table 3-2 Likelihood of impact criteria.

Potential to be impacted	Conditions
<b>High</b>	the Project is likely to impact this species or its habitat/s.
<b>Moderate</b>	the Project could impact this species or its habitat/s; however the impacts are considered manageable such that no direct or indirect impacts are likely.
<b>Low</b>	the Project would not impact this species or its habitat/s.

### 3.2. Ecological surveys

The scope of the ecological surveys included the following:

- Validation of desktop assessment findings;
- Assessment and verification of the floristic structure and composition of the vegetation communities present;
- Description of fauna habitat present and recording incidental fauna sightings;
- Surveying for fauna using call recording devices, camera traps, spotlighting and active survey methods;
- Targeted searches for conservation-significant species (and associated habitat) that may potentially occur within the project area i.e., species listed under the EPBC act and/or Queensland NC Act;
- Identification of weed species and documentation of vegetation disturbance.

All surveys were conducted under a valid Animal Ethics licence (reference CA 2021/11/1563) and Scientific Purposes Permit (permit numbers WA0059277).

#### 3.2.1. Survey teams and survey timing

Two surveys were undertaken: a preliminary survey (March 2024) and a targeted flora survey (April 2024), in general accordance with fauna survey guidelines (Eyre et al. 2018) (Table 3-3).

Table 3-3 Survey teams and survey timing.

Focus	Dates	Survey team	Ecologists	Survey time
Fauna, ground-truthing regional ecosystems, habitat and vegetation	March 18 – March 21	Tech Lead Ecologist	Carissa Free Jeff Heatlie	3 days
Threatened flora and Threatened Ecological Communities	April 13 – April 15	Senior Ecologist Ecologist	Jarrah Wills Jeff Heatlie	2 days

#### 3.2.2. Survey conditions

Conditions leading up to and during the surveys were cool and overcast. Monthly weather and climate data was taken from Texas QLD (Station 041188), approximately 26km southeast of the Project Area. Data from the survey period and the preceding month is presented in Table 3-4.

Table 3-4 Weather and climate leading up to and during the survey period (Station 041188 Texas, QLD).

Month	February	March	April
Rainfall (mm)	121.8	25.4	98.6
Mean minimum temperature (°C)	20.4	17.1	13.2
Mean maximum temperature (°C)	34.6	31.2	26.2

### 3.2.3. Survey sites

Survey sites were selected to sample the range of habitat types and dominant REs which were mapped as occurring within the Project Area. Survey sites are representative of the REs and habitats mapped within the Disturbance Footprint. Ground-truthed findings were found to closely reflect state-mapped vegetation communities, giving confidence that existing mapping is largely accurate across the Project Area and that chosen survey sites represent habitat within the Disturbance Footprint.

A range of survey methods were used to identify species and species groups which are likely to utilise the Project Area as well as to identify ecologically sensitive areas and species. Flora and fauna survey sites are shown in Appendix A, Figure A-4. A summary of the number of survey sites undertaken can be found in Table 3-5

Table 3-5 A summary of the number of survey sites undertaken during preliminary and flora surveys.

Survey type	Number of sites – Preliminary survey	Number of sites – Flora survey
Quaternary flora surveys	9	26
Spotlighting surveys	2	0
Habitat assessments	10	0
Anabat surveys	1	0

### 3.2.4. Flora species and vegetation community survey

Based on the results of the desktop assessment, indicative flora survey sites were selected across the Project Area, taking into consideration the mapped boundaries of the vegetation status and REs, as identified by the state mapping under the Vegetation Management Act 1999 (VM Act). Where accessible, quaternary surveys were undertaken at representative locations, in accordance with the Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Neldner et al. 2022). Quaternary sites are a more rapid assessment undertaken to verify regional ecosystems and vegetation mapping (Neldner et al. 2022).

The following information was collected as a minimum for each site:

- Vegetation structure (height range, median height, estimated cover for each stratum, Specht structural formation) and floristic composition (dominant and common native species within each stratum)
- Vegetation status i.e., remnant or non-remnant and RE classification
- Brief condition assessment, including assessment of disturbance factors
- Recorded fauna habitat and other ecological features and signs of fauna presence
- Presence, density and distribution of weed species.

The purpose of these surveys was to assess the location and extent of vegetation across the Project Area according to the Queensland regional ecosystem framework and criteria for TECs listed under the EPBC Act, where applicable.

Vegetation surveys were undertaken on foot as well as through remote visual inspection (e.g. by vehicle traverses and/or using binoculars). Figure A- illustrates the location of the flora survey points. Vegetation mapping was then undertaken based on the results of vegetation surveys and interpretation of aerial images.

Threatened flora species searches were undertaken using the random meander technique, which involved traversing accessible areas of suitable habitat in a non-standardised manner or through recording of incidental sightings.

### 3.2.5. Fauna species and habitat survey

Fauna surveys were undertaken at each location identified in Figure A- 4. Field survey timing, techniques and survey effort were undertaken in general accordance with the following guidelines:

- EPBC Act survey guidelines for Australia’s threatened reptiles (DSEWPC 2011a)
- EPBC Act survey guidelines for Australia’s threatened birds (DEWHA 2010a)
- EPBC Act survey guidelines for Australia’s threatened bats (DEWHA 2010b)
- EPBC Act survey guidelines for Australia’s threatened mammals (DSEWPC 2011b)
- Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre, Ferguson, et al. 2022)
- Guide to Greater Glider habitat in Queensland (Eyre, Smith, et al. 2022)

The following fauna surveys were undertaken within the Project Area: Fauna surveys within the Project Area consisted of Active searches, Camera trapping, spotlighting and acoustic surveys for microbats. Table 3-6 below outlines the fauna survey methodology and effort over the survey period.

Table 3-6 Survey method and effort over the field survey period.

Survey method	Effort
Active searches	Continuous over survey period.
Passive infrared camera trapping	12 camera trap nights
Spotlighting	10 person hours over the survey period
Acoustic microbat surveys	3 detector nights

### 3.2.6. Habitat assessments

Habitat assessments were undertaken across the range of habitats within the Project Area. Habitat assessments aimed to characterise the habitat values within each habitat type. At each habitat assessment location, the following was recorded:

- Abundance of hollows (small, medium and large)
- Abundance of logs
- Abundance of leaf litter and debris
- Abundance of rocks (including boulders and rock piles)
- Abundance of food resources (nectar, seeding grasses and fruiting plants)
- Abundance of peeling bark
- Abundance of dense grass and shrub shelter
- Abundance of arboreal and terrestrial termite mounds
- Presence of water
- Presence of cracking clays

- Presence of burrows, basking areas and rock crevices
- Presence of scats, bones, nests, tracks or other signs of fauna.

### 3.2.7. Identifying threatened species habitat

Ecological surveys were undertaken in accordance with relevant guidelines and habitat for threatened species was identified on the basis of:

- Field survey results
- Aerial imagery interpretation
- Literature review, including species profile and threats database (DCCEEW 2024a) resources as well as state-mapped vegetation and essential habitat.

Habitat descriptions for threatened fauna and flora listed under the EPBC Act which are considered to have a high likelihood of occurrence, and the method with which these were applied to Project Area are presented in Table 3-7.

Table 3-7 Method to identify habitat for threatened fauna and flora species which have a high likelihood of occurrence or are known to occur within the Project Area.

MNES habitat	Habitat description (from DCCEEW 2022)	Method
Koala	Any forest or woodland (including remnant, regrowth and modified vegetation communities) containing species that are Koala food trees or any shrubland with emergent Koala food trees.	Foraging and breeding: all remnant, regrowth and non-remnant vegetated areas dominated by koala food trees. Mapped using the <i>Statewide Landcover and Tree Study- 2021 Woody Vegetation Extent</i> to map all woody vegetation in the Project Area and then modified to incorporate field results, more recent aerial imagery and removing areas ground-truthed as not dominated by Koala food trees. Dispersal: Vegetated areas (remnant, regrowth or non-remnant areas not dominated by Koala food trees e.g. brigalow patches).
Greater Glider	All areas of Eucalypt forests or woodlands that contain hollow-bearing trees. In Queensland, trees with diameter breast height (DBH) greater than 30cm are preferred for foraging and trees with DBH greater than 50cm are more likely to contain hollows suitable for denning (Eyre et al. 2022).	Foraging and denning: all riparian vegetation along Brush Creek and all vegetation patches connected to Brush Creek. Patches disconnected by more than 50m where excluded. Foraging: all other patches of vegetation that were ground-truthed or mapped as a Greater Glider suitable RE (Eyre, Smith, et al. 2022).

Squatter Pigeon	Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by <i>Eucalyptus</i> , <i>Corymbia</i> , <i>Acacia</i> or <i>Callitris</i> species, on sandy or gravelly soils (mapped as Queensland land zones 3, 5 or 7) and within 1 kilometre of a suitable, permanent or seasonal waterbody.	Foraging: all remnant, regrowth and non-remnant areas within 3km of a permanent water source (dams, stock troughs and creeks (Stream order 2 and above). Breeding: all remnant, regrowth and non-remnant areas within 1 km of a permanent water source (dams, stock troughs and creeks (Stream order 2 and above)).
Glossy Black-cockatoo	Occurs in woodlands dominated by she-oak ( <i>Allocasuarina</i> ) or in open sclerophyll forests and woodlands with an underlayer of <i>Allocasuarina</i> beneath <i>Eucalyptus</i> , <i>Corymbia</i> , or <i>Angophora</i> . Glossy Black-cockatoos are also found in mixed woodlands that include <i>Allocasuarina</i> , Casuarina, cypress ( <i>Callitris</i> ), and brigalow ( <i>Acacia harpophylla</i> ).	Foraging and breeding: All riparian vegetation (remnant, regrowth and non-remnant areas consistent with RE 11.3.25 and 11.3.4). Foraging: All remnant and regrowth (mapped or unmapped) vegetation within the Project Area.
Grey Snake	Brigalow <i>Acacia harpophylla</i> and Belah <i>Casuarina cristata</i> woodlands on heavy, dark brown to black cracking clay soils, particularly in association with water bodies, areas with small gullies and ditches, and floodplain environments where the species shelters beneath logs, rocks and soil cracks.	All ground-truthed areas of Brigalow, mapped areas of Brigalow and the part of Lot 54CVE91 which was ground-truthed as having cracking clay soils and gilgais (depressions in the soil)
Dunmall's Snake	Open forests, particularly those dominated by brigalow ( <i>Acacia harpophylla</i> ), growing on floodplains with deep-cracking black clay and clay loam soils.	All ground-truthed areas of Brigalow, mapped areas of Brigalow and the part of Lot 54CVE91 which was ground-truthed as having cracking clay soils and gilgais.
Latham's Snipe	The species primarily forages in soft mudflats or shallow waters, usually during the night, early morning, or evening. During the day, they seek shelter in small wetlands, including urban water bodies, salt marshes, creek edges, and sometimes crops and pastures. They prefer areas with shallow flooded or inundated substrate and dense vegetation cover, such as sedges, grasses, lignum, reeds, and rushes.	Wetlands and dams with fringing vegetation confirmed through survey or on the aerial.

South-eastern Long-eared Bat	Box, ironbark, and cypress pine woodlands, Buloke woodlands, Brigalow woodland, Belah woodland, smooth-barked apple woodland, river red gum forests, black box woodlands, and various types of tree mallee.	Potential: All remnant and regrowth vegetation (mapped or unmapped) within the Project Area.
Diamond Firetail	Diamond Firetails are found in eucalypt, acacia, or casuarina woodlands, open forests, and lightly timbered habitats, including farmland and grassland with scattered trees. They typically inhabit areas with low tree density, few large logs, and minimal litter cover, but with abundant grass cover. At night, they roost in dense shrubs or in smaller nests specifically built for roosting purposes (DCCEEW 2023).	Breeding: All remnant and regrowth vegetation (mapped or unmapped) within the Project Area.  Foraging: all non-remnant grassy areas within the Project Area excluding areas currently or recently cropped (as these had little to no grass cover).

### 3.2.8. Survey limitations

The ability to detect plants and accurately identify them to species level can vary greatly with season, prevailing climatic conditions and the presence of reproductive material (e.g., flowers, fruit and seed capsules). The surveys undertaken as part of this assessment represent a ‘snapshot’ in time. Some cryptic flora species may only be detected when flowering in conditions that were not present during the current survey. The target flora species, being trees, shrubs and forbs have non-reproductive features that make field identification possible. Therefore, the survey timing was suitable to detect target flora species. Every effort has been made to detect likely species in their preferred habitat areas.

Night survey work was targeted toward vegetated areas that were safely accessible.

Many species of avifauna and bats are migratory and are only encountered during periods of migration between northern and southern regions during different times of the year. Some species that may occupy or pass through the Project Area may not have been present during the survey periods. A precautionary approach has been taken for those migratory species that were not recorded but were likely to be recorded if surveys coincided with their migration through the area, considering available habitat and historic records within the broader landscape (Appendix C).

## 4. Results

### 4.1. Project environment

#### 4.1.1. Existing land use

The dominant land use within the Project Area is cattle grazing and cropping. Surrounding properties are a mixture of mostly cleared land for cattle grazing and cropping. Buffel Grass (*Cenchrus ciliaris*) is found in varying densities across the Project Area and is most abundant in areas historically used for cattle grazing. Other weeds commonly occurring across the site include African Lovegrass (*Eragrostis curvula*) and Red Natal Grass (*Melinis repens*). The site has been subject to moderate levels of cattle grazing. Dams and waterbodies (Brush creek) have varying degrees of existing stock damage through localised trampling, soil compaction, dung deposition and erosion.

#### 4.1.2. Landforms, geology and soils

The site lies within the Brigalow Belt Bioregion and the Southern Downs subregion. The Brigalow Belt bioregion is a wide band of *Acacia* wooded grassland that occurs between tropical rainforest of the coast and semi-arid interior of Queensland. The Brigalow Belt is characterised by the presence of brigalow (*Acacia harpophylla* vegetation) (Thackway & Creswell 1995).

The site is located on flat to gently undulating terrain approximately 260m above sea level. Surface soils within the site vary from cracking clays (common in the south-eastern-most paddock) to riverine and alluvial sandy soils.

The Atlas of Australian Soils (Australian Soil Resource Information System 1991) designates the site almost entirely as map unit LM1. Map unit LM1 is defined by the following Principal Pedogenic Features (PPF) and physical properties:

- **Um4.31** – indicates that this soil has a Umbric horizon (dark-coloured, rich in organic matter) with a clay loam texture. The Umbric horizon is typically found in forested areas and is enriched with organic material from decaying plant matter.
- **Gn2.43** – signifies a Gleyic horizon (associated with waterlogging or poor drainage) with a sandy clay loam texture. The Gleyic horizon indicates that the soil experiences periodic saturation, leading to reduced oxygen availability.
- **Um6.12** – corresponds to an Umbric horizon with a silty clay texture. The Umbric horizon retains moisture well due to its high organic matter content.
- **Um6.11** – represents another Umbric horizon, but this time with a silty clay loam texture. The Umbric horizon contributes to soil fertility and supports plant growth.
- **Uf6.3** – designates a Ferralic horizon (associated with weathering and leaching) with a silty clay texture. The Ferralic horizon results from the movement of minerals downward through the soil profile.

In summary, the soil map unit LM1 exhibits a mix of Umbric and Ferralic horizons, with varying textures (ranging from clay loam to silty clay). These soils are likely to have good fertility due to organic matter content and may experience periodic waterlogging in some areas.

In the northeastern extreme of the site and continuing offsite further upstream of Brush creek, is an area of soils designated as map unit Ub62. This consists of Dystric horizons with varying properties related to leaching, mineral removal, and other soil processes.

### **4.1.3. Wetlands and waterways**

The site is intersected by Brush Creek (stream order 6) running from north-east to south-west (Figure A- 5). Brush Creek feeds into the Dumaresq River. Two minor unnamed stream order 1 creeks within the Project Area feed into Brush Creek. In the north of the Project Area in Lot 23 CLV34133 the creek has a formed a wetland which would only be flooded when Brush Creek is in flood. The water in Brush Creek is likely to be permanent or semi-permanent.

### **4.1.4. Climate**

The Project Area occurs at the junction of the sub-tropical and temperate climate zones. Summers are warm and winters are generally mild, with occasional frosts. The average daily maximum temperature in the region is 27°C and average minimum temperature is 11.6°C. Most rainfall occurs within the summer months, with an average annual rainfall of 657.60mm.

### **4.1.5. Connectivity**

The Project Area does not lie in any mapped state terrestrial biodiversity corridors but a regional riparian corridor is mapped along Brush Creek. This corridor provides a link between Yelarbon State Forest and the Dumaresq River.

The Dumaresq River (to the south of Project Area) is a mapped state riparian corridor that links vegetation in Yelarbon State Forest to large patches of vegetation to the east including Sundown National Park and Girraween National Park.

## **4.2. Vegetation communities**





### **4.2.1. Regional ecosystems**

The ground-truthed vegetation communities identified for the Project Area, represented as a minor refinement of the state-mapped REs, are presented in Figure A-7. These minor refinements include the addition of REs to areas that are currently mapped as non-remnant under state mapping. This includes the addition of Brigalow woodland RE's, specifically RE11.3.25 in the southern parts of Brush Creek and RE 11.3.4 and 11.4.10 in the far north of the Project Area, where they are present as small, isolated polygons in a cleared pasture matrix and along Brush creek. (Figure A-6).

The REs ground-truthed within the Disturbance Footprint are each summarised in Table 4-1.

They include RE 11.3.25, RE 11.4.10, RE 11.5.1 and RE 11.5.20.

Table 4-1 Ground-truthed vegetation communities within the Disturbance Footprint

Regional Ecosystem	REDD Description	Mapped extent in Disturbance Footprint (Ha)	Representative photograph
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	0.217	
11.4.10	<i>Eucalyptus populnea</i> or <i>E. woollsiana</i> , <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> open forest to woodland on margins of Cainozoic clay plains	0.177	
11.5.1	11.5.1: <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	0.037	
11.5.20	<i>Eucalyptus moluccana</i> and/or <i>E. microcarpa</i> and/or <i>E. woollsiana</i> +/- <i>E. crebra</i> woodland on Cainozoic sand plains	0.114	

All significant areas of mapped remnant and regrowth vegetation lie outside the Disturbance Footprint by design. Ground-truthing has determined small patches of REs, as noted in Table 4-1. These patches will be completely avoided and not subject to any construction impacts. Construction works within the Disturbance Footprint will be located predominantly in already cleared areas (such as using existing farm tracks for cable trenches) Scattered individual trees and small stands will be impacted by the development, but these are either completely isolated or on the very edge of larger vegetative patches. The scattered trees and small stands total approximately 4.4ha.

#### 4.2.2. EPBC listed threatened ecological communities

Seven TECs were identified as potentially occurring within the Project Area (Table 4-2). One threatened TEC, the Brigalow woodlands, was recorded within the Project area as small, isolated polygons occurring as RE 11.4.10. Patch sizes were greater than 0.5 hectares, thus surpassing the TEC determination thresholds described in the *Approved Conservation Advice for the Brigalow (Acacia harpophylla dominant and co-dominant) ecological community* (DoE 2013). There is a total of 30.7 hectares of Brigalow within the Project Area. The majority of these patches are located exterior to the Disturbance Footprint and will be included as Avoidance Areas for the Project. A total of 0.177 hectares of Brigalow is located within the Disturbance Footprint, just within the northern section of the boundary. This patch will be completely avoided.

Several RE polygons across the Project Area were mapped as RE 11.3.2 (*Eucalyptus populnea* woodland on alluvial plains). This RE is listed as an equivalent vegetation community for the TEC Poplar Box Grassy Woodland on Alluvial Plains. Ground truthing results reveal that whilst this RE was present, it did not meet the criteria to conform to this TEC.

Table 4-2 Potential TECs within the Project Area.

TEC	Status	Equivalent REs	Mapped within the Project Area	Recorded within the Disturbance Footprint
Brigalow ( <i>Acacia harpophylla</i> dominant and codominant)	E	11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14, 11.12.21, 12.8.23, 12.9-10.6, 12.12.26, 6.4.2	Yes	Yes 11.4.10 is recorded within the Disturbance Footprint.
Poplar Box Grassy Woodland on Alluvial Plains	E	11.3.2, 11.3.17, 11.4.7, 11.4.12, 12.3.10	11.3.2 is mapped within the Project Area but none of these patches meet the criteria of the TEC.	No
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	E	11.3.3, 11.3.15, 11.3.16, 11.3.28, 11.3.37, sometimes 11.3.27	No	No
Weeping Myall Woodlands	E	11.3.2, 11.3.28	No	No

TEC	Status	Equivalent REs	Mapped within the Project Area	Recorded within the Disturbance Footprint
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.	CE	11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8, 13.12.9, 11.3.23, 12.8.16, 13.3.4, 13.11.3, 13.11.4	No	No
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	CE	11.3.21, 11.3.24	No	No
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	CE	13.3.2	No This TEC is almost entirely confined to Girraween National Park and none of the characteristic species were recorded within the Project Area.	No

### 4.3. Flora species

Sixty-three flora species were recorded during the surveys (Appendix E). The paddocks and cropped areas were mostly devoid of any woody vegetation and ground cover consisted of native and introduced grasses such as chloris (*Chloris spp.*), wiregrass (*Aristida spp.*), Buffel Grass (*Cenchrus ciliaris*), African Lovegrass (*Eragrostis curvula*) and Red Natal Grass (*Melinis repens*), and weeds such as Heart-leaf Sida (*Sida cordifolia*), Castor Oil Plant (*Ricinus communis*) and Prickly Pear (*Opuntia spp.*).

Patches of remnant trees were found on the edges of the paddocks and croplands, these areas were mostly disturbed in the understorey due to heavy grazing or weeds.

Appendix E contains flora species recorded in the Project Area during the surveys.

#### 4.3.1. EPBC Act listed threatened flora

Four threatened flora species were identified as having a moderate potential of occurring within the Project Area (Appendix C). There were:

- *Xerothamnella herbacea* (Endangered)
- *Dichanthium setosum* (Vulnerable)
- Winged Pepper-cress (*Lepidium monoplacoides*) (Endangered)
- Belson's Panic (*Homopholis belsonii*) (Vulnerable)

Targeted flora surveys across the Project Area did not identify the above listed flora species. Suitable habitats present as open woodlands and grassy cattle grazing paddocks are present on the site, however these areas

have been highly modified. Ongoing grazing and agricultural practices have prevented these open pasture/woodland areas from developing a remnant understory and ground cover layer.

#### **4.4. Fauna species**

During the survey, a comprehensive list of fauna species was compiled (Appendix C). Most recorded species were common inhabitants of disturbed pastures and woodlands across the Brigalow Belt. A total of fifty-four (54) fauna species were documented within the site during the survey period. These records included both opportunistic sightings and species observed during designated surveys conducted within representative vegetation communities.

The Project Area provides essential foraging, nesting, and roosting habitat for a diverse range of fauna species. Several hollow bearing trees were recorded along Brush Creek and provide suitable habitat for the Greater Glider and several commonly occurring birds and arboreal mammals.

Permanent agricultural dams interspersed throughout the site provide aquatic habitat that is utilised by various waterbirds, including Yellow-billed Spoonbills (*Platalea flavipes*), Teals (*Anas gracilis*), Great Egrets (*Ardea alba*), and Pacific Black Ducks (*Anas superciliosa*). Ephemeral gilgais in the site provide seasonal resources for mammals, reptiles and amphibians.

The majority of the Project Area consists of cleared grassland habitat, providing limited shelter and foraging opportunities. Species typical of this habitat within the bioregion constituted the majority of the fauna diversity across the Project Area.

##### **4.4.1. Birds**

A total of thirty bird species were recorded within the Project Area during the combined survey period. This includes opportunistic sightings and species recorded during designated surveys within representative vegetation communities.

The Project Area supports foraging, nesting and roosting habitat for a variety of bird species. Suitable nesting opportunities for hollow-dependant species are most abundant in riparian areas. There are several aquatic areas for birds across the Project Area including farm dams, permanent and ephemeral waterways and drainage lines, many of which would provide seasonal resources.

Species common to the Project Area included farmland and woodland species such as Australian Magpie (*Cracticus tibicen*), Torresian Crow (*Corvus orru*), Black-faced Cuckoo Shrike (*Coracina novaehollandiae*), Australasian Pipit (*Anthus novaeseelandiae*) and Laughing Kookaburra (*Dacelo novaeguineae*).

##### **4.4.2. Mammals**

A total of ten mammal species were recorded during the combined survey period, six of which are introduced species. Mammals found in the Project Area included species commonly found in agricultural and woodland habitats throughout the Darling Downs region.

Species found in the Project Area included six introduced species: Domestic Cattle (*Bos taurus*), Domestic Dog (*Canis familiaris*), Feral Pig (*Sus domesticus*), European Rabbit (*Oryctolagus cuniculus*), Black Rat (*Rattus rattus*) and European Red Fox (*Vulpes vulpes*).

The four native mammal species found in the Project Area include Eastern Grey Kangaroo (*Macropus giganteus*), Red-neck Wallaby (*Macropus rufogriseus*), Swamp Wallaby (*Wallabia bicolor*) and Greater Glider (*Petauroides volans*).

Bat call analysis identified 18 species of bats. Calls from *Nyctophilus sp.* were recorded on detectors, although distinguishing among this group based on calls alone is challenging. Given the numerous records of the EPBC Act listed *Nyctophilus corbeni* in the area, it's possible some of the calls could be from this species. All of the other bats were common bats that would inhabit woodlands and open areas.

Table 4-3 Bat call analysis results (provided by Green Tape Solutions).

Species	NC Act	EPBC Act	Presence
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<i>Nyctophilus sp.*</i>			Possible
<i>Nyctophilus. geoffroyi</i>	LC	NOC	Possible
<i>Nyctophilus gouldi</i>	LC	NOC	Possible
<b>Error! Reference source not found.</b>	LC	NOC	Probable
<b>Error! Reference source not found.</b>	LC	NOC	Possible
<b>Error! Reference source not found.</b>	LC	NOC	Possible
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Definite
<b>Error! Reference source not found.</b>	LC	NOC	Possible
<b>Error! Reference source not found.</b>	LC	NOC	Probable

Species	NC Act	EPBC Act	Presence
<b>Error! Reference source not found.</b>	LC	NOC	Probable
<b>Error! Reference source not found.</b>	LC	NOC	Probable
<b>Error! Reference source not found.</b>	LC	NOC	Probable

\* Several species of *Nyctophilus* are likely to be present in the area including *Nyctophilus corbeni*. These calls cannot always be distinguished to species level.

### 4.4.3. Reptiles & amphibians

A total of five reptile and two amphibian species were recorded during the combined survey period. The Project Area supports foraging and nesting habitat for a variety of reptiles and amphibians.

Reptile species found in the Project Area included woodland and riparian species such as Web-toed Geckos (*Gehyra sp.*), Burton’s Legless Lizard (*Lialis burtonis*), Common Death Adder (*Acanthophis antarcticus*), Bearded Dragon (*Pogona barbata*) and Lace Monitor (*Varanus varius*).

The amphibians found included species commonly found in the Darling Downs, such as Ornate Burrowing frog (*Platyplectrum ornatum*) and Striped Rocket Frog (*Litoria nasuta*).

### 4.4.4. EPBC Act listed threatened fauna species

Fifty-one species listed as threatened under the EPBC Act could potentially occur within the Disturbance Footprint. Only one fauna species, the Greater Glider, was confirmed within the Project Area (Table 4-4). Another nine species are considered likely to occur based on recent nearby records and suitable habitat within the Project Area. Two fish species, the Murray cod and Silver perch, were recorded within the desktop assessment with the potential to occur within the locality. Since the Disturbance Footprint is located outside of the waterways on the site and no clearing of riparian vegetation or waterway barrier works will be conducted, these species were not considered further in this assessment.

Table 4-4 Summary of MNES threatened fauna species confirmed or with a high likelihood of occurrence to be within the Project Area.

Common name	Scientific name	EPBC Act	Likelihood of occurrence
Greater Glider	<i>Petauroides armillatus syn. volans</i>	Endangered	Confirmed
Glossy Black-cockatoo (eastern)	<i>Calyptorhynchus lathami lathami</i>	Vulnerable	High
Squatter Pigeon	<i>Geophaps scripta scripta</i>	Vulnerable	High

Common name	Scientific name	EPBC Act	Likelihood of occurrence
Latham's Snipe	<i>Gallinago hardwickii</i>	Vulnerable	Confirmed
South-eastern Long-eared Bat	<i>Nyctophilus corbeni</i>	Vulnerable	High
Diamond Firetail	<i>Stagonopleura guttata</i>	Vulnerable	High
Koala	<i>Phascolarctos cinereus</i>	Endangered	High
Grey Snake	<i>Hemiaspis damelii</i>	Endangered	High
Dunmall's Snake	<i>Furina dunmali</i>	Vulnerable	High

Another eight EPBC Act listed fauna and flora were considered to have a moderate likelihood of occurring within the Project Area, these were:

- Southern Whiteface *Aphelocephala leucopsis* (Vulnerable)
- Australasian Bittern *Botaurus poiciloptilus* (Endangered)
- Grey Falcon *Falco hypoleucos* (Endangered)
- Painted Honeyeater *Grantiella picta* (Vulnerable)
- White-throated Needletail *Hirundapus caudacutus* (Vulnerable)
- Swift Parrot *Lathamus discolor* (Critically Endangered)
- South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Endangered)
- Blue-winged Parrot *Neophema chrysostoma* (Vulnerable)
- Australian Painted Snipe *Rostratula australis* (Endangered)
- Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable)

Many of these species occur in woodlands which occur within the Project Area but are outside the Disturbance Footprint. As the Disturbance Footprint avoids all patches of native vegetation the potential impact to these species is likely to be low.

A further discussion of the habitat requirements for the species confirmed or with a high likelihood of occurring in the Project Area are listed in Section 5.1.

#### 4.4.5. EPBC Act listed migratory species

Desktop assessment under the Protected Matters Search Tool (PMST) revealed 11 migratory bird species potentially occurring in the locality. Suitable habitat is present on the site for 3 migratory species. These are:

- Fork-tailed Swift (*Apus pacificus*)
- Latham's Snipe (*Gallinago hardwickii*)
- White-throated Needletail (*Hirundapus caudacutus*)

Given that White-throated Needletail and Fork-tailed Swift are almost exclusively aerial and rarely land on the surface and do not breed within Australia, they are highly unlikely to be impacted by the proposed project. As

such, these species have not been considered further in this assessment. A further discussion of the habitat and likelihood of occurrence for Latham's Snipe is listed in Section 5.1.7 of this report.



#### **4.5. Fauna habitat**




Six habitat types were identified within the Project Area during the field survey. These habitat types occurred within both remnant woodlands and non-remnant cleared agricultural areas. The overall condition of each habitat type varied depending on the severity of cattle grazing and weed density. The habitats identified on the site are:

- Cleared (non-remnant) grasslands (primarily for cattle grazing)
- Riparian woodlands
- Brigalow
- Woodlands on alluvial flats
- Woodlands on clay plains
- Woodlands on sandy plains

A description of each of these habitats is included in Table 4-5. A map showing the location of these habitats as regional ecosystems is presented in Appendix A-7.

Table 4-5 Available habitats for terrestrial fauna within the Project Area.

Habitat and REs	Description	Photo
<p><b>Cleared grasslands</b> <i>Non-remnant</i></p>	<p>This habitat has been previously cleared and is dominated by low native and exotic grasses. Small shrubs and regrowth occur in areas mostly on the edges of paddocks and cropland. Seeding grasses would provide habitat for granivorous birds and provide habitat for bird prey (e.g., insects). Following seasonal rainfall, grasses could provide shelter for ground nesting birds such as plovers and Squatter Pigeon. Hollow bearing trees were scattered on the edges of cleared areas, offering nesting and foraging opportunities for birds and arboreal mammals. Dams in the cleared areas provide watering opportunities for waterbirds, macropods, frogs and reptiles, birds, and bats. These habitats are degraded through grazing and weeds.</p>	
<p><b>Riparian woodland</b> 11.3.25</p>	<p>Riparian woodlands occur along Brush creek. These woodlands are dominated by large <i>Eucalyptus tereticornis</i> with a midstory containing <i>Casuarina cristata</i>, <i>Melaleuca decora</i> and <i>Geijera parviflora</i>. Hollows are common, which would provide sheltering and breeding opportunities for hollow dependent species such as Greater Glider. The large eucalypts would also provide abundant nectar resources for nectivorous birds and mammals including flying-foxes. Litter and debris are common in areas protected from cattle grazing, rare in intensely grazed areas. The riparian woodlands within the Project Area vary from disturbed to remnant, many areas are infested with Lantana. These weeds provide some habitat to birds and reptiles but smother vegetation which is habitat for other species.</p>	

Habitat and REs	Description	Photo
<p><b>Woodlands on alluvium</b></p> <p>11.3.2</p> <p>11.3.4</p> <p>11.3.20</p>	<p>These habitats occur on the flats within the Project Area where remnant vegetation remains. Eucalypts including <i>Eucalyptus populnea</i> and <i>E. tereticornis</i> dominate. Grasses can be sparse to dense (depending on grazing intensity) and would provide foraging and sheltering opportunities for birds and mammals. Rocks are generally absent or sparse. Debris and leaf litter is generally sparse. Hollow abundance depends on the dominant species.</p>	
<p><b>Woodlands on clay plains</b></p> <p>11.4.10</p>	<p>Open forest to woodland dominated by <i>Eucalyptus populnea</i> and/or <i>E. woollsiana</i> and/or <i>Acacia harpophylla</i>. These areas contain flowering trees suitable for foraging. Grass cover is generally sparse and, in areas with few or no cattle, woody debris is abundant.</p> <p>Gilgais are present in the patch of remnant RE 11.4.10 in Lot 54CVE91. Gilgais are also present outside the woodland in the adjacent paddocks. Gilgais, when filled with water, provide habitat for frogs, aquatic vegetation and species that prey on frogs and invertebrates including Grey Snake. The cracking clays adjacent to these Gilgais provide sheltering habitat for reptiles, small mammals and frogs.</p>	
<p><b>Woodland on sandy plains</b></p> <p>11.5.1</p> <p>11.5.20</p>	<p>Eucalypt woodland on Cainozoic sand plains and/or remnant surfaces. The canopy is dominated by <i>Eucalyptus woollsiana</i> and/or <i>E. populnea</i>, while the midstory typically features <i>Casuarina cristata</i>, <i>Acacia harpophylla</i> and/or <i>Geijera parviflora</i>.</p>	

### 4.5.1. Gilgais

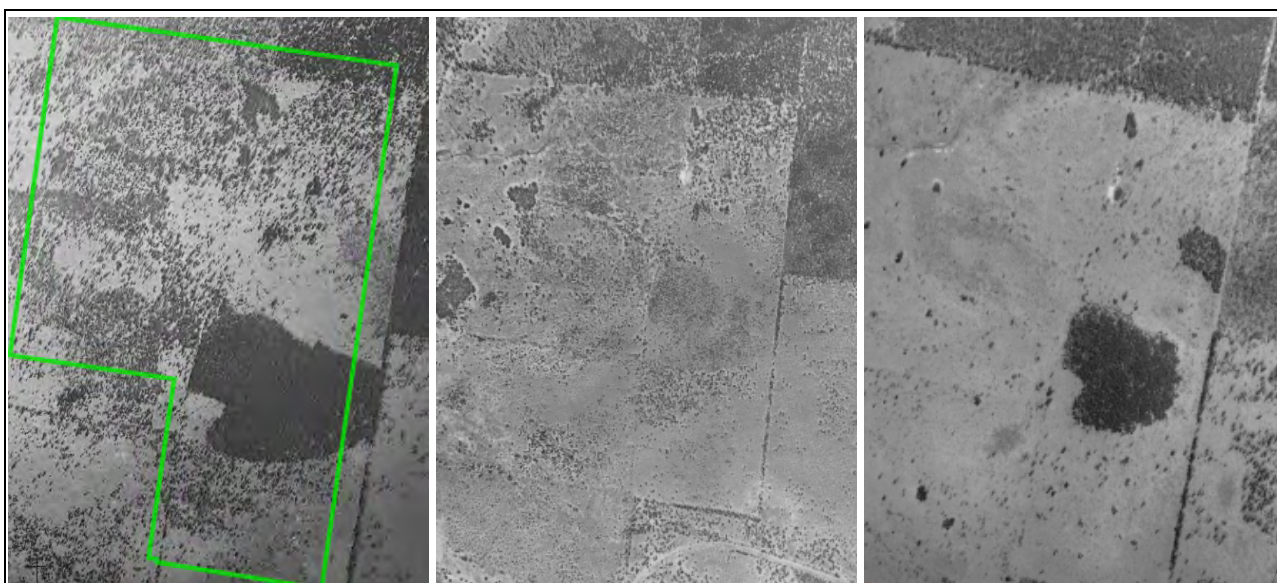
Gilgais are small depressions within the soil surface that form from the seasonal wetting and drying of clay soils (vertisols). The wetting and drying process of these soils creates mounds and depressions on the soil surface, which seasonally inundate with water to form small ephemeral ponds or lakes. These small waterbodies provide habitat for an array of fauna species. Furthermore, once these clay pans dry and crack, they provide microhabitat features for the Grey Snake and for the ground dwelling frogs this species preys upon.

Within the Project Area, Lot 54CVE91 contains remnants of gilgais formed in the cracking clay soils. These cracking clay soils are associated with Land zone 4 (clay plains) which has been previously mapped on the lot by state mapping. The vegetation community previously mapped on this lot under the Regional Ecosystem pre-clear map reveals that Brigalow woodland was historically present. Minor fragments of this TEC are present on the eastern boundary of Lot 54CVE91.

The historical imagery suggests that much of Lot 54CVE91 has undergone constant disturbance and clearance since at least the 1940s (refer Figure 4-1). The property contains large grazing paddocks and has been partially cleared since at least 1949. All of the remnant Brigalow community was cleared by 1961 with only sparse areas of regrowth remaining, which was then subsequently cleared by 1977.

By 1989, all but the small patch of Brigalow on the eastern edge had been cleared and almost no regrowth was present. In 1999, it's likely that the southern part of the Lot was cropped or levelled as indicated by the scar lines seen in the image and again in 2023. At the time of the survey mobilisations, there was evidence of recent clearing of Brigalow regrowth and the paddocks were heavily grazed. In the southern part of the Lot, the remains of gilgais were evident by the depressions but these were covered in grass (both native and introduced), and some sedges but almost no woody shrubs, trees or woody debris remained. It is likely the southern part of the paddock has been tilled and levelled in the past as the ground was exceptionally flat with the only depressions being the disturbed gilgais.

Apart from the recent clearing in the north (evidenced by the piles of recently cleared timber), there was very little ground debris suggesting the paddock has been raked of woody debris in the past. In this northern part of the Lot, the gilgais were more evident but with degraded habitat value through clearing and trampling by cattle. In this area the soil cracks were larger and there was more woody debris which could be used by Grey Snake. This area has been constantly disturbed since the 1940s and has been heavily grazed so contains few remaining features characteristic of a Brigalow community.



August 1949 (Yetman-Border Rivers- Wyemo 1949, 1:25,600, QAP13 Frame 44) September 1961 (Waroo 1961, 1:2400, QAP1207 Frame 30) June 1977 (Texas 1977, 1: 25000, Image QAP3336, Frame 2457)



June 1989 (Yetman 1989, 1:40000, Image QAP4670 Frame 244) June 1999 (Texas-Inglewood 1999, 1:75,000, QAP5630 Frame 219) June 2023 (Google Earth)

Figure 4-1 Historical imagery of Lot 54CVE91 showing clearing from 1949 to 2023 and the presence of gilgais.



Figure 4-2 Gilgai in the south of Lot 54CVE91. Quality of the gilgai are considered poor due to the lack of remnant woodland community



Figure 4-3 Regrowth Brigalow trees cleared in the north of Lot 54CVE91.

## 4.6. Invasive species

### 4.6.1. Weed species

Thirteen species of weeds were identified across the Project Area during field survey. This included two cacti species which are Weeds of National Significance (WoNS) and three weed species listed as category 3 restricted invasive plants under the Queensland Biosecurity Act (1994). All weeds were sparsely distributed through the Project Area.

Other non-declared pasture weeds were present throughout the cleared areas but were not recorded.

Table 4-6 Weed species identified at the Project Area.

Scientific name	Common name	WoNS	Status under Biosecurity Act - Category
<i>Bidens pilosa</i>	Cobblers Pegs		Environmental Weed
<i>Bryophyllum spp.</i>	Mother-of-millions		Restricted invasive plant
<i>Cenchrus ciliaris</i>	Buffel Grass		Environmental Weed
<i>Cylindropuntia spp.</i>	Prickly Pear	Yes	Prohibited invasive plant – Category 3
<i>Eragrostis curvula</i>	African Love Grass		Environmental Weed
<i>Glandularia aristigera</i>	Mayne’s Pest		Environmental Weed
<i>Harrisia spp.</i>	Snake Cactus		Restricted invasive plant
<i>Megathyrsus maximus</i>	Guinea Grass		Environmental Weed
<i>Melinis repens</i>	Red Natal Grass		Environmental Weed
<i>Opuntia spp.</i>	Prickly Pear	Yes	Prohibited invasive plant – Category 3
<i>Ricinus communis</i>	Castor Oil Plant		Environmental Weed
<i>Sida cordifolia</i>	Flannel Weed		Environmental Weed
<i>Xanthium occidentale</i>	Noogoora Burr		Environmental Weed

### 4.6.2. Pest animals

Six pest animal species were identified during the survey (

Table 4-7). Predatory pest animal species included European Red Fox (*Vulpes vulpes*) and Wild Dog (*Canis lupus*). This species poses significant threat to native wildlife. All of the species recorded are common in disturbed agricultural areas and will occur within the Disturbance Footprint.

Table 4-7 Pest animal species identified at the Project Area.

Scientific name	Common name	Method of sighting	Location	Status under Biosecurity Act - Category
<i>Acridotheres tristis</i>	Common Myna	Incidental	Throughout	None (introduced)
<i>Canis sp.</i>	Wild Dog	Camera trap	Beebo Seventeen Mile Road	Restricted invasive animal
<i>Rattus rattus</i>	Black Rat	Camera trap	Brush Creek	None (introduced)
<i>Oryctolagus cuniculus</i>	Rabbit	Incidental	Beebo Seventeen Mile Road	Restricted invasive animal
<i>Sus domestica</i>	Feral Pig	Incidental	Beebo Seventeen Mile Road	Restricted invasive animal
<i>Vulpes vulpes</i>	European Red Fox	Camera trap	Beebo Seventeen Mile Road	Restricted invasive animal



Figure 4 2 European Red Fox (*Vulpes vulpes*).

#### 4.7. Corridors and linkages

The primary habitat corridor within the Project Area is the riparian vegetation along Brush Creek. This corridor provides a link between Yelarbon State Forest and the Dumaresq River. The Dumaresq River (to the south of Project Area) is a mapped State riparian corridor that links vegetation in Yelarbon State Forest to large patches of vegetation to the east including Sundown National Park and Girraween National Park.

South of the Project Area is the Texas-Yelarbon Rd (Figure 4-4) which provides a barrier for many fauna species. Crossing the road for arboreal species is very limited even where Brush Creek intersects the road. The gap between trees at the crossing is too wide (around 40 m between trees) for most arboreal species to

cross unless they travel on the ground under the bridge. It is unlikely that Greater Glider could move past the barrier of the road.

The paddocks are mostly cleared of trees so there is little linkage between even small patches.



Figure 4-4 Brush Creek crossing of Yelarbon-Texas Rd showing the large gap between trees and the lack of connectivity.

#### **4.8. Wetlands and waterways**

The site is intersected by Brush Creek (stream order 6) running from north-east to south-west. Brush Creek feeds into the Dumaresq River. Two minor unnamed stream order 1 creeks within the Project Area feed into Brush Creek. In the north of the Project Area in Lot 23 CLV34133 the creek has a formed a wetland which would be inundated when Brush Creek is in flood. The water in Brush Creek is likely to be permanent or semi-permanent. There are no MNES Wetlands of International Importance within the Project Area. Figure A-5 provides a visual representation of the mapped waterways and wetlands within the Project Area.

## 5. Matters of national environmental significance

### 5.1. Threatened species

#### 5.1.1. Koala (*Phascolarctos cinereus*)



Koala (Photo: E. Budd)

#### EPBC Act listing status

Endangered

#### NC Act listing status

Endangered

#### Description

The koala is a predominantly arboreal, medium-sized marsupial with a stocky body, large, rounded ears, sharp claws and predominantly grey-coloured fur. The species displays sexual dimorphism (males generally are larger than females). The koala is a leaf-eating specialist that feeds primarily during dawn, dusk or night. Its diet is restricted mainly to foliage of Eucalyptus; however, it may also consume foliage of related genera, including *Corymbia spp.*, *Angophora spp.* and *Lophostemon spp.* The koala may, at times, supplement its diet with other species, including *Leptospermum spp.* and *Melaleuca spp.* (DCCEEW 2022b). Koala habitat can be broadly defined as any forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees. The distribution of this habitat is largely influenced by land elevation, annual temperature and rainfall patterns, soil types and the resultant soil moisture availability and fertility. Preferred food and shelter trees are naturally abundant on fertile clay soils (DCCEEW 2022b).

#### Distribution

The koala is distributed predominantly along the east coast of Australia from northern Queensland to the Eyre Peninsula west of Adelaide in South Australia. Koalas are known to inhabit inland areas of Queensland, although their populations are denser towards the coast. Koala distribution across Australia has been altered due to relocation and reintroduction into other areas outside of their original natural habitat.

### **Important populations**

The Conservation Advice for *Phascolarctos cinereus* (koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (Koala Conservation Advice) (DAWE 2022) provides guidance on factors that comprise an important population for conservation of koalas. Important populations for conservation of the koala are populations which:

- Have the potential to act as source populations to adjacent areas of suitable, or potentially suitable, habitat
- Exist in areas of climatically suitable refugia during periods of environmental stress including droughts, heatwaves, and long-term climate change
- Are genetically diverse
- Are disease free and/or exhibit low rates of infection with important pathogens
- Contain genes which may confer adaptation to current and future environmental stressors
- Are geographical or environmental outliers within the species' range.

All the koalas in Queensland, New South Wales, and the Australian Capital Territory (ACT) are considered important populations and are listed as endangered. In contrast to the Queensland, New South Wales, and the Australian Capital Territory populations, koala populations in the southern part of the species' range, in Victoria and South Australia, are robust, and in some cases overpopulation has led to active population control measures being put in place (DAWE 2022).

### **Habitat**

Koala habitat can be broadly defined as any forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees (Youngentob, Marsh & Skewes 2021). This can include (DCCEEW 2022b):

- Forests or woodlands, especially with a higher proportion of feed tree species, and may include remnant or non-remnant vegetation
- Roadside and railway vegetation and paddock trees
- Safe intervening ground for travelling between trees and patches to forage, shelter and reproduce
- Access to vegetated corridors or paddock trees to facilitate movement between patches.

Distribution of habitat is largely influenced by land elevation, annual temperature and rainfall patterns, soil types and the resultant soil moisture availability and fertility, with preferred food and shelter trees naturally more abundant on fertile clay soils (DCCEEW 2023a).

Koala habitat categories can be defined as follows:

- **Refuge habitat:** habitat areas that sustain koala populations during times of heat and water stress by providing refuge through cooler microclimates, particularly in riparian zones and other areas with reliable soil moisture, intact vegetation and high-quality food trees that are the locally important tree species for the region. Intact riparian zones also facilitate long-distance dispersal, allowing for gene flow.
- **Foraging habitat:** habitat which allows for koala foraging and movement throughout its environment. This can include dry intact habitat, paddock trees, roadside vegetation, regrowth vegetation, and vegetation dominated by food tree species other than those listed as preferred food trees for the region.
- **Dispersal habitat:** habitat which facilitates safe movement for koalas between patches of suitable foraging or refuge habitat. This includes non-eucalypt vegetation that provides connectivity between patches of eucalypt habitat. Dispersal habitat does not contain trees that are suitable for foraging or climate refugia.

All habitat categories described above are important for the persistence of koala populations, although refuge habitat sustains higher population densities and may become more important over time under climate change (DCCEE 2022b).

Locally important koala trees (preferred feed trees) and ancillary habitat tree species (commonly used shelter vegetation species that contribute to koala habitat) have been identified for each koala Management Bioregion (Young et al., Marsh & Skewes 2021).

Locally important koala trees for the Brigalow Belt include:

- Brown's Box (*Eucalyptus brownii*)
- River Red Gum (*Eucalyptus camaldulensis*)
- Baradine Gum (*Eucalyptus chloroclada*)
- Fuzzy Box (*Eucalyptus conica*)
- Coolabah (*Eucalyptus coolabah*)
- Narrow-leaved Ironbark (*Eucalyptus crebra*)
- Queensland Grey Ironbark (*Eucalyptus drepanophylla*)
- Ironbark (*Eucalyptus dura*)
- Queensland Peppermint (*Eucalyptus exserta*)
- Broad-leaved Ironbark (*Eucalyptus fibrosa*)
- Silvertop Stringybark (*Eucalyptus laevopinea*)
- Black Box (*Eucalyptus largiflorens*)
- Grey Gum (*Eucalyptus longirostrata*)
- Queensland Grey Gum (*Eucalyptus major*)
- Silver-leaved Ironbark (*Eucalyptus melanophloia*)
- Grey Box (*Eucalyptus microcarpa*)
- Gum-topped Box (*Eucalyptus moluccana*)
- Yapunyah (*Eucalyptus ochrophila*)
- Mountain Coolibah (*Eucalyptus orgadophila*)
- Poplar Gum (*Eucalyptus populnea*)
- Long-capped Grey Gum (*Eucalyptus punctata*)
- Sydney Blue Gum (*Eucalyptus saligna*)
- Mugga Ironbark (*Eucalyptus sideroxylon*)
- Forest Red Gum (*Eucalyptus tereticornis*)

### **Relevant guidelines**

Guidelines relevant to Koala habitat and determining significant impact include:

- Conservation Advice for *Phascolarctos cinereus* (koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (DAWE 2022).
- National Recovery Plan for the koala *Phascolarctos cinereus* (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DCCEE 2022b).
- Identifying habitat for the endangered koala (DCCEE 2022c).
- Referral guidance for the endangered koala (DoE 2014a).

### **Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists. This species is assumed to be present based on the habitat within the Project Area.

### **Database records**

The five closest database records are detailed Table 5-1.

Table 5-1 Five closest records of Koala to the Project Area and the habitats they were found in.

Database	Habitat description	Distance to Project Area (km)	Date
ALA	Native woodland	12.49	26/04/2002
WildNet	<i>Eucalyptus melliodora</i> and/or <i>Eucalyptus microcarpa</i> / <i>E. moluccana</i> woodland on metamorphics.	15.48	18/11/2009
ALA	Native woodland	17.63	26/09/2001
ALA	Cleared of woody vegetation	21.63	30/04/1965
ALA	<i>Eucalyptus moluccana</i> and/or <i>E. microcarpa</i> and/or <i>E. woollsiana</i> +/- <i>E. crebra</i> woodland on Cainozoic sand plains	21.64	31/12/1987

### Habitat in the Project Area

Koala habitat in the Project Area includes Eucalypt woodlands and isolated eucalypt paddock trees within an agricultural matrix. These isolated stands of eucalypt paddock trees will allow the Koala to safely disperse between patches of suitable habitat. The non-remnant habitat in the Project Area is generally in poor to very poor condition, degraded by agricultural clearing, grazing and weeds. The cropped areas (those currently under cropping and recently cropped) are devoid of vegetation except pasture weeds and the occasional isolated patch of grass. Scattered trees are present along the edges of the cropping areas. The ground cover across most of the grazing areas contains native and introduced grasses at a density that allows for Koala dispersal but there are few to no shrubs or trees for cover from predators or shade from the sun. The occasional paddock tree may be used as shelter and foraging for dispersing animals. The trees in these paddocks are not currently protected by any Local, State or Federal legislation as the land is mapped as Category X and the landowner has the right to clear these trees at any time as part of pasture improvement. Evidence of recent clearing of regrowth was present in many of the grazed paddocks.

Koala habitat in the Project Area is defined as:

- Foraging habitat: are remnant, regrowth and non-remnant containing Koala food trees.
- Refuge habitat: All habitat within vegetation communities growing on alluvial soils (particularly Brush Creek) where suitable forested habitat is present.
- Dispersal habitat: all other habitat that would allow koalas to safely move throughout their habitat. This includes open grassy paddocks and cropping areas within interspersed isolated paddock tree stands.

Considering the habitat criteria listed above, the Project Area contains 703.89ha of foraging habitat, 1387.95 ha of dispersal habitat and 104.02ha of refuge habitat (along Brush Creek). Of this, a total of 3.16ha of foraging, .06ha of refuge habitat and 901.42ha of dispersal habitat is located within the Disturbance Footprint. Only minor earth works are expected for the installation of the solar array, minimising overall disturbance on the site. Koala habitat across the Project Area and Disturbance Footprint is provided in Figure A-9.

**Threats to the species**

Key threats to the Koala, as identified in the National Recovery Plan (DCCEEW 2022b), include land clearing, which results in habitat loss and fragmentation. Additionally, climate change impacts such as heatwaves and drought, along with population-level effects like inbreeding depression and, in some cases, overabundance, pose significant risks. Threatening processing with the project area include predation by feral predators, particularly wild and loss of suitable habitat for agricultural expansion.

**Representative habitat photo**



Figure 5-1 Koala habitat along Brush Creek within the Project Area.

### 5.1.2. Greater Glider (*Petauroides volans*)



Greater Glider (Photo: E. O'Meara)

#### **EPBC Act listing status**

Endangered

#### **NC Act listing status**

Endangered

#### **Description**

This species is the largest of Australia's gliding mammals (body - 45cm, tail - 60cm). The Greater Glider is unique in that its gliding membrane stretches between its elbow and ankle, rather than wrist and ankle. They have long fur and big rounded fluffy ears, which makes them look larger than they are. They utilise hollow bearing trees for nesting and are nocturnal, feeding on eucalyptus leaves and flower buds (DCCEEW 2022a). They inhabit forest and woodlands in mainland eastern Australia (ALA 2023). Presence and density of Greater Gliders is related to soil fertility, eucalyptus tree species, disturbance history and density of suitable tree hollows (Kavanagh 2004; Smith, Mathieson & Hogan 2007; Tyndale-Biscoe & Smith 1969).

The severe bushfires of 2019/20 have significantly impacted the national population of Greater Glider. Between 10 and <30% of known and likely modelled distribution of Greater Glider is within fire affected areas. As a result, Greater Glider have been identified as high priority mammal species recommended for urgent management intervention to support ecological recovery (Eyre, Smith, et al. 2022) and were listed as Endangered under the EPBC Act in July 2022. To avoid impacts to this species, the project proponent has designed the Disturbance Footprint to completely avoid all areas of remnant vegetation that are habitat for the Greater Glider. The Disturbance Footprint.

#### **Distribution**

- Inhabit the east coast of Australia, between the Windsor Tableland in Northern Queensland to Wombat State Forest in central Victoria (Winter et al. 2004).
- An isolated population occurs in the Gregory Range west of Townsville (Winter et al. 2004).

- The distribution of the Greater Glider appears to have been influenced by the occurrence of European settlement (van der Ree, Ward & Handasyde 2004), and has decreased substantially as a result of land clearing.

### **Important populations**

The Conservation Advice for *Petauroides volans* (Greater Glider (southern and central)) (DCCEEW 2022a) states that all populations of Greater Glider (southern and central) are considered important for the conservation of the species. This is largely due to the low fecundity and poor dispersal abilities of the species, which prevent it from recolonising areas in which populations have become extinct. Based on this definition, any population of Greater Glider that occurs within the Project Area would be considered an important population.

Greater Glider was confirmed in the Project Area at one location during spotlighting surveys, therefore an important population is considered to occur.

### **Habitat**

The latest guidelines to Greater Glider habitat in Queensland (Eyre, Smith, et al. 2022) define Greater Glider (southern and central) habitat as follows:

#### Habitat

- Regional ecosystems with confirmed Greater Glider records
- Contains habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape

#### Potential habitat

- Regional ecosystems that do not have confirmed Greater Glider records but are identified by experts as potential Greater Glider habitat
- Contains habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape.

#### Not habitat

- Regional ecosystems with no confirmed records of Greater Gliders, and identified by experts as non-habitat
- Does not contain habitat attributes such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the landscape.

Further advice on Greater Glider habitat is provided in the Conservation Advice for *Petauroides volans* (Greater Glider (southern and central)) (DCCEEW 2022a), which defines habitat critical to the survival of Greater Glider as:

- Large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region; and
- Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonisation; and
- Cool microclimate forest/woodland areas (e.g., protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes); and
- Areas identified as refuges under future climate changes scenarios; and
- Short-term or long-term post-fire refuges (i.e., unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas.

Habitat for the species has been studied extensively and a review of published literature provided the following additional information on Greater Glider habitat which has been considered in this assessment:

- Greater Gliders have a preference for taller, montane, moist eucalypt forests with old trees and abundant hollows (TSSC 2016).
- They favour forests with mixed eucalypt species; especially forests with *Eucalyptus moluccana*, *E. fibrosa*, *Corymbia citriodora* and *E. tereticornis* which are their preferred food tree species (Smith, Mathieson & Hogan 2007). It should be noted however that preferred food trees differ across regions. Greater Glider prefer mixed eucalypt forest due to their largely folivorous diets (Kavanagh 2000).
- A study on Greater Glider habitat selection in southern Queensland found that increased basal area of ironbarks (e.g., *Eucalyptus crebra*) and grey box species negatively influenced Greater Glider abundance. Increased basal area of *Corymbia citriodora* and *Eucalyptus tereticornis* had a positive influence on Greater Glider abundance (Eyre 2006).
- Home ranges are typically 1–4ha, but this increases up to 16ha in lower productivity forest and open woodland. Home ranges overlap between individuals, although typically male home ranges do not overlap. Individuals will also share the same hollows at different times (Smith, Mathieson & Hogan 2007).
- In southern Queensland, Greater Glider are thought to require 2-4 live den trees for every 2ha of forest habitat (or 1–2 live den trees per ha) (TSSC 2016).
- Presence and density of Greater Gliders is related to soil fertility, eucalyptus tree species, disturbance history and density of suitable tree hollows (Kavanagh 2004; Smith, Mathieson & Hogan 2007; Tyndale-Biscoe & Smith 1969).
- The species is reliant on live, hollow bearing, large trees for denning (Smith, Mathieson & Hogan 2007). Several studies have found that they rarely use hollows in dead trees (Ferguson, Laidlaw & Eyre 2018; Goldingay 2012; Smith, Mathieson & Hogan 2007).
- There is little scientific data available on Greater Glider glide distance. A study by Taylor and Goldingay (2009) provides estimates of glide angles between 31° to 40°.
- Greater Gliders are sensitive to logging regimes, with Greater Gliders responding negatively to increased logging. In Queensland, the removal of five stems per hectare of trees 60–80cm DBH, or removal of three stems per hectare of trees with >80cm DBH is predicted to have a negative impact on Greater Glider (Eyre 2006).

Based on the information above, habitat critical to the survival of the species occurs within the Project Area as there are areas of eucalypt forest present which contain mature hollow-bearing trees for denning, diverse food tree species and refuge habitat along riparian corridors which provide connectivity to the surrounding area.

### **Relevant guidelines**

Guidelines relevant to Greater Glider habitat and determining significant impact include:

- Conservation Advice for *Petauroides volans* (Greater Glider (southern and central)) (TSSC 2016).
- Guide to Greater Glider habitat in Queensland (Eyre, Smith, et al. 2022).

### **Survey records**

Three Greater Gliders were recorded in the Project Area during March 2024 nocturnal surveys conducted by NGH. All gliders were found in Brush Creek riparian vegetation off Mountain Ash Road.

### **Database records**

The five closest database records are detailed in Table 5-2.

Table 5-2 Five closest records to the Project Area for Greater Glider along with the habitat they occurred in.

Database	Habitat description	Distance to Project Area (km)	Date
WildNet/ALA	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines. <i>Eucalyptus populnea</i> woodland on alluvial plains	8.67	13/04/1999
WildNet/ALA	<i>Eucalyptus crebra</i> woodland on metamorphics. <i>Eucalyptus melliodora</i> and/or <i>Eucalyptus microcarpa</i> <i>E. moluccana</i> woodland on metamorphics.	11.01	24/02/2011
WildNet/ALA	<i>Eucalyptus melanophloia</i> woodland on metamorphics.	52.19	09/12/2002
ALA	<i>Corymbia citriodora</i> subsp. <i>variegata</i> open forest on metamorphics	73.30	01/11/1995
ALA	<i>Eucalyptus sideroxylon</i> , <i>E. fibrosa</i> subsp. <i>nubilis</i> open forest on metamorphics.	75.11	21/05/1999

### Habitat in the Project Area

Greater Glider habitat in the Project Area includes eucalypt woodland fringing Brush Creek and vegetation directly connected to it. Greater Gliders shelter in tree hollows, with particular preference for large hollows in old growth trees. The vegetation along Brush Creek contains large numbers of hollow bearing *Eucalyptus tereticornis* and *Eucalyptus coolabah*. This habitat has good connectivity to Yelarbon State Forest. It is likely this habitat is an important wildlife corridor for the species. Foraging habitat that contains few hollow bearing trees but are mapped as REs suitable for Greater Glider (including RE 11.5.20 and 11.5.1) occurs in the woodland adjacent to Yelarbon State Forest and in large patches of vegetation in the east of the site. None of these areas are being directly impacted by the Project. Outside of these areas the habitat is highly fragmented, with a very sparse canopy layer that the Greater Glider is unlikely to traverse across.

The Project Area contains 774.78 hectares of suitable foraging and denning habitat. Of this, up to 1.15 hectares will be impacted by the Project. Greater Glider habitat within the Project Area is shown in Figure A- .

### Threats to the species

Key threats to the species are identified in the Conservation Advice (2022) as:

- Climate change
- Inappropriate fire regimes
- Habitat clearing and fragmentation
- Timber harvesting
- Barbed wire fencing (entanglement)
- Overabundance of native species
- Introduced predators

Threatening processes already occurring in the Project Area include:

- Habitat is fragmented due to historic agricultural land use

- Barbed wire fencing is ubiquitous within the Project Area
- European Red fox was recorded within the Project Area during fauna surveys.

**Representative habitat photo**



Figure 5-2 Greater Glider roosting and foraging habitat on Brush Creek at the location where Greater Glider were recorded.

**5.1.3. Squatter Pigeon (*Geophaps scripta scripta*)**



Squatter Pigeon (southern) (Photo: E. O'Meara)

**EPBC Act listing status**

Endangered

**NC Act listing status**

Endangered

**Description**

The Squatter Pigeon (southern) is a medium-sized, ground-dwelling pigeon that measures approximately 30cm in length and weighs about 190–250g. Adults are predominantly grey-brown, but have black and white stripes on the face and throat, blue-grey skin around the eyes, dark-brown (and some patches of iridescent green or violet) on the upper surfaces of the wings, blue-grey on the lower breast and belly, white on the lower region, flanks of the belly and extending onto the under surfaces of the wings, and a blackish-brown band along the trailing edge of the tail. They have black bills, dark-brown irises, and dull-purple legs and feet. The sexes are similar in appearance (Higgins & Davies 1996).

### **Distribution**

- Squatter Pigeon occurs on the inland slopes of the Great Dividing Range.
- Their distribution extends Burdekin-Lynd Divide in central Queensland, west to Longreach and Charleville, east to the coast between Port Curtis and Proserpine, and south to West Wyalong in northern New South Wales (Garnett & Crowley 2000; Higgins & Davies 1996).
- The subspecies has disappeared from the southern half of its historical range (Garnett & Crowley 2000). Formerly widespread and abundant in NSW and occurring at 34°S in parts of the Murray-Darling Basin, its range has contracted markedly since the 1870s and the subspecies now only occurs north of 30° S. There have been few sightings in NSW since 1975 (Cooper, McAllan & Curtis 2014; Higgins & Davies 1996).

### **Important populations**

The southern boundary of the known distribution of the Squatter Pigeon (southern) is contracting northwards. Therefore, all of the relatively small, isolated and sparsely distributed sub-populations occurring south of the Carnarvon Ranges in Central Queensland are considered to be important sub-populations of the subspecies (Squatter Pigeon Workshop 2011). This includes, but is not limited to (Squatter Pigeon Workshop 2011):

- Populations occurring in the Condamine River catchment and Darling Downs of southern Queensland
- The populations known to occur in the Warwick-Inglewood-Texas region of southern Queensland, and
- Any populations potentially occurring in northern NSW.

The population within the Project Area is part of a listed important population.

### **Habitat**

The Species Profile and Threats Database (DCCEEW 2024a) provides the following guidance for Squatter Pigeon habitat:

#### Breeding habitat

- Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by *Eucalyptus*, *Corymbia*, *Acacia* or *Callitris* species, on sandy or gravelly soils (including but not limited to areas mapped as Queensland land zones 3, 5, 7) and within 1km of a suitable, permanent or seasonal waterbody.

#### Foraging habitat

- Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by *Eucalyptus*, *Corymbia*, *Acacia* or *Callitris* species, on sandy or gravelly soils (including but not limited to areas mapped as Queensland land zones 3, 5, 7) and within 3km of a suitable, permanent or seasonal waterbody.

#### Dispersal habitat

- any forest or woodland occurring between patches of foraging or breeding habitat that facilitates movement between patches of foraging habitat, breeding habitat and/or waterbodies, and areas of cleared land less than 100 metres wide linking areas of suitable breeding and/or foraging habitat.

A review of published literature and species guidelines provided the following additional information on Squatter Pigeon (southern) habitat:

- Habitat is generally defined as open-forests to sparse, open-woodlands and scrub that are:
  - Mostly dominated in the overstorey by *eucalyptus*, *corymbia*, *acacia* or *callitris* species
  - Remnant, regrowth or partly modified vegetation communities
  - Within 3km of water bodies or courses.
- Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within 1km of a suitable, permanent waterbody (DCCEEW 2024a).
- Core habitat is considered to be land zones 5 and 7 (Squatter Pigeon Workshop 2011).
- Land zones 3 and 10 may be important for water where they are near land zones 5 and 7 (Squatter Pigeon Workshop 2011). Land zone 4 may also be suitable (Squatter Pigeon Workshop 2011).
- The Squatter Pigeon (southern) is known to access suitable waterbodies to drink on a daily basis. Waterbodies suitable for the subspecies include permanent or seasonal rivers, creeks, lakes, ponds and waterholes, and artificial dams (DCCEEW 2024a).
- It is estimated that approximately 95% of the Squatter Pigeon's (southern) diet consists of seeds. The subspecies mainly forages on seeds which have fallen to the ground from low vegetation, such as grasses, herbs and shrubs (DCCEEW 2024a).
- Squatter Pigeons (southern) commonly forage along the sides of roads or along dusty tracks. The subspecies is also commonly seen foraging in and around stockyards, where they also pick seeds and ticks from the droppings of livestock and drink from stock troughs (DCCEEW 2024a).
- Ground covering vegetation layer in foraging and breeding habitat is considerably patchy consisting of native, perennial tussock grasses or a mix of perennial tussock grasses and low shrubs or forbs (DCCEEW 2024a).
- In QLD, foraging and breeding habitat is known to occur on well-draining, sandy or loamy soils on low, gently sloping, flat to undulating plains and foothills and lateritic (duplex) soils on low 'jump-ups' and escarpments (DCCEEW 2024a).
- The species prefers patchy, sparse grass cover with less than 30% cover (can be variable in areas) generally 30–40cm in height (Squatter Pigeon Workshop 2011).
- They prefer undulating to flat terrain rather than ranges (Squatter Pigeon Workshop 2011).

#### **Relevant guidelines**

- Conservation Advice *Geophaps scripta scripta* Squatter Pigeon (southern) (TSSC 2015a).

#### **Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists.

#### **Database records**

The five closest database records are detailed in Table 5-3.

Table 5-3 The five closest records of Squatter Pigeon to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
WildNet/ALA	<i>Eucalyptus moluccana</i> and/or <i>E. microcarpa</i> and/or <i>E. woollsiana</i> +/- <i>E. crebra</i> woodland on Cainozoic sand plains. <i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines. <i>Eucalyptus populnea</i> woodland on alluvial plains.	7.75	09/06/1995
WildNet/ALA	<i>Eucalyptus crebra</i> woodland on metamorphics. <i>Eucalyptus melliodora</i> and/or <i>Eucalyptus microcarpa</i> <i>E. moluccana</i> woodland on metamorphics	12.61	25/08/1997
ALA	Native woodland	13.04	25/09/2001
WildNet/ALA	Cleared of woody vegetation	13.81	05/08/2013
WildNet/ALA	Cleared of woody vegetation	14.48	24/02/2011

**Habitat in the Project Area**

Squatter Pigeon habitat in the Project Area includes grassy open eucalypt woodland and grassland including paddocks. The species is nearly always found near permanent water such as rivers, creeks and waterholes. Habitat in the Project Area is generally in poor to average condition, degraded by agricultural clearing, cattle impact and weed infestation.

The Project Area contains 2195.86 ha of suitable breeding and or foraging habitat. Of this, up to 904.64 ha of habitat intersects with the Disturbance Footprint, however this habitat is considered marginal habitat for this species. An example of Squatter Pigeon habitat within the Project Area is shown in Figure 5-3. Habitat for the Squatter Pigeon is mapped in Figure A-13.

**Threats to the species**

Key threats to the species are identified in the Conservation Advice (TSSC 2015a) as:

- Overgrazing of habitat by livestock and feral herbivores
- Ongoing vegetation clearing and fragmentation
- Introduction of weeds
- Inappropriate fire regimes
- Thickening of understorey vegetation
- Predation by feral cats and foxes
- Trampling of nests by domestic stock
- Illegal shooting

Threatening processes already occurring in the Project Area include:

- Habitat is disturbed and fragmented due to historic clearing and agricultural land use
- Weed impact, especially along roads and tracks

- Red fox was recorded within the Project Area during fauna surveys
- Areas of intense grazing and trampling were present within the Project Area.

**Representative habitat photo**



Figure 5-3 Squatter Pigeon foraging habitat.

**5.1.4. Diamond Firetail (*Stagonopleura guttata*)**



Diamond firetail (Photo: Dennis Jacobsen from Shutterstock)

**EPBC Act listing status**

Vulnerable

**NC Act listing status**

Vulnerable

### **Description**

- Length ranges from 10 to 12 cm; weight approximately 17 grams (DCCEEW 2023b).
- Adults have a bright red bill, red eyes, and rump whereas juveniles have a black bill and duller colouring than adults.
- Grey back and head, ashy-brown wings. White throat and lower breast are separated by a broad black breast-band extending into strongly white-spotted black flanks.
- Females resemble males but are sometimes smaller.

### **Distribution**

- Diamond Firetails are endemic to mainland Australia (DCCEEW 2023b)
- Found on the south-east mainland of Australia from south-east Queensland to Eyre Peninsula, South Australia, and about 300 km inland from the sea.
- Their distribution previously extended to north Queensland from Cardwell.
- There are subpopulations in South Australia where they are separated into three groups (Eyre Peninsula, Mt Lofty to Southern Flinders Ranges, and the southeast).
- Sparse population in a fourth area, Yorke Peninsula with very few sightings.

### **Important populations**

No important populations have been declared for this species.

### **Habitat**

Diamond Firetails prefer lightly timbered habitats in *Eucalypt*, *Acacia* or *Casuarina* woodlands and open forests, farmlands, and grasslands with high grass cover. They are often found roosting in dense shrubs or small nests. During breeding season (August - January) they separate into small colonies to breed, building their nests out of grass, stems and features in a bottle shape. These nests are normally built into the base of a raptor nest or amongst shrubs such as hakeas, rose bushes, boxthorn and the sea urchin hakea (Higgins, Peter & Cowling 2006).

Diamond Firetails forage at ground level on grass and herb seeds and green leaves and insects. In the Mt Lofty Ranges, birds also rely on seeds of drooping she-oak (*Allocasuarina verticillata*) in winter in areas where perennial grasses have been replaced by exotic annuals (Hodder 2019).

Habitat critical to the survival (DCCEEW 2023b) of the species include areas of:

- Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats.
- low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding.
- Drooping she-oak (*Allocasuarina verticillata*) within the Mt Lofty Ranges.

### **Relevant guidelines**

- Conservation Advice for *Stagonopleura guttata* (Diamond Firetail) (DCCEEW 2023b).

### **Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists.

### **Database records**

The five closest database records are detailed in Table 5-4.

Table 5-4 The five closest records of Diamond Firetail to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
ALA	<i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	7.44	10/06/1995
ALA	Cleared of woody vegetation	11.69	28/09/2018
ALA	Native woodland	11.83	24/04/2002
ALA	Cleared of woody vegetation	13.24	24/04/2011
ALA	Cleared of woody vegetation	13.24	12/08/2019

**Habitat in the Project Area**

Diamond Firetail habitat in the Project Area includes grassy open eucalypt woodland and non-remnant grasslands (grazing paddocks). They are known to occupy sparsely wooded area with grass cover that serves as foraging habitat as they forage low to the ground on seeds and insects. The grazed paddocks contain suitable native grass species for foraging but very little shrub or canopy cover for protection from predators. It is possible the paddocks are used occasionally for foraging, but preferred foraging habitat is more likely to be areas with denser grass and nearby vegetation. Breeding habitat would consist of wooded landscapes with a suitably intact canopy and shrub layer where birds could make their nests.

The Project Area contains 1854.63 hectares of habitat. Of this, up to 573.28 hectares of open paddocks are available for foraging and 61.64 hectares of suitable woodland habitat for breeding and nesting intersect with the Disturbance Footprint. Examples of Diamond Firetail foraging habitat is show in Figure 5-4. Figure A-14 present a map of suitable Diamond Firetail habitat within the Project Area.

**Threats to the species**

Key threats to the species are identified in the Conservation Advice (DCCEEW 2023b) as:

- Habitat loss caused by land clearing
- Weeds, particularly exotic annual grasses, altering habitat
- Habitat degradation caused by domestic livestock grazing and overabundant native animal grazing
- Habitat degradation caused by rabbits
- Increase in frequency, scale, or intensity of fire
- Increased likelihood of extreme events (i.e., wildfire, heatwave, and drought)
- Noisy miner territorial competition
- Predation by pied currawongs

Threatening processes already occurring in the Project Area:

The loss of suitable open woodland habitat for breeding and nesting can significantly impact the Diamond Firetail. This has occurred extensively across the Project Area, whereby the remnant open Eucalypt and Brigalow woodlands have been cleared for broad scale cropping and cattle grazing. Additionally, activities such

as raking, tilling, and grazing in the project area can severely impact foraging availability. Over grazing by cattle can prevent grasses from establishing seed sources, leading to a decline in food resources for the Diamond Firetail.

**Representative habitat photo**



Figure 5-4 Diamond Firetail open woodland foraging and breeding habitat (left) and foraging habitat in cleared areas (right).

**5.1.5. Grey Snake (*Hemiaspis damelii*)**



Grey Snake (Photo: J. Davis)

**EPBC Act listing status**

Endangered

**NC Act listing status**

Endangered

**Description**

Relatively small, venomous, front-fanged snake up to 60 cm in length. Pale or dark grey to olive grey body colour, with a white, cream or yellow belly. The top of head and first few scale rows on the nape are black on juveniles, contracting to form a black band on the base of head and neck on adults. The eyes are comparatively quite large.

**Distribution**

The species is distributed from southern NSW to south-eastern Queensland, however, populations are fragmented throughout and occur as separate subpopulations. The extent of occurrence is estimated at 417,500 km<sup>2</sup> with a minimum area of occupancy of 164 km<sup>2</sup> (DCCEEW 2022d).

In Queensland, most records come from along the Macintyre and Condamine Rivers and associated floodplains of the southern Brigalow Belt from Goondiwindi and Dalby west to Glenmorgan, on the Darling Downs and western Lockyer Valley, near Rockhampton on the central Queensland coast, and on the Darling Riverine Plains near Currawinya in south-western Qld. Most records from Qld occur below 300 m elevation (DCCEEW 2022d).

**Important populations**

No important populations of Grey Snake have been identified.

There are 327 records of Grey Snake in Queensland in the ALA database (ALA 2023). There is no population data available for the species; however, the population is thought to be declining based on the rate of habitat loss and changing hydrological regimes upon which the species relies (DCCEEW 2022d).

**Habitat**

No critical habitat has been identified for Grey Snake (DCCEEW 2022d).

Preferred habitat is Brigalow and Belah woodland on heavy, cracking clay soils in association with waterbodies such as gilgai. Grey Snake is also found in Queensland Bluegrass (*Dichanthium sericeum*) and/or Mitchell Grass (*Astrebla* spp.) grassland on alluvial plains with cracking clay soils. In the Western Downs region, Grey Snake is strongly associated with red sodosol soils which are often quite dense and coarsely structured. These soils often feature soil cracks (such as cracking clays) the species shelters within (DCCEEW 2022d). The species also shelters under rocks, logs, debris and abandoned animal burrows (Rowland 2012). Grey Snake feeds almost exclusively on frogs, so are most active in habitat where frogs are abundant.

**Relevant guidelines**

- Conservation Advice for *Hemiaspis damelii* (Grey Snake) (DCCEEW 2022d).

**Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists. Spotlighting was undertaken during good conditions in March and the species was not recorded and neither was their prey species (frogs).

**Database records**

The five closest database records are detailed in Table 5-5.

Table 5-5 The five closest records of Grey Snake to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
ALA	<i>Eucalyptus populnea</i> woodland on alluvial plains. <i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus spp.</i> woodland on alluvial plains. <i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	14.96	11/02/2024
WildNet	<i>Eucalyptus populnea</i> or <i>E. woollsiana</i> , <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> open forest to woodland on margins of Cainozoic clay plains	42.50	05/01/2005
WildNet	Cleared of woody vegetation	45.01	06/01/2005
ALA	<i>Eucalyptus fibrosa subsp. nubilis</i> +/- <i>Corymbia spp.</i> +/- <i>Eucalyptus spp.</i> woodland on Cainozoic lateritic duricrust.	45.41	07/01/2024
WildNet/ALA	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> shrubby open forest on Cainozoic clay plains.	58.37	21/03/2003

### Habitat in the Project Area

Grey Snake habitat in the Project Area includes isolated fragments of Brigalow woodland and areas of cracking clay soils and gilgais. Whilst these habitat types are present in the Project Area, they are generally in poor condition, owing to degradation by agricultural practices and weed infestations. The area in which suitable habitat occurs for the Grey Snake occurs on Lot 54 CVE91, where clay vertosol soils are present. This property has, however, had ongoing and repeated clearing and disturbance since the 1940s (Section 4.5.1). for agricultural practices. The gilgais within this part of the lot are shallow and dominated by pasture grasses and are lacking the micro-habitat features preferred by the Grey Snake such as rocks, logs and debris (Figure 4-2). The gilgais in the northern part of the paddock are more prominent but are also degraded through cattle trampling, clearing of regrowth and introduced pasture grasses. Apart from the recent tree clearing, there are few rocks, logs and debris suggesting the paddock has likely undergone tillage in the past.

The Project Area contains 317.61 hectare of open woodland habitat on cracking clay soils. Of this, up to 168.03 hectares will be impacted by the project Disturbance Footprint. An example of Grey Snake habitat within the Project Area is shown in Figure 5-5. Figure A-15 provides a map of Grey Snake habitat within the Project Area and Disturbance Footprint.

### Threats to the species

Key threats to Grey Snake include (DCCEEW 2022d):

- Land clearing, pasture improvement and cultivation
- Water extraction and diversions that alter hydrology
- Pesticide and herbicide contamination

- Reduced water flow
- Poisoning by ingestion of cane toads
- Feral species including pigs, cats and foxes
- Coal and gas extraction
- Frequent high severity fire.

Threatening processes already occurring in the Project Area:

Land clearing poses a significant threat to the Grey Snake in the project area. The once suitable Brigalow woodlands, which provided ideal habitat for the Grey Snake, have been cleared for pastoralism. The remaining cracking clay plains and gilgais are now impacted by cattle grazing and land tilling. These activities significantly degrade the quality of gilgais and the microhabitats essential for frog species, which are a primary food source for the Grey Snake. Other impacts to the Grey Snake on the site include feral animals, such as foxes and feral cats which may prey on Grey Snake. Poisoning by cane toads poses a substantial threat.. Feral pig activity is also degrading necessary habitat for the frog species the Grey Snake preys upon.

**Representative habitat photo**



Figure 5-5 Gilgai with remnant Brigalow nearby. This marginal suitable habitat is degraded but potentially suitable habitat for Grey Snake and Dunmall's Snake.

### **5.1.6. Dunmall's Snake (*Furina dunmalli*)**



Dunmall's Snake (*Furina dunmalli*) (Photo: chris\_barnesoz, iNaturalist)

#### **EPBC Act listing status**

Vulnerable

#### **NC Act listing status**

Vulnerable

#### **Description**

Dunmall's Snake is a small to medium sized snake, growing to a total length of 60 cm. The snake is grey and brown with a white underbelly, and pale blotches may be present on the upper lip scales. The body scales are smooth, and light edged, with 21 rows on the mid-body. The head of this species is large and distinct from the neck (DoE 2014b).

#### **Distribution**

The Dunmall's Snake occurs predominantly within the Brigalow Belt Bioregion, where its distribution extends from Yeppoon in central Queensland through to southern central New south Wales (DoE 2014b).

#### **Important populations**

No important populations for this species have been declared.

#### **Habitat**

Dunmall's Snake is found in open forest, particularly brigalow forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils. The species is nocturnal, and shelters under fallen timber and in deep soil cracks (DoE 2014b).

#### **Relevant guidelines**

- Approved Conservation Advice for *Furina dunmallii* (Dunmall's Snake) (DoE 2014b).

#### **Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists. Spotlighting was undertaken during good conditions in March and the species was not recorded and neither was their prey species.

#### **Database records**

The five closest database records are detailed in Table 5-6.

Table 5-6 The five closest records of Dunmall’s Snake to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
WildNet	Cleared of woody vegetation	3.69	31/12/1996
ALA	-	10.26	01/01/1993
ALA	<i>Eucalyptus melliodora</i> and/or <i>Eucalyptus microcarpa</i> <i>E. moluccana</i> woodland on metamorphics	12.61	01/01/1980
WildNet	<i>Eucalyptus chloroclada</i> , <i>Callitris glaucophylla</i> , <i>C. endlicheri</i> , <i>Angophora leiocarpa</i> woodland on Cainozoic sand plains and/or remnant surfaces	50.01	11/03/2011
ALA	<i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus spp.</i> woodland on alluvial plains <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces <i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	50.60	11/11/2023

**Habitat in the Project Area**

Dunmall’s Snake habitat in the Project Area includes Brigalow and areas with cracking clays and gilgais. Habitat in the Project Area is generally in poor to average condition, degraded by agricultural clearing, cattle grazing and weed infestations. The area has had ongoing and repeated clearing and disturbance since the 1940s (Section 4.5.1). The gilgais in the southern part of Lot 54CVE91 have been disturbed in the past through levelling and cropping. The gilgais are shallow and dominated by pasture grasses and are lacking the micro-habitat features preferred by the species such as rocks, logs and debris (Figure 4-2). The gilgais in the northern part of the paddock are more prominent but degraded through cattle trampling, clearing of regrowth and introduced pasture grasses.

The Project Area contains 317.61 hectares of suitable habitat. Of this, up to 168.03 hectares will be impacted by the Project in the Disturbance Footprint.

**Threats to the species**

Key threats to Dunmall’s Snake include

- land clearing and habitat modification, grazing, agriculture, pasture improvement, crop production, and urban development
- drainage of swamps may also be a threat
- predation by feral animals has also been identified as a potential threat

**Representative habitat photo**



Figure 5-6 Brigalow woodland with nearby gilgai, suitable habitat for Grey Snake and Dunmall's Snake

**5.1.7. Latham's Snipe (*Gallinago hardwickii*)**



Latham's snipe (Photo: Feathercollector from Shutterstock)

**EPBC Act listing status**

Vulnerable/Migratory

**NC Act listing status**

Special least concern

### **Description**

The Latham's Snipe is the largest snipe in Australia. Its upper body is patterned with black, brown and white, making them well-camouflaged. The bill is long and straight, the wings quite short and pointed and the tail is long. The sexes are similar in appearance and exhibit minimal seasonal variation. They are known to be quite shy and often burst from cover when disturbed (BirdLife International 2022).

### **Distribution**

Latham's Snipe breeds in Japan and on the east Asian mainland. Most of the population spends its non-breeding season in eastern Australia from August to February, with most individuals occurring in south-eastern Australia (SWIFFT 2022).

### **Important populations**

There is no listed important population for Latham's Snipe.

The Latham's Snipe Project which is funded by the Department of Environment, Land, Water and Planning indicates that important habitat for Latham's snipe is considered to occur when the site supports 18 or more individuals of the species (SWIFFT 2022).

### **Habitat**

Latham's Snipe is generally widely dispersed in low numbers across wetland and grassland areas. They differ to other shorebird species in preferring open freshwater or brackish wetlands with cover nearby, particularly areas of wet tussock grassland and other dense ground vegetation. During the day Latham's snipe prefer to roost in grass and weeds near water and at night they disperse to feed in nearby wet paddocks, ditches and other open flooded areas. The distance they move nightly to feed is unknown; however, shorebirds tend to roost near their feeding habitats in order to reduce the amount of energy used in nightly transit. Therefore, the distance between snipe roosting and optimal feeding habitats is likely to be minimal to reduce flight times and conserve energy (SWIFFT 2022).

### **Relevant guidelines**

- Conservation Advice for *Gallinago hardwickii* (Latham's snipe) (DCCEEW 2024b).

### **Survey records**

Two Latham's Snipe individuals were recorded in the Project Area during March 2024 surveys conducted by NGH ecologists. Both were found on the banks of a cattle dam within the Project Area. These dams do not occur within the Disturbance Footprint and will not be impacted from the proposal.

### **Database records**

The five closest database records are detailed in Table 5-7.

Table 5-7 The five closest records of Latham’s Snipe to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
WildNet/ALA	<i>Eucalyptus blakelyi</i> woodland on alluvial plains	91.58	23/11/1974
WildNet	Cleared of woody vegetation	93.46	8/2/2014
WildNet/ALA	<i>Eucalyptus andrewsii</i> , <i>E. youmanii</i> woodland on igneous rocks. Shrubland and/or heath with areas of bare/lichen covered rocks +/- emergent Eucalypts on igneous rocks.	94.40	31/12/1995
WildNet	<i>Eucalyptus populnea</i> woodland on alluvial plains	100.99	23/02/2002
WildNet	Cleared of woody vegetation	152.92	30/12/2013

**Habitat in the Project Area**

Latham’s Snipe foraging habitat includes a vegetated dam located in the south of the Project Area. The dam contained muddy banks with patches of fringing reeds and grasses. An additional two dams within the Project Area are suitable for this species and both are located exterior to the Disturbance Footprint. The remaining farm dams within the Project Area offer poor habitat for the Latham’s Snipe, as they do not contain any fringing vegetation in which this species forages and roosts within. This species may also utilise the cleared gilgai habitat on Lot54CVE91 occasionally during periods of seasonal inundation.

Overall, the Project Area contains 304.06 hectares of suitable to potential foraging and roosting habitat for Latham’s Snipe. Of this, 167.89 hectares intersects the Disturbance Footprint. This area includes cattle dams, minor state-mapped wetlands, and seasonally inundated gilgais. Less disturbed gilgais within the Project Area are located in the Avoidance Area, specifically within Lot 54 CVE91. Where gilgais intersect with the Disturbance Footprint, they have been previously impacted by agricultural practices, such as tillage and grazing. An impact assessment for this species is further discussed in sections 6.2.2 and 6.2.3.

**Threats to the species**

Modification of wetland habitat is considered a significant threat to the Latham’s Snipe (DCCEEW 2024a). Since the Disturbance Footprint is located exterior to any wetland habitats on the Project Area, a significant impact to this species is expected to be low. Other potential threats to individuals of this specie in the Project Area include erosion sedimentation of wetlands and gilgais and potential predation by feral predators, such as foxes.

### 5.1.8. South-eastern Long-eared Bat (*Nyctophilus corbeni*)



*Nyctophilus corbeni* roosting under the bark of a dead *Alphitonia excelsa* (left), and Five *Nyctophilus corbeni* roosting in the hollow spout of a dead *Corymbia* sp. (right) (Photos: E. Williams)

#### EPBC Act listing status

Vulnerable

#### NC Act listing status

Vulnerable

#### Description

Relatively large solid bat with a broad, robust skull. Head and body length of 50-75 mm, forearm length of 40-50 mm, and a tail length of 35-50 mm. Females weigh between 14-21gm, and males between 11-15gm. The species long ears are approximately 30 mm in length, which are erect when the bat is alert and folded back during rest. The fur is light brown to a dark grey-brown (TSSC 2015b).

#### Distribution

The South-eastern Long-eared Bat is found in southern central Queensland, central western New South Wales, north-western Victoria and eastern South Australia. Most records are from inland of the Great Dividing Range. The species is uncommon within this distribution and is rarely recorded, except in some areas including the Nandewar and Brigalow Belt South bioregions in NSW and QLD (TSSC 2015b).

#### Important populations

No important populations of South-eastern Long-eared Bat have been identified.

Currently there is little information available concerning population numbers and structure of this species. Current population information is based on trapping results, and no detailed demographic studies have been conducted (TSSC 2015b).

### **Habitat**

In Queensland and New South Wales the species occupies a variety of vegetation types, but it is notably more common in the box / ironbark / cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern QLD. The species prefers extensive stands of a range of inland woodland types, including box / ironbark / cypress-pine woodland, Buloke woodland, Brigalow woodland, Belah woodland, Smooth-Barked Apple woodland, River Red Gum forest, Black Box woodland, and various types of tree mallee (TSSC 2015b).

Old-growth remnant vegetation is considered a critical habitat component in the Victorian distribution. The species has also been found to be much more abundant in habitats with a distinct tree canopy, and a dense, cluttered understory layer (TSSC 2015b).

### **Relevant guidelines**

- Conservation Advice *Nyctophilus corbeni* south-eastern long-eared bat (TSSC 2015b).

### **Survey records**

The species was not recorded in the Project Area during March 2024 and April 2024 surveys conducted by NGH ecologists but calls from *Nyctophilus* species bats were recorded on the ultrasonic bat detectors. It's possible these calls were from this species given the suitable habitat and the records in the local area.

### **Database records**

The five closest database records are detailed in Table 5-8.

Table 5-8 The five closest records of South-eastern Long-eared Bat to the Project Area and the habitat they were recorded in.

Database	Habitat description	Distance to Project Area (km)	Date
WildNet/ALA	<i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces.	2.65	13/04/1999
WildNet/ALA	<i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	5.55	13/04/1999
WildNet/ALA	<i>Eucalyptus decorticans</i> and/or <i>Eucalyptus spp.</i> , <i>Corymbia spp.</i> , <i>Acacia spp.</i> , <i>Lysicarpus angustifolius</i> woodland on Cainozoic lateritic duricrust. <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	5.74	13/04/1999
WildNet/ALA	<i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	7.14	13/04/1999
WildNet/ALA	<i>Eucalyptus fibrosa subsp. nubilis</i> +/- <i>Corymbia spp.</i> +/- <i>Eucalyptus spp.</i> woodland on Cainozoic lateritic duricrust. <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces.	38.51	15/11/1996

### Habitat in the Project Area

*N. corbeni* habitat in the Project Area includes all wooded areas including Brigalow woodland and *Eucalyptus tereticornis* woodland. The species is more abundant in extensive stands of vegetation in comparison to smaller woodland patches which suggests that the habitat to the north of the Project Area that borders Yelarbon State Forest is the most likely habitat for this species. The remnant and regrowth vegetation within the Project Area has mostly been avoided by the design and only scattered trees will be removed.

The Project Area contains 817.06 hectares of suitable habitat. Of this, up to 3.22 hectares will be impacted by the Project.

### **Threats to the species**

Key threats to the species are identified in the Conservation Advice (TSSC 2015b) as:

- Habitat loss
- Habitat degradation associated with altered fire regimes
- Timber extraction and mining

Historic and recent land clearing within the Project Area has led to habitat loss, fragmentation, and degradation.

### **Representative habitat photo**



Figure 5-7 Cypress pine woodland suitable for *Nyctophilus corbeni* within the Project Area.

### 5.1.9. South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*)



Glossy Black Cockatoo (Photo: Andrew Peacock)

#### EPBC Act listing status

Vulnerable

#### NC Act listing status

Vulnerable

#### Description

The South-eastern Glossy Black-cockatoo is the smallest of the five Black-cockatoos occurring in Australia, with a body length of about 48cm and a weight of approximately 420g. The plumage is mostly a dull black with a brownish head and a large, bulbous bill. Male Glossy Black-cockatoos exhibit bright red tail panel feathers, whilst those of the females are a mixture of red and yellow. Females and juvenile Glossy Black-cockatoos also contain variable yellow patches on their heads, whilst males are generally a consistent brown or dull black.

#### Distribution

Glossy Black-cockatoos are distributed from the town of Mitchell, in the Maranoa region of Southern Queensland, through to East Gippsland in Victoria. The overall extent of occurrence is estimated at 470000km<sup>2</sup>. Populations are continuous through the forested parts of the Great Dividing Range but become more scattered inland. This species is known to occur as far west as the Riverina, in New South Wales.

#### Important populations

Important populations for a threatened species, include populations 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.

There are no known important populations within the Goondiwindi region. Important populations for the Glossy Black-cockatoo are likely to occur further north near the species distributional limit and for any scattered isolated populations within the species area of occurrence.

### **Habitat**

The habitat of the Glossy Black-cockatoo is closely associated with open Eucalypt Forest communities. This species exclusively feeds on the cones of several *Allocasuarina* tree species, with a preference for two specific species: the Black Sheoak (*Allocasuarina littoralis*) and the Forest Sheoak (*Allocasuarina torulosa*). While other species of *Casuarina* trees may also serve as important food sources, they are typically found inland, away from the preferred coastal and mountainous habitats of the former two species. Breeding sites for Glossy Black-cockatoos are located within open *Eucalyptus* forests where appropriately sized tree hollows are available within *Eucalyptus* trees.

### **Relevant guidelines**

Conservation Advice for *Calyptorhynchus lathami lathami* (South-eastern Glossy Black Cockatoo) (DCCEEW 2022e)

### **Survey records**

Glossy Black-cockatoos were not observed during the field component of the survey.

### **Database records**

The five nearest records of Glossy Black-cockatoos to the Project Area are listed in Table-5-9.

Table 5-9 Five closest records of Glossy Black-cockatoo to the project Area and associated habitats where the records occur.

Database	Habitat description <sup>#</sup>	Distance to Project Area (km) <sup>^</sup>	Date
ALA database	Cleared of woody vegetation	2.53	23/09/2001
WildNet/ALA database	Cleared of woody vegetation	3.32	11/05/1998
WildNet/ALA database	<i>Eucalyptus decorticans</i> and/or <i>Eucalyptus</i> spp., <i>Corymbia</i> spp., <i>Acacia</i> spp., <i>Lysicarpus angustifolius</i> woodland on Cainozoic lateritic duricrust  <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	5.61	13/04/1999
WildNet/ALA database	<i>Eucalyptus decorticans</i> and/or <i>Eucalyptus</i> spp., <i>Corymbia</i> spp., <i>Acacia</i> spp., <i>Lysicarpus angustifolius</i> woodland on Cainozoic lateritic duricrust  <i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	5.74	19/04/1999
WildNet database	<i>Eucalyptus crebra</i> and/or <i>E. populnea</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains and/or remnant surfaces	10.10	17/02/1993

### Habitat in the Project Area

Habitat on the site is restricted to areas of suitable foraging and roosting habitat. For the Glossy Black Cockatoo, these are areas of forested vegetation near to and within Yelarbon state Forest and along Brush Creek. Any areas where suitable stands of *Allocasuarina* are present will provide habitat for this species. The Project Area contains 694.88 hectares of breeding and foraging habitat. Of this, up to 0.76 hectares will be impacted by the Project.

### Threats to the species

The main threats to the Glossy Black-cockatoo populations are habitat loss, degradation and fragmentation, particularly from land clearing. As the habitat has been cleared to make way for pastoralism and urbanisation, Glossy Black-cockatoos have lost important access to feeding habitat (where suitable stands of *Allocasuarina* trees are present) and breeding habitat, where suitable hollow bearing *Eucalypt* trees are available for nesting. The loss of habitat between populations has the potential to isolate sub-populations of this species, which can impact genetic diversity.

## 5.2. Threatened ecological communities

### 5.2.1. Brigalow



Brigalow (*Acacia harpophylla*) woodland (Photo: J. Wills).

#### EPBC Act listing status

Endangered

#### Description

The Brigalow ecological community is characterised by the presence of *Acacia harpophylla* (Brigalow) which is a distinctive silver leaved shrub or tree. This species occurs as the dominant or co-dominant species within the Brigalow vegetation community. This ecological community has been extensively cleared in the region for pastoralism and agriculture.

#### Key diagnostic characteristics

For a given vegetation community to be correctly classified as Brigalow, a single patch of vegetation must include the following vegetative characteristics:

1. The presence of *Acacia harpophylla* as one of the most abundant tree species in the patch, either dominant in the tree layer or co-dominant with other species (notably *Casuarina cristata*, *Eucalyptus* species, or other species of *Acacia*)

#### AND

- 2a. In Queensland (QLD), the patch is located within one of the following QLD bioregions **and** meets the description of one of the 16 QLD regional ecosystems (REs) determined at the time of the national listing of the Brigalow ecological community under the EPBC Act.

In the **QLD Brigalow Belt Bioregion** – REs 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21;

In the **QLD Southeast Queensland Bioregion** – REs 12.8.23, 12.9-10.6 and 12.12.26; or

In the **QLD Mulga Lands Bioregion** – RE 6.4.2.

#### OR

2b. In New South Wales (NSW), the patch meets one of the following NSW Vegetation Classification and Assessment (VCA) community descriptions: VCA IDs 29, 31 and 35.

**AND/OR**

2c. The vegetation in the patch is brigalow regrowth with species composition and structural elements broadly typical of one of the identified QLD REs or NSW VCs (although species density may be reduced). This can be assumed to be the case where it has been at least 15 years since it was last comprehensively cleared (not just thinned); unless direct evidence proves otherwise.

### Conditional thresholds

A patch must meet the following condition thresholds to be considered the Brigalow ecological community (DoE 2013):

3. The patch is 0.5 ha or more in size;

**AND**

4. Exotic perennial plants comprise less than 50% of the total vegetation cover of the patch, as assessed over a minimum sample area of 0.5ha that is representative of the patch.

### Distribution

The Brigalow ecological community occurs over a substantial geographic area of semi-arid eastern Australia. Brigalow woodlands are found mostly west of the Great Dividing Range, in a broad swathe stretching north, almost to Townsville (QLD), south to Narrabri (NSW), and west to Bourke (NSW) and Blackall in central western Queensland (DoE 2013).

In Queensland the Brigalow ecological community is found in the Brigalow Belt North, Brigalow Belt South, Mulga Lands, Darling Riverine Plains and Southeast Queensland bioregions (DoE 2013).

### Excluded Queensland regional ecosystems

Not all vegetation where Brigalow is co-/dominant is included within the listed Brigalow ecological community. In Queensland the following REs have *Acacia harpophylla* as a prominent component, but are not included in the Brigalow ecological community listed under the EPBC Act:

- QLD Brigalow Belt Bioregion 11.3.17, 11.9.10, 11.9.11, 11.11.16
- QLD Desert Uplands Bioregion 10.4.2, 10.4.7
- QLD Mitchell Grass Downs Bioregion 4.9.15, 4.9.17
- QLD Mulga Lands Bioregion 6.4.3, 6.4.4

### Areas critical to the survival of the community

All patches that meet the key diagnostic characteristics and condition threshold of the Brigalow ecological community are considered areas critical to the survival of this ecological community.

### Relevant guidelines

- Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (DoE 2013).
- Commonwealth Listing Advice on Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (TSSC 2001).

### Patches in the Project Area

Some patches of Brigalow woodland were present within the Project Area but many of these fragmented patches fail to meet the condition threshold for the Brigalow ecological community due to weed dominance and/or small patch size (< 0.5ha).

Three patches of brigalow woodland which meet the key diagnostic characteristics and condition threshold were recorded within the Project Area during the 2024 survey effort. The patches were located within areas of remnant vegetation, representative of REs 11.4.10 and 11.9.10. Patches were found within the eastern sections of the Project Area within Lot 54 CVE91, lot 39 CVE63 and lot18 CLV34123 (see Figure A-6). The Project Area contains 30.69 hectares of Brigalow woodlands; however only 0.177 hectares of this ecological community intersects with the Disturbance Footprint.

### **Threats**

Threats to the Brigalow ecological community include (DoE 2013):

- Clearing for agriculture, mining or timber extraction
- Intense and frequent fires.
- Pest plants can alter the structural components of Brigalow woodlands by outcompeting native species and potentially preventing their recruitment. Pest grasses often have higher biomass compared to native grasses, which can increase the severity of fires and further impact the structure of this woodland
- Inappropriate grazing regimes and trampling by large herbivores compresses soil, can reduce the amount of leaf litter and woody debris, and alters the composition and density of herbs and shrubs in the understorey.
- Climate change.

Land clearing; exotic grasses such as Buffel; pest animals such as Feral Pigs, foxes, and Noisy Miners; and trampling and browse lines caused by large grazing herbivores are all present within the Project Area.

**Representative habitat photos**



Figure 5-8 Brigalow woodlands with a shrub layer dominated by Wilga (*Geijera parviflora*) (left), and degraded Brigalow mallee (right).

### **5.3. Migratory Species**

#### **5.3.1. Latham's Snipe**

Further details on the habitat of this species within the Project Area can be found in Section 5.1.7.

## 6. Impact assessment

The following section details the potential direct and indirect impacts from the construction and operation phase of the proposed project. Direct impacts are those that directly influence ecological values in the Project Area, such as the removal of vegetation or the mortality of individuals of a species. Indirect impacts are those that affect ecological values as a result of secondary effects, such as changes in water quality from erosion and sedimentation or habitat fragmentation over time due to edge effects and weed infestations.

The Disturbance Footprint encompasses an area of 904.64 hectares, which includes the installation of the solar array and ancillary infrastructure. This area will include the clearing of non-remnant vegetation, resulting in the loss of marginal suitable habitat for MNES species, which is considered a direct impact. While the solar array

and ancillary infrastructure are included in the Disturbance Footprint, most of this area will experience minimal actual disturbance, as the ground cover layer where the solar array will be installed will entail minimal earth works. Areas of ancillary infrastructure, such as the BESS and substation, will entail more disturbance, as substantial earth works for construction will be required.

The Disturbance Footprint assessed in this report represents the current preferred layout for the Project and best represents the maximum impact area. This Disturbance Footprint has been used to calculate the direct loss of species habitat by overlaying the Disturbance Footprint with the preferred habitat of each potentially occurring and confirmed MNES species within the Project Area. Areas of habitat loss have been tabulated in section 6.3 below.

### 6.1. Direct and indirect impacts

Direct impacts can be permanent, such as fauna mortality, or can be reparable, with appropriate remediation. For example, vegetation clearing is a direct impact that occurs during construction but can be rehabilitated in many areas following construction, reducing some of the scale and extent of direct impacts in the long term. Direct impacts from the Project include:

- **Vegetation clearance.** Vegetation clearance conducted for the solar farm will include 69.33 hectares of ground cover removal for the solar ancillary infrastructure and internal perimeter roads. The solar array will maintain grassy ground cover underneath the panels, with minor clearance of approximately 0.4 hectares for the solar panel footings.
- **Habitat removal:** clearance of habitat features such as ground cover habitat (e.g. coarse woody debris) and suitable nesting trees during construction

Indirect impacts can occur when activities relating to the construction or operation of an action affect native vegetation, threatened ecological communities or threatened species habitat as a consequence of an initial disturbance. Indirect impacts include:

- **Erosion and sedimentation:** Earthworks may increase topsoil erosion into nearby watercourses, such as Brush Creek.
- **Bushfire:** Inappropriate fire regimes (i.e. too frequent high intensity burns in the late dry season or non-mosaic burns) is a key threatening process for several fauna and flora species. For instance, large tree canopy fire can lead to the mortality of arboreal species, such as the Koala and Greater Glider. Fires may occur from construction (such as the use of heavy machinery in long grass, the use of flammable liquids or hot works such as welding) or during operational phase of the solar farm.
- **Edge effects:** Edge effects occur when the composition and structure of habitat on the edge of a habitat type is modified from external sources, such as changed abiotic process (sunlight, moisture) and

alternated species composition. Edge effects also reduce the ratio of edge to interior core habitat which can have implications on native species biodiversity. Edge effects from the project can include incursion of pest and weed species and changes to floristic composition (such as the introduction of pioneer plant species).

Table 6-1 provides an overview of the potential direct and indirect impacts that may result from the project. These impacts have been categorised based on the phase of the project (i.e. operations and construction phase) and the likelihood of the impact occurring. The likelihood of the impacts to occur from the project have been categorised as 'High' (impact is likely to occur), 'Moderate' (impact has a reasonable chance of occurring) and 'Low' (impact is unlikely to occur). While the potential consequences of these impacts on MNES values have been described, they do not indicate whether a significant impact will occur. A comprehensive Significant Impact Assessment for all species confirmed or highly likely to occur in the Project Area is detailed in Appendix F.

Table 6-1 Direct and indirect impacts from the proposed project to environmental values on the site.

Nature of impact	Impact Type (Direct/Indirect)	Project Phase	Duration	Likelihood of Impact	Justification	Consequence for MNES values
Habitat removal	Direct	Construction	Short term	Low	There is a total of 651 hectares of remnant vegetation within the project area. The design of the Disturbance Footprint which includes the solar array and ancillary infrastructure completely avoids all remnant vegetation. Habitat proposed to be impacted within the Disturbance Footprint includes open cattle grazing pastures and broad acre cropping fields. These vegetation communities are considered marginal suitable habitat for the listed threatened species on the site and may be occasionally used for foraging and dispersal.	<ul style="list-style-type: none"> <li>The project will entail a loss of marginal dispersal and suboptimal foraging habitat for the Koala. This species will, however, still be able to disperse across the Project Area through intact vegetative corridors and throughout the solar array</li> <li>Diamond Firetail foraging habitat within open cattle grazing will be reduced on site where major earthworks are present for the project ancillary infrastructure.</li> </ul>
Injury and Mortality	Direct	Construction-operation	Short term	Moderate	Fauna present during clearing activities may be harmed by machinery or habitat removal. During the operational phase, fauna injury or mortality may occur from vehicle collisions. This impact is more likely to occur for commonly occurring ground dwelling mammals and reptiles on the site.	<ul style="list-style-type: none"> <li>Clearing activities may directly impact on the Koala, Diamond Firetail and ground dwelling reptiles such as the Grey Snake.</li> </ul>
Habitat fragmentation	Direct	Construction	Long-term	Low	The Disturbance Footprint is within cleared non remnant vegetation in highly modified and degraded farm paddocks. Clearing within the	<ul style="list-style-type: none"> <li>May cause a reduction in foraging and nesting/denning resources over time</li> <li>Reduced foraging and denning</li> </ul>

# Matters of National Environmental Significance - Ecological Assessment Report

Beebo Solar Farm and Battery Energy Storage System



Nature of impact	Impact Type (Direct/Indirect)	Project Phase	Duration	Likelihood of Impact	Justification	Consequence for MNES values
					Project Area will mostly consist of scattered paddock trees and fragmented vegetation fringing remnant vegetation communities. Since the Project Area is already highly fragmented from recent and historical clearing, the likelihood of further fragmentation occurring on the site is low.	<p>opportunities</p> <ul style="list-style-type: none"> <li>• Reduced viability of populations due to reduced genetic diversity and reductions in home ranges for species.</li> <li>• Creation of a barrier to movement for species which are reluctant to cross open areas (e.g. some small woodland birds), or do not typically come to ground (e.g. gliders).</li> </ul>
Reduced viability of adjacent habitat due to noise, dust, heat or light spill	Indirect	Construction-operation	Short-term	Low	Construction works may reduce habitat quality through light pollution, dust and noise into areas of fauna habitat, although given all works are exterior to high quality remnant habitat, the likelihood of a significant impact is expected to be low.	<ul style="list-style-type: none"> <li>• May reduce the quality of already marginal foraging and dispersal habitat for the Koala</li> <li>• May reduce foraging habitat for the Diamond Firetail, although cattle grazing grasslands are already mostly degraded.</li> </ul>
Erosion and sedimentation	Indirect	Construction	Short-term	Moderate	Erosion and sedimentation may be deposited in downstream habitats or within adjacent terrestrial habitat after heavy rains.	<ul style="list-style-type: none"> <li>• May occur within the gilgai habitat if erosion and sediment control measures are not adhered to. This may impact on ground dwelling species such as the Grey Snake and Dunmall's Snake.</li> </ul>
Pest predator	Indirect	Operation	Long-term	Low	Pest species are already present on the site, and	<ul style="list-style-type: none"> <li>• No specific impacts to MNES values</li> </ul>

# Matters of National Environmental Significance - Ecological Assessment Report

Beebo Solar Farm and Battery Energy Storage System



Nature of impact	Impact Type (Direct/Indirect)	Project Phase	Duration	Likelihood of Impact	Justification	Consequence for MNES values
introduction					the proposed solar array and ancillary infrastructure are not expected to affect their populations.	identified.
Weed introduction	Indirect	Construction & operation	Long-term	Low	Weed species, especially those associated with pastoral practices, occur across the Project Area. Potential for the spread of weed seed during construction and/or introduction during operation by maintenance vehicles	<ul style="list-style-type: none"> <li>• Low consequence for MNES values on site. Some impacts to biodiversity values include:</li> <li>• Potential spread or introduction of weed seed to other locations in the Project Area.</li> </ul>
Loss of habitat	Direct	Construction	Long-term	Low	Marginal suitable foraging and dispersal habitat will impact by the project. The loss of 909.265 hectares of modified, open grasslands in cattle grazing paddocks will occur from the construction of the solar farm.	<ul style="list-style-type: none"> <li>• Low consequence for MNES values on site. Some impacts to biodiversity values include:</li> <li>• Displacement of fauna</li> <li>• Reduction of feeding resources, such as cattle grazing pastures.</li> </ul>
Clearing of Native flora species	Direct	Construction	Long term	High	Native grasses, forbs, shrubs and some trees will be cleared for the construction of the solar array.	<ul style="list-style-type: none"> <li>• Direct loss of habitat for potentially occurring threatened flora species, such as <i>Dichanthium setosum</i>.</li> <li>• Decline in potentially occurring local populations.</li> </ul>
Loss of breeding	Direct	Operation	Long term	Low	Minimal ground cover disturbance from the project will occur, as the solar array will be pile	<ul style="list-style-type: none"> <li>• The minor loss of isolated paddock trees may impact on marginal breeding</li> </ul>

# Matters of National Environmental Significance - Ecological Assessment Report

Beebo Solar Farm and Battery Energy Storage System



Nature of impact	Impact Type (Direct/Indirect)	Project Phase	Duration	Likelihood of Impact	Justification	Consequence for MNES values
places					driven. Areas of earthworks for ancillary infrastructure will be within non-remnant vegetation on pastoral land that is typically regarded as marginal suitable habitat for fauna breeding. This may have a minor impact on breeding for least concern ground dwelling mammals and reptiles.	<p>habitat for the Diamond Firetail</p> <ul style="list-style-type: none"> <li>Loss of isolated paddock trees will reduce marginal dispersal habitat for the Koala.</li> </ul>
Destruction of habitat by bushfire	Direct	Construction-operation		Low	Bushfire poses a significant risk in the Project Area. The open woodland communities and cattle grazing pastures are susceptible to burning, particularly due to activities such as welding, driving vehicles through long dry grass, and other operations that could ignite fires.	<ul style="list-style-type: none"> <li>The indirect impacts on MNES values are expected to be minimal, as the majority of the Disturbance Footprint is within open grassy paddocks with low and sparse grass cover, resulting in minimal fuel loads. This may indirectly affect commonly occurring and threatened ground species dwelling species.</li> </ul>

## 6.2. Impacts on MNES

### 6.2.1. Impacts on MNES habitat

Impacts to MNES habitat have been calculated where the Disturbance Footprint has intersected with the habitat of potentially occurring or confirmed threatened species. These calculations are presented as total hectares in Table 6-3 below. After determining the overall impacts to MNES habitat, the percentage of remaining habitat within the project Area that does not intersect with the Disturbance Footprint has been calculated and is presented in the table below.

Table 6-2 MNES habitat area within the Disturbance Footprint, Project Area

<b>MNES Species with a high likelihood or confirmed occurrence in the Project Area</b>	<b>Suitable habitat within the Disturbance Footprint (ha)</b>	<b>Suitable habitat within the Project Area (ha)</b>	<b>% suitable habitat remaining within the Project Area</b>
Koala foraging habitat	3.16	703.89	99.56%
Koala dispersal habitat	901.42	1387.95	35.05%
Koala refuge habitat	0.06	104.02	99.94%
Greater Glider habitat	1.15	774.78	99.85%
Dunmall's Snake	168.03	317.61	47.10%
Grey Snake	168.03	317.61	47.10%
Glossy Black-cockatoo	0.76	694.88	99.89%
Diamond Firetail breeding	61.64	874.22	92.95%
Diamond Firetail foraging	573.28	980.40	41.53%
Squatter Pigeon breeding	901.46	2156.58	58.20%
Squatter Pigeon foraging	3.18	39.28	91.90%
Latham's snipe	167.89	304.06	44.78%

### **6.2.2. Impacts on MNES threatened species and communities**

The following section details the potential direct and indirect impacts to MNES considered a 'high' likelihood or are confirmed occurring within the Project Area. A summary of the potential direct and indirect impacts is presented in Table 6-4. Finally, the SIA for each of the MNES species is presented in Appendix F.

#### **Koala**

Records for Koala are scattered throughout the region surrounding the Project Area. Suitable breeding and foraging habitat is present for the Koala within the remnant vegetation associated with Brush Creek and within other areas of remnant vegetation within the Project Area. All project related infrastructure will be installed approximately 50 meters away from the middle of Brush Creek at the closest point and all areas of riparian vegetation will be avoided from construction. The Disturbance Footprint is sited completely within non-remnant vegetation consisting of broad acre cropping and cleared grazing pastures. Minor clearing of native vegetation in the form of sparsely distributed paddock tree patches will occur for the installation of the solar array. Cabling for the solar array passes through Brush Creek at two locations. No clearing along the cable route will occur, as the proponent will use Horizontal Directional Drilling (HDD) to run the cable approximately 1 meter below the ground surface, thus avoiding any vegetation removal.

Potential impacts to Koala could include:

- Loss of marginal dispersal habitat in the form of paddock trees.
- Direct mortality through vehicle collisions during construction and operation
- Indirect impacts such as weed incursion.
- Noise and disturbance

Given that the site is largely cleared of native woodland vegetation (Figure 6-1), the dispersal capability of the Koala is likely to remain unchanged by the project. Suitable wooded vegetation along existing fence lines and forested areas along Brush Creek will remain within the Project Area. The Koala will utilise these vegetated corridors to disperse into nearby remnant woodlands. Additionally, koala-sensitive fencing designs, using chain mesh fencing without barbed wire and wooden climbing posts, will further assist the Koala in moving through the landscape. All areas of the Project Area that contain broadacre cropping or open pastures with minimal tree cover are not considered habitat for this species, however, despite the solar array being installed within these areas, the Koala will continue to traverse through this site on rare occasions.



Figure 6-1 Cleared paddock/crop areas with no cover from predators, no sheltering opportunities and no shade. Dispersal through these areas is considered poor, given the lack of vegetative cover and risk from predation.

A significant impact assessment for the Koala has been undertaken according to the Significant Impact Guidelines 1.1- Matters of National Environmental Significance (Table A- 2).

### **Greater Glider**

Three Greater Glider were recorded along Brush Creek during the field surveys. The individuals were recorded in suitable forested habitat dominated by the Queensland Blue gum (*Eucalyptus tereticornis*). Hollow bearing trees were located nearby and throughout the riparian vegetation. The vegetation patches adjacent to the riparian area are likely to be used for foraging but almost no live hollow bearing trees were recorded outside of the riparian areas. Individual paddock trees that may be lost are unlikely to be used for foraging or denning as they are isolated from continuous tracts of vegetation, and Greater Glider rarely venture onto the ground to disperse. Impacts to Brush Creek will be avoided by using HDD for cable routing. All HDD drilling will be conducted in areas already cleared of remnant native vegetation, at a depth of approximately 1 meter.

The Project will not impact connectivity for this species or increase fragmentation. Indirect impacts could potentially include:

- Noise and disturbance
- Habitat quality reduction due to weed introduction or spread

A significant impact assessment has been undertaken according to the Significant Impact Guidelines 1.1- Matters of National Environmental Significance (Table A- 3). Habitat for this species within the Project Area and Disturbance Footprint is presented in Figure A- 10

### **Squatter Pigeon**

Although the Squatter Pigeon is sparsely distributed throughout the Goondiwindi region, any population potentially occurring within the Project Area is considered important. Marginal foraging and breeding habitats are present within the broadacre cropping fields and cattle grazing pastures. The installation of the solar farm will have minimal impact on the ground cover layer in these areas, as no major earthworks will occur within the solar array, which constitutes 835.34ha of the total Disturbance Footprint. The remaining areas of the

Disturbance Footprint that will involve earthworks include the ancillary infrastructure (such as the BESS, laydown areas, and substation) and will total approximately 69.33ha of non-remnant vegetation. Therefore, a significant impact on the Squatter Pigeon from habitat loss is unlikely to occur.

The Project commitment for natural regeneration of native ground cover species under and around the solar panels and under powerlines is expected to reinstate foraging habitat for Squatter Pigeon during the operation phase. Watering points (Brush Creek and farm dams) and trees will remain within 1 km of the cleared areas. It is likely that grass will grow at the bottom of panels where water collects, which could provide a food source for Squatter Pigeon, even during times of drought. Weed control will manage the introduced grasses and weeds and slashing will keep any regenerating grasses at a low height which is suitable for Squatter Pigeon. Selective spraying of non-desirable grasses would enable native grasses to persist and provide ongoing food for Squatter Pigeon.

Indirect impacts could potentially include:

- Noise and disturbance
- Habitat quality reduction due to weed introduction or spread
- Increased predator activity

It is likely that Squatter Pigeon will forage around solar panels and in the adjacent vegetation and cleared areas. Due to this, it is considered that this project will not have a significant impact on this species. An assessment of significant impact for this species is found in Table A- 4.

### **Glossy Black-cockatoo**

Glossy Black-cockatoo is common but widespread across the southern Brigalow Belt (DCCEEW 2022e). Records occur in the adjacent Yelarbon State Forest and it's likely that the species forages in the Project Area along Brush Creek and in areas with *Casuarina sp.* or *Allocasuarina sp.* Isolated paddock trees that are persisting within a cleared agricultural matrix may be cleared for the installation of the solar array. Foraging trees are not present in large enough communities to provide a critical food source for the Glossy Black Cockatoo. The riparian vegetation which includes trees suitable for nesting has been completely avoided. Direct impacts to this species is unlikely. Indirect impacts could include:

- Noise and disturbance
- Habitat quality reduction due to weed introduction or spread

Due to the low likelihood of indirect or direct impacts on foraging and breeding habitat for this species, it is unlikely that there will be a significant impact on this species. An assessment of significant impact for this species is found in Table A- 5.

### **South-eastern Long-eared Bat**

The South-eastern Long-eared Bat inhabits open Eucalypt and cypress-pine woodlands along the western slopes and plains of NSW and southern QLD. Open Eucalypt woodlands and forests along Brush creek and the edges of large areas of remnant vegetation provide suitable habitat for this species in the Project Area. Furthermore, several records of this species occur in Yelarbon State Forest and the surrounding landscape. Acoustic surveys in the Project Area detected several call sequences from *Nyctophilus* species. However, because the calls of *Nyctophilus corbeni* cannot be reliably distinguished from those of other *Nyctophilus* bats, the likelihood of this species occurring on the site remains high, though cannot be confirmed.

Vegetation clearing for the proposed project occurs entirely within non-remnant vegetation. Marginal suitable habitat in the form of isolated paddock trees will be removed for the construction of the solar farm. The loss of these small areas of potential roosting habitat will not result in a significant impact to this species, particularly since large tracts of suitable foraging and roosting habitat occur exterior to the Project Area or within the woodlands and forests fringing Brush Creek, which will not be cleared for the project.

An assessment of significant impact for this species is found in Table A- 5.

### **Latham's Snipe**

Latham's Snipe are migratory and only inhabit Australia for part of the year and during this time they can be nomadic. The Disturbance Footprint will not directly impact either of the two wetlands suitable for this species and there is more than 250m between the Disturbance Footprint and the suitable habitat. The species could potentially have collisions with over-head transmission lines but the Project will be feeding into existing transmission lines within the Project Area so the Project will not increase the risk of collisions above that which is already present. Indirect impacts to this species could potentially include:

- Noise and disturbance
- Indirect impacts on water quality in the dam through sedimentation from run-off
- Increased predators through the additional construction of roads and incorrect disposal of waste.

Provided mitigation measures are implemented to reduce the indirect impacts on the species, a significant impact is considered unlikely. An assessment of significant impact for this species is found in Table A- 9.

### **Grey Snake and Dunmall's Snake**

Both the Grey Snake and Dunmall's Snake inhabit Brigalow woodlands and areas with cracking clay soils. Approximately 36 hectares of Brigalow woodlands occurs within the Project Area and do not intersect with the Disturbance Footprint. Suitable cracking clay soils do occur exterior to the mapped Brigalow woodlands within lot 54 CVE91 and could potentially provide habitat for these species and the ground dwelling frogs on which these species prey upon. These areas within this lot, however, have undergone extensive vegetation clearing and grazing for the last 80 years. As such, this area represents marginal suitable habitat for these species. Ground disturbance within the cracking clay soils will be minor and will be limited to the pile driving of solar panel footings. Ground disturbance will also occur from the installation of cable trenches, which will have a total width of 2.3 meters within suitable cracking clay soil habitat. Trench works will total approximately 0.6 hectares of surface area within Lot 54 CVE91.

Minor ground disturbance is likely during construction as trucks and light vehicles drive across areas with gilgais resulting in temporary soil compaction and trampling of grass cover. These impacts will be temporary and grass cover is likely to return shortly after construction is completed in that area. Overall, solar panels are proposed to be installed across 168.03 hectares of suitable gilgai habitat. Since minimal earth works will be conducted here, both species are expected to utilise the ground cover despite the solar array. As such, a significant impact on these species is not expected to occur.

Indirect impacts to the species could include:

- Degradation of habitat through soil compact and trampling during construction and operations
- Degradation of habitat through the introduction or spread of weeds

Measures to mitigate these impacts to these species is listed in Table 7-2. Provided these mitigation measures are implemented the impact to the species is unlikely to be significant. A SIA for these species can be found in Table A- 7 and Table A- 8.

### **Diamond Firetail**

Diamond Firetail records are scattered throughout the area of the Project Area. Records of this species have been found recently (2020) nearby in paddocks similar to those in the Project Area. This species is known to inhabit grassy woodlands but also cleared grazing land. It is possible that the species is utilising the woodland along Brush Creek and the remnant areas outside the Disturbance Footprint for foraging and breeding. Breeding may also occur in open grassy woodland habitat where a suitable tree and shrub layer is present for nesting. It is also possible that this species is foraging in the non-remnant grazed areas due to the presence of

native grasses. The cleared croplands do not contain the habitat features preferred by the species such as sparse trees and dense grass. Direct impacts to the species include:

- Clearing of scattered of wooded habitat within non-remnant vegetation
- Disturbance to 573.28 hectares of non-remnant grasslands during construction including trampling of grass and minor soil disturbance.

Minor temporary disturbance to open grassy paddocks for the installation of the solar array will occur. Disturbance for the installation of the solar panel footings will total 0.4 hectares. Earth works for the construction of the ancillary infrastructure will occur across approximately 69.33 hectares of the total Disturbance Footprint of 904.64 hectares. This disturbance will be located entirely within non remnant vegetation modified by cattle grazing.

Indirect impacts on the species include:

- Reduction in habitat quality caused by erosion, dust or waterway sedimentation
- Noise and disturbance
- Reduction in habitat quality caused by invasive plants introduced or spread during construction or operation
- Changes in ground cover caused by shading of vegetation

Provided the mitigation measures in Table 7-1 are implemented it is unlikely that any of the indirect impacts listed will have a significant impact on the species. An assessment of significant impact for this species can be found in Table A- 10.

### **6.2.3. Impacts on MNES migratory species**

#### **Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)**

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) is an environmental treaty of the United Nations and provides a global platform for the conservation and sustainable use of migratory animals and their habitats (CMS 2020).

Parties to the convention must strive to protect listed species, conserve and restore habitats, mitigate obstacles to migration and control factors that endanger listed species.

One species listed under the Bonn Convention, Latham's Snipe, was recorded during the surveys outside of the Disturbance Footprint at a large dam. The dams will not be impacted by the Project and due to the distance from the Disturbance Footprint (more than 250m) it's unlikely there will be any direct impact on the habitat or the species. Indirect impacts through noise and disturbance are likely to be negligible. The construction of the Project will not impact the species ability to migrate or move through the landscape.

The Project has been assessed as having no significant residual impact to migratory species. Mitigation measures which will be implemented to reduce the impact on all species are listed in Section 7.

#### **Japan-Australia Migratory Bird Agreement (JAMBA), China-Australia Migratory Bird Agreement (CAMBA) and Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)**

The Australian Government has signed on to a range of international agreements to protect migratory species that travel through Australia along the East-Asian-Australasian Flyway. Bilateral migratory bird agreements have been made with:

- Japan (JAMBA)
- China (CAMBA) and;
- Republic of Korea (ROKAMBA).

These agreements promote the co-operation in taking measures for the management and protection of migratory birds and birds in danger of extinction and also for the management and protection of their habitats. Birds listed under these agreements (and the Bonn Convention) are listed under the EPBC Act as migratory.

One species listed under the JAMBA and ROKAMBA, Latham’s Snipe, was recorded during the surveys outside of the Disturbance Footprint at a large dam. The dams will not be impacted by the Project and due to the distance from the Disturbance Footprint (more than 250m) it’s unlikely there will be any direct impact on the habitat or the species. Indirect impacts through noise and disturbance are likely to be negligible. The construction of the Project will not impact the species ability to migrate or move through the landscape.

This Project has developed avoidance, mitigation and management measures against impacts to migratory species. The Project has been assessed as having no significant residual impact to migratory species. This Project does not contravene Australia’s JAMBA, CAMBA and ROKAMBA’s obligations.

### 6.2.4. Summary of impacts on MNES

A summary of the direct and indirect impacts on MNES are listed in Table 6-3.

Table 6-3 Summary of impacts to MNES from the Project.

MNES	Direct impacts	Indirect impacts
Koala	<ul style="list-style-type: none"> <li>A total of 901.42 ha of dispersal habitat is within the Disturbance Footprint. Which includes cropped areas and cattle grazing pastures</li> <li>Refuge habitat for the Koala is mapped within suitable REs along Brush Creek</li> <li>Injury/fatality from machinery or vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Habitat fragmentation</li> <li>Habitat degradation</li> <li>Increased predation</li> <li>Disturbance from noise and lighting</li> </ul>
Squatter Pigeon	<ul style="list-style-type: none"> <li>Modification of 904.64 ha of foraging and breeding habitat. It is expected that Squatter Pigeons will continue to forage beneath and between the solar arrays.</li> <li>Direct mortality during clearing</li> <li>Direct mortality via vehicle collisions from construction or operational vehicles and machinery</li> <li>Destruction of nests during construction</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in habitat quality caused by erosion, dust or waterway sedimentation</li> <li>Noise and disturbance</li> <li>Reduction in habitat quality caused by invasive plants introduce or spread during construction or operation</li> <li>Changes in ground cover caused by shading of vegetation</li> <li>Changes in vegetation composition caused by incursion of weeds</li> <li>Introduction or spread of introduced predators</li> </ul>
Greater Glider	No direct impacts are likely for this species. The cable crossing at Brush Creek will be undertaken with HDD to avoid impacts to Greater Glider habitat.	<ul style="list-style-type: none"> <li>Reduced viability of adjacent habitat due to noise, dust, heat, erosion or light spill-construction works may impact on habitat quality in retained vegetation</li> <li>Loss of habitat through increased</li> </ul>

MNES	Direct impacts	Indirect impacts
		bushfires risk
Glossy Black-Cockatoo	A minor loss of isolated paddock trees will occur from the project.	<ul style="list-style-type: none"> <li>No indirect impact to this species is expected to occur from the proposed project.</li> </ul>
Diamond Firetail	<ul style="list-style-type: none"> <li>Removal of marginal foraging and breeding habitat</li> <li>Direct mortality during clearing</li> <li>Direct mortality via vehicle collisions from construction or operational vehicles and machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in habitat quality caused by erosion, dust or waterway sedimentation</li> <li>Noise and disturbance</li> <li>Reduction in habitat quality caused by invasive plants introduced or spread during construction or operation</li> <li>Changes in ground cover caused by shading of vegetation</li> <li>Changes in vegetation composition caused by incursion of weeds</li> <li>Introduction or spread of introduced predators</li> </ul>
Latham's Snipe	No direct impacts are likely for this species.	<ul style="list-style-type: none"> <li>Noise and disturbance</li> <li>Changes in vegetation composition caused by incursion of weeds</li> <li>Reduction in habitat quality caused by erosion, dust or waterway sedimentation</li> </ul>
Grey Snake	<ul style="list-style-type: none"> <li>Direct mortality during construction works</li> <li>Disturbance of habitat from construction works</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in habitat quality caused by erosion, dust or waterway sedimentation</li> <li>Noise and disturbance</li> <li>Reduction in habitat quality caused by invasive plants introduced or spread during construction or operation</li> <li>Changes in ground cover caused by shading of vegetation</li> <li>Changes in vegetation composition caused by incursion of weeds</li> <li>Introduction or spread of introduced predators</li> </ul>
Dunmall's Snake	<ul style="list-style-type: none"> <li>Direct mortality during construction works</li> <li>Disturbance of habitat from construction works</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in habitat quality caused by erosion, dust or waterway sedimentation</li> <li>Noise and disturbance</li> <li>Reduction in habitat quality caused by invasive plants introduced or spread during</li> </ul>

MNES	Direct impacts	Indirect impacts
		construction or operation <ul style="list-style-type: none"> <li>• Changes in ground cover caused by shading of vegetation</li> <li>• Changes in vegetation composition caused by incursion of weeds</li> <li>• Introduction or spread of introduced predators</li> </ul>
South-eastern Long-eared Bat	No direct impacts are likely for this species.	<ul style="list-style-type: none"> <li>• Noise and disturbance</li> <li>• Reduction in habitat quality caused by invasive plants introduced or spread during construction or operation</li> <li>• Changes in vegetation composition caused by incursion of weeds</li> </ul>
Brigalow	No direct impacts – Brigalow TEC will be avoided during construction	<ul style="list-style-type: none"> <li>• Weeds brought in soils or unclean machinery</li> <li>• Increase in dust</li> <li>• Changes to hydrology</li> <li>• Increased erosion and sediments</li> <li>• Loss of habitat through increased bushfires</li> </ul>

## 7. Proposed avoidance and mitigation measures

The recommended avoidance and mitigation measures for the Project are detailed in the following section. The proposed measures are in accordance with the development mitigation hierarchy, which aims for a result of ‘no net loss’ of biodiversity through implementing, in the following order, avoidance, mitigation, rehabilitation/restoration and offsetting (Figure 7-1). The goal of ‘no net loss’ is to enable appropriate development without associated biodiversity losses (Gardner et al. 2013)

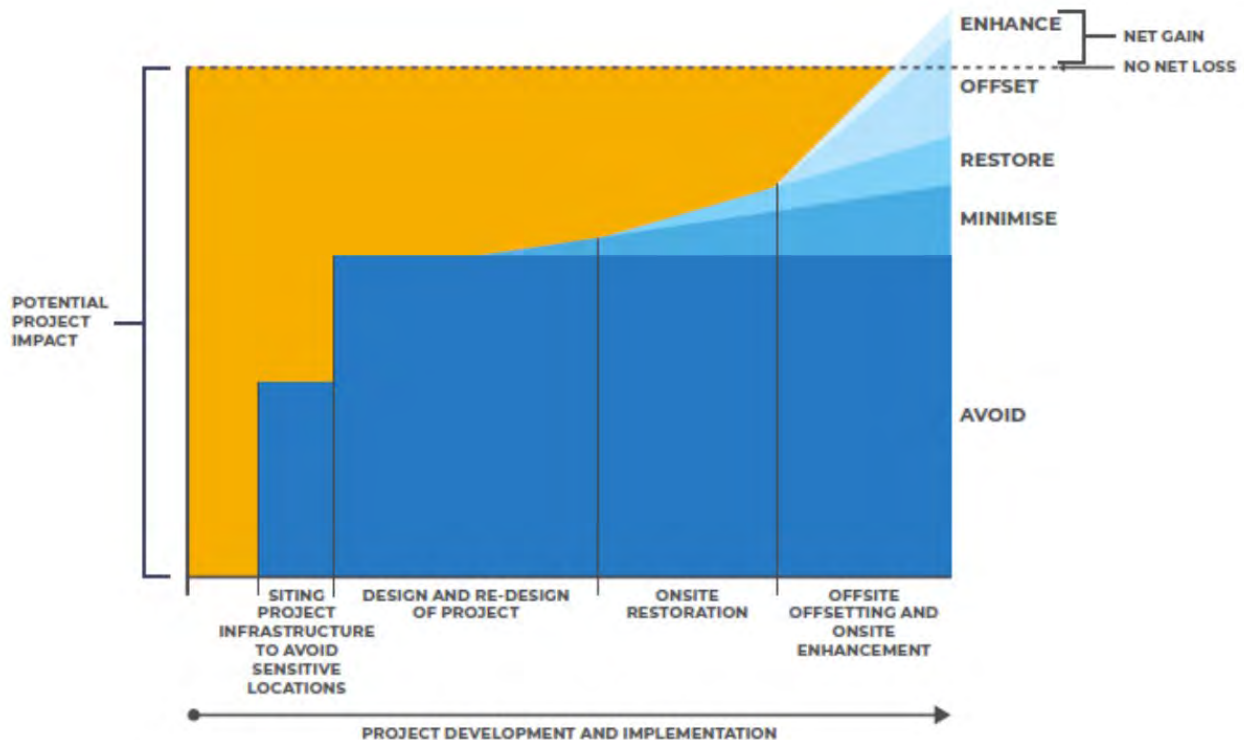


Figure 7-1 The mitigation hierarchy (from Bennun et al., 2021)

### 7.1. Avoid and minimise

The current Disturbance Footprint (Figure A- 2) has evolved through multiple layout iterations. Insights from the surveys conducted in April and March have influenced the design of the solar array and ancillary infrastructure, including:

- Creating a setback or buffer area between the outer fence line of the Disturbance Footprint and bordering vegetation. This will create a buffer to the TEC within the Project Area.
- Removing a section of the solar array from the northern part of Lot 54 CVE91 to avoid areas with higher quality gilgais
- Removing panels from around the wetland in the north of Lot 23 CLV34133 to avoid impacts to an unmapped wetland and Greater Glider and Koala habitat.
- Using underground cabling wherever possible to avoid vegetation clearing along Brush Creek.
- Avoiding all state mapped remnant and regrowth vegetation
- Maintaining a minimum buffer to Brush Creek of approximately 50 meters.

The Project requires cables to cross Brush Creek to get to the proposed substation and BESS. The original design had cables crossing the creek using traditional trenching methods which would have had impacts on

threatened species habitat and on aquatic values such as sedimentation in the watercourse. The method of crossing was changed to using less invasive HDD techniques which would go under the creek, thereby avoiding adverse impacts.

Avoidance is the key principle that has been, and will continue to be, applied to the Project design, with MNES habitat being avoided wherever possible. The early planned layout of solar panels has been generally kept to areas of cleared agricultural land. Following completion of site surveys, the layout was again revised and refined to further avoid and minimise impacts on MNES identified within the Project Area.

Key avoidance outcomes include:

- Using existing tracks where possible
- Placing underground cables within or adjacent to existing or new tracks where possible
- Reducing the width of tracks where engineering constraints permit
- Avoiding sensitive areas such as waterways and habitat for MNES where possible
- Low impact construction methods for solar array footings Total impact area from solar footings is 0.4557 ha across the Disturbance Footprint.

## **7.2. Proposed mitigation**

Measures proposed to avoid, minimise or mitigate impacts to flora and fauna species and their habitat are summarised in Table 7-1.

## **7.3. Construction management**

CEMP will be developed for the Project and submitted for local government approval prior to commencement of works. This will detail measures including:

- Dust and sediment from stockpiling activities to be managed to avoid escape into adjacent habitats that may smother vegetation or other important habitats or lead to impacts on water quality and aquatic habitats.
- Where an unacceptable risk to soils and vegetation exists, bulk earthworks will be avoided during, and immediately following heavy rainfall.
- Trenches will be backfilled as soon as possible to minimise the chance of fauna becoming trapped. Trench sections left open overnight would be inspected early in the morning and any trapped fauna removed. The use of ramps or ladders to facilitate trapped fauna escape is recommended (dependent on the size of trench needed).
- Project vehicles and machinery, material laydowns, and stockpiling will remain within the Disturbance Footprint. Construction materials will not be stored on site for extended periods of time (e.g., periods of several months) as local fauna may take up residence and be injured when the materials are eventually moved.
- Topsoil will be stockpiled and protected separately for rehabilitation works. Where relevant (e.g., cable trenching, separate subsoils layers and topsoils layers will be replaced in their natural configuration to assist revegetation.
- Spill management and response measures will be developed to prevent contaminants affecting surrounding environments.
- Speed restrictions will apply onsite for safety and to reduce risk of fauna collision.

## **7.4. Weed and pest animal management plan**

A Weed and Pest Animal Management Plan (WPAMP) will be developed prior to construction of the solar farm. Measures will include the following:

- Identification and mapping of significant weeds occurring in construction areas prior to disturbance. This will support a clear determination of 'clean' and 'infested' construction zones to assist in weed management.
- Monitoring weed and pest presence and distribution to determine any increase attributable to the Project. Where the Project is contributing to increased weeds or pest animal present, control and other preventative measures will be implemented accordingly.
- A list of all WoNS and Category 3 restricted invasive plant species within the Project Area and measures to avoid spread.
- Pest animal monitoring and, where appropriate, implementation of a responsive management program, which may include additional monitoring, waste management practices, or active management (i.e., shooting, trapping and baiting, with consideration of non-target species susceptibility to secondary poisoning).

## **7.5. Operation stage**

A range of mitigation measures will be implemented to ensure that impacts on biodiversity during the operation stage of the Project are avoided and then minimised where they cannot be avoided. The mitigation measures that would be employed during the operation stage of the Project to reduce the impacts on flora and susceptible fauna include:

- Continuation of weed and pest animal management, where appropriate to the risk.
- Continuation of rehabilitation monitoring and management from the construction stage to ensure that site rehabilitation and weed management objectives are met.

## **7.6. Measures to restore and rehabilitate**

Site rehabilitation will be conducted during and after construction of the solar farm. Details of rehabilitation strategies will be provided in a Vegetation and Fauna Management Plan (VFMP), and will include details on the following:

- Methods of rehabilitation and advice on preferred species for planting
- Methods and advice on installing fauna friendly structures and fencing
- Include monitoring to meet clear targets regarding ground cover establishment.

Table 7-1 Proposed measures to avoid, minimise and mitigate impacts to flora, fauna and habitat.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
<b>Displacement of resident fauna through vegetation clearing and habitat removal</b>						
Time works to avoid critical life cycle events	<ul style="list-style-type: none"> <li>Where practicable, hollow-bearing trees are not to be removed during the peak breeding season (spring to summer) to mitigate impacts on hollow dependent birds</li> <li>Pre-clear surveys should be conducted prior to all clearing to check hollows for fauna</li> </ul> <p><i>Hanger, J and Nottidge, B 2009. Draft Queensland Code of Practice for the welfare of wild animals affected by land-clearing and other habitat impacts and wildlife spotter/catchers. Australian Wildlife Hospital.</i></p>	Construction	Regular	Jinko/ Clearing contractor	Moderate- not all hollows will be identified prior to clearing so some hollows containing fauna may be destroyed.	Species not detected during pre-clearing surveys may be impacted.
Implement clearing protocols during tree clearing works, including	<ul style="list-style-type: none"> <li>Pre-clearing checklist</li> <li>Tree clearing procedure</li> <li>All clearing supervised by</li> </ul>	Construction	Regular	Jinko/ Clearing contractor	Moderate- pre-clear surveys will not identify	Species not detected during pre-clearing surveys may be

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or wildlife handler	<p>FSC.</p> <ul style="list-style-type: none"> <li>FSC to check micro-habitats within the clearing footprint prior to clearing (within 24 hours of clearing) to relocate any individuals prior to clearing.</li> <li>FSC with experience handling venomous snakes to be on site during clearing works and drilling for footings to relocate any snakes found.</li> </ul> <p><i>Hanger, J and Nottidge, B 2009. Draft Queensland Code of Practice for the welfare of wild animals affected by land-clearing and other habitat impacts and wildlife spotter/catchers. Australian Wildlife Hospital.</i></p>				well-hidden fauna (such as those in the leaf litter or high in trees). Some fauna may not be seen and may be injured or killed during clearing	impacted
Retain the ground and mid storey	<ul style="list-style-type: none"> <li>Where possible, retain shrub layer and ground cover (preferably of native grasses).</li> </ul>	Construction	Regular	Jinko/ Clearing contractor	Moderate – this will provide cover for small	Low: Some fauna may still shy away from the Project

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Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	This allows for small animal movement through the understory, under and around infrastructure.				animals and will reduce the risk of population fragmentation.	Area despite ground cover availability.
Salvageable hollows from felled trees will be relocated to areas of retained vegetation in order to provide additional habitat.	<ul style="list-style-type: none"> <li>Tree-clearing procedure including relocation of habitat features to adjacent area for habitat enhancement</li> </ul> <p><i>Hanger, J and Nottidge, B 2009. Draft Queensland Code of Practice for the welfare of wild animals affected by land-clearing and other habitat impacts and wildlife spotter/catchers. Australian Wildlife Hospital.</i></p>	Construction	Regular	Jinko/ Clearing contractor	Low- few hollows will be salvageable and unless they are placed in an appropriate way and maintained this mitigation is likely to have a low effectiveness.	Low: Some hollows from felled trees are likely to be too damaged for effective relocation.
Avoid clearing eucalypts	<ul style="list-style-type: none"> <li>Avoid clearing mature eucalypts where possible including those scattered in the grazed areas. This allows for koala dispersal and connectivity to be maintained.</li> </ul>	Construction	Regular	Jinko/ Clearing contractor	High – this will reduce the impact to koala dispersal habitat and allow for continued	Low: Some trees may not be able to be avoided and will require removal or trimming.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
					dispersal within the area. Eucalypts that are retained will also support overall biodiversity by providing habitat and shade for birds, mammals, reptiles etc.	
Avoid clearing and disturbing gilgais	<ul style="list-style-type: none"> <li>All temporary infrastructure to be placed outside of areas with gilgais</li> <li>Footings for arrays to be installed using methods with minimal impact to ground cover. This includes direct pile driving or other low impact and disturbance method. Power infrastructure, permanent</li> </ul>	Construction	Regular	Jinko	High – this will reduce the impact to Grey Snake habitat and other species that inhabit the gilgais such as frogs and waterbirds.	Low: Some disturbance to gilgais may be unavoidable.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<p>roads, and associated laydowns will be placed outside of gilgai areas.</p> <ul style="list-style-type: none"> <li>Cabling along the solar array will utilise cable hangers to prevent trenching under the solar array.</li> <li>Cabling to connect the solar array across the Project area will entail a total disturbance of 11.96 hectares.</li> </ul>					
Reinstate topsoil and any habitat features that were present prior to trenching	<ul style="list-style-type: none"> <li>When trenching, separate and retain the topsoil. Reinstate when trenching is complete.</li> <li>Remove any habitat features such as logs or rocks in the disturbance area and reinstate at completion.</li> </ul>	Construction	Once	Jinko Constructor	Moderate – this will reduce the impact to habitat.	Low, provided protocols are followed
Revegetate with native grasses post-construction and manage weeds	<ul style="list-style-type: none"> <li>Areas under solar panels should be revegetated with native grasses that are suitable for the soil</li> </ul>	Operation	Regular	Jinko Constructor	High – this will provide cover for small animals and	Low provided protocols are followed.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<ul style="list-style-type: none"> <li>Weed monitoring of revegetated areas to ensure they do not outcompete native vegetation.</li> <li>Weed control when necessary.</li> </ul>				provide native foraging resources for Squatter Pigeon.	
<b>Indirect impacts on native vegetation and habitat</b>						
Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed.	<ul style="list-style-type: none"> <li>Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing in proximity to the development.</li> <li>No stockpiling or storage within the Tree Protection Zone (TPZ) of any mature trees that will be preserved on site.</li> <li>Strict weed protocol must be observed at all times.</li> </ul> <p><i>Witheridge, G. 2012. Erosion and Sediment Control- a field guide for construction site managers. Catchments and Creeks Pty Ltd.</i></p>	Construction	Regular	Jinko	High- signage and temporary fencing is likely to stop damage to retained vegetation during clearing.	Low. Minimal impacts to native vegetation will occur.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<i>Brisbane, Queensland.</i>					
Light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill	<ul style="list-style-type: none"> <li>Avoid night works, where practicable; and</li> <li>Direct lights away from vegetation, where practicable.</li> <li>Permanent lighting designed in accordance with the National Light Pollution Guidelines for Wildlife (DCCEEW 2023)</li> </ul>	Construction/Operation	Regular	Jinko	High- avoiding night work and direct light away from habitat to reduce disturbance to fauna.	Low: Light spill into sensitive receiving areas.
Adaptive dust monitoring programs to control air quality	<ul style="list-style-type: none"> <li>Daily visual monitoring of dust generated by construction activities; and</li> <li>Construction to cease if significant dust is observed being blown from Disturbance Footprint until control measures are implemented; and</li> <li>All Project activities to be undertaken with the objective of preventing visible dust emissions from the Disturbance Footprint.</li> </ul>	Construction	Regularly	Jinko	Moderate- dust suppression will suppress most dust but not all.	Low: Sedimentation within ephemeral waterways and dams.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<i>Witheridge, G. 2022. Erosion and Sediment Control- a field guide for construction site managers. Catchments and Creeks Pty Ltd. Brisbane, Queensland.</i>					
Temporary fencing to protect significant environmental features such as riparian zones and Brigalow	<ul style="list-style-type: none"> <li>Prior to construction commencing, exclusion fencing (or similar) and signage would be installed around significant habitat to be retained in close proximity to the development.</li> </ul>	Construction	Regularly	Jinko	High- fencing and/or signage will prohibit clearing around significant habitat.	Low: All staff must obey exclusion zones.
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	<ul style="list-style-type: none"> <li>A Weed Management Procedure would be developed for the proposal to prevent and minimise the spread of weeds. This would include:                             <ul style="list-style-type: none"> <li>Management protocol for declared priority weeds under the <i>Biosecurity Act 2014</i> during and after</li> </ul> </li> </ul>	Construction, Operation	Regular	Jinko	Moderate- weed hygiene practices will reduce the likelihood of introducing new weeds or spreading existing ones but some	Weed encroachment and associated degradation of habitat.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<p>construction;</p> <ul style="list-style-type: none"> <li>o Weed hygiene protocol in relation to plant, machinery, and fill;</li> <li>• Any occurrences of pathogens such as Myrtle Rust and Phytophthora would be monitored, treated, and reported</li> </ul> <p><i>Biosecurity Queensland 2019. Vehicle and machinery cleandown procedures. Biosecurity Queensland.</i></p>				weeds such as Giant Rats Tail Grass, is very easily spread and could potentially spread during construction.	
Staff training and site briefing to communicate environmental features to be protected and measures to be implemented	<ul style="list-style-type: none"> <li>• Site induction; and</li> <li>• Toolbox talks.</li> </ul>	Construction	Regular	Jinko	Moderate-training and site briefings will educate staff but if the training is not followed, some mitigations may not be adhered	Low: All on site staff will obey environmental procedures on the site.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
					to.	
Preparation of a vegetation management plan to regulate activity in vegetation and habitat adjacent to the proposed development.	<ul style="list-style-type: none"> <li>• Preparation of a Vegetation and Fauna Management Plan that would include protocols for:                             <ul style="list-style-type: none"> <li>○ Protection of native vegetation to be retained;</li> <li>○ Best practice removal and disposal of vegetation;</li> <li>○ Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist;</li> <li>○ Weed management;</li> <li>○ Unexpected threatened species finds;</li> <li>○ Exclusion of vehicles through sensitive areas;</li> <li>○ Best practice clearing of overstorey vegetation for construction of the transmission line to avoid</li> </ul> </li> </ul>	Construction	One-off	Jinko	Moderate- the Vegetation and Fauna Management Plan will detail mitigation measures to protect flora and fauna but staff may not implement the plan.	Low- Staff may not follow the measures included in the Vegetation and Fauna Management Plan which could lead to impacts on native vegetation and threatened fauna.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<ul style="list-style-type: none"> <li>understorey impacts; and</li> <li>Rehabilitation of temporarily disturbed areas.</li> </ul>					
Implement erosion and sediment controls	<ul style="list-style-type: none"> <li>An erosion and sediment control plan is to be prepared and implemented in conjunction with the final design <i>IECA 2008, Best Practice Erosion &amp; Sediment Control. International Erosion Control Association</i></li> </ul>	Construction	Regular	Jinko	Moderate- the Erosion and Sediment Control Plan will detail mitigation measures to protect soil and waterways but staff may not implement the plan.	Low- Impacts may occur if erosion and sediment control plan is not implemented appropriately
Develop a bushfire management plan in consultation with the Queensland Fire and Emergency Services	<ul style="list-style-type: none"> <li>As part of an emergency response plan, develop a bushfire management plan which includes:                             <ul style="list-style-type: none"> <li>Measures to reduce bushfire risk</li> <li>Procedures for</li> </ul> </li> </ul>	Construction	Regular	Jinko	High – provided the measures in the plan are followed, bushfire risk should not be increased by	Low- Impacts may occur if bushfire management plan is not implemented appropriately.

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
	<ul style="list-style-type: none"> <li>○ preventing bushfire                             <ul style="list-style-type: none"> <li>○ Installation of equipment needed to fight fire</li> <li>○ Emergency procedures in the case of a bushfire starting</li> </ul> </li> <li>● This bushfire management plan will be developed.</li> </ul>				the Project.	
<b>Prescribed biodiversity impacts</b>						
Sediment barriers and spill management procedures to control the quality of water runoff released from the Project Area into the receiving environment	<ul style="list-style-type: none"> <li>● An erosion and sediment control plan to be prepared and implemented in conjunction with the final design; and</li> <li>● Spill management procedures to be implemented.</li> </ul> <p><i>IECA 2008, Best Practice Erosion &amp; Sediment Control. International Erosion Control Association</i></p>	Construction	Regular	Jinko	Moderate- sediment barriers and spill management may not always be effective at preventing a decrease in water quality	Low- Impacts may occur to waterway if erosion and sediment control plan is not implemented appropriately
Staff training and site briefing to communicate	<ul style="list-style-type: none"> <li>● Awareness training during site inductions regarding</li> </ul>	Construction and Operation	Regular	Jinko	Moderate- staff training may not	Low- Fauna strikes from vehicles

Mitigation measures	Proposed techniques	Timing	Frequency	Responsibility	Effectiveness of proposed measures	Risk and consequences of residual impacts
<p>impacts of traffic strikes on native fauna. This will include targeted Squatter Pigeon awareness, which will be included in all worker inductions and in the Traffic Management Plan.</p>	<p>enforcement of site speed limits; and</p> <ul style="list-style-type: none"> <li>• Site speed limits to be enforced to minimise fauna strike.</li> <li>• Traffic Management Plan</li> </ul> <p>A register of Squatter Pigeon sightings will be maintained to identify current areas that have a risk of collision.</p>				<p>be effective at changing staff behaviour and traffic strikes may still occur.</p>	

## 7.7. Species specific mitigation measures

One threatened species, the Greater Glider, was confirmed present within the Project Area. An additional 8 species were considered a high likelihood of occurring on the Project Area. Species-specific mitigation measures will be implemented for these species, in addition to the general mitigation measures.

Table 7-2 Species specific mitigation measures.

MNES	Proposed mitigation measures	Significant Impact Likely
Koala	<ul style="list-style-type: none"> <li>• Pre-clearance inspection of habitat by a FSC prior to clearing.</li> <li>• Presence of a FSC to supervise clearing.</li> <li>• FSC will check each tree for koala prior to clearing. If located, an exclusion zone will be established sufficient to ensure that no koala habitat tree in which a koala is present, and no koala habitat tree with a crown overlapping a tree in which a koala is present, is cleared.</li> <li>• Should a koala be observed, all clearing works in the area will cease and a temporary dispersal corridor will be retained to facilitate koala movement out of the clearing zone and koalas will be allowed to relocate out of the areas of their own volition.</li> <li>• Staged clearing procedures to be undertaken in koala habitat, with clearing progressing towards intact habitat that will be retained outside of the Project Area.</li> <li>• Enforcing vehicle speed limits (&lt; 40 km/hr) during construction and operation.</li> <li>• A bushfire management plan will be developed to manage the risk of bushfire.</li> </ul>	No
Squatter Pigeon	<ul style="list-style-type: none"> <li>• Weed management measures would be included in the WPAMP.</li> <li>• Fauna Spotter Catcher (FSC) to conduct pre-clearance surveys for fauna and fauna habitat prior to clearing and to supervise all clearing activities.</li> <li>• Should any habitat or fauna be detected, an exclusion zone will be established to ensure that clearing will not interfere with the habitat feature or species nest/roost. For example, trees will not be felled if they, or a tree they fall on, are within striking distance of the nest.</li> <li>• Clearing works will not continue in the exclusion zone until the species young fledge, or as per the instruction of a suitably qualified FSC.</li> <li>• Staged, sequential clearing and rehabilitation to minimise total unavailable habitat to Squatter Pigeon at any one time.</li> </ul>	No

MNES	Proposed mitigation measures	Significant Impact Likely
	<ul style="list-style-type: none"> <li>• Pest management measures to be included in WPAMP to outline requirements for managing introduced predators.</li> <li>• Reduced speed limits during construction and operation to avoid unintended collisions with wildlife or destruction of nests.</li> <li>• Maintain a register of Squatter Pigeon sightings to be disseminated to the workforce so they are aware of 'hot spots'.</li> <li>• Signage to be erected in areas where Squatter Pigeon is observed on tracks, to make drivers aware of the risk.</li> <li>• best practice erosion and sediment controls to be implemented to maintain/improve condition of water resources.</li> <li>• a bushfire management plan will be developed to manage the risk of bushfire.</li> </ul>	
Greater Glider	<ul style="list-style-type: none"> <li>• Pre-clearance inspection of all trees to be cleared by a FSC prior to clearing. If hollows are found or are possible, sensitive tree clearing techniques to be used to lower the tree to the ground.</li> <li>• Presence of a FSC to supervise clearing.</li> <li>• All hollows impacted by the clearing will be salvaged and moved to adjacent habitat as habitat for Greater Glider trees (as per the Conservation Actions)</li> <li>• Wildlife friendly fencing to be used (no barbed wire) near riparian areas to ensure Greater Gliders can safely glide (as per the Conservation Action)</li> <li>• A bushfire management plan will be developed to manage the risk of bushfire.</li> </ul>	No
Glossy Black-Cockatoo	<ul style="list-style-type: none"> <li>• Pre-clearance inspection of habitat by a FSC prior to clearing.</li> <li>• Presence of a FSC to supervise clearing.</li> <li>• A bushfire management plan will be developed to manage the risk of bushfire.</li> </ul>	No
Diamond Firetail	<ul style="list-style-type: none"> <li>• Pre-clearance inspection of habitat by a FSC prior to clearing.</li> <li>• Presence of a FSC to supervise clearing.</li> <li>• A Weed and Pest Management Plan will be implemented to detail weed hygiene measures to ensure no new weeds are introduced and weed management and monitoring measures.</li> <li>• A bushfire management plan will be developed to manage the risk of bushfire.</li> </ul>	No
Latham's Snipe	<ul style="list-style-type: none"> <li>• No habitat for this species will be directly impacted by the Project.</li> </ul>	No

MNES	Proposed mitigation measures	Significant Impact Likely
	<ul style="list-style-type: none"> <li>• A Weed and Pest Management Plan will be implemented to detail weed hygiene measures to ensure no new weeds are introduced and weed management and monitoring measures.</li> <li>• Sedimentation of the suitable waterbodies will be controlled through an erosion and sedimentation plan.</li> </ul>	
South-eastern Long-eared Bat	<ul style="list-style-type: none"> <li>• Pre-clearance inspection of all trees to be cleared by a FSC prior to clearing. If hollows are found or are possible, sensitive tree clearing techniques to be used to lower the tree to the ground.</li> <li>• Presence of a FSC to supervise clearing.</li> <li>• all hollows impacted by the clearing will be salvaged and moved to adjacent habitat as habitat for South-eastern Long-eared Bat trees (as per the Conservation Actions)</li> <li>• A FSC will check any abandoned sheds and buildings that lie within the Disturbance Footprint for bats prior to their removal</li> </ul>	No
Brigalow	<ul style="list-style-type: none"> <li>• All Brigalow is being avoided by the current design. A temporary barrier will be installed to protect the remnant Brigalow patch during construction and clearing.</li> <li>• A weed management plan will be implemented to detail weed hygiene measures to ensure no new weeds are introduced and weed management and monitoring measures.</li> </ul>	No

## 8. Conclusion

The total Disturbance Footprint involves the installation of a 508 MW solar array and related infrastructure, covering an area of 904.64 hectares within the designated Project Area. Field surveys identified ten matters of MNES within this area, including nine EVNT-listed species and one TEC, the Brigalow woodlands. This ecological community exists as small, isolated patches of vegetation within the Project Area. Despite the presence of these MNES, the project is not expected to significantly impact any of the listed species or the ecological community. This is due to the minimal ground disturbance anticipated from the project activities. The solar array installation, in particular, will cause minimal disturbance as the panels will be mounted on pile-driven footings, eliminating the need for extensive land clearing or leveling.

The property also contains 'gilgais' or natural depressions, which are particularly dense in Lot 54 CVE91. These areas, with their cracking clays and wetland communities, provide suitable foraging habitat for the Grey Snake and Dunmall's Snake. However, the quality of this habitat has significantly declined across the Project Area due to historical land clearing of the once-present Brigalow community. The habitat is now classified as non-remnant and lacks substantial ground cover and complex woodland habitat features, such as coarse woody debris, which are beneficial for these snake species. Additionally, the proponent has avoided the northern section of Lot54 CVE91, as suitable higher quality gilgai habitat occurs within this part of the lot. This area has not been incorporated into the total Avoidance Area on the site.

Several threatened bird species, including the Diamond Firetail and Squatter Pigeon, have a high likelihood of being found within the Project Area. These birds may utilize the open grassland communities on the site for foraging, and nearby wooded habitats, such as those near Yelarbon State Forest and along Brush Creek, for breeding. The development will not remove any breeding habitats for these birds, as it will only take place within non-remnant, cleared pasture fields currently under agricultural use. These fields may occasionally be used by these bird species for foraging, but they do not constitute critical habitat. The Glossy Black Cockatoo also has a high potential of being found in the Project Area, as suitable foraging tree species are present. However, these trees are not the preferred food source for this cockatoo, which primarily feeds on *Allocasuarina littoralis* and *Allocasuarina torulosa*. Furthermore, the density of casuarina trees within the Disturbance Footprint is very sparse, and may be limited to a few, sparsely dispersed paddock trees. The Latham's Snipe was observed on the Project Area. This species is associated with permanent water bodies on the site, such as cattle watering holes, where it was observed. The project does not plan to remove any of the watering holes on the site, thus the Latham's Snipe will not be impacted by the proposal.

The Koala is considered highly likely to occur within the Project Area, however, will most likely be restricted to areas where suitable woodland and forested habitat persist. Marginal dispersal habitat is present on the cleared grazing pastures, however it is considered highly unlikely that the Koala will occur here anymore than on a rare occasion, as suitable feeding and sheltering habitat is not present due to the lack of a suitable tree layer. This finding also applies to the Greater Glider, which was found in suitable forested vegetation along Brush Creek. There is no quality habitat for this species within the Disturbance Footprint, and as such a significant impact from the proposal is not expected.

The proponent of the project has limited impacts due to actively updating the design of the project to avoid areas of critical habitat and all areas of remnant vegetation. Minimal clearance of Brigalow and substantial avoidance of MNES habitat on the site will likely result in no significant impact to confirmed and potentially occurring MNES species.

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## **Appendix A Maps**

Figure A- 1 Project location.

Figure A- 2 Project Area and Disturbance Footprint.

Figure A- 3 Project Ancillary Infrastructure

Figure A- 4 Survey sites.

Figure A- 5 Waterways and connectivity.

Figure A-6 Brigalow woodlands within Project Area

Figure A- 7 Ground-truthed vegetation within the Project Area.

Figure A- 8 Threatened species records

Figure A- 9 Koala habitat

Figure A- 10 Greater Glider habitat

Figure A- 11 Latham's Snipe habitat

Figure A- 12 Glossy Black-cockatoo habitat

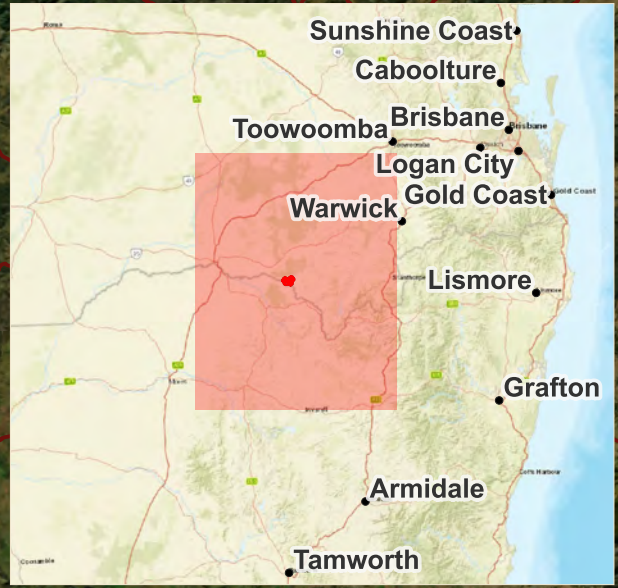
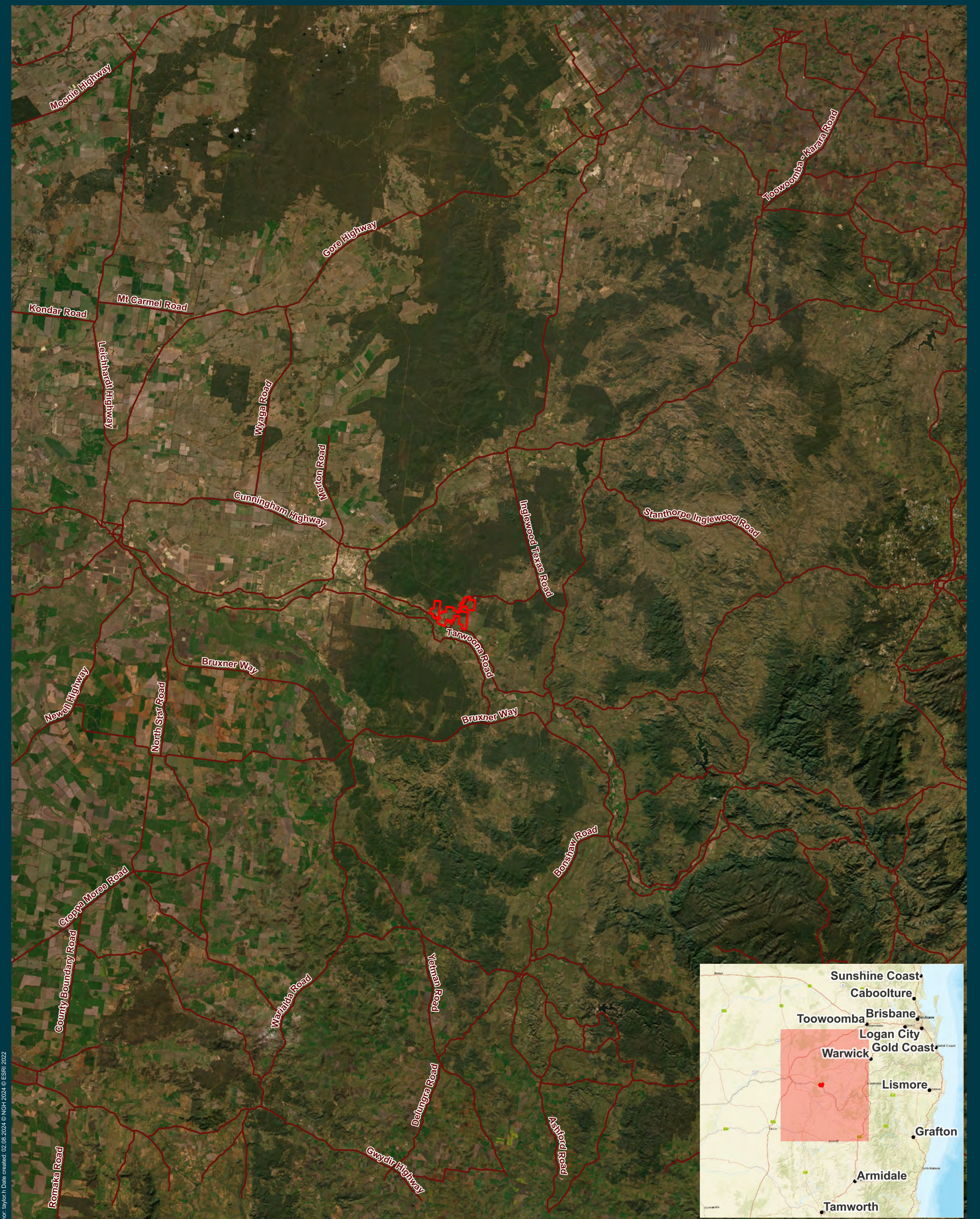
Figure A- 13 Squatter Pigeon habitat

Figure A- 14 Diamond Firetail habitat

Figure A- 15 Grey Snake habitat

Figure A- 16 South-eastern Long-eared Bat habitat

Figure A- 17 Dunmall's Snake habitat



**Beebo Solar Farm  
Project Location**



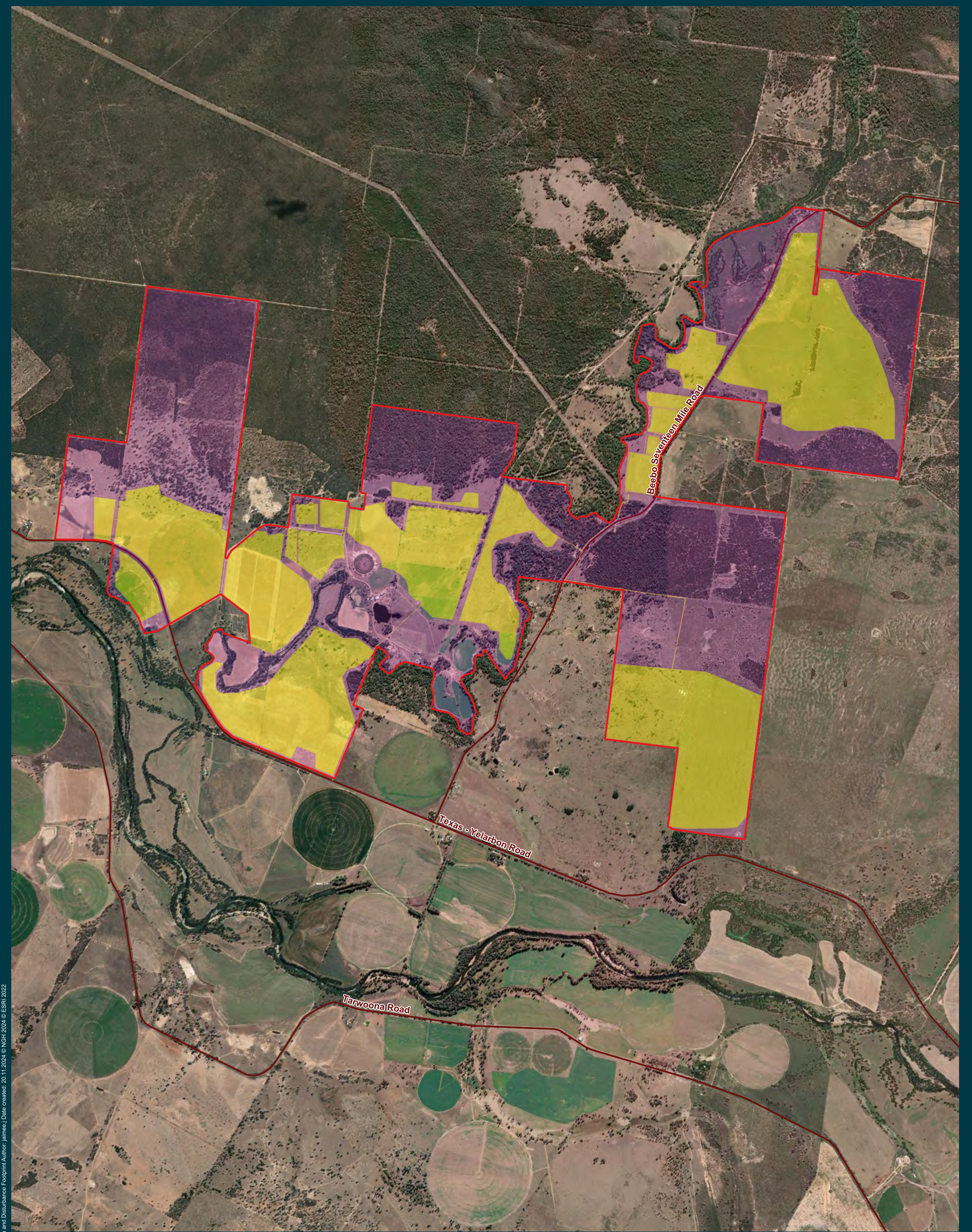
**LEGEND**

- Project Area
- Roads

Datum: GDA2020 / MGA Zone 56



Ref: 230461 Biodiversity report mapping | Project Location Author: Taylor | Date created: 02.08.2024 | © NGH 2022



Ref: 230461 | Biodiversity report mapping | Project Area and Disturbance Footprint Author: jamee | Date created: 20.11.2024 © NGH 2022

0 500 1,000 m

Datum: GDA2020 / MGA Zone 56

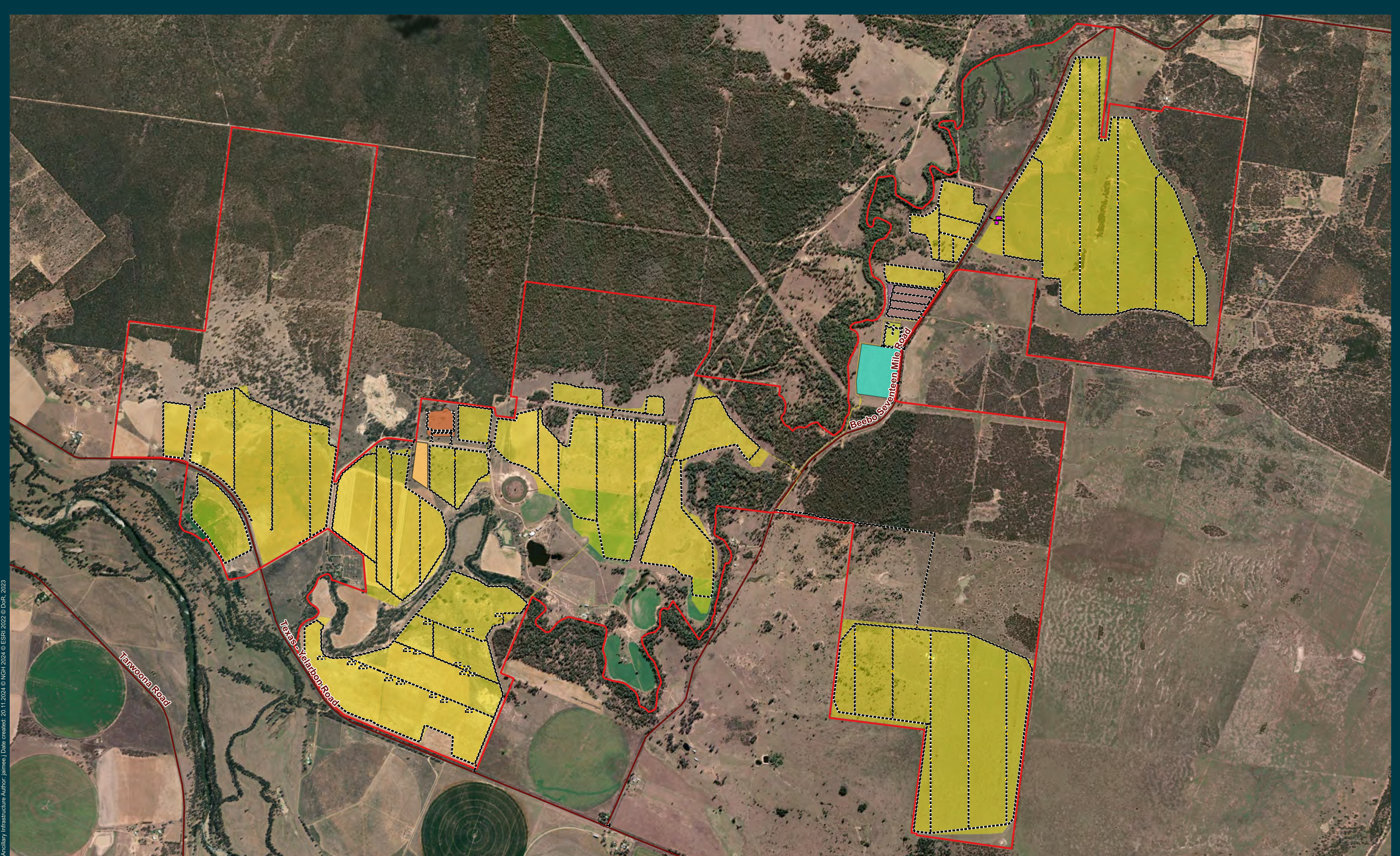


**LEGEND**

- Project Area
- Disturbance Footprint
- Avoidance Area
- Roads

**Beebo Solar Farm**

**Project Area and Disturbance Footprint**



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Datum: GDA2020 / MGA Zone 56

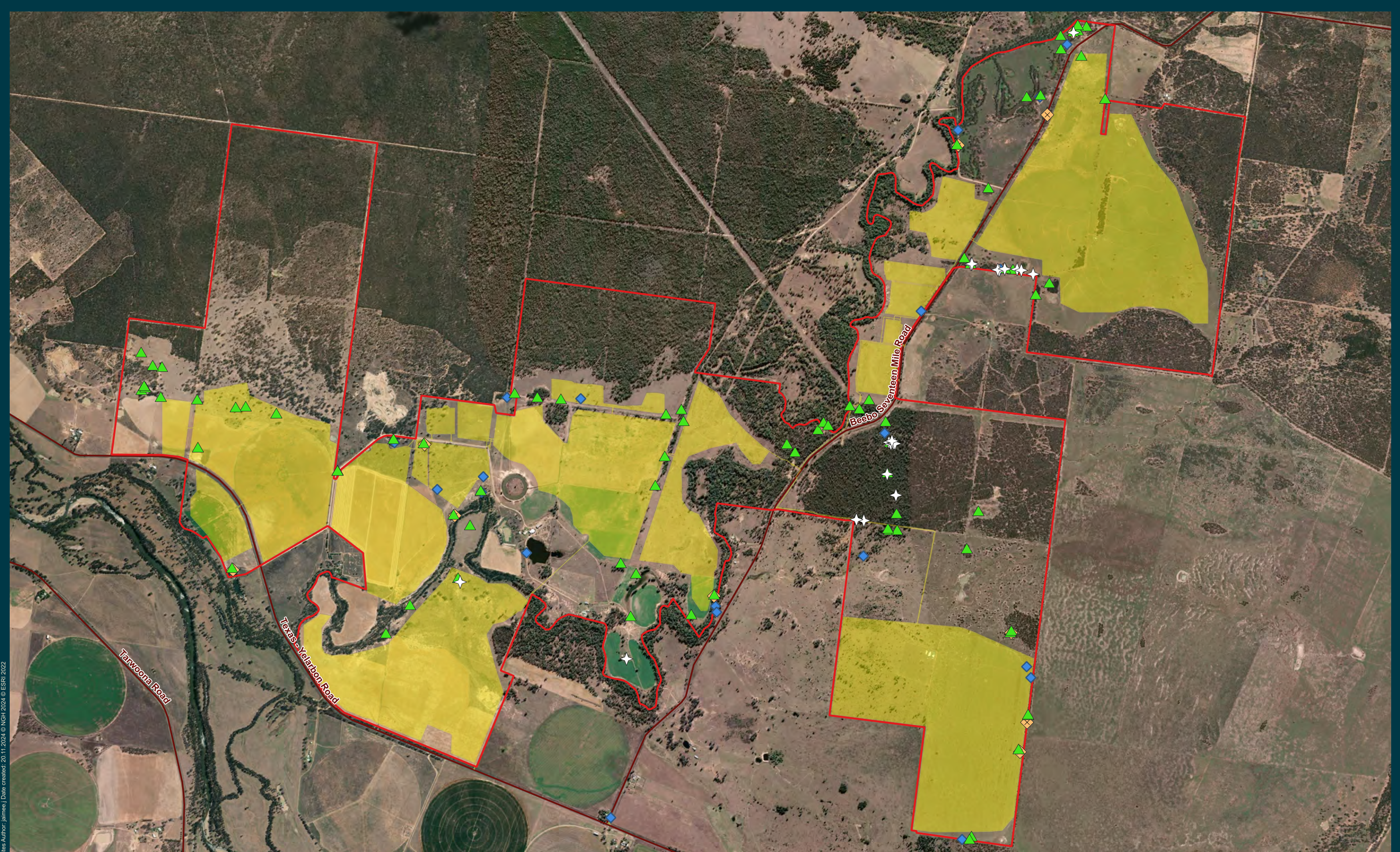
**NGH**

**Beebo Solar Farm**  
**Project Ancillary Infrastructure**

**LEGEND**

Project Area	Power link area
Disturbance Footprint	Laydown area
Ancillary Infrastructure	Power stations
Substation area	Roads
Accommodation area	Gate
Building	
BESS station area	

Ref: 230461 Biodiversity report mapping | Project: Ancillary Infrastructure Author: jaimie.j | Date created: 20.11.2024 | © NGH 2022 © DoR, 2023



Ref: 230461 Biodiversity report mapping | Survey Sites Author: Jaimee | Date created: 20.11.2024 © NGH 2024

0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56



LEGEND	
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<span style="background-color: yellow; display: inline-block; width: 15px; height: 10px;"></span>	Disturbance Footprint
Survey Sites	
<span style="color: blue;">◆</span>	Fauna survey location
<span style="color: orange;">◆</span>	Fauna habitat location
<span style="color: white;">★</span>	Breeding place
<span style="color: green;">▲</span>	Flora survey location

**Beebo Solar Farm**  
**Survey Sites**



0 500 1,000 1,500 2,000 m

Datum: GDA2020 / MGA Zone 56



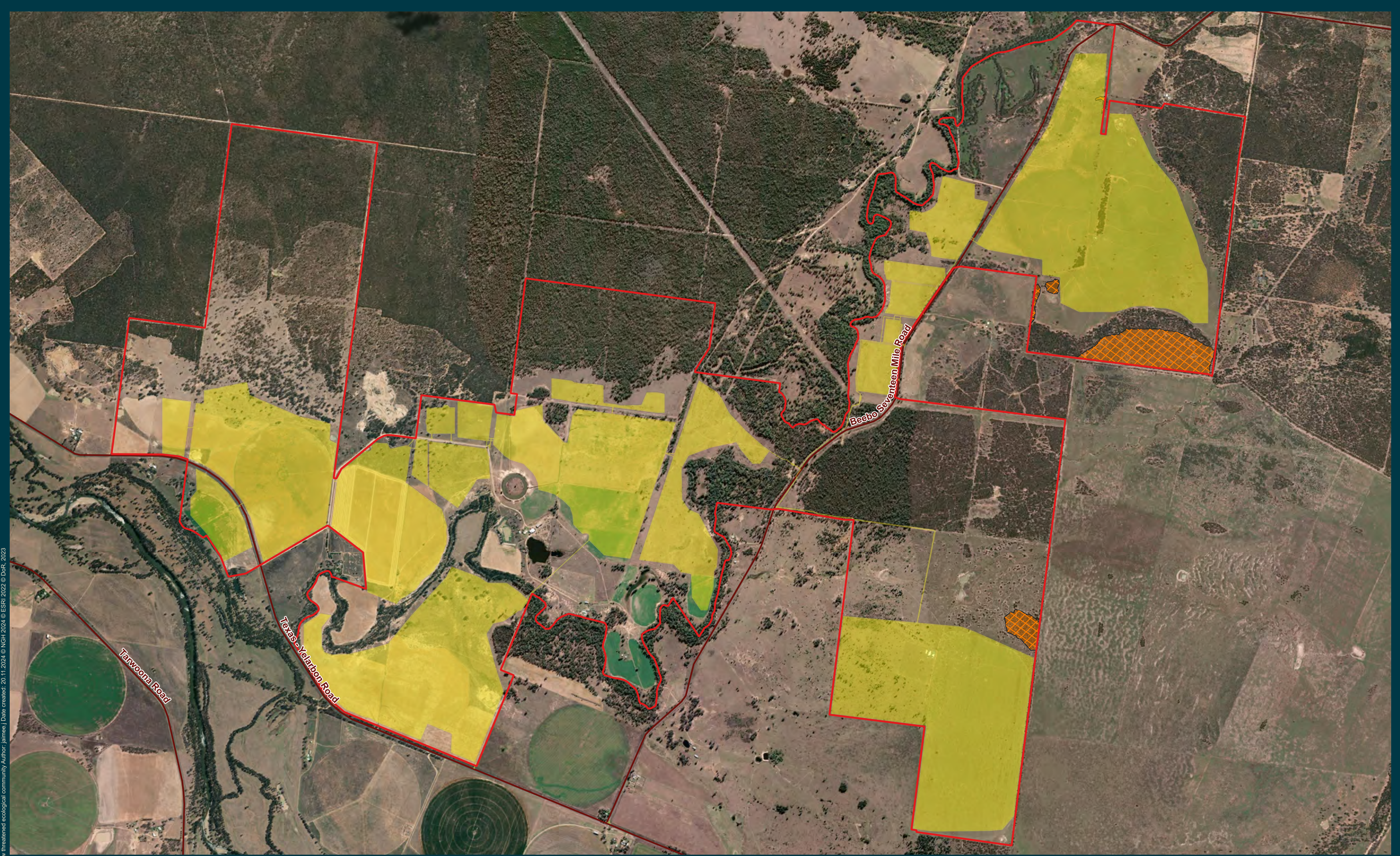
**LEGEND**

Project Area	Watercourse
Disturbance Footprint	Roads
<b>Statewide corridors</b>	
Riparian	
Riparian/Terrestrial	
Terrestrial	

**Watercourses and connectivity**

Ref: 230461 Biodiversity report mapping | Waterways and Connectivity Author: jalmea | Date created: 20.11.2024 © NGH 2024

Ref: 230461 | Biodiversity report mapping | Brigalow threatened ecological community Author: jaimie.j Date created: 20.11.2024 © NGH 2024 © ESR 2022 © DoR, 2023



0 200 400 600 800 m

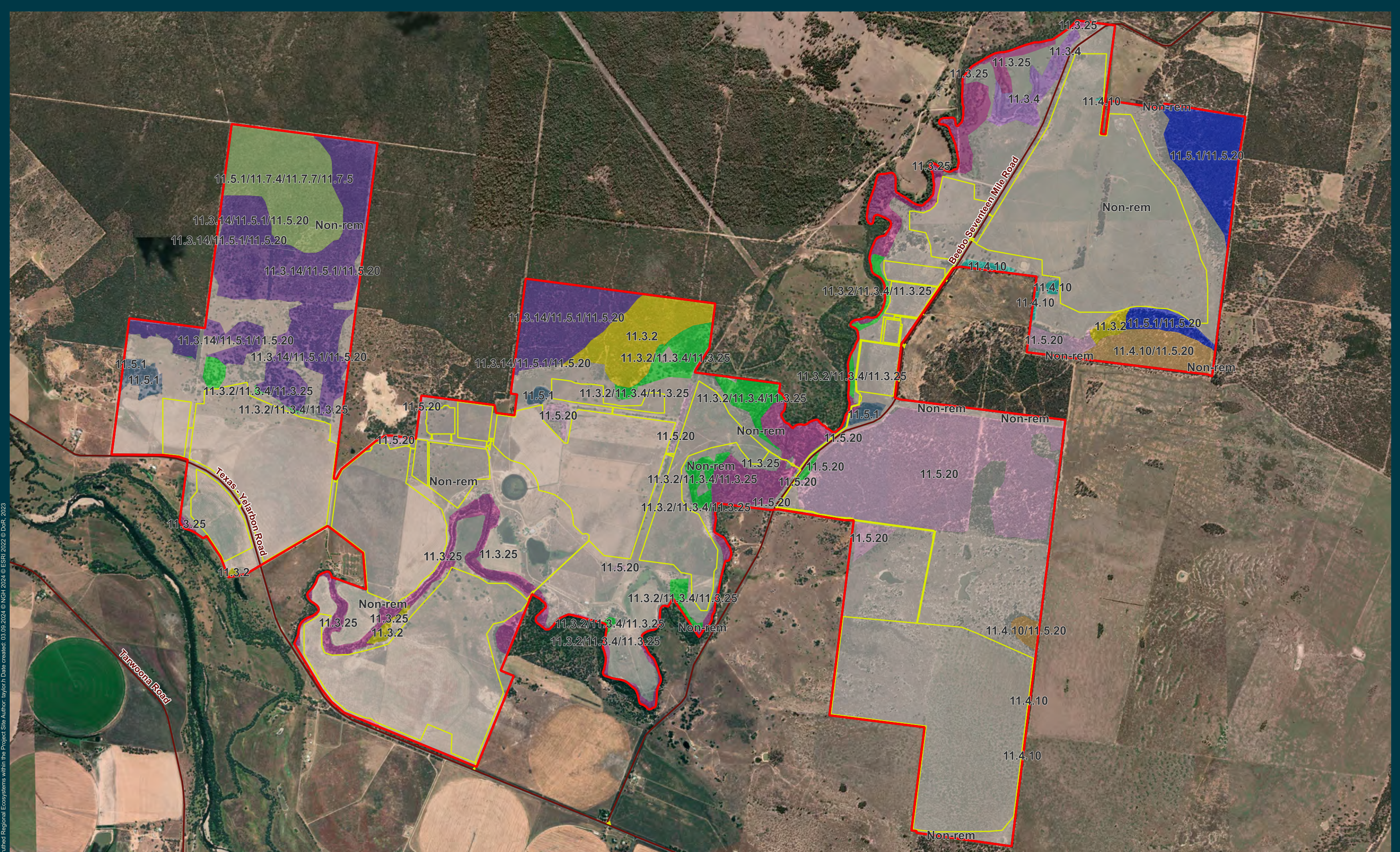
Datum: GDA2020 / MGA Zone 56

**NGH**

**LEGEND**

- Project Area
- Disturbance Footprint
- Brigalow TEC

**Beebo Solar Farm**  
**Brigalow threatened ecological community**



0 200 400 600 800 m

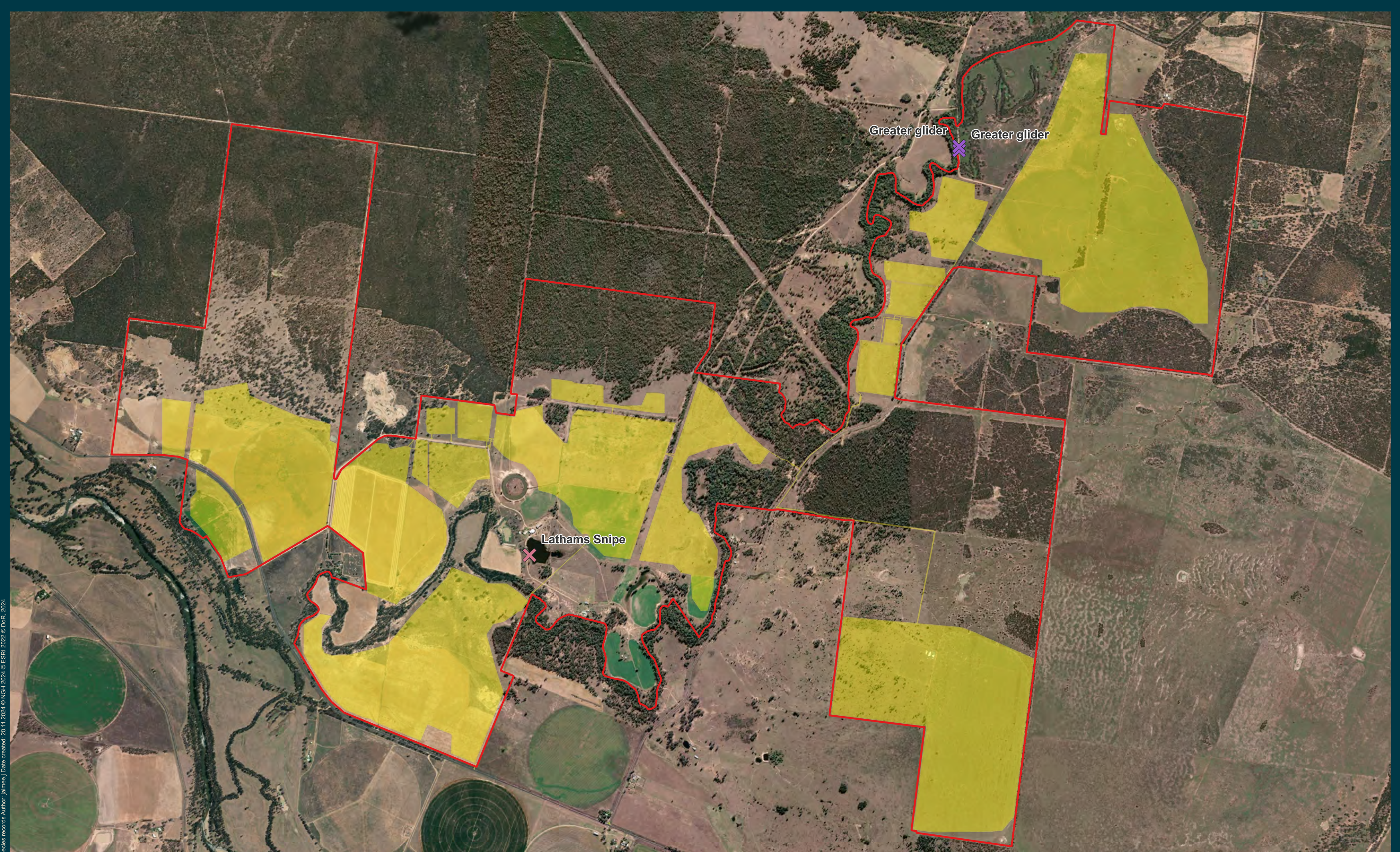
Datum: GDA2020 / MGA Zone 56



LEGEND		
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<span style="border: 2px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Disturbance Footprint	<span style="background-color: #e0b0ff; display: inline-block; width: 15px; height: 10px;"></span> 11.3.4	<span style="background-color: #fce4ec; display: inline-block; width: 15px; height: 10px;"></span> 11.5.20
<span style="background-color: #9575cd; display: inline-block; width: 15px; height: 10px;"></span> Ground-truthed RE's	<span style="background-color: #e0b0ff; display: inline-block; width: 15px; height: 10px;"></span> 11.4.10	<span style="background-color: #fce4ec; display: inline-block; width: 15px; height: 10px;"></span> 11.5.20/11.3.25/11.3.2
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<span style="background-color: #9575cd; display: inline-block; width: 15px; height: 10px;"></span> 11.3.2	<span style="background-color: #e0b0ff; display: inline-block; width: 15px; height: 10px;"></span> 11.5.1	
<span style="background-color: #9575cd; display: inline-block; width: 15px; height: 10px;"></span> 11.3.2/11.3.4/11.3.25	<span style="background-color: #e0b0ff; display: inline-block; width: 15px; height: 10px;"></span> 11.5.1/11.5.20	

## Beebo Solar Farm

### Ground-truthed Regional Ecosystems within the Project Area



0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56

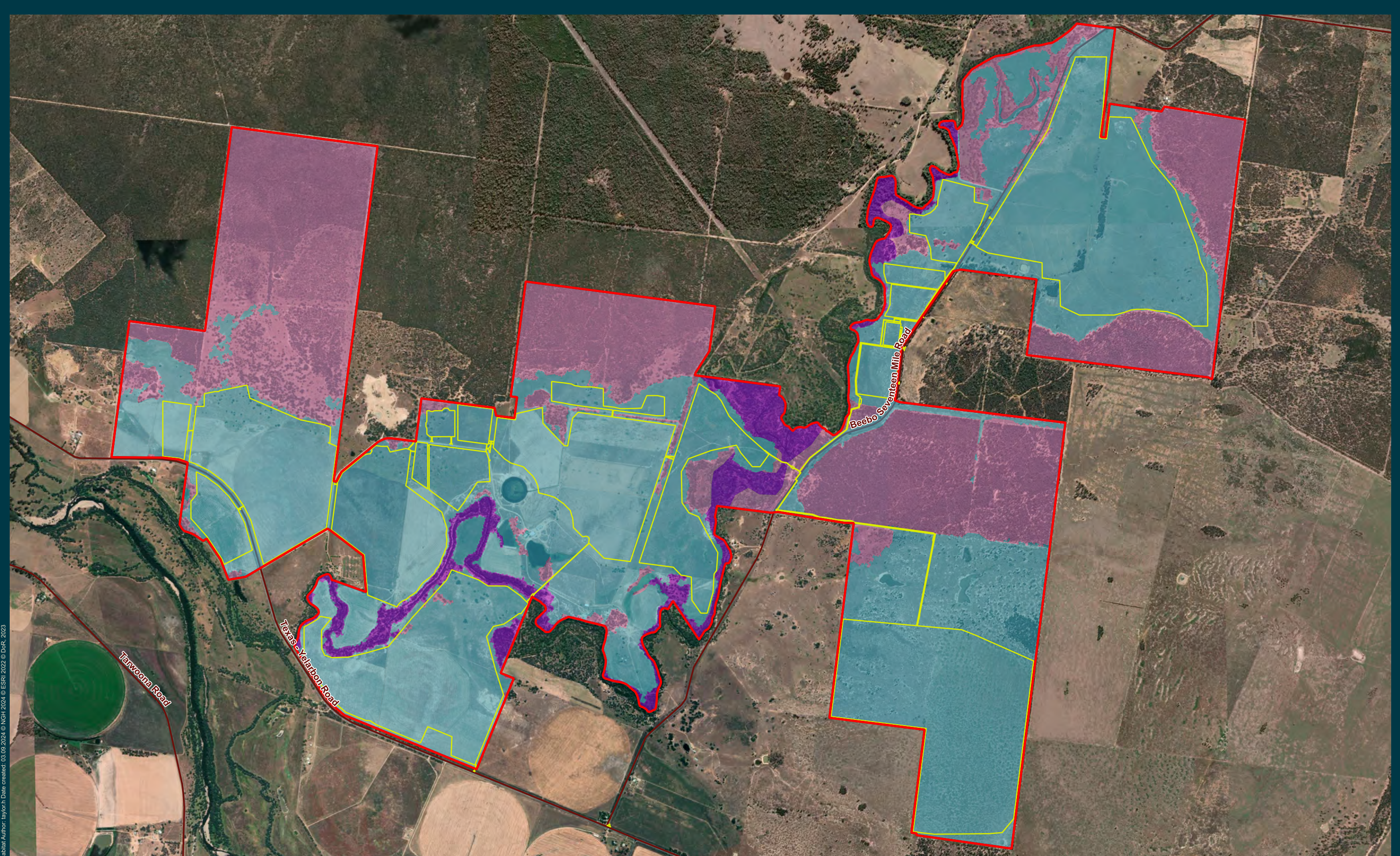


**LEGEND**

- Project Area
- Disturbance Footprint
- Species records
  - Greater glider
  - Latham's snipe

**Beebo Solar Farm**  
**Matter of national significance species records**

Ref: 230461 Biodiversity report mapping | MNES species records Author: jalmae | Date created: 20.11.2024 © ESRI 2022 © DoR, 2024



Ref: 230461 | Biodiversity report mapping | Koala habitat Author: taylorh Date created: 03.09.2024 © NGH 2022 © DoR, 2023

0 200 400 600 800 m



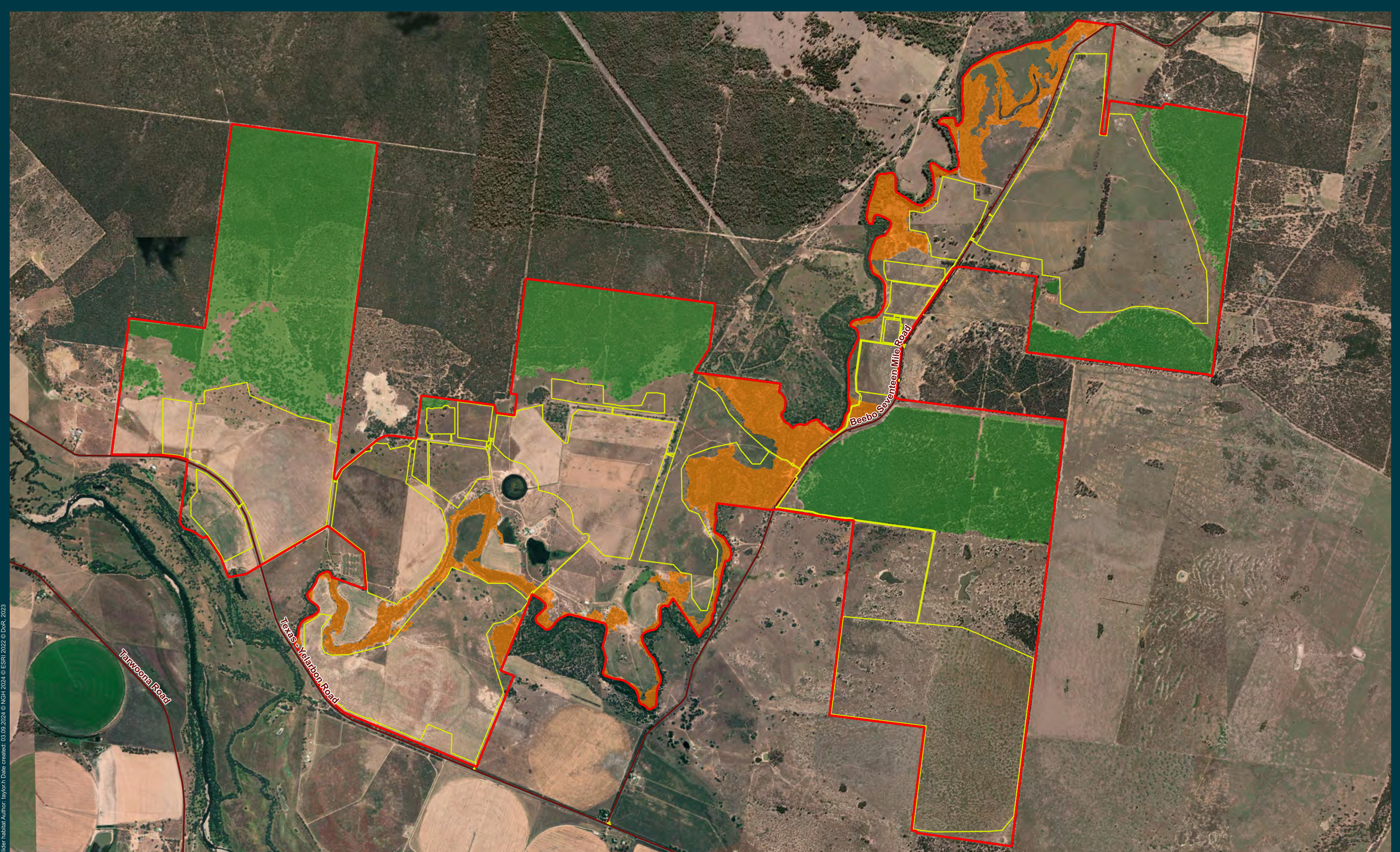
Datum: GDA2020 / MGA Zone 56



**LEGEND**

- Project Area
- Disturbance Footprint
- Koala habitat**
- Dispersal
- Foraging
- Refuge

**Beebo Solar Farm**  
**Koala habitat**



0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56

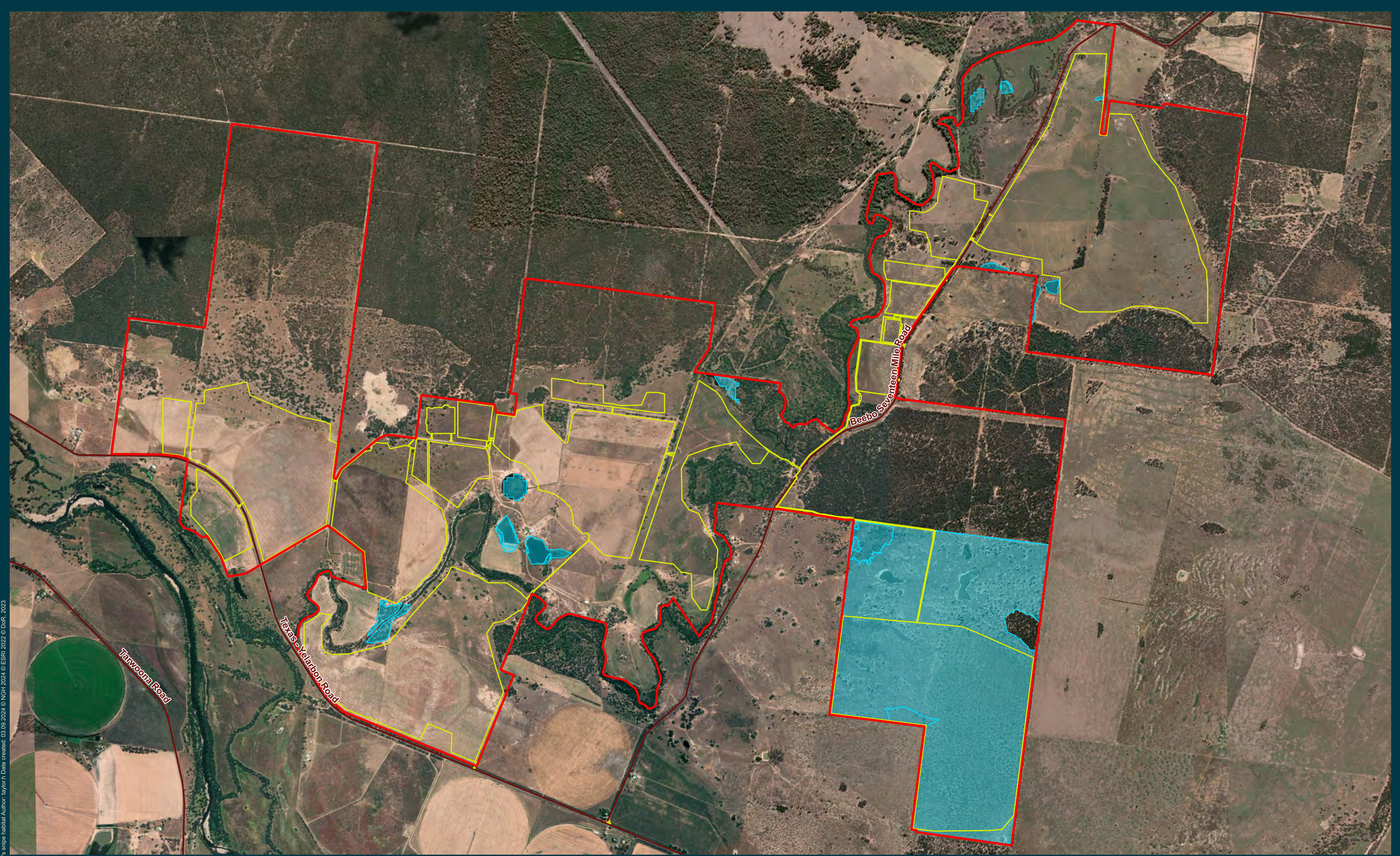


**LEGEND**

- Project Area
- Disturbance Footprint
- Greater glider habitat
  - Denning
  - Foraging

**Beebo Solar Farm**  
**Greater glider habitat**

Ref: 230461 | Biodiversity report mapping | Greater glider habitat Author: Taylor H Date created: 03/09/2024 © NGH 2024 © ESRI 2022 © DoR, 2023



0 200 400 600 800 m

Datum: GDA2020 / MGA Zone 56

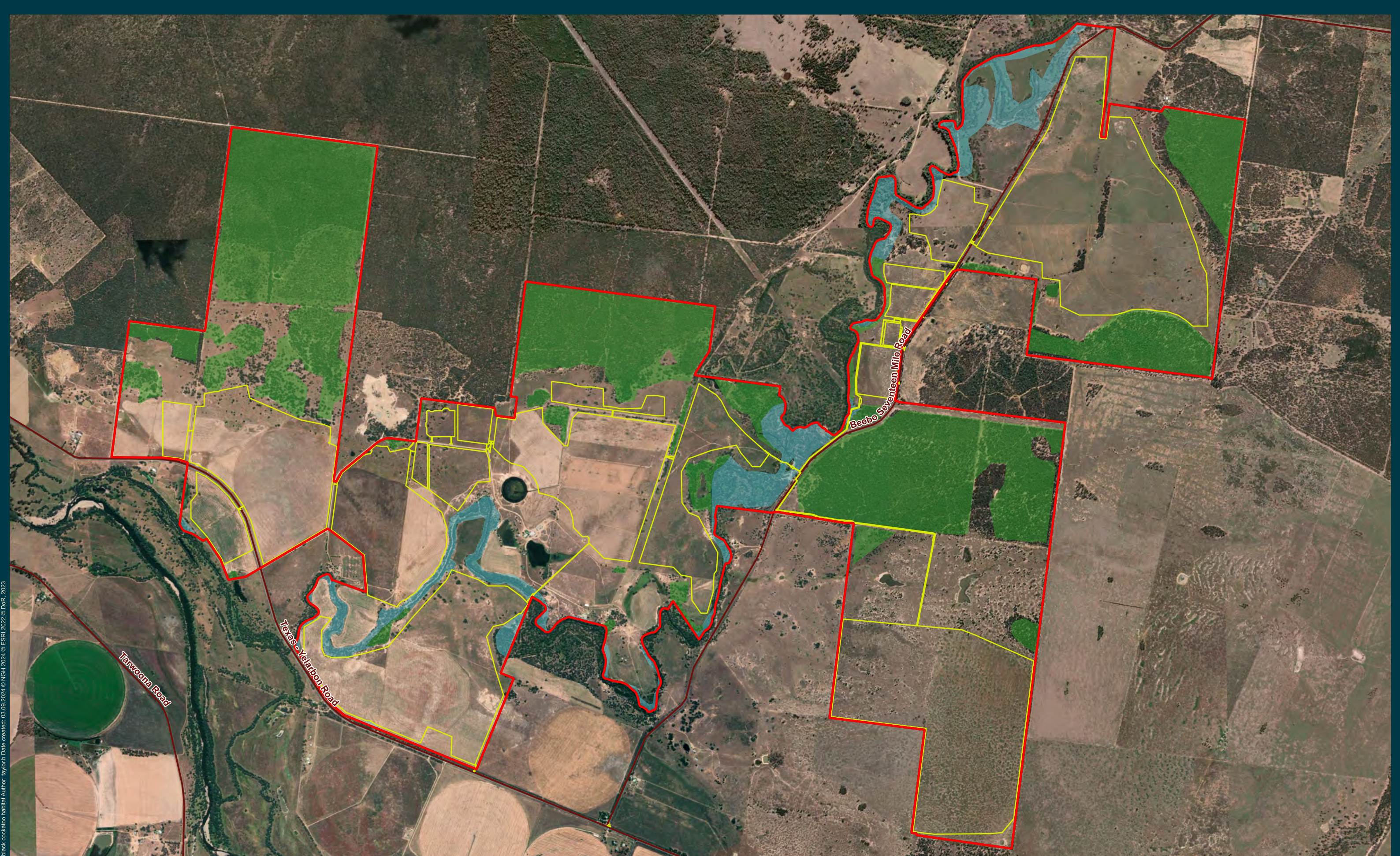
**NGH**

**LEGEND**

- Project Area
- Disturbance Footprint
- Latham's snipe habitat

**Beebo Solar Farm**  
**Latham's snipe habitat**

Ref: 230461 Biodiversity report mapping | Latham's snipe habitat | Author: Taylor | Date created: 03.09.2024 | © NGH 2024 | © ESRI 2024 | © DoR, 2023



0 200 400 600 800 m

Datum: GDA2020 / MGA Zone 56

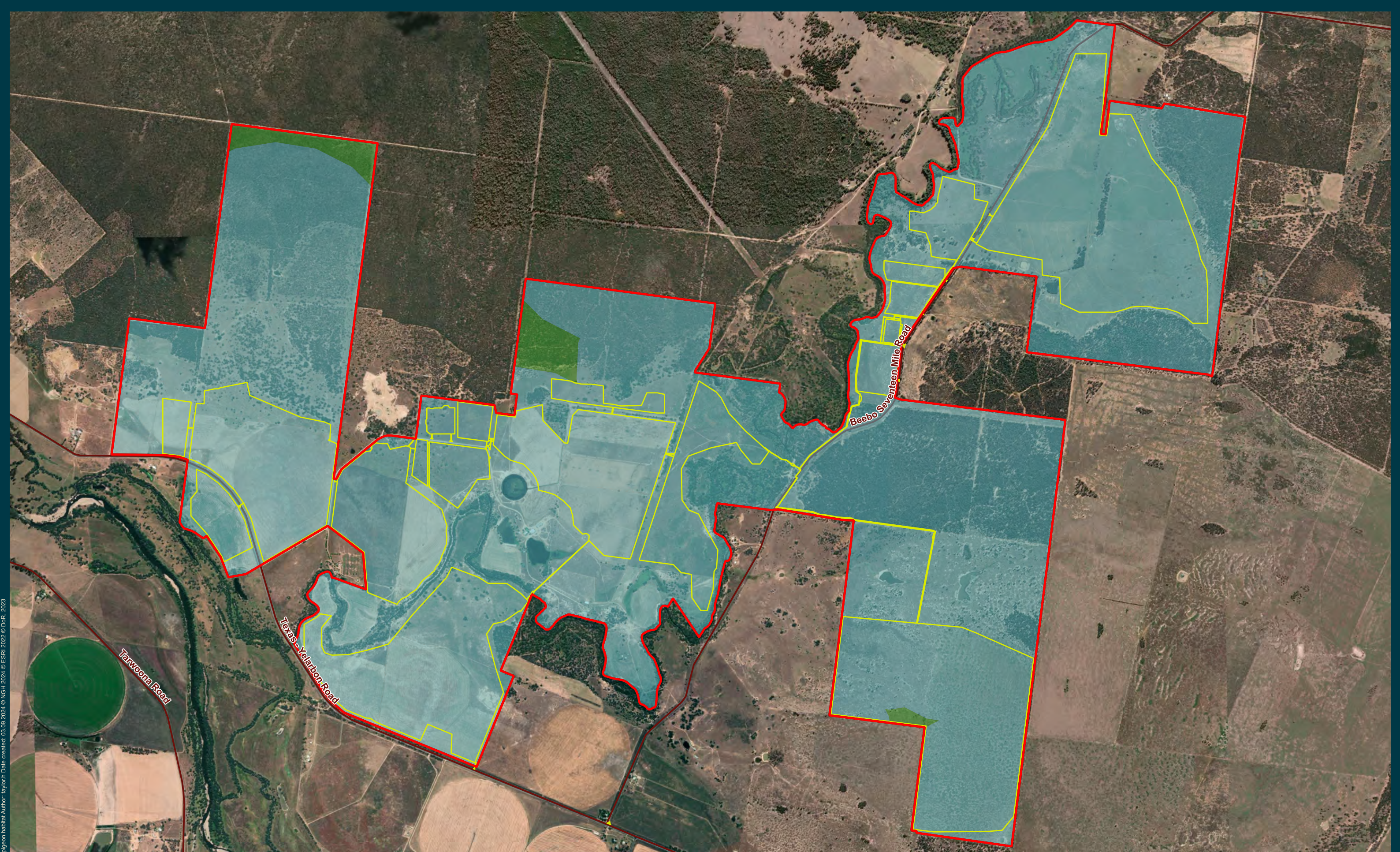
**NGH**

**LEGEND**

- Project Area
- Disturbance Footprint
- Glossy black cockatoo habitat
  - Breeding
  - Foraging

**Beebo Solar Farm**  
**Glossy black cockatoo habitat**

Ref: 230461 | Biodiversity report mapping | Glossy black cockatoo habitat | Author: Taylor H Date created: 03.09.2024 © NGH 2024 © DoR, 2023



Ref: 230461 Biodiversity report mapping | Squatter pigeon habitat Author: Taylor Date created: 03.09.2024 © ESRI 2022 © DoR, 2023

0 200 400 600 800 m



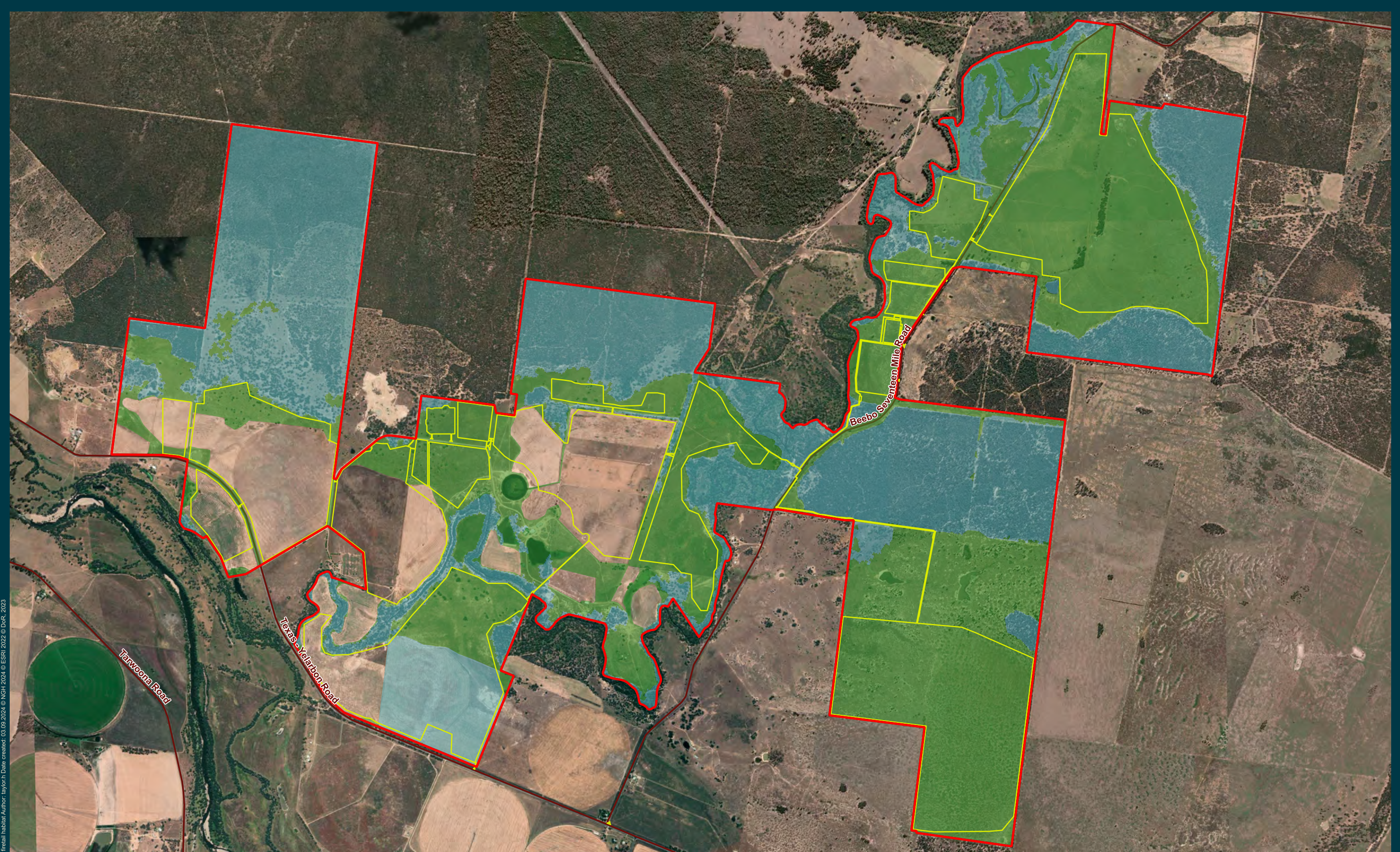
Datum: GDA2020 / MGA Zone 56



**LEGEND**

- Project Area
- Disturbance Footprint
- Squatter pigeon habitat
  - Breeding
  - Foraging

**Beebo Solar Farm**  
**Squatter pigeon habitat**



0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56

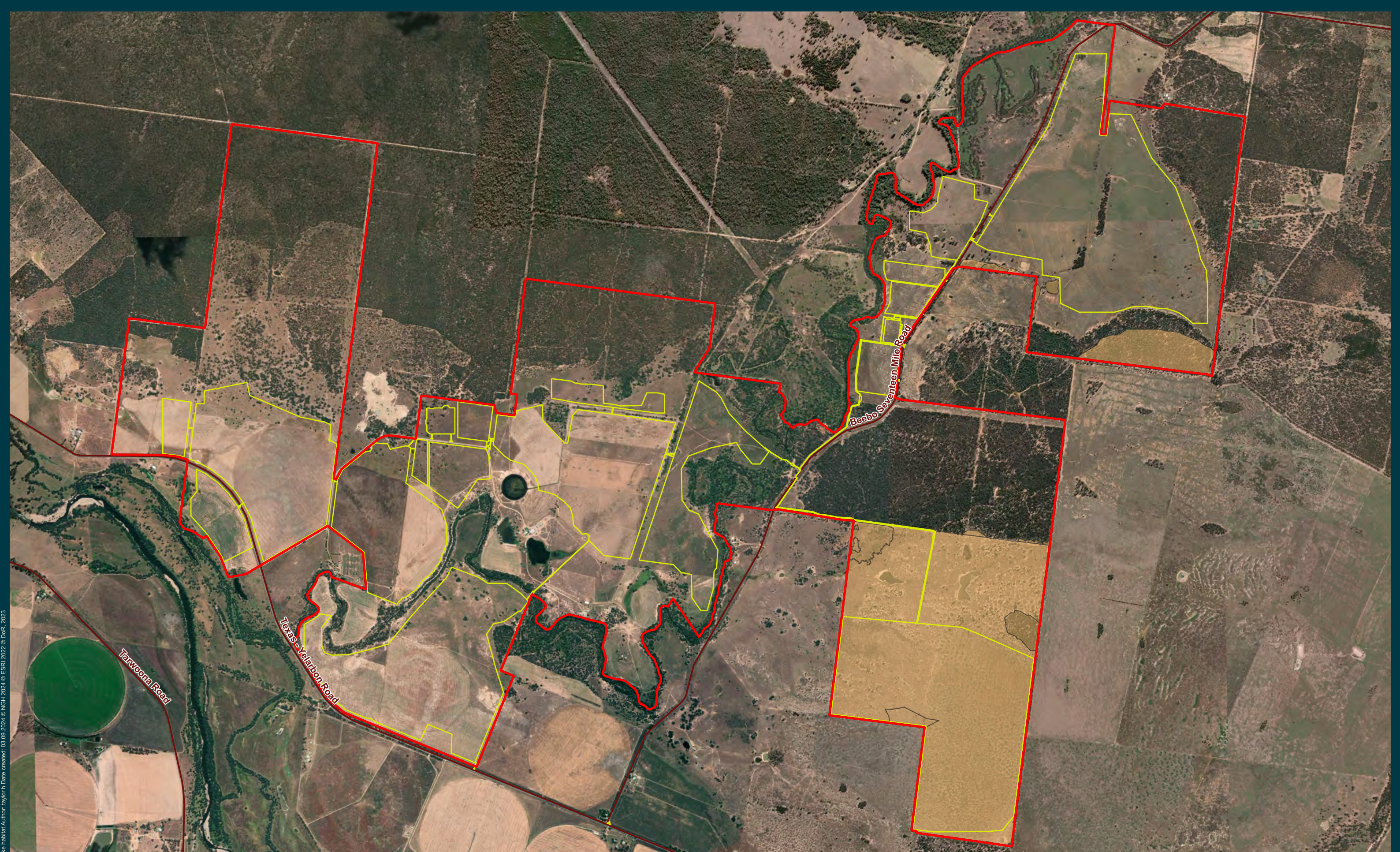


**LEGEND**

- Project Area
- Disturbance Footprint
- Diamond firetail habitat**
- Breeding and foraging
- Foraging

**Beebo Solar Farm**  
**Diamond firetail habitat**

Ref: 230461 | Biodiversity report mapping | Diamond firetail habitat Author: Taylor Date created: 03.09.2024 © NGH 2024 © ESRI 2022 © DoR, 2023



Ref: 230461 | Biodiversity report mapping | Grey snake habitat Author: taylor Date created: 03.09.2024 © NGH 2022 © DoR, 2023

0 200 400 600 800 m

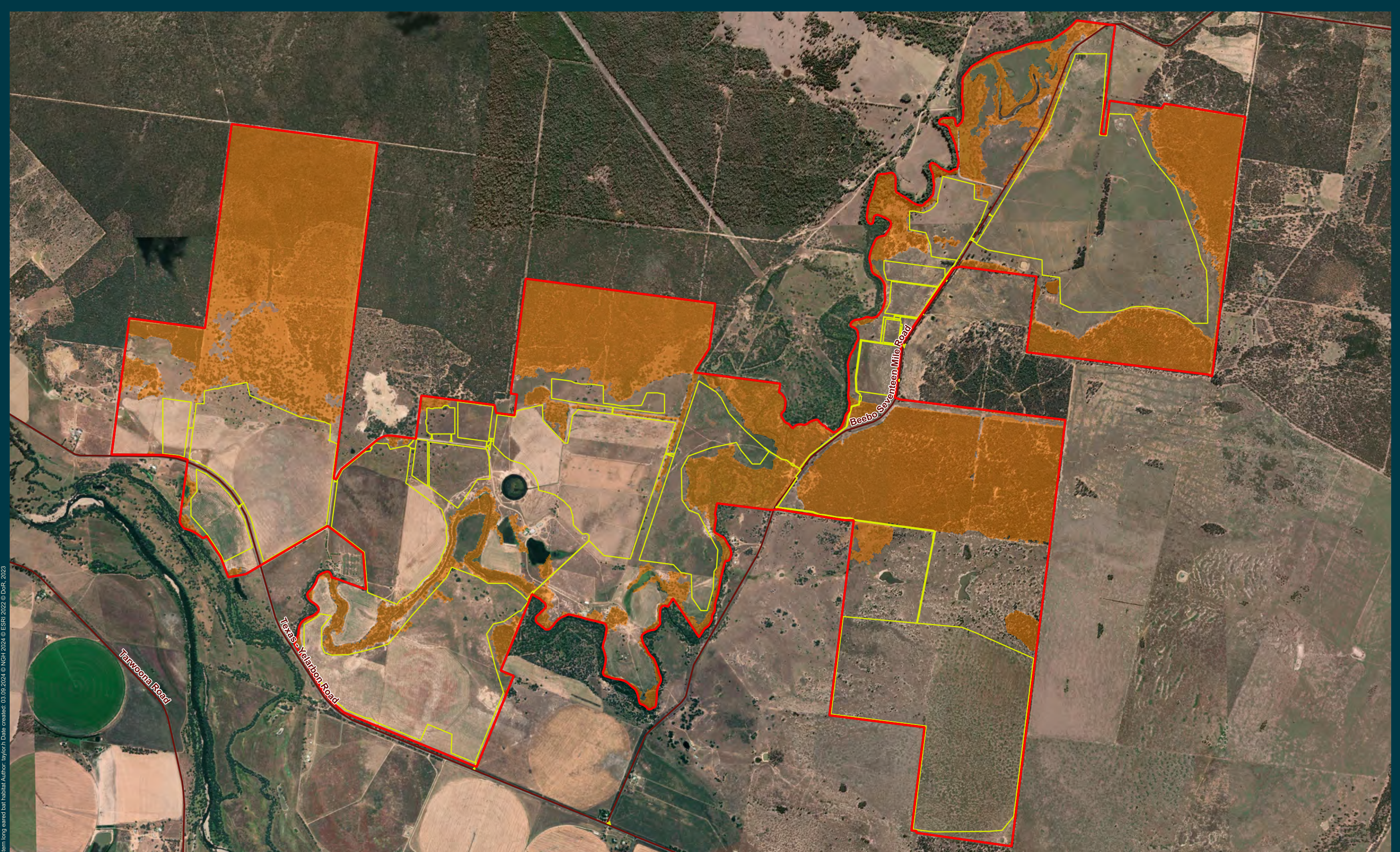


Datum: GDA2020 / MGA Zone 56



LEGEND	
	Project Area
	Disturbance Footprint
	Grey snake habitat

**Beebo Solar Farm**  
**Grey snake habitat**



0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56



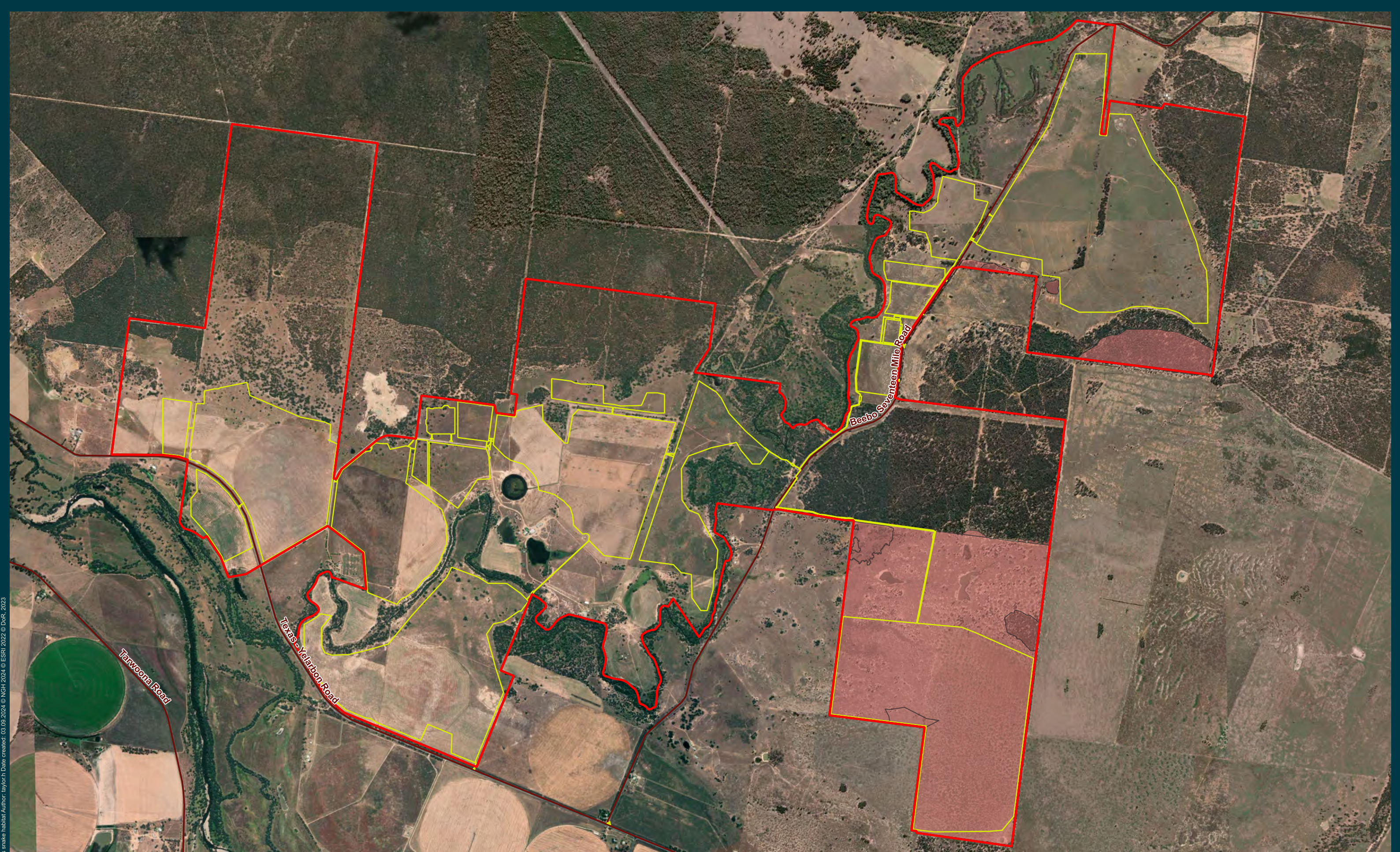
**LEGEND**

- Project Area
- Disturbance Footprint
- Southeastern long eared bat habitat

# Beebo Solar Farm

## Southeastern long eared bat habitat

Ref: 230461 | Biodiversity report mapping | Southeastern long eared bat habitat. Author: Taylor. Date created: 03.09.2024. © NGH 2024. © ESRI 2024. © DoR, 2023



0 200 400 600 800 m



Datum: GDA2020 / MGA Zone 56



**LEGEND**

- Project Area
- Disturbance Footprint
- Dunmall's snake habitat

**Beebo Solar Farm**  
**Dunmall's snake habitat**

Ref: 230461 | Biodiversity report mapping | Dunmall's snake habitat Author: taylor.h Date created: 03.09.2024 © NGH 2022 © DoR, 2023

## **Appendix B Desktop search results**



Australian Government

Department of Climate Change, Energy,  
the Environment and Water

# 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: 09-May-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# 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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	3
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	7
<a href="#">Listed Threatened Species:</a>	56
<a href="#">Listed Migratory Species:</a>	11

## Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/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.

<a href="#">Commonwealth Lands:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	19
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	3
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	7
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	None
<a href="#">Bioregional Assessments:</a>	2
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

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

Ramsar Site Name	Proximity	Buffer Status
<a href="#">Banrock station wetland complex</a>	1100 - 1200km upstream from Ramsar site	In feature area
<a href="#">Riverland</a>	1000 - 1100km upstream from Ramsar site	In feature area
<a href="#">The coorong, and lakes alexandrina and albert wetland</a>	1200 - 1300km 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
<a href="#">Brigalow (Acacia harpophylla dominant and co-dominant)</a>	Endangered	Community known to occur within area	In buffer area only
<a href="#">Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland</a>	Critically Endangered	Community likely to occur within area	In feature area
<a href="#">New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands</a>	Critically Endangered	Community may occur within area	In buffer area only
<a href="#">Poplar Box Grassy Woodland on Alluvial Plains</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Weeping Myall Woodlands</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</a>	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
<b>BIRD</b>			
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Aphelocephala leucopsis</a> Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Calyptorhynchus lathami lathami</a> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Climacteris picumnus victoriae</a> Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Geophaps scripta scripta</a> Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Melanodryas cucullata cucullata</a> South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Stagonopleura guttata</a> Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only
<b>FISH</b>			
<a href="#">Bidyanus bidyanus</a> Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Maccullochella peelii</a> Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In feature area

## INSECT

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Hypochrysops piceatus</a> Bulloak Jewel Butterfly [77869]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<b>MAMMAL</b>			
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> 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
<a href="#">Nyctophilus corbeni</a> Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Petauroides volans</a> Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> 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
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
<b>PLANT</b>			
<a href="#">Acacia lauta</a> Tara Wattle [4165]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Acacia pubifolia</a> Velvet Wattle [19799]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Androcalva procumbens</a> [87153]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Cadellia pentastylis</a> Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Callistemon pungens</a> [55581]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Dichanthium setosum</a> bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Eucalyptus caleyi subsp. ovendenii</a> Ovenden's Ironbark [56193]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eucalyptus virens</a> [10181]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Homopholis belsonii</a> Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Homoranthus bebo</a> [88498]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Lepidium aschersonii</a> Spiny Peppercross [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Lepidium monoplocoides</a> Winged Pepper-cress [9190]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Lepidium peregrinum</a> Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macrozamia cranei</a> [64681]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Macrozamia machinii</a> [64583]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Prasophyllum sp. Wybong (C.Phelps ORG 5269)</a> a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Rhaponticum australe</a> Austral Cornflower, Native Thistle [22647]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Styphelia sp. Coolmunda (D.Halford Q1635) listed as Leucopogon sp. Coolmunda (D.Halford Q1635)</a> [92620]	Endangered (listed as Leucopogon sp. Coolmunda)	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Vincetoxicum forsteri listed as Tylophora linearis</a> [92384]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Westringia parvifolia</a> [4822]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Xerothamnella herbacea</a> [4146]	Endangered	Species or species habitat known to occur within area	In buffer area only
<b>REPTILE</b>			
<a href="#">Anomalopus mackayi</a> Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Delma torquata</a> Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Egernia rugosa</a> Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Furina dunmalli</a> Dunmall's Snake [59254]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Hemiaspis damelii</a> Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Uvidicolus sphyrurus</a> Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat may occur within area	In buffer area only

### Listed Migratory Species [ [Resource Information](#) ]

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>Migratory Marine Birds</b>			
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

### Migratory Terrestrial Species

<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area	In buffer area only

### Migratory Wetlands Species

<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area	In buffer area only

## Other Matters Protected by the EPBC Act

### Commonwealth Lands [\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [13330]	NSW	In buffer area only

### Listed Marine Species [\[ Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Chalcites osculans as Chrysococcyx osculans</a> Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
<a href="#">Pterodroma cervicalis</a> White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only

## Extra Information

State and Territory Reserves			<a href="#">[ Resource Information ]</a>	
Protected Area Name	Reserve Type	State	Buffer Status	
Dthinna Dthinnawan	Nature Reserve	NSW	In buffer area only	
Dthinna Dthinnawan	CCA Zone 1 National Park	NSW	In buffer area only	
Thompson's	Nature Refuge	QLD	In buffer area only	

EPBC Act Referrals				<a href="#">[ Resource Information ]</a>	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
<a href="#">Inland Rail North Star to Qld Border, NSW</a>	2018/8222		Post-Approval	In buffer area only	

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<b>Controlled action</b>				
<a href="#">ARG Border Rail Project Moree to Toowoomba QLD</a>	2013/7061	Controlled Action	Further Information Request	In buffer area only
<a href="#">Inland Rail Border to Gowrie Project, QLD</a>	2018/8165	Controlled Action	Assessment Approach	In buffer area only
<b>Not controlled action</b>				
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area
<a href="#">Inland Rail Border to Gowrie Geotechnical Investigations</a>	2021/8911	Not Controlled Action	Completed	In buffer area only
<a href="#">Twin Hills Silver Mine</a>	2004/1452	Not Controlled Action	Completed	In buffer area only
<b>Not controlled action (particular manner)</b>				
<a href="#">132kV transmission line</a>	2003/1024	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Bioregional Assessments			[ Resource Information ]
SubRegion	BioRegion	Website	Buffer Status
Gwydir	Northern Inland Catchments	<a href="#">BA website</a>	In buffer area only
Maranoa-Balonne-Condamine	Northern Inland Catchments	<a href="#">BA website</a>	In feature area

# 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

## WildNet species list

Search Criteria: Species List for a Specified Point  
Species: All  
Type: All  
Queensland status: All  
Records: All  
Date: Since 1980  
Latitude: -28.7034  
Longitude: 150.9541  
Distance: 30  
Email: jeff.heatlie@nghconsulting.com.au  
Date submitted: Wednesday 03 Apr 2024 12:26:45  
Date extracted: Thursday 04 Apr 2024 13:30:45

The number of records retrieved = 1047

### **Disclaimer**

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Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (<https://www.qld.gov.au/environment/plants-animals/species-information/wildnet>) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to [wildlife.online@des.qld.gov.au](mailto:wildlife.online@des.qld.gov.au).

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		9/1
animals	amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		C		7
animals	amphibians	Hylidae	<i>Cyclorana platycephala</i>	water holding frog		C		3/2
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		13/1
animals	amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog		C		4
animals	amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog		C		22/1
animals	amphibians	Hylidae	<i>Litoria peronii</i>	emerald spotted treefrog		C		14/2
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		23/2
animals	amphibians	Limnodynastidae	<i>Limnodynastes fletcheri</i>	barking frog		C		16/2
animals	amphibians	Limnodynastidae	<i>Limnodynastes salmini</i>	salmon striped frog		C		3
animals	amphibians	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		C		29
animals	amphibians	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk		C		12
animals	amphibians	Limnodynastidae	<i>Neobatrachus sudellae</i>	meeowing frog		C		1
animals	amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		C		23/4
animals	amphibians	Myobatrachidae	<i>Crinia parinsignifera</i>	beeping froglet		C		14/3
animals	amphibians	Myobatrachidae	<i>Uperoleia laevigata</i>	eastern gungan		C		9/5
animals	amphibians	Myobatrachidae	<i>Uperoleia rugosa</i>	chubby gungan		C		8
animals	amphibians	Myobatrachidae	<i>Uperoleia sp.</i>			C		3
animals	arachnids	Urodacidae	<i>Urodacus manicatus</i>	black rock scorpion		C		1
animals	birds	Acanthizidae	<i>Acanthiza apicalis</i>	inland thornbill		C		14
animals	birds	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		32
animals	birds	Acanthizidae	<i>Acanthiza lineata</i>	striated thornbill		C		1
animals	birds	Acanthizidae	<i>Acanthiza nana</i>	yellow thornbill		C		40/2
animals	birds	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill		C		2
animals	birds	Acanthizidae	<i>Acanthiza reguloides</i>	buff-rumped thornbill		C		24
animals	birds	Acanthizidae	<i>Acanthiza sp.</i>			C		1
animals	birds	Acanthizidae	<i>Acanthiza uropygialis</i>	chestnut-rumped thornbill		C		5
animals	birds	Acanthizidae	<i>Aphelocephala leucopsis</i>	southern whiteface		V	V	9
animals	birds	Acanthizidae	<i>Gerygone fusca</i>	western gerygone		C		2
animals	birds	Acanthizidae	<i>Gerygone olivacea</i>	white-throated gerygone		C		36
animals	birds	Acanthizidae	<i>Gerygone sp.</i>			C		3
animals	birds	Acanthizidae	<i>Pyrrholaemus sagittatus</i>	speckled warbler		C		30
animals	birds	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren		C		1
animals	birds	Acanthizidae	<i>Smicronis brevirostris</i>	weebill		C		67
animals	birds	Accipitridae	<i>Accipiter cirrocephalus</i>	collared sparrowhawk		C		3
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		2
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		11
animals	birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		C		1
animals	birds	Accipitridae	<i>Circus approximans</i>	swamp harrier		C		3
animals	birds	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite		C		7
animals	birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle		C		5
animals	birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		19
animals	birds	Accipitridae	<i>Hieraaetus morphnoides</i>	little eagle		C		9
animals	birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite		C		1
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		3
animals	birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		C		6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		31
animals	birds	Alaudidae	<i>Mirafra javanica</i>	Horsfield's bushlark		C		2
animals	birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		C		12
animals	birds	Alcedinidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		70
animals	birds	Alcedinidae	<i>Todiramphus macleayii</i>	forest kingfisher		C		3
animals	birds	Alcedinidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		21
animals	birds	Anatidae	<i>Anas castanea</i>	chestnut teal		C		3
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		29
animals	birds	Anatidae	<i>Anas platyrhynchos</i>	northern mallard	Y			1
animals	birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		49
animals	birds	Anatidae	<i>Aythya australis</i>	hardhead		C		9
animals	birds	Anatidae	<i>Biziura lobata</i>	musk duck		C		1
animals	birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		46
animals	birds	Anatidae	<i>Cygnus atratus</i>	black swan		C		11
animals	birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		C		1
animals	birds	Anatidae	<i>Malacorhynchus membranaceus</i>	pink-eared duck		C		3
animals	birds	Anatidae	<i>Spatula rhynchotis</i>	Australasian shoveler		C		3
animals	birds	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter		C		23
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		V	V	2
animals	birds	Ardeidae	<i>Ardea alba modesta</i>	eastern great egret		C		21
animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		6
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		16
animals	birds	Ardeidae	<i>Bubulcus ibis</i>	cattle egret		C		9
animals	birds	Ardeidae	<i>Egretta garzetta</i>	little egret		C		7
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		26
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron		C		6
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		2
animals	birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		C		9
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		11
animals	birds	Artamidae	<i>Artamus minor</i>	little woodswallow		C		1
animals	birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		3
animals	birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		C		8
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	piebald butcherbird		C		61
animals	birds	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird		C		70
animals	birds	Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie		C		88
animals	birds	Artamidae	<i>Strepera graculina</i>	piebald currawong		C		64
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		71
animals	birds	Cacatuidae	<i>Cacatua sanguinea</i>	little corella		C		25
animals	birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	<i>Calyptorhynchus lathami lathami</i>	glossy black-cockatoo (eastern)		V	V	3
animals	birds	Cacatuidae	<i>Eolophus roseicapilla</i>	galah		C		94
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		46
animals	birds	Cacatuidae	<i>Zanda funerea</i>	yellow-tailed black-cockatoo		C		2
animals	birds	Campephagidae	<i>Coracina maxima</i>	ground cuckoo-shrike		C		3
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		44
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		17

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Campephagidae	<i>Edolisoma tenuirostre</i>	common cicadabird		C		10
animals	birds	Campephagidae	<i>Lalage leucomela</i>	varied triller		C		1
animals	birds	Campephagidae	<i>Lalage tricolor</i>	white-winged triller		C		9
animals	birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu		C		26
animals	birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		C		1
animals	birds	Charadriidae	<i>Euseyonis melanops</i>	black-fronted dotterel		C		7
animals	birds	Charadriidae	<i>Erythrogonys cinctus</i>	red-kneed dotterel		C		1
animals	birds	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		9
animals	birds	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)		C		18
animals	birds	Charadriidae	<i>Vanellus tricolor</i>	banded lapwing		C		3
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		C		5
animals	birds	Cinclosomatidae	<i>Cinclosoma punctatum</i>	spotted quail-thrush		C		1
animals	birds	Climacteridae	<i>Climacteris picumnus</i>	brown treecreeper		C		46
animals	birds	Climacteridae	<i>Climacteris picumnus victoriae</i>	brown treecreeper (south-eastern)		V	V	1
animals	birds	Climacteridae	<i>Cormobates leucophaea</i>	white-throated treecreeper		C		10
animals	birds	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated treecreeper (southern)		C		39
animals	birds	Columbidae	<i>Columba livia</i>	rock dove	Y			6
animals	birds	Columbidae	<i>Geopelia cuneata</i>	diamond dove		C		3
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		28
animals	birds	Columbidae	<i>Geopelia placida</i>	peaceful dove		C		55
animals	birds	Columbidae	<i>Geophaps scripta scripta</i>	squatter pigeon (southern subspecies)		V	V	7/1
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		83
animals	birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		C		27
animals	birds	Columbidae	<i>Spilopelia chinensis</i>	spotted dove	Y			4
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		24
animals	birds	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough		C		39
animals	birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		C		61
animals	birds	Corvidae	<i>Corvus bennetti</i>	little crow		C		2
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		40
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		81
animals	birds	Corvidae	<i>Corvus sp.</i>			C		5
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		4
animals	birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		11
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		3
animals	birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		1
animals	birds	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo		C		4
animals	birds	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	<i>Chalcites osculans</i>	black-eared cuckoo		C		4
animals	birds	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		C		6
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		1
animals	birds	Dicaeidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		63
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		3
animals	birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		C		19
animals	birds	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch		C		3
animals	birds	Estrildidae	<i>Stagonopleura guttata</i>	diamond firetail		V	V	10
animals	birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		100

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		C		13
animals	birds	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		C		1
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		7
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		22
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		9
animals	birds	Falconidae	<i>Falco peregrinus macropus</i>	Australian peregrine falcon		C		3
animals	birds	Falcunculidae	<i>Falcunculus frontatus</i>	crested shrike-tit		C		7
animals	birds	Gruidae	<i>Antigone rubicunda</i>	broilga		C		1
animals	birds	Hirundinidae	<i>Cheramoeca leucosterna</i>	white-backed swallow		C		2
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		60
animals	birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		21
animals	birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		16
animals	birds	Laridae	<i>Chlidonias hybrida</i>	whiskered tern		C		7
animals	birds	Laridae	<i>Chlidonias leucopterus</i>	white-winged black tern		SL		1
animals	birds	Laridae	<i>Chroicocephalus novaehollandiae</i>	silver gull		C		7
animals	birds	Laridae	<i>Gelochelidon macrotarsa</i>	Australian tern		SL		1
animals	birds	Laridae	<i>Hydroprogne caspia</i>	Caspian tern		SL		1
animals	birds	Locustellidae	<i>Cincloramphus cruralis</i>	brown songlark		C		5
animals	birds	Locustellidae	<i>Cincloramphus mathewsi</i>	rufous songlark		C		7
animals	birds	Locustellidae	<i>Cincloramphus timoriensis</i>	tawny grassbird		C		2
animals	birds	Locustellidae	<i>Poodytes gramineus</i>	little grassbird		C		2
animals	birds	Maluridae	<i>Malurus assimilis</i>	purple-backed fairy-wren		C		1
animals	birds	Maluridae	<i>Malurus cyaneus</i>	superb fairy-wren		C		77
animals	birds	Maluridae	<i>Malurus lamberti sensu lato</i>	variegated fairy-wren		C		15
animals	birds	Maluridae	<i>Malurus leucopterus</i>	white-winged fairy-wren		C		4
animals	birds	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater		C		24
animals	birds	Meliphagidae	<i>Anthochaera chrysoptera</i>	little wattlebird		C		1
animals	birds	Meliphagidae	<i>Caligavis chrysops</i>	yellow-faced honeyeater		C		64
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		C		52
animals	birds	Meliphagidae	<i>Grantiella picta</i>	painted honeyeater		V	V	1
animals	birds	Meliphagidae	<i>Lichenostomus melanops</i>	yellow-tufted honeyeater		C		12
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		32
animals	birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner		C		12
animals	birds	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner		C		91
animals	birds	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater		C		1
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		C		1
animals	birds	Meliphagidae	<i>Melithreptus brevirostris</i>	brown-headed honeyeater		C		25
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		C		4
animals	birds	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater		C		1
animals	birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater		C		15
animals	birds	Meliphagidae	<i>Nesoptilotis leucotis</i>	white-eared honeyeater		C		38
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		36
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		C		72
animals	birds	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater		C		68
animals	birds	Meliphagidae	<i>Ptilotula fusca</i>	fuscous honeyeater		C		33
animals	birds	Meliphagidae	<i>Ptilotula penicillata</i>	white-plumed honeyeater		C		49

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animals	birds	Meliphagidae	<i>Purnella albifrons</i>	white-fronted honeyeater		C		1
animals	birds	Meliphagidae	<i>Sugomel nigrum</i>	black honeyeater		C		2
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		9
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		C		109/1
animals	birds	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher		C		39
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		C		16
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		C		12
animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		21
animals	birds	Oreoicidae	<i>Oreoica gutturalis</i>	crested bellbird		C		10
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		15
animals	birds	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird		C		3
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		1
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		67
animals	birds	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler		C		17
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		69
animals	birds	Pandionidae	<i>Pandion haliaetus cristatus</i>	eastern osprey			SL	2
animals	birds	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote		C		39
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		84
animals	birds	Passeridae	<i>Passer domesticus</i>	house sparrow	Y			4
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		C		31
animals	birds	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin		C		48
animals	birds	Petroicidae	<i>Melanodryas cucullata</i>	hooded robin		C		5
animals	birds	Petroicidae	<i>Microeca fascinans</i>	jacky winter		C		31
animals	birds	Petroicidae	<i>Petroica goodenovii</i>	red-capped robin		C		16
animals	birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		27
animals	birds	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	great cormorant		C		8
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		21
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant		C		7
animals	birds	Phasianidae	<i>Coturnix pectoralis</i>	stubble quail		C		1
animals	birds	Phasianidae	<i>Synoicus ypsilophorus</i>	brown quail		C		4
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		11
animals	birds	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe		C		5
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		15
animals	birds	Pomatostomidae	<i>Pomatostomus superciliosus</i>	white-browed babbler		C		3
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		C		54
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis temporalis</i>	grey-crowned babbler (eastern)		C		1
animals	birds	Psittaculidae	<i>Alisterus scapularis</i>	Australian king-parrot		C		14
animals	birds	Psittaculidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		C		50
animals	birds	Psittaculidae	<i>Barnardius zonarius</i>	Australian ringneck		C		2
animals	birds	Psittaculidae	<i>Barnardius zonarius barnardi</i>	mallee ringneck		C		4
animals	birds	Psittaculidae	<i>Glossopsitta concinna</i>	musk lorikeet		C		3
animals	birds	Psittaculidae	<i>Melopsittacus undulatus</i>	budgerigar		C		1
animals	birds	Psittaculidae	<i>Neophema pulchella</i>	turquoise parrot		C		4
animals	birds	Psittaculidae	<i>Northiella haematogaster</i>	blue bonnet		C		11
animals	birds	Psittaculidae	<i>Northiella haematogaster haematorrhoa</i>	blue bonnet (red-vented)		C		1
animals	birds	Psittaculidae	<i>Parvipsitta pusilla</i>	little lorikeet		C		31

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animals	birds	Psittaculidae	<i>Platycercus adscitus</i>	pale-headed rosella		C		63
animals	birds	Psittaculidae	<i>Platycercus eximius</i>	eastern rosella		C		8
animals	birds	Psittaculidae	<i>Psephotus haematonotus</i>	red-rumped parrot		C		43
animals	birds	Psittaculidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		C		20
animals	birds	Psittaculidae	<i>Trichoglossus moluccanus</i>	rainbow lorikeet		C		18
animals	birds	Ptilonorhynchidae	<i>Chlamydera maculata</i>	spotted bowerbird		C		4
animals	birds	Rallidae	<i>Fulica atra</i>	Eurasian coot		C		13
animals	birds	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen		C		14
animals	birds	Rallidae	<i>Gallirallus philippensis</i>	buff-banded rail		C		1
animals	birds	Rallidae	<i>Porphyrio melanotus</i>	purple swamphen		C		3
animals	birds	Recurvirostridae	<i>Himantopus leucocephalus</i>	pieb stilt		C		11
animals	birds	Recurvirostridae	<i>Recurvirostra novaehollandiae</i>	red-necked avocet		C		2
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		50
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		106
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys leucophrys</i>	willie wagtail (southern)		C		2
animals	birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank		SL	E	1
animals	birds	Strigidae	<i>Ninox boobook</i>	southern boobook		C		7
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl		V		1
animals	birds	Sturnidae	<i>Acridotheres tristis</i>	common myna	Y			6
animals	birds	Sturnidae	<i>Sturnus vulgaris</i>	common starling	Y			27
animals	birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		C		14
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		10
animals	birds	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis		SL		1
animals	birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		C		28
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		36
animals	birds	Turnicidae	<i>Turnix varius</i>	painted button-quail		C		6
animals	birds	Tytonidae	<i>Tyto javanica</i>	eastern barn owl		C		5
animals	birds	Zosteropidae	<i>Zosterops lateralis</i>	silveryeye		C		40
animals	birds	Zosteropidae	<i>Zosterops lateralis cornwalli</i>	silveryeye (eastern)		C		1
animals	insects	Aeshnidae	<i>Anax papuensis</i>	Australian Emperor				2
animals	insects	Lestidae	<i>Austrolestes aridus</i>	inland ringtail				1
animals	insects	Lestidae	<i>Austrolestes leda</i>	wandering ringtail				1
animals	insects	Libellulidae	<i>Diplacodes bipunctata</i>	wandering percher				2
animals	insects	Nymphalidae	<i>Danaus petilia</i>	lesser wanderer				1
animals	insects	Nymphalidae	<i>Danaus plexippus</i>	monarch	Y			1
animals	insects	Nymphalidae	<i>Euploea corinna</i>	common crow				1
animals	insects	Nymphalidae	<i>Heteronympha merope merope</i>	common brown				1
animals	insects	Nymphalidae	<i>Junonia villida villida</i>	meadow argus				1
animals	insects	Papilionidae	<i>Papilio aegaeus aegaeus</i>	orchard swallowtail (Australian subspecies)				2
animals	insects	Papilionidae	<i>Papilio demoleus sthenelus</i>	chequered swallowtail				1
animals	insects	Pieridae	<i>Belenois java teutonia</i>	caper white				3
animals	insects	Pieridae	<i>Delias argenthona argenthona</i>	scarlet jezebel				1
animals	malacostracans	Parastacidae	<i>Cherax destructor</i>	common yabby				2
animals	mammals	Bovidae	<i>Bos taurus</i>	European cattle	Y			1
animals	mammals	Bovidae	<i>Capra hircus</i>	goat	Y			2

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animals	mammals	Canidae	<i>Vulpes vulpes</i>	red fox	Y			15
animals	mammals	Dasyuridae	<i>Antechinus flavipes flavipes</i>	yellow-footed antechinus (south-east Queensland)		C		2
animals	mammals	Dasyuridae	<i>Planigale tenuirostris</i>	narrow-nosed planigale		C		2
animals	mammals	Dasyuridae	<i>Sminthopsis macroura</i>	stripe-faced dunnart		C		2
animals	mammals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart		C		4
animals	mammals	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat		C		3
animals	mammals	Equidae	<i>Equus caballus</i>	horse	Y			4
animals	mammals	Felidae	<i>Felis catus</i>	cat	Y			8
animals	mammals	Leporidae	<i>Oryctolagus cuniculus</i>	rabbit	Y			2
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		C		29
animals	mammals	Macropodidae	<i>Notamacropus dorsalis</i>	black-striped wallaby		C		2
animals	mammals	Macropodidae	<i>Notamacropus rufogriseus</i>	red-necked wallaby		C		8
animals	mammals	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby		C		7
animals	mammals	Miniopteridae	<i>Miniopterus schreibersii oceanensis</i>	eastern bent-wing bat		C		1
animals	mammals	Molossidae	<i>Austronomus australis</i>	white-striped freetail bat		C		3
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		5
animals	mammals	Muridae	<i>Mus musculus</i>	house mouse	Y			27
animals	mammals	Muridae	<i>Pseudomys mimulus</i>	eastern delicate mouse		C		1/1
animals	mammals	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus		SL		1
animals	mammals	Petauridae	<i>Petaurus notatus</i>	Kreff's glider		C		4
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		3
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		E	E	4
animals	mammals	Pseudocheiridae	<i>Petauroides volans volans</i>	southern greater glider		E	E	2
animals	mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox		C		1
animals	mammals	Suidae	<i>Sus scrofa</i>	pig	Y			18
animals	mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		SL		16
animals	mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		C		3
animals	mammals	Vespertilionidae	<i>Chalinolobus picatus</i>	little pied bat		C		1
animals	mammals	Vespertilionidae	<i>Nyctophilus corbeni</i>	eastern long-eared bat		V	V	8
animals	mammals	Vespertilionidae	<i>Nyctophilus geoffroyi</i>	lesser long-eared bat		C		3
animals	mammals	Vespertilionidae	<i>Nyctophilus gouldi</i>	Gould's long-eared bat		C		16
animals	mammals	Vespertilionidae	<i>Nyctophilus sp.</i>			C		1
animals	mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat		C		1
animals	mammals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		C		6
animals	mammals	Vespertilionidae	<i>Vespadelus vulturnus</i>	little forest bat		C		13/2
animals	ray-finned fishes	Cyprinidae	<i>Cyprinus carpio</i>	European carp	Y			1
animals	ray-finned fishes	Percichthyidae	<i>Macquaria ambigua</i>	golden perch				2
animals	ray-finned fishes	Plotosidae	<i>Tandanus tandanus</i>	freshwater catfish				1
animals	ray-finned fishes	Retropinnidae	<i>Retropinna semoni</i>	Australian smelt				1
animals	reptiles	Agamidae	<i>Amphibolurus burnsi</i>	Burns's dragon		C		7/2
animals	reptiles	Agamidae	<i>Amphibolurus muricatus</i>	jacky lizard		C		4
animals	reptiles	Agamidae	<i>Pogona barbata</i>	bearded dragon		C		7/1
animals	reptiles	Agamidae	<i>Pogona vitticeps</i>	central bearded dragon		C		1
animals	reptiles	Boidae	<i>Morelia spilota</i>	carpet python		C		2
animals	reptiles	Carphodactylidae	<i>Underwoodisaurus milii</i>	thick-tailed gecko		C		1

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animals	reptiles	Chelidae	<i>Emydura macquarii macquarii</i>	Murray turtle		C		1
animals	reptiles	Colubridae	<i>Dendrelaphis punctulatus</i>	green tree snake		C		3
animals	reptiles	Diplodactylidae	<i>Amalosia robusta</i>	robust velvet gecko		C		1
animals	reptiles	Diplodactylidae	<i>Diplodactylus vittatus</i>	wood gecko		C		11/1
animals	reptiles	Diplodactylidae	<i>Lucasium steindachneri</i>	Steindachner's gecko		C		3
animals	reptiles	Diplodactylidae	<i>Oedura tryoni</i>	southern spotted velvet gecko		C		3
animals	reptiles	Diplodactylidae	<i>Strophurus williamsi</i>	soft-spined gecko		C		8/1
animals	reptiles	Elapidae	<i>Acanthophis antarcticus</i>	common death adder		V		5/1
animals	reptiles	Elapidae	<i>Demansia psammophis</i>	yellow-faced whipsnake		C		2
animals	reptiles	Elapidae	<i>Furina diadema</i>	red-naped snake		C		5/2
animals	reptiles	Elapidae	<i>Hoplocephalus bitorquatus</i>	pale-headed snake		C		1
animals	reptiles	Elapidae	<i>Pseudechis guttatus</i>	spotted black snake		C		5
animals	reptiles	Elapidae	<i>Pseudechis porphyriacus</i>	red-bellied black snake		C		3
animals	reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		C		1
animals	reptiles	Elapidae	<i>Suta dwyeri</i>	Dwyer's snake		C		5
animals	reptiles	Elapidae	<i>Suta suta</i>	myall snake		C		1
animals	reptiles	Elapidae	<i>Vermicella annulata</i>	bandy-bandy		C		1
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>	dubious dtella		C		29/5
animals	reptiles	Gekkonidae	<i>Gehyra sp.</i>			C		3
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		38/4
animals	reptiles	Pygopodidae	<i>Delma plebeia</i>	common delma		C		1
animals	reptiles	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		C		2
animals	reptiles	Scincidae	<i>Anomalopus leuckartii</i>	two-clawed worm-skink		C		4
animals	reptiles	Scincidae	<i>Carlia pectoralis</i>	open-litter rainbow skink		C		2/1
animals	reptiles	Scincidae	<i>Carlia pectoralis sensu lato</i>			C		4/2
animals	reptiles	Scincidae	<i>Carlia sp.</i>			C		5
animals	reptiles	Scincidae	<i>Carlia tetradactyla</i>	southern rainbow-skink		C		1
animals	reptiles	Scincidae	<i>Carlia vivax</i>	tussock rainbow-skink		C		2
animals	reptiles	Scincidae	<i>Cryptoblepharus australis</i>	inland snake-eyed skink		C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus pannosus</i>	ragged snake-eyed skink		C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	elegant snake-eyed skink		C		15/2
animals	reptiles	Scincidae	<i>Ctenotus allotropis</i>	brown-blazed wedgesnout ctenotus		C		4/1
animals	reptiles	Scincidae	<i>Ctenotus spaldingi</i>	straight-browed ctenotus		C		13
animals	reptiles	Scincidae	<i>Egernia cunninghami</i>	Cunningham's skink		C		1
animals	reptiles	Scincidae	<i>Egernia striolata</i>	tree skink		C		7/1
animals	reptiles	Scincidae	<i>Lerista punctatovittata</i>	eastern robust slider		C		1/1
animals	reptiles	Scincidae	<i>Lerista timida</i>	timid slider		C		21/5
animals	reptiles	Scincidae	<i>Liopholis modesta</i>	eastern ranges rock-skink		C		1
animals	reptiles	Scincidae	<i>Lygisaurus foliorum</i>	tree-base litter-skink		C		15/8
animals	reptiles	Scincidae	<i>Menetia greyii</i>	common dwarf skink		C		2
animals	reptiles	Scincidae	<i>Morethia boulengeri</i>	south-eastern morethia skink		C		18/2
animals	reptiles	Scincidae	<i>Pygmaeascincus timlowi</i>	dwarf litter-skink		C		2/1
animals	reptiles	Scincidae	<i>Tiliqua rugosa</i>	shingle-back		C		5
animals	reptiles	Typhlopidae	<i>Anilius ligatus</i>	robust blind snake		C		1/1
animals	reptiles	Varanidae	<i>Varanus gouldii</i>	sand monitor		C		6
animals	reptiles	Varanidae	<i>Varanus varius</i>	lace monitor		C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	uncertain	Indeterminate	<i>Indeterminate</i>	Unknown or Code Pending				7
fungi	Agaricomycetes	Hymenochaetaceae	<i>Phellinus</i>					1/1
fungi	Agaricomycetes	Phallaceae	<i>Clathrus</i>					1/1
fungi	Agaricomycetes	Polyporaceae	<i>Trametes velutina</i>			C		1/1
fungi	eurotiomycetes	Verrucariaceae	<i>Endocarpon simplicatum</i>			C		1/1
fungi	lecanoromycetes	Acarosporaceae	<i>Sarcogyne tholifera</i>			C		1/1
fungi	lecanoromycetes	Caliciaceae	<i>Buellia</i>					1/1
fungi	lecanoromycetes	Caliciaceae	<i>Buellia epigaella</i>			C		1/1
fungi	lecanoromycetes	Cladoniaceae	<i>Cladia muelleri</i>			C		3/2
fungi	lecanoromycetes	Lecideaceae	<i>Lecidea ochroleuca</i>			C		1/1
fungi	lecanoromycetes	Ochrolechiaceae	<i>Ochrolechia</i>					1/1
fungi	lecanoromycetes	Pannariaceae	<i>Physma ahtianum</i>			C		1/1
fungi	lecanoromycetes	Parmeliaceae	<i>Flavoparmelia rutidota</i>			C		1/1
fungi	lecanoromycetes	Parmeliaceae	<i>Parmotrema subsumptum</i>			C		1/1
fungi	lecanoromycetes	Parmeliaceae	<i>Punctelia pseudocoralloidea</i>			C		1/1
fungi	lecanoromycetes	Parmeliaceae	<i>Usnea scabrida subsp. elegans</i>			C		1/1
fungi	lecanoromycetes	Parmeliaceae	<i>Xanthoparmelia semiviridis</i>			C		3/3
fungi	lecanoromycetes	Physciaceae	<i>Hyperphyscia pruinosa</i>			C		2/2
fungi	lecanoromycetes	Physciaceae	<i>Physcia nubila</i>			C		1/1
fungi	lecanoromycetes	Ramboldiaceae	<i>Ramboldia crassithallina</i>			C		1/1
fungi	lecanoromycetes	Teloschistaceae	<i>Caloplaca</i>					1/1
fungi	lecanoromycetes	Teloschistaceae	<i>Caloplaca cerina</i>			C		1/1
fungi	lecanoromycetes	Teloschistaceae	<i>Teloschistes spinosus</i>			C		1/1
plants	land plants	Acanthaceae	<i>Brunoniella australis</i>	blue trumpet		C		2/1
plants	land plants	Acanthaceae	<i>Pseuderanthemum variabile</i>	pastel flower		C		1/1
plants	land plants	Acanthaceae	<i>Rostellularia adscendens</i>			C		4/2
plants	land plants	Acanthaceae	<i>Xerothamnella herbacea</i>			E	E	2/1
plants	land plants	Aizoaceae	<i>Carpobrotus aequilaterus</i>		Y			1/1
plants	land plants	Aizoaceae	<i>Disphyma crassifolium</i>			C		1
plants	land plants	Aizoaceae	<i>Disphyma crassifolium subsp. clavellatum</i>			C		5/2
plants	land plants	Aizoaceae	<i>Sarcosoma praecox</i>			C		4/3
plants	land plants	Aizoaceae	<i>Trianthema</i>					2/2
plants	land plants	Alismataceae	<i>Damasonium minus</i>	starfruit			SL	1
plants	land plants	Amaranthaceae	<i>Alternanthera denticulata</i>	lesser joyweed		C		3/3
plants	land plants	Amaranthaceae	<i>Alternanthera denticulata var. denticulata</i>			C		2/2
plants	land plants	Amaranthaceae	<i>Alternanthera pungens</i>	khaki weed	Y			2/2
plants	land plants	Amaranthaceae	<i>Amaranthus viridis</i>	green amaranth	Y			2/2
plants	land plants	Amaranthaceae	<i>Gomphrena celosioides</i>	gomphrena weed	Y			5/5
plants	land plants	Amaranthaceae	<i>Nyssanthes erecta</i>				C	1/1
plants	land plants	Amaranthaceae	<i>Ptilotus semilanatus</i>				C	2/2
plants	land plants	Amaryllidaceae	<i>Crinum arenarium</i>				SL	1/1
plants	land plants	Anacardiaceae	<i>Schinus molle var. areira</i>	pepper tree	Y			2/1
plants	land plants	Apiaceae	<i>Ammi majus</i>	bishop's weed	Y			1/1
plants	land plants	Apiaceae	<i>Centella asiatica</i>				C	1/1
plants	land plants	Apiaceae	<i>Cyclospermum leptophyllum</i>		Y			4/4
plants	land plants	Apiaceae	<i>Daucus glochidiatus</i>	Australian carrot			C	1/1

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plants	land plants	Apiaceae	<i>Eryngium paludosum</i>			C		1/1
plants	land plants	Apiaceae	<i>Foeniculum vulgare</i>	fennel	Y			1/1
plants	land plants	Apiaceae	<i>Platysace ericoides</i>	heath platysace		C		3/3
plants	land plants	Apocynaceae	<i>Alstonia constricta</i>	bitterbark		C		1/1
plants	land plants	Apocynaceae	<i>Asclepias curassavica</i>	red-head cottonbush	Y			1/1
plants	land plants	Apocynaceae	<i>Carissa ovata</i>	currantbush		C		1/1
plants	land plants	Apocynaceae	<i>Cynanchum viminalis subsp. brunonianum</i>			C		1/1
plants	land plants	Apocynaceae	<i>Gomphocarpus fruticosus</i>	narrow-leaved cotton bush	Y			3/3
plants	land plants	Apocynaceae	<i>Gomphocarpus physocarpus</i>	balloon cottonbush	Y			2/2
plants	land plants	Apocynaceae	<i>Parsonsia eucalyptophylla</i>	gargaloo		C		1/1
plants	land plants	Apocynaceae	<i>Vinca major</i>	blue periwinkle	Y			1/1
plants	land plants	Asphodelaceae	<i>Bulbine</i>					1/1
plants	land plants	Asphodelaceae	<i>Bulbine fraseri</i>			C		1/1
plants	land plants	Asteraceae	<i>Actinobole uliginosum</i>	flannel cudweed		C		1/1
plants	land plants	Asteraceae	<i>Ambrosia artemisiifolia</i>	annual ragweed	Y			1/1
plants	land plants	Asteraceae	<i>Angianthus brachypappus</i>	spreading cupflower		C		2/2
plants	land plants	Asteraceae	<i>Arctotheca calendula</i>	Cape weed	Y			1
plants	land plants	Asteraceae	<i>Asteraceae</i>					1
plants	land plants	Asteraceae	<i>Bidens bipinnata</i>	bipinnate beggar's ticks	Y			4/4
plants	land plants	Asteraceae	<i>Bidens pilosa</i>		Y			2/1
plants	land plants	Asteraceae	<i>Brachyscome casstiana</i>			C		1/1
plants	land plants	Asteraceae	<i>Brachyscome ciliaris</i>			C		2/2
plants	land plants	Asteraceae	<i>Brachyscome multifida</i>			C		7/3
plants	land plants	Asteraceae	<i>Brachyscome nodosa</i>			C		1/1
plants	land plants	Asteraceae	<i>Brachyscome paludicola</i>			C		4/4
plants	land plants	Asteraceae	<i>Brachyscome watanabei</i>			C		4/4
plants	land plants	Asteraceae	<i>Brachyscome whitei subsp. whitei</i>			C		2/2
plants	land plants	Asteraceae	<i>Calendula arvensis</i>	field marigold	Y			1/1
plants	land plants	Asteraceae	<i>Calocephalus sonderi</i>	palebeauty heads		C		1/1
plants	land plants	Asteraceae	<i>Calotis cuneifolia</i>	burr daisy		C		4/3
plants	land plants	Asteraceae	<i>Calotis dentex</i>	white burr daisy		C		1/1
plants	land plants	Asteraceae	<i>Calotis hispidula</i>	bogan flea		C		3/3
plants	land plants	Asteraceae	<i>Calotis lappulacea</i>	yellow burr daisy		C		1/1
plants	land plants	Asteraceae	<i>Carthamus lanatus</i>	saffron thistle	Y			2/2
plants	land plants	Asteraceae	<i>Cassinia laevis</i>			C		4
plants	land plants	Asteraceae	<i>Cassinia laevis subsp. rosmarinifolia</i>			C		1/1
plants	land plants	Asteraceae	<i>Centaurea melitensis</i>	Maltese cockspur	Y			4/4
plants	land plants	Asteraceae	<i>Centaurea solstitialis</i>	St. Barnaby's thistle	Y			2/2
plants	land plants	Asteraceae	<i>Centipeda minima subsp. minima</i>			C		5/5
plants	land plants	Asteraceae	<i>Centipeda thespidioides</i>	desert sneezeweed		C		1/1
plants	land plants	Asteraceae	<i>Chrysocephalum apiculatum</i>	yellow buttons		C		7/6
plants	land plants	Asteraceae	<i>Cirsium vulgare</i>	spear thistle	Y			1/1
plants	land plants	Asteraceae	<i>Cyanthillium cinereum</i>			C		1/1
plants	land plants	Asteraceae	<i>Eclipta platyglossa</i>			C		1/1
plants	land plants	Asteraceae	<i>Erigeron bonariensis</i>		Y			4/4
plants	land plants	Asteraceae	<i>Erigeron sumatrensis</i>		Y			1

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plants	land plants	Asteraceae	<i>Euchiton sphaericus</i>			C		2/2
plants	land plants	Asteraceae	<i>Glossocardia bidens</i>	native cobbler's pegs		C		1/1
plants	land plants	Asteraceae	<i>Helianthus annuus</i>		Y			1/1
plants	land plants	Asteraceae	<i>Hypochaeris albiflora</i>		Y			2/2
plants	land plants	Asteraceae	<i>Hypochaeris glabra</i>	smooth catsear	Y			2/2
plants	land plants	Asteraceae	<i>Lactuca saligna</i>	wild lettuce	Y			3/3
plants	land plants	Asteraceae	<i>Leiocarpa panaetioides</i>			C		1/1
plants	land plants	Asteraceae	<i>Leontodon rhagadioloides</i>		Y			1/1
plants	land plants	Asteraceae	<i>Olearia minor</i>			C		2/2
plants	land plants	Asteraceae	<i>Olearia pimeleoides</i>			C		1/1
plants	land plants	Asteraceae	<i>Olearia ramosissima</i>			C		1/1
plants	land plants	Asteraceae	<i>Ozothamnus diosmifolius</i>	white dogwood		C		1/1
plants	land plants	Asteraceae	<i>Panaetia muelleri</i>			C		2/2
plants	land plants	Asteraceae	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed		C		1/1
plants	land plants	Asteraceae	<i>Schkuhria pinnata</i>		Y			4/4
plants	land plants	Asteraceae	<i>Senecio brigalowensis</i>			C		1
plants	land plants	Asteraceae	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>			C		4/4
plants	land plants	Asteraceae	<i>Senecio queenslandicus</i>			C		1/1
plants	land plants	Asteraceae	<i>Sigesbeckia orientalis</i>	Indian weed		C		2/2
plants	land plants	Asteraceae	<i>Silybum marianum</i>	variegated thistle	Y			1/1
plants	land plants	Asteraceae	<i>Solenogyne bellioides</i>			C		1/1
plants	land plants	Asteraceae	<i>Soliva anthemifolia</i>	dwarf jo jo weed	Y			2/2
plants	land plants	Asteraceae	<i>Soliva sessilis</i>		Y			3/3
plants	land plants	Asteraceae	<i>Sonchus asper</i>	rough sowthistle	Y			1/1
plants	land plants	Asteraceae	<i>Sonchus oleraceus</i>	common sowthistle	Y			3/3
plants	land plants	Asteraceae	<i>Triptilodiscus pygmaeus</i>			C		3/3
plants	land plants	Asteraceae	<i>Verbesina encelioides</i> var. <i>encelioides</i>		Y			6/6
plants	land plants	Asteraceae	<i>Vittadinia cuneata</i> var. <i>hirsuta</i>			C		1/1
plants	land plants	Asteraceae	<i>Vittadinia dissecta</i>			C		1
plants	land plants	Asteraceae	<i>Vittadinia dissecta</i> var. <i>dissecta</i>			C		1/1
plants	land plants	Asteraceae	<i>Vittadinia dissecta</i> var. <i>hirta</i>			C		1/1
plants	land plants	Asteraceae	<i>Vittadinia pustulata</i>			C		3/3
plants	land plants	Asteraceae	<i>Vittadinia sulcata</i>	native daisy		C		1/1
plants	land plants	Asteraceae	<i>Xanthium occidentale</i>		Y			4/3
plants	land plants	Asteraceae	<i>Xerochrysum bracteatum</i>	golden everlasting daisy		C		1/1
plants	land plants	Asteraceae	<i>Zinnia peruviana</i>	wild zinnia	Y			2/2
plants	land plants	Boraginaceae	<i>Cynoglossum australe</i>			C		1/1
plants	land plants	Boraginaceae	<i>Echium plantagineum</i>	Paterson's curse	Y			2/2
plants	land plants	Boraginaceae	<i>Heliotropium amplexicaule</i>	blue heliotrope	Y			1/1
plants	land plants	Boraginaceae	<i>Heliotropium europaeum</i>	common heliotrope	Y			1/1
plants	land plants	Brassicaceae	<i>Capsella bursa-pastoris</i>	shepherd's purse	Y			1/1
plants	land plants	Brassicaceae	<i>Hirschfeldia incana</i>	buchan weed	Y			2/2
plants	land plants	Brassicaceae	<i>Lepidium africanum</i>	common peppergrass	Y			1/1
plants	land plants	Brassicaceae	<i>Lepidium bonariense</i>	Argentine peppergrass	Y			2/2
plants	land plants	Brassicaceae	<i>Lepidium hypenantion</i>			C		2/2
plants	land plants	Brassicaceae	<i>Lepidium monoplacoides</i>	winged peppergrass		C	E	5/5

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plants	land plants	Brassicaceae	<i>Lepidium pseudohyssopifolium</i>			C		2/2
plants	land plants	Brassicaceae	<i>Raphanus raphanistrum</i>	wild radish	Y			1/1
plants	land plants	Brassicaceae	<i>Rapistrum rugosum</i>		Y			2/2
plants	land plants	Brassicaceae	<i>Rorippa eustylis</i>			C		1/1
plants	land plants	Brassicaceae	<i>Rorippa laciniata</i>			C		1/1
plants	land plants	Brassicaceae	<i>Sisymbrium irio</i>	london rocket	Y			1/1
plants	land plants	Brassicaceae	<i>Sisymbrium orientale</i>	Indian hedge mustard	Y			3/3
plants	land plants	Byttneriaceae	<i>Seringia hookeriana</i>			C		1/1
plants	land plants	Cactaceae	<i>Cereus uruguayanus</i>		Y			4/3
plants	land plants	Cactaceae	<i>Harrisia</i>					2
plants	land plants	Cactaceae	<i>Harrisia martinii</i>		Y			10/1
plants	land plants	Cactaceae	<i>Opuntia aurantiaca</i>	tiger pear	Y			10
plants	land plants	Cactaceae	<i>Opuntia ficus-indica</i>	Indian fig	Y			1/1
plants	land plants	Cactaceae	<i>Opuntia stricta</i>		Y			3
plants	land plants	Cactaceae	<i>Opuntia tomentosa</i>	velvety tree pear	Y			36/2
plants	land plants	Campanulaceae	<i>Wahlenbergia</i>					2
plants	land plants	Campanulaceae	<i>Wahlenbergia fluminalis</i>	river bluebell			SL	2/2
plants	land plants	Campanulaceae	<i>Wahlenbergia gracilis</i>	sprawling bluebell			SL	2/2
plants	land plants	Campanulaceae	<i>Wahlenbergia graniticola</i>	granite bluebell			SL	2/2
plants	land plants	Campanulaceae	<i>Wahlenbergia tumidifructa</i>				SL	1/1
plants	land plants	Cannabaceae	<i>Celtis sinensis</i>	Chinese elm	Y			18/5
plants	land plants	Capparaceae	<i>Capparis</i>					1
plants	land plants	Capparaceae	<i>Capparis canescens</i>			C		3/3
plants	land plants	Capparaceae	<i>Capparis lasiantha</i>	nipan		C		1/1
plants	land plants	Capparaceae	<i>Capparis mitchellii</i>			C		3/3
plants	land plants	Caprifoliaceae	<i>Lonicera japonica</i>	Japanese honeysuckle	Y			1/1
plants	land plants	Caryophyllaceae	<i>Petrorhagia nanteuillii</i>	proliferous pink	Y			1/1
plants	land plants	Caryophyllaceae	<i>Polycarpon tetraphyllum</i>		Y			1/1
plants	land plants	Caryophyllaceae	<i>Spergularia brevifolia</i>			C		4/4
plants	land plants	Caryophyllaceae	<i>Spergularia media</i>		Y			2/2
plants	land plants	Caryophyllaceae	<i>Spergularia rubra</i>	sand spurry	Y			1/1
plants	land plants	Casuarinaceae	<i>Allocasuarina inophloia</i>			C		4/4
plants	land plants	Casuarinaceae	<i>Allocasuarina luehmannii</i>	bull oak		C		84/3
plants	land plants	Casuarinaceae	<i>Casuarina cristata</i>	belah		C		19
plants	land plants	Casuarinaceae	<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Atriplex leptocarpa</i>	slender fruit saltbush		C		2/2
plants	land plants	Chenopodiaceae	<i>Atriplex muelleri</i>	lagoon saltbush		C		1/1
plants	land plants	Chenopodiaceae	<i>Atriplex semibaccata</i>	creeping saltbush		C		2/2
plants	land plants	Chenopodiaceae	<i>Chenopodium album</i>	fat-hen	Y			2/2
plants	land plants	Chenopodiaceae	<i>Chenopodium desertorum</i> subsp. <i>microphyllum</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Dysphania ambrosioides</i>		Y			1/1
plants	land plants	Chenopodiaceae	<i>Dysphania carinata</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Einadia hastata</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Einadia nutans</i>			C		3/1
plants	land plants	Chenopodiaceae	<i>Einadia trigonos</i> subsp. <i>stellulata</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>glabra</i>			C		1/1

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plants	land plants	Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>			C		1
plants	land plants	Chenopodiaceae	<i>Maireana brevifolia</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Maireana enchylaenoides</i>			C		2/2
plants	land plants	Chenopodiaceae	<i>Maireana microphylla</i>			C		2/2
plants	land plants	Chenopodiaceae	<i>Maireana pentagona</i>			C		2/2
plants	land plants	Chenopodiaceae	<i>Rhagodia spinescens</i>	thorny saltbush		C		1/1
plants	land plants	Chenopodiaceae	<i>Salsola australis</i>			C		2/2
plants	land plants	Chenopodiaceae	<i>Sclerolaena birchii</i>	galvanised burr		C		2/2
plants	land plants	Chenopodiaceae	<i>Sclerolaena diacantha</i>	grey copper burr		C		3/3
plants	land plants	Chenopodiaceae	<i>Sclerolaena stelligera</i>			C		1/1
plants	land plants	Chenopodiaceae	<i>Sclerolaena tetracuspis</i>	brigalow burr		C		1/1
plants	land plants	Chenopodiaceae	<i>Sclerolaena tricuspis</i>	giant red burr		C		2/2
plants	land plants	Commelinaceae	<i>Commelina diffusa</i>			C		2/2
plants	land plants	Commelinaceae	<i>Murdannia graminea</i>	murdannia		C		1/1
plants	land plants	Convolvulaceae	<i>Cuscuta campestris</i>	dodder	Y			5/4
plants	land plants	Convolvulaceae	<i>Dichondra</i> sp. (Inglewood J.M.Dalby 86/93)			C		2/1
plants	land plants	Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>			C		4/1
plants	land plants	Convolvulaceae	<i>Ipomoea indica</i>	blue morning-glory	Y			2/2
plants	land plants	Convolvulaceae	<i>Ipomoea plebeia</i>	bellvine		C		2/2
plants	land plants	Crassulaceae	<i>Bryophyllum delagoense</i>		Y			9/2
plants	land plants	Crassulaceae	<i>Crassula tetramera</i>			C		2/2
plants	land plants	Cupressaceae	<i>Callitris endlicheri</i>	black cypress pine		C		24/2
plants	land plants	Cupressaceae	<i>Callitris glaucophylla</i>	white cypress pine		C		128/2
plants	land plants	Cupressaceae	<i>Callitris glaucophylla</i> x <i>Callitris verrucosa</i>			C		1
plants	land plants	Cyperaceae	<i>Carex appressa</i>			C		1/1
plants	land plants	Cyperaceae	<i>Carex inversa</i>	knob sedge		C		3/3
plants	land plants	Cyperaceae	<i>Cyperus</i>					1
plants	land plants	Cyperaceae	<i>Cyperus betchei</i> subsp. <i>betchei</i>			C		1/1
plants	land plants	Cyperaceae	<i>Cyperus bowmanni</i>			C		1/1
plants	land plants	Cyperaceae	<i>Cyperus difformis</i>	rice sedge		C		2/2
plants	land plants	Cyperaceae	<i>Cyperus exaltatus</i>	tall flatsedge		C		2/2
plants	land plants	Cyperaceae	<i>Cyperus iria</i>			C		1/1
plants	land plants	Cyperaceae	<i>Cyperus leiocaulon</i>			C		1/1
plants	land plants	Cyperaceae	<i>Cyperus polystachyos</i> var. <i>polystachyos</i>			C		1/1
plants	land plants	Cyperaceae	<i>Cyperus rigidellus</i>			C		2/2
plants	land plants	Cyperaceae	<i>Cyperus vaginatus</i>			C		1/1
plants	land plants	Cyperaceae	<i>Eleocharis blakeana</i>			C		1/1
plants	land plants	Cyperaceae	<i>Eleocharis cylindrostachys</i>			C		2/2
plants	land plants	Cyperaceae	<i>Eleocharis pusilla</i>	small spikerush		C		2/2
plants	land plants	Cyperaceae	<i>Fimbristylis dichotoma</i>	common fringe-rush		C		2/2
plants	land plants	Cyperaceae	<i>Gahnia aspera</i>			C		5/1
plants	land plants	Cyperaceae	<i>Lepidosperma laterale</i>			C		1/1
plants	land plants	Cyperaceae	<i>Schoenus ericetorum</i>			C		3/3
plants	land plants	Cyperaceae	<i>Schoenus kennyi</i>			C		1/1
plants	land plants	Dilleniaceae	<i>Hibbertia cistoidea</i>			C		2/1
plants	land plants	Dilleniaceae	<i>Hibbertia expansa</i>			C		1/1

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plants	land plants	Dilleniaceae	<i>Hibbertia linearis</i> var. <i>obtusifolia</i>			C		2/2
plants	land plants	Dilleniaceae	<i>Hibbertia mediterranea</i>			C		1/1
plants	land plants	Dilleniaceae	<i>Hibbertia</i> sp. ( <i>Barakula</i> V.Hando 122)			C		1/1
plants	land plants	Dilleniaceae	<i>Hibbertia stricta</i>			C		2/2
plants	land plants	Ericaceae	<i>Brachyloma daphnoides</i> subsp. <i>daphnoides</i>			C		3/3
plants	land plants	Ericaceae	<i>Brachyloma daphnoides</i> subsp. <i>glabrum</i>			C		2/2
plants	land plants	Ericaceae	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>			C		5/4
plants	land plants	Ericaceae	<i>Melichrus adpressus</i>			C		1/1
plants	land plants	Ericaceae	<i>Melichrus</i> sp. ( <i>Inglewood</i> A.R.Bean 1652)			C		5/3
plants	land plants	Ericaceae	<i>Styphelia attenuata</i>			C		6/6
plants	land plants	Ericaceae	<i>Styphelia biflora</i>			C		2/2
plants	land plants	Ericaceae	<i>Styphelia mitchellii</i>			C		1
plants	land plants	Ericaceae	<i>Styphelia mutica</i>			C		7/5
plants	land plants	Ericaceae	<i>Styphelia</i> sp. ( <i>Coolmunda</i> D.Halford Q1635)			E	E	14/12
plants	land plants	Ericaceae	<i>Styphelia viridis</i> subsp. <i>breviflora</i>			C		2/1
plants	land plants	Euphorbiaceae	<i>Beyeria viscosa</i>			C		2/2
plants	land plants	Euphorbiaceae	<i>Euphorbia hirta</i>		Y			4/4
plants	land plants	Euphorbiaceae	<i>Euphorbia peplus</i>	petty spurge	Y			1/1
plants	land plants	Euphorbiaceae	<i>Manihot grahamii</i>		Y			1/1
plants	land plants	Euphorbiaceae	<i>Ricinocarpos linearifolius</i>			C		4/4
plants	land plants	Gentianaceae	<i>Centaurium erythraea</i>	common centaury	Y			3/3
plants	land plants	Geraniaceae	<i>Erodium cicutarium</i>	blue crowfoot		C		1/1
plants	land plants	Geraniaceae	<i>Geranium solanderi</i> var. <i>solanderi</i>	native geranium		C		2/2
plants	land plants	Goodeniaceae	<i>Goodenia</i>					1/1
plants	land plants	Goodeniaceae	<i>Goodenia bellidifolia</i> subsp. <i>argentea</i>			C		2/2
plants	land plants	Goodeniaceae	<i>Goodenia glabra</i>			C		2/2
plants	land plants	Goodeniaceae	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>			C		1
plants	land plants	Goodeniaceae	<i>Goodenia pinnatifida</i>			C		1/1
plants	land plants	Goodeniaceae	<i>Goodenia rotundifolia</i>			C		1/1
plants	land plants	Haloragaceae	<i>Haloragis heterophylla</i>	rough raspweed		C		1/1
plants	land plants	Haloragaceae	<i>Myriophyllum crispatum</i>			C		4/1
plants	land plants	Haloragaceae	<i>Myriophyllum gracile</i>			C		1/1
plants	land plants	Haloragaceae	<i>Myriophyllum gracile</i> var. <i>gracile</i>			C		1/1
plants	land plants	Haloragaceae	<i>Myriophyllum gracile</i> var. <i>lineare</i>			C		1/1
plants	land plants	Hemerocallidaceae	<i>Dianella</i>					1
plants	land plants	Hemerocallidaceae	<i>Dianella longifolia</i>			C		1/1
plants	land plants	Hemerocallidaceae	<i>Dianella longifolia</i> var. <i>stenophylla</i>			C		2
plants	land plants	Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>revoluta</i>			C		2/1
plants	land plants	Hemerocallidaceae	<i>Stypantra glauca</i>	nodding blue lily		C		2/2
plants	land plants	Hemerocallidaceae	<i>Tricoryne elatior</i>	yellow autumn lily		C		1/1
plants	land plants	Hydrocharitaceae	<i>Ottelia ovalifolia</i> subsp. <i>chrysobasis</i>			SL		2
plants	land plants	Hypericaceae	<i>Hypericum gramineum</i>			C		2/2
plants	land plants	Hypoxidaceae	<i>Hypoxis hygrometrica</i> var. <i>villosisepala</i>			C		1/1
plants	land plants	Iridaceae	<i>Sisyrinchium rosulatum</i>		Y			1/1
plants	land plants	Juncaceae	<i>Juncus continuus</i>			C		2/2
plants	land plants	Juncaceae	<i>Juncus subglauca</i>			C		1/1

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plants	land plants	Juncaginaceae	<i>Cycnogeton multifructus</i>			SL		1
plants	land plants	Juncaginaceae	<i>Triglochin isingiana</i>			SL		1/1
plants	land plants	Lamiaceae	<i>Coleus</i>					1/1
plants	land plants	Lamiaceae	<i>Coleus australis</i>			C		1/1
plants	land plants	Lamiaceae	<i>Lamium amplexicaule</i>	deadnettle	Y			3/3
plants	land plants	Lamiaceae	<i>Marrubium vulgare</i>	white horehound	Y			4/3
plants	land plants	Lamiaceae	<i>Mentha satureioides</i>	native pennyroyal		C		2/1
plants	land plants	Lamiaceae	<i>Prostanthera cryptandroides subsp. euphrasioides</i>			C		1/1
plants	land plants	Lamiaceae	<i>Prostanthera parvifolia</i>			C		1/1
plants	land plants	Lamiaceae	<i>Prostanthera sp. (Baking Board V.Hando 135)</i>			C		1/1
plants	land plants	Lamiaceae	<i>Salvia verbenaca</i>	wild sage	Y			1/1
plants	land plants	Lamiaceae	<i>Stachys arvensis</i>	stagger weed	Y			1/1
plants	land plants	Lamiaceae	<i>Teucrium corymbosum</i>	forest germander		C		2/2
plants	land plants	Lamiaceae	<i>Teucrium junceum</i>			C		1/1
plants	land plants	Lamiaceae	<i>Teucrium puberulum</i>			C		1/1
plants	land plants	Lamiaceae	<i>Westringia parvifolia</i>			V	V	2/2
plants	land plants	Lauraceae	<i>Cassytha pubescens</i>	downy devil's twine		C		2/2
plants	land plants	Laxmanniaceae	<i>Laxmannia compacta</i>			C		1/1
plants	land plants	Laxmanniaceae	<i>Lomandra beaniana</i>			C		3/3
plants	land plants	Laxmanniaceae	<i>Lomandra leucocephala subsp. leucocephala</i>			C		2/2
plants	land plants	Laxmanniaceae	<i>Lomandra longifolia</i>			C		7/2
plants	land plants	Laxmanniaceae	<i>Lomandra multiflora subsp. multiflora</i>			C		2
plants	land plants	Leguminosae	<i>Acacia</i>					1
plants	land plants	Leguminosae	<i>Acacia amblygona</i>	fan-leaf wattle		C		7/6
plants	land plants	Leguminosae	<i>Acacia argyrotricha</i>			V		11/11
plants	land plants	Leguminosae	<i>Acacia aulacocarpa</i>			C		1
plants	land plants	Leguminosae	<i>Acacia burrowii</i>			C		1/1
plants	land plants	Leguminosae	<i>Acacia caroleae</i>			C		2/2
plants	land plants	Leguminosae	<i>Acacia complanata</i>	flatstem wattle		C		2/2
plants	land plants	Leguminosae	<i>Acacia conferta</i>			C		3/1
plants	land plants	Leguminosae	<i>Acacia crassa</i>			C		1
plants	land plants	Leguminosae	<i>Acacia crassa subsp. crassa</i>			C		11/2
plants	land plants	Leguminosae	<i>Acacia cultriformis</i>			C		1/1
plants	land plants	Leguminosae	<i>Acacia deanei</i>			C		2/1
plants	land plants	Leguminosae	<i>Acacia flexifolia</i>			C		2/2
plants	land plants	Leguminosae	<i>Acacia harpophylla</i>	brigalow		C		15/1
plants	land plants	Leguminosae	<i>Acacia ixiophylla</i>			C		4/3
plants	land plants	Leguminosae	<i>Acacia jucunda</i>			C		2/2
plants	land plants	Leguminosae	<i>Acacia juncifolia</i>			C		1/1
plants	land plants	Leguminosae	<i>Acacia lauta</i>	Tara wattle		V	V	2/2
plants	land plants	Leguminosae	<i>Acacia lineata</i>	streaked wattle		C		1/1
plants	land plants	Leguminosae	<i>Acacia penninervis var. penninervis</i>			C		1/1
plants	land plants	Leguminosae	<i>Acacia polybotrya</i>	western silver wattle		C		7/5
plants	land plants	Leguminosae	<i>Acacia rigens</i>	needle wattle		C		6/6
plants	land plants	Leguminosae	<i>Acacia salicina</i>	doolan		C		1/1
plants	land plants	Leguminosae	<i>Acacia semilunata</i>	crescent-leaved wattle		C		6/2

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plants	land plants	Leguminosae	<i>Acacia spectabilis</i>	pilliga wattle		C		2/1
plants	land plants	Leguminosae	<i>Aotus subglauca</i> var. <i>filiformis</i>			C		2/2
plants	land plants	Leguminosae	<i>Bossiaea concolor</i>			C		2/2
plants	land plants	Leguminosae	<i>Daviesia quoquoversus</i>			V		1/1
plants	land plants	Leguminosae	<i>Desmodium brachypodium</i>	large ticktrefoil		C		2
plants	land plants	Leguminosae	<i>Desmodium rhytidophyllum</i>			C		1
plants	land plants	Leguminosae	<i>Dillwynia sericea</i>	silky parrot pea		C		5/5
plants	land plants	Leguminosae	<i>Dillwynia sieberi</i>			C		2/1
plants	land plants	Leguminosae	<i>Eutaxia diffusa</i>			C		2/2
plants	land plants	Leguminosae	<i>Gleditsia</i>	honey locust				1
plants	land plants	Leguminosae	<i>Glycine</i>					1
plants	land plants	Leguminosae	<i>Glycine clandestina</i> var. <i>clandestina</i>				C	2/2
plants	land plants	Leguminosae	<i>Glycine tabacina</i>	glycine pea		C		1/1
plants	land plants	Leguminosae	<i>Glycine tomentella</i>	woolly glycine		C		1/1
plants	land plants	Leguminosae	<i>Hovea angustissima</i>			C		3/3
plants	land plants	Leguminosae	<i>Indigofera</i>					1
plants	land plants	Leguminosae	<i>Indigofera linifolia</i>				C	1/1
plants	land plants	Leguminosae	<i>Jacksonia scoparia</i>				C	7/3
plants	land plants	Leguminosae	<i>Macroptilium lathyroides</i>		Y			1/1
plants	land plants	Leguminosae	<i>Medicago lupulina</i>	black medic	Y			1/1
plants	land plants	Leguminosae	<i>Medicago minima</i> var. <i>minima</i>		Y			2/2
plants	land plants	Leguminosae	<i>Medicago polymorpha</i>	burr medic	Y			2/2
plants	land plants	Leguminosae	<i>Medicago sativa</i> subsp. <i>sativa</i>		Y			2/2
plants	land plants	Leguminosae	<i>Medicago truncatula</i>	barrel medic	Y			1/1
plants	land plants	Leguminosae	<i>Melilotus indicus</i>	hexham scent	Y			4/4
plants	land plants	Leguminosae	<i>Prosopis glandulosa</i> var. <i>glandulosa</i>		Y			1/1
plants	land plants	Leguminosae	<i>Pultenaea bracteaminor</i>				C	1/1
plants	land plants	Leguminosae	<i>Pultenaea foliolosa</i>				C	5/5
plants	land plants	Leguminosae	<i>Pultenaea microphylla</i>				C	2/1
plants	land plants	Leguminosae	<i>Robinia pseudoacacia</i>	black locust	Y			1/1
plants	land plants	Leguminosae	<i>Senna artemisioides</i> subsp. <i>zygophylla</i>				C	3/3
plants	land plants	Leguminosae	<i>Senna barclayana</i>				C	5/4
plants	land plants	Leguminosae	<i>Senna pendula</i> var. <i>glabrata</i>	Easter cassia	Y			1/1
plants	land plants	Leguminosae	<i>Sesbania cannabina</i> var. <i>cannabina</i>				C	1/1
plants	land plants	Leguminosae	<i>Swainsona galegifolia</i>	smooth Darling pea			C	1/1
plants	land plants	Leguminosae	<i>Templetonia stenophylla</i>	leafy templetonia			C	1/1
plants	land plants	Leguminosae	<i>Tephrosia bidwillii</i>				C	1
plants	land plants	Leguminosae	<i>Tipuana tipu</i>	tipuana	Y			1/1
plants	land plants	Leguminosae	<i>Trifolium arvense</i> var. <i>arvense</i>		Y			4/4
plants	land plants	Leguminosae	<i>Trifolium campestre</i> var. <i>campestre</i>		Y			1/1
plants	land plants	Leguminosae	<i>Trifolium repens</i> var. <i>repens</i>	white clover	Y			4/4
plants	land plants	Leguminosae	<i>Vachellia farnesiana</i>		Y			29/4
plants	land plants	Linaceae	<i>Linum marginale</i>	native flax			C	1/1
plants	land plants	Loranthaceae	<i>Amyema cabbagei</i>				C	1/1
plants	land plants	Loranthaceae	<i>Amyema gaudichaudii</i>				C	1/1
plants	land plants	Loranthaceae	<i>Amyema linophylla</i> subsp. <i>orientalis</i>				C	1/1

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plants	land plants	Loranthaceae	<i>Amyema miquelii</i>			C		6/2
plants	land plants	Loranthaceae	<i>Amyema miraculosa</i> subsp. <i>boormanii</i>			C		2/2
plants	land plants	Loranthaceae	<i>Amyema quandang</i> var. <i>bancroftii</i>	broad-leaved grey mistletoe		C		1/1
plants	land plants	Loranthaceae	<i>Dendrophthoe glabrescens</i>			C		1/1
plants	land plants	Loranthaceae	<i>Lysiana exocarpi</i> subsp. <i>tenuis</i>			C		3/3
plants	land plants	Loranthaceae	<i>Lysiana subfalcata</i>			C		1/1
plants	land plants	Macarthuriaceae	<i>Macarthuria neocambrica</i>			C		1/1
plants	land plants	Malvaceae	<i>Abutilon oxycarpum</i>			C		2
plants	land plants	Malvaceae	<i>Abutilon oxycarpum</i> var. <i>subsagittatum</i>			C		1/1
plants	land plants	Malvaceae	<i>Hibiscus sturtii</i> var. <i>sturtii</i>			C		1/1
plants	land plants	Malvaceae	<i>Malva parviflora</i>	small-flowered mallow	Y			3/3
plants	land plants	Malvaceae	<i>Modiola caroliniana</i>	red-flowered mallow	Y			1/1
plants	land plants	Malvaceae	<i>Pavonia hastata</i>	pink pavonia	Y			1/1
plants	land plants	Malvaceae	<i>Sida</i>					1/1
plants	land plants	Malvaceae	<i>Sida corrugata</i> var. <i>angustifolia</i>				C	1/1
plants	land plants	Malvaceae	<i>Sida cunninghamii</i>				C	1/1
plants	land plants	Malvaceae	<i>Sida hackettiana</i>				C	1/1
plants	land plants	Malvaceae	<i>Sida hackettiana</i> subsp. (Gayndah P.Grimshaw+ PG2388)				C	2/2
plants	land plants	Malvaceae	<i>Sida rhombifolia</i>		Y			1/1
plants	land plants	Malvaceae	<i>Sida spinosa</i>	spiny sida	Y			2/2
plants	land plants	Malvaceae	<i>Sida trichopoda</i>			C		1/1
plants	land plants	Marsileaceae	<i>Marsilea hirsuta</i>	hairy nardoo		C		2/1
plants	land plants	Menyanthaceae	<i>Nymphoides crenata</i>	wavy marshwort			SL	2/1
plants	land plants	Moraceae	<i>Morus alba</i>	white mulberry	Y			1/1
plants	land plants	Myrtaceae	<i>Angophora floribunda</i>	rough-barked apple		C		33
plants	land plants	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum		C		31/1
plants	land plants	Myrtaceae	<i>Calytrix</i>					3
plants	land plants	Myrtaceae	<i>Calytrix longiflora</i>	pink fringe myrtle		C		3/2
plants	land plants	Myrtaceae	<i>Calytrix tetragona</i>	fringe myrtle		C		10/10
plants	land plants	Myrtaceae	<i>Corymbia trachyphloia</i> subsp. <i>trachyphloia</i>			C		4/3
plants	land plants	Myrtaceae	<i>Eucalyptus</i>					2
plants	land plants	Myrtaceae	<i>Eucalyptus apothalassica</i>			C		3/3
plants	land plants	Myrtaceae	<i>Eucalyptus bakeri</i>	Baker's mallee		C		3/3
plants	land plants	Myrtaceae	<i>Eucalyptus caleyi</i> subsp. <i>caleyi</i>			C		8/3
plants	land plants	Myrtaceae	<i>Eucalyptus camaldulensis</i>			C		17
plants	land plants	Myrtaceae	<i>Eucalyptus chloroclada</i>	Baradine red gum		C		11/4
plants	land plants	Myrtaceae	<i>Eucalyptus conica</i>	fuzzy box		C		1/1
plants	land plants	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark		C		150/1
plants	land plants	Myrtaceae	<i>Eucalyptus dealbata</i>	tumble-down red gum		C		52/4
plants	land plants	Myrtaceae	<i>Eucalyptus elegans</i>			C		5/5
plants	land plants	Myrtaceae	<i>Eucalyptus exserta</i>	Queensland peppermint		C		1/1
plants	land plants	Myrtaceae	<i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i>			C		1
plants	land plants	Myrtaceae	<i>Eucalyptus fibrosa</i> subsp. <i>nubilis</i>			C		42
plants	land plants	Myrtaceae	<i>Eucalyptus melliodora</i>	yellow box		C		2/2
plants	land plants	Myrtaceae	<i>Eucalyptus microcarpa</i>	inland grey box		C		38

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plants	land plants	Myrtaceae	<i>Eucalyptus moluccana</i>	gum-topped box		C		2/2
plants	land plants	Myrtaceae	<i>Eucalyptus panda</i>			C		8/7
plants	land plants	Myrtaceae	<i>Eucalyptus populnea</i>	poplar box		C		1/1
plants	land plants	Myrtaceae	<i>Eucalyptus sideroxylon subsp. sideroxylon</i>			C		2/2
plants	land plants	Myrtaceae	<i>Eucalyptus tereticornis subsp. tereticornis</i>			C		3/1
plants	land plants	Myrtaceae	<i>Eucalyptus terrica</i>			C		6/5
plants	land plants	Myrtaceae	<i>Eucalyptus virens</i>	shiny-leaved ironbark		V	V	5/4
plants	land plants	Myrtaceae	<i>Eucalyptus viridis</i>			C		6/6
plants	land plants	Myrtaceae	<i>Eucalyptus woollsiiana</i>			C		49/3
plants	land plants	Myrtaceae	<i>Gaudium brevipes</i>			C		2/2
plants	land plants	Myrtaceae	<i>Gaudium parvifolium</i>			C		7/7
plants	land plants	Myrtaceae	<i>Harmogia densifolia</i>			C		1/1
plants	land plants	Myrtaceae	<i>Kunzea opposita var. opposita</i>			C		4/4
plants	land plants	Myrtaceae	<i>Leptospermum polygalifolium</i>	tantoon		C		2/2
plants	land plants	Myrtaceae	<i>Melaleuca</i>					7
plants	land plants	Myrtaceae	<i>Melaleuca decora</i>				C	17/1
plants	land plants	Myrtaceae	<i>Melaleuca densispicata</i>				C	9/8
plants	land plants	Myrtaceae	<i>Melaleuca lanceolata</i>				C	1/1
plants	land plants	Myrtaceae	<i>Melaleuca nodosa</i>				C	1/1
plants	land plants	Myrtaceae	<i>Melaleuca pallescens</i>				C	1/1
plants	land plants	Myrtaceae	<i>Melaleuca thymifolia</i>	thyme honeymyrtle			C	1/1
plants	land plants	Myrtaceae	<i>Melaleuca trichostachya</i>				C	2/2
plants	land plants	Myrtaceae	<i>Melaleuca uncinata</i>				C	3/3
plants	land plants	Nyctaginaceae	<i>Boerhavia dominii</i>				C	2/2
plants	land plants	Nymphaeaceae	<i>Nymphaea gigantea</i>				SL	2/2
plants	land plants	Oleaceae	<i>Jasminum dianthifolium</i>				C	1/1
plants	land plants	Oleaceae	<i>Ligustrum lucidum</i>	large-leaved privet	Y			1/1
plants	land plants	Oleaceae	<i>Ligustrum sinense</i>	small-leaved privet	Y			2/2
plants	land plants	Oleaceae	<i>Notelaea microcarpa</i>				C	2/2
plants	land plants	Onagraceae	<i>Ludwigia peploides subsp. montevidensis</i>				C	2/2
plants	land plants	Onagraceae	<i>Oenothera affinis</i>	long-flowered evening primrose	Y			5/5
plants	land plants	Ophioglossaceae	<i>Ophioglossum lusitanicum</i>	adder's tongue			C	1/1
plants	land plants	Orchidaceae	<i>Cymbidium canaliculatum</i>				SL	1/1
plants	land plants	Orchidaceae	<i>Microtis parviflora</i>	slender onion orchid			SL	1/1
plants	land plants	Orchidaceae	<i>Pterostylis mitchellii</i>				SL	1/1
plants	land plants	Orchidaceae	<i>Pterostylis rufa</i>				SL	1/1
plants	land plants	Orchidaceae	<i>Thelymitra pauciflora</i>	slender sun orchid			SL	1/1
plants	land plants	Oxalidaceae	<i>Oxalis chnoodes</i>				C	1
plants	land plants	Oxalidaceae	<i>Oxalis perennans</i>				C	1/1
plants	land plants	Oxalidaceae	<i>Oxalis radicata</i>				C	1/1
plants	land plants	Papaveraceae	<i>Fumaria capreolata</i>	white-flowered fumitory	Y			1/1
plants	land plants	Papaveraceae	<i>Papaver somniferum subsp. setigerum</i>		Y			1/1
plants	land plants	Phrymaceae	<i>Peplidium foecundum</i>				C	1/1
plants	land plants	Phyllanthaceae	<i>Phyllanthus virgatus</i>				C	2
plants	land plants	Picrodendraceae	<i>Micranthemum ericoides</i>				C	2/2
plants	land plants	Picrodendraceae	<i>Petalostigma pubescens</i>	quinine tree			C	1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Pittosporaceae	<i>Pittosporum angustifolium</i>			C		3/3
plants	land plants	Plantaginaceae	<i>Callitriche sonderi</i>			C		1/1
plants	land plants	Plantaginaceae	<i>Misopates orontium</i>	lesser snapdragon	Y			4/4
plants	land plants	Plantaginaceae	<i>Plantago debilis</i>	shade plantain		C		2/2
plants	land plants	Plantaginaceae	<i>Plantago lanceolata</i>		Y			1/1
plants	land plants	Plantaginaceae	<i>Plantago turrifera</i>			C		1/1
plants	land plants	Plantaginaceae	<i>Veronica arvensis</i>	wandering speedwell	Y			1/1
plants	land plants	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass		C		1
plants	land plants	Poaceae	<i>Amphipogon caricinus</i> var. <i>scaber</i>			C		1/1
plants	land plants	Poaceae	<i>Ancistrachne uncinulata</i>	hooky grass		C		2/1
plants	land plants	Poaceae	<i>Aristida</i>					2
plants	land plants	Poaceae	<i>Aristida benthamii</i> var. <i>benthamii</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida caput-medusae</i>			C		3/3
plants	land plants	Poaceae	<i>Aristida echinata</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida gracilipes</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>			C		3/1
plants	land plants	Poaceae	<i>Aristida jerichoensis</i> var. <i>subspinulifera</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida leichhardtiana</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida obscura</i>			C		1/1
plants	land plants	Poaceae	<i>Aristida queenslandica</i> var. <i>dissimilis</i>			C		1
plants	land plants	Poaceae	<i>Aristida ramosa</i>	purple wiregrass		C		8/3
plants	land plants	Poaceae	<i>Arundinella nepalensis</i>	reedgrass		C		2/2
plants	land plants	Poaceae	<i>Arundo donax</i>		Y			1/1
plants	land plants	Poaceae	<i>Austrostipa nodosa</i>			C		1/1
plants	land plants	Poaceae	<i>Austrostipa rudis</i> subsp. <i>nervosa</i>			C		1/1
plants	land plants	Poaceae	<i>Austrostipa verticillata</i>	slender bamboo grass		C		1/1
plants	land plants	Poaceae	<i>Avena ludoviciana</i>		Y			4/4
plants	land plants	Poaceae	<i>Bothriochloa decipiens</i> var. <i>decipiens</i>			C		1/1
plants	land plants	Poaceae	<i>Bothriochloa macra</i>	redleg grass		C		1/1
plants	land plants	Poaceae	<i>Bromus diandrus</i>	great brome	Y			1/1
plants	land plants	Poaceae	<i>Cenchrus ciliaris</i>		Y			7/7
plants	land plants	Poaceae	<i>Cenchrus clandestinus</i>		Y			2/2
plants	land plants	Poaceae	<i>Cenchrus spinifex</i>		Y			2/2
plants	land plants	Poaceae	<i>Chloris gayana</i>	rhodes grass	Y			1/1
plants	land plants	Poaceae	<i>Chloris truncata</i>			C		3/3
plants	land plants	Poaceae	<i>Chloris ventricosa</i>	tall chloris		C		2/2
plants	land plants	Poaceae	<i>Chloris virgata</i>	feathertop rhodes grass	Y			2/2
plants	land plants	Poaceae	<i>Chrysopogon fallax</i>			C		1/1
plants	land plants	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass		C		6/2
plants	land plants	Poaceae	<i>Cynodon dactylon</i> var. <i>dactylon</i>		Y			5/5
plants	land plants	Poaceae	<i>Dactyloctenium radulans</i>	button grass		C		3/3
plants	land plants	Poaceae	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			C		2/2
plants	land plants	Poaceae	<i>Dichelachne micrantha</i>	shorthair plumegrass		C		2/2
plants	land plants	Poaceae	<i>Digitaria ammophila</i>	silky umbrella grass		C		1/1
plants	land plants	Poaceae	<i>Digitaria diffusa</i>			C		1/1
plants	land plants	Poaceae	<i>Digitaria divaricatissima</i>	spreading umbrella grass		C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Poaceae	<i>Digitaria eriantha</i>		Y			1/1
plants	land plants	Poaceae	<i>Dinebra decipiens var. asthenes</i>			C		1/1
plants	land plants	Poaceae	<i>Dinebra decipiens var. peacockii</i>			C		1/1
plants	land plants	Poaceae	<i>Diplachne fusca var. muelleri</i>			C		1/1
plants	land plants	Poaceae	<i>Echinochloa colona</i>	awnless barnyard grass	Y			2/2
plants	land plants	Poaceae	<i>Echinochloa crus-galli</i>	barnyard grass	Y			1/1
plants	land plants	Poaceae	<i>Enneapogon gracilis</i>	slender nineawn		C		2/2
plants	land plants	Poaceae	<i>Enteropogon acicularis</i>	curly windmill grass		C		1/1
plants	land plants	Poaceae	<i>Eragrostis alveiformis</i>			C		1/1
plants	land plants	Poaceae	<i>Eragrostis brownii</i>	Brown's lovegrass		C		1
plants	land plants	Poaceae	<i>Eragrostis cilianensis</i>		Y			7/7
plants	land plants	Poaceae	<i>Eragrostis curvula</i>		Y			3/3
plants	land plants	Poaceae	<i>Eragrostis elongata</i>			C		2/2
plants	land plants	Poaceae	<i>Eragrostis lacunaria</i>	purple lovegrass		C		1/1
plants	land plants	Poaceae	<i>Eragrostis leptostachya</i>			C		1/1
plants	land plants	Poaceae	<i>Eragrostis minor</i>	smaller stinkgrass	Y			1/1
plants	land plants	Poaceae	<i>Eragrostis parviflora</i>	weeping lovegrass		C		1/1
plants	land plants	Poaceae	<i>Eragrostis sororia</i>			C		3/2
plants	land plants	Poaceae	<i>Eragrostis speciosa</i>			C		1/1
plants	land plants	Poaceae	<i>Eragrostis trichophora</i>		Y			3/3
plants	land plants	Poaceae	<i>Eriochloa crebra</i>	spring grass		C		1/1
plants	land plants	Poaceae	<i>Eriochloa procera</i>	slender cupgrass		C		1/1
plants	land plants	Poaceae	<i>Eriochloa pseudoacrotricha</i>			C		3/3
plants	land plants	Poaceae	<i>Hordeum glaucum</i>		Y			1/1
plants	land plants	Poaceae	<i>Hyparrhenia hirta</i>	coolati grass	Y			5/5
plants	land plants	Poaceae	<i>Lachnagrostis filiformis</i>			C		2/2
plants	land plants	Poaceae	<i>Leptochloa</i>					1/1
plants	land plants	Poaceae	<i>Leptochloa digitata</i>			C		1/1
plants	land plants	Poaceae	<i>Lolium perenne</i>	perennial ryegrass	Y			1/1
plants	land plants	Poaceae	<i>Megathyrsus maximus var. coloratus</i>		Y			1/1
plants	land plants	Poaceae	<i>Megathyrsus maximus var. pubiglumis</i>		Y			4/4
plants	land plants	Poaceae	<i>Melinis repens</i>	red natal grass	Y			5/5
plants	land plants	Poaceae	<i>Oxychloris scariosa</i>	winged chloris		C		1/1
plants	land plants	Poaceae	<i>Panicum buncei</i>			C		1/1
plants	land plants	Poaceae	<i>Panicum laevinode</i>	pepper grass		C		1/1
plants	land plants	Poaceae	<i>Paspalidium caespitosum</i>	brigalow grass		C		3/3
plants	land plants	Poaceae	<i>Paspalidium constrictum</i>			C		1/1
plants	land plants	Poaceae	<i>Paspalidium distans</i>	shotgrass		C		1/1
plants	land plants	Poaceae	<i>Paspalidium gracile</i>	slender panic		C		2/1
plants	land plants	Poaceae	<i>Paspalum dilatatum</i>	paspalum	Y			2/2
plants	land plants	Poaceae	<i>Paspalum distichum</i>	water couch	Y			1/1
plants	land plants	Poaceae	<i>Paspalum urvillei</i>	vasey grass	Y			1/1
plants	land plants	Poaceae	<i>Phalaris paradoxa</i>	paradoxa grass	Y			1/1
plants	land plants	Poaceae	<i>Poa fordeana</i>	sweet swampgrass		C		1/1
plants	land plants	Poaceae	<i>Poa sieberiana</i>			C		1/1
plants	land plants	Poaceae	<i>Poaceae</i>					3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Poaceae	<i>Polypogon monspeliensis</i>	annual beardgrass	Y			1/1
plants	land plants	Poaceae	<i>Rytidosperma bipartitum</i>			C		1/1
plants	land plants	Poaceae	<i>Setaria parviflora</i>	slender pigeon grass	Y			1/1
plants	land plants	Poaceae	<i>Setaria paspalidioides</i>				C	1/1
plants	land plants	Poaceae	<i>Setaria surgens</i>				C	1/1
plants	land plants	Poaceae	<i>Sorghum arundinaceum</i>	Rhodesian Sudan grass	Y			1/1
plants	land plants	Poaceae	<i>Sorghum halepense</i>	Johnson grass	Y			3/3
plants	land plants	Poaceae	<i>Sorghum x drummondii</i>		Y			1/1
plants	land plants	Poaceae	<i>Sporobolus contiguus</i>				C	4/4
plants	land plants	Poaceae	<i>Sporobolus coromandelianus</i>		Y			2/2
plants	land plants	Poaceae	<i>Sporobolus creber</i>				C	5/5
plants	land plants	Poaceae	<i>Thyridolepis xerophila</i>				C	1/1
plants	land plants	Poaceae	<i>Triodia</i>					1
plants	land plants	Poaceae	<i>Triodia marginata</i>	spinifex			C	1/1
plants	land plants	Poaceae	<i>Triodia mitchellii</i>	buck spinifex			C	4/4
plants	land plants	Poaceae	<i>Triodia pungens</i>				C	1
plants	land plants	Poaceae	<i>Triodia scariosa</i>				C	4/2
plants	land plants	Poaceae	<i>Triodia vella</i>				C	1/1
plants	land plants	Poaceae	<i>Tripogon loliiformis</i>	five minute grass			C	1/1
plants	land plants	Poaceae	<i>Urochloa mosambicensis</i>	sabi grass	Y			1/1
plants	land plants	Poaceae	<i>Urochloa panicoides var. panicoides</i>		Y			3/3
plants	land plants	Poaceae	<i>Urochloa piligera</i>				C	1/1
plants	land plants	Poaceae	<i>Urochloa subquadrifera</i>		Y			1/1
plants	land plants	Poaceae	<i>Vulpia muralis</i>		Y			2/2
plants	land plants	Poaceae	<i>Walwhalleya subxerophila</i>				C	6/4
plants	land plants	Polygonaceae	<i>Persicaria attenuata</i>				C	1
plants	land plants	Polygonaceae	<i>Persicaria decipiens</i>	slender knotweed			C	2/1
plants	land plants	Polygonaceae	<i>Persicaria hydropiper</i>	water pepper			C	1
plants	land plants	Polygonaceae	<i>Persicaria orientalis</i>	princes feathers			C	1/1
plants	land plants	Polygonaceae	<i>Persicaria prostrata</i>	creeping knotweed			C	2/2
plants	land plants	Polygonaceae	<i>Polygonum aviculare</i>	wireweed	Y			1/1
plants	land plants	Polygonaceae	<i>Rumex brownii</i>	swamp dock			C	3/3
plants	land plants	Polygonaceae	<i>Rumex crispus</i>	curled dock	Y			1/1
plants	land plants	Polygonaceae	<i>Rumex tenax</i>				C	2/2
plants	land plants	Pontederiaceae	<i>Monochoria cyanea</i>				C	1
plants	land plants	Portulacaceae	<i>Calandrinia eremaea</i>				C	1/1
plants	land plants	Portulacaceae	<i>Calandrinia pickeringii</i>				C	1/1
plants	land plants	Portulacaceae	<i>Calandrinia pleiopetala</i>				C	1/1
plants	land plants	Portulacaceae	<i>Calandrinia pumila</i>				C	1/1
plants	land plants	Portulacaceae	<i>Calandrinia stagnensis</i>				C	1/1
plants	land plants	Portulacaceae	<i>Grahamia australiana</i>				C	2/2
plants	land plants	Portulacaceae	<i>Portulaca australis</i>				C	1/1
plants	land plants	Portulacaceae	<i>Portulaca bicolor</i>				C	1/1
plants	land plants	Portulacaceae	<i>Portulaca filifolia</i>				C	2/1
plants	land plants	Portulacaceae	<i>Portulaca pilosa</i>		Y			2/2
plants	land plants	Pottiaceae	<i>Tetrapterum cylindricum</i>				C	1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Proteaceae	<i>Conospermum taxifolium</i>	devil's rice		C		1/1
plants	land plants	Proteaceae	<i>Grevillea floribunda</i>			C		1
plants	land plants	Proteaceae	<i>Grevillea floribunda subsp. floribunda</i>			C		4/4
plants	land plants	Proteaceae	<i>Grevillea floribunda subsp. floribunda</i> - <i>Grevillea floribunda subsp. tenella</i>			C		1/1
plants	land plants	Proteaceae	<i>Hakea laevipes subsp. graniticola</i>			C		3/3
plants	land plants	Proteaceae	<i>Hakea purpurea</i>			C		4/4
plants	land plants	Proteaceae	<i>Isopogon petiolaris</i>	drumsticks		C		3/3
plants	land plants	Proteaceae	<i>Persoonia cornifolia</i>	broad-leaved geebung		C		1/1
plants	land plants	Proteaceae	<i>Persoonia sericea</i>	silky geebung		C		2/2
plants	land plants	Proteaceae	<i>Persoonia terminalis subsp. recurva</i>			C		1/1
plants	land plants	Proteaceae	<i>Petrophile canescens</i>			C		1/1
plants	land plants	Pteridaceae	<i>Cheilanthes distans</i>	bristly cloak fern		C		3
plants	land plants	Pteridaceae	<i>Cheilanthes sieberi subsp. sieberi</i>			C		5/2
plants	land plants	Ranunculaceae	<i>Clematis microphylla</i>			C		1/1
plants	land plants	Ranunculaceae	<i>Ranunculus pentandrus var. platycarpus</i>			C		1/1
plants	land plants	Ranunculaceae	<i>Ranunculus sessiliflorus</i>			C		1/1
plants	land plants	Rhamnaceae	<i>Cryptandra amara var. amara</i>			C		1/1
plants	land plants	Rhamnaceae	<i>Cryptandra armata</i>			C		1/1
plants	land plants	Rosaceae	<i>Cydonia oblonga</i>		Y			1/1
plants	land plants	Rosaceae	<i>Prunus persica var. persica</i>		Y			2/2
plants	land plants	Rosaceae	<i>Pyracantha</i>		Y			1
plants	land plants	Rosaceae	<i>Rubus anglocandicans</i>	blackberry	Y			1/1
plants	land plants	Rubiaceae	<i>Asperula cunninghamii</i>	twining woodruff			C	1/1
plants	land plants	Rubiaceae	<i>Asperula geminifolia</i>				C	1/1
plants	land plants	Rubiaceae	<i>Opercularia diphylla</i>				C	2/2
plants	land plants	Rubiaceae	<i>Pomax umbellata</i>				C	6/2
plants	land plants	Rubiaceae	<i>Psydrax odorata forma subnitida</i>				C	2/2
plants	land plants	Rubiaceae	<i>Psydrax oleifolia</i>				C	2/2
plants	land plants	Rutaceae	<i>Boronia glabra</i>				C	5/5
plants	land plants	Rutaceae	<i>Citrus glauca</i>				C	1
plants	land plants	Rutaceae	<i>Cyanothamnus occidentalis</i>				C	2/2
plants	land plants	Rutaceae	<i>Geijera parviflora</i>	wilga			C	6/1
plants	land plants	Rutaceae	<i>Phebalium nottii</i>	pink phebalium			C	5/5
plants	land plants	Salicaceae	<i>Salix babylonica</i>	weeping willow	Y			4/1
plants	land plants	Salviniaceae	<i>Azolla rubra</i>				C	2
plants	land plants	Santalaceae	<i>Choretrum candollei</i>	white sour bush			C	2/1
plants	land plants	Santalaceae	<i>Exocarpos aphyllus</i>	leafless ballart			C	4/3
plants	land plants	Santalaceae	<i>Santalum lanceolatum</i>				SL	3/2
plants	land plants	Sapindaceae	<i>Alectryon diversifolius</i>	scrub boonaree			C	1
plants	land plants	Sapindaceae	<i>Dodonaea biloba</i>				C	2/2
plants	land plants	Sapindaceae	<i>Dodonaea heteromorpha</i>				C	2/2
plants	land plants	Sapindaceae	<i>Dodonaea macrossanii</i>				C	10/9
plants	land plants	Sapindaceae	<i>Dodonaea sinuolata subsp. sinuolata</i>				C	1/1
plants	land plants	Sapindaceae	<i>Dodonaea triangularis</i>				C	3/1
plants	land plants	Sapindaceae	<i>Dodonaea viscosa</i>				C	2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Sapindaceae	<i>Dodonaea viscosa subsp. spatulata</i>			C		2/2
plants	land plants	Scrophulariaceae	<i>Eremophila debilis</i>	winter apple		C		3/2
plants	land plants	Scrophulariaceae	<i>Eremophila deserti</i>			C		2/2
plants	land plants	Scrophulariaceae	<i>Eremophila glabra subsp. glabra</i>			C		1/1
plants	land plants	Scrophulariaceae	<i>Eremophila longifolia</i>	berrigan		C		2/2
plants	land plants	Scrophulariaceae	<i>Eremophila mitchellii</i>			C		6/5
plants	land plants	Scrophulariaceae	<i>Myoporum acuminatum</i>	coastal boobialla		C		2/2
plants	land plants	Simaroubaceae	<i>Ailanthus altissima</i>	tree-of-heaven	Y			3/2
plants	land plants	Solanaceae	<i>Cestrum parqui</i>	green cestrum	Y			4/4
plants	land plants	Solanaceae	<i>Datura ferox</i>	fierce thornapple	Y			1/1
plants	land plants	Solanaceae	<i>Lycium ferocissimum</i>	African boxthorn	Y			10
plants	land plants	Solanaceae	<i>Petunia axillaris</i>	petunia	Y			5/5
plants	land plants	Solanaceae	<i>Physalis angulata</i>		Y			1/1
plants	land plants	Solanaceae	<i>Solanum</i>					1
plants	land plants	Solanaceae	<i>Solanum americanum</i>		Y			1/1
plants	land plants	Solanaceae	<i>Solanum chenopodioides</i>	whitetip nightshade	Y			1/1
plants	land plants	Solanaceae	<i>Solanum elaeagnifolium</i>	silverleaf nightshade	Y			1/1
plants	land plants	Solanaceae	<i>Solanum ferocissimum</i>				C	3/3
plants	land plants	Solanaceae	<i>Solanum nemophilum</i>				C	1
plants	land plants	Solanaceae	<i>Solanum nigrum</i>		Y			1/1
plants	land plants	Solanaceae	<i>Solanum parvifolium</i>				C	1
plants	land plants	Solanaceae	<i>Solanum tetrahecum</i>				C	1/1
plants	land plants	Stackhousiaceae	<i>Stackhousia muricata</i>				C	1/1
plants	land plants	Sterculiaceae	<i>Brachychiton populneus subsp. populneus</i>				SL	2/2
plants	land plants	Stylidiaceae	<i>Stylidium eglandulosum</i>				SL	1/1
plants	land plants	Thymelaeaceae	<i>Pimelea linifolia subsp. collina</i>				C	1/1
plants	land plants	Typhaceae	<i>Typha domingensis</i>				C	1/1
plants	land plants	Urticaceae	<i>Urtica incisa</i>	stinging nettle			C	1/1
plants	land plants	Verbenaceae	<i>Glandularia aristigera</i>		Y			10/7
plants	land plants	Verbenaceae	<i>Lantana montevidensis</i>	creeping lantana	Y			2/2
plants	land plants	Verbenaceae	<i>Phyla canescens</i>		Y			4/4
plants	land plants	Verbenaceae	<i>Verbena bonariensis</i>	purpletop	Y			2/1
plants	land plants	Verbenaceae	<i>Verbena incompta</i>		Y			1/1
plants	land plants	Verbenaceae	<i>Verbena litoralis var. litoralis</i>		Y			1/1
plants	land plants	Violaceae	<i>Viola hederacea</i>				C	1
plants	land plants	Xanthorrhoeaceae	<i>Xanthorrhoea</i>					1
plants	land plants	Zamiaceae	<i>Macrozamia cranei</i>			E	E	1/1
plants	land plants	Zamiaceae	<i>Macrozamia machinii</i>			V	V	7/7
plants	land plants	Zygophyllaceae	<i>Tribulus terrestris</i>	caltrop			C	1/1

## CODES

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

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (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.

## Appendix C Likelihood of occurrence

MNES threatened and migratory species potentially occurring within the Project Area. Shorebirds and marine species have been excluded from the assessment due to the lack of habitat within the Project Area.

Scientific Name	Common Name	Distribution, Ecology and Habitat Preference	NC Act	EPBC Act	Likelihood of Occurrence
<b>Birds</b>					
<i>Anthochaera phrygia</i>	Regent Honeyeater	The regent honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through NSW and the ACT, to central Victoria. The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak ( <i>Casuarina</i> spp) where it feeds on needle-leaved mistletoe and sometimes breeds. Occurs in eucalypt forests and woodlands, particularly in blossoming trees and mistletoe. It is also seen in orchards and urban gardens.	CE	CE	Low - disturbed and fragmented patches of potential habitat are present within the Project Area. Due to the proximity of Yelarbon State Forest, this species could utilise foraging habitat within the Site, although no suitable breeding habitat was present within the Disturbance Footprint. No recent (within the last 20 years) records of the species are located within 30km of the Site. The majority of the records for this species are to the east of Texas.

<p><b><i>Aphelocephala leucopsis</i></b></p>	<p>Southern whiteface</p>	<p>Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Habitat critical to the survival of the Southern Whiteface includes areas of: relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both; habitat with low tree densities and an herbaceous understory litter cover which provides essential foraging habitat; living and dead trees with hollows and crevices which are essential for roosting and nesting (DCCEEW, 2024).</p>	<p>V</p>	<p>V</p>	<p>Moderate - suitable preferred habitat is known to be present within the Project Area, however the quality of this habitat is generally low. Undisturbed remnant woodland adjacent to Site represents better breeding habitat for this species. The species has been recorded recently (within the last 20 years) in the locality (30km).</p>
<p><b><i>Botaurus poiciloptilus</i></b></p>	<p>Australasian Bittern</p>	<p>The Australasian bittern is a secretive, stocky, heron-like bird, living in wetlands where it forages. In Australia, the species occurs from south-east Queensland to south-east South Australia, Tasmania and in the south-west of Western Australia. Preferred habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds or cutting grass growing over a muddy or peaty substrate.</p>	<p>E</p>	<p>E</p>	<p>Moderate - The large dam in Lot 23 CLV34133 and sections along Brush Creek could be potential habitat for this species. Suitable habitat is not within the Disturbance Footprint. The species has three observation records submitted to ALA within the last 20 years in the locality (30km).</p>

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<p><b><i>Calyptorhynchus lathamii lathamii</i></b></p>	<p>Glossy Black-cockatoo (eastern)</p>	<p>South-eastern glossy Black-cockatoos feed almost exclusively on the seeds of sheoaks (<i>Allocasuarina</i> spp. and <i>Casuarina</i> spp.), usually relying on one or two species within a region. South-eastern glossy Black-cockatoos are hollow nesters, utilising large hollows in both living and dead eucalypt trees (DCCEEW, 2024).</p>	<p>V</p>	<p>V</p>	<p>High - Disturbed and fragmented habitat is present within the Project Area and scattered foraging trees are likely to be impacted in the Disturbance Footprint. Better quality habitat is likely present in Yelarbon State Forest to the north. The species has been recorded recently (within the last 20 years) in the locality (30km).</p>
<p><b><i>Climacteris picumnus victoriae</i></b></p>	<p>Brown treecreeper</p>	<p>Brown treecreepers (south-eastern) occupy dry open eucalypt forests and woodlands. The subspecies mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. They also occur in mallee, forests and woodlands subject to periodic inundation. The subspecies is not usually found in woodlands with a dense shrub layer, and it is absent from heavily degraded woodlands and steep rocky hills.</p>	<p>Vulnerable</p>	<p>Vulnerable</p>	<p>Low- Suitable foraging habitat is present in the Project Area but not within or immediately adjacent to the Disturbance Footprint. This species does not occur in highly disturbed woodlands which are present adjacent to the Disturbance Footprint. Habitat within the Disturbance Footprint is too disturbed to support breeding. The species has been recorded recently (within the last 20 years) in the locality (30km).</p>
<p><b><i>Erythrotriorchis radiatus</i></b></p>	<p>Red Goshawk</p>	<p>The red goshawk is very sparsely dispersed across approximately 15% of coastal and sub-coastal Australia, from western Kimberley Division to north-eastern NSW. It inhabits coastal and subcoastal tall, open forest and woodlands, tropical savannas and along the edge of rainforests. The threats to this species include habitat loss, fire and shooting. Found</p>	<p>E</p>	<p>V</p>	<p>Low - This species needs riparian woodlands with tall trees for nesting and large areas of woodland for foraging. This habitat is not present in the Project Area. The species has not been recorded recently in the locality (30km).</p>

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		in coastal and sub-coastal areas with tall open forest, woodland, lightly treed savannah and at the edge of rainforest. Avoids the densest and most open forest types. Nesting only occurs in very tall trees, close to water.			
<b><i>Falco hypoleucos</i></b>	Grey Falcon	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Usually confined to inland arid zones, with annual rainfall less than 500mm. Inhabits Triodia grassland, Acacia shrubland, and lightly timbered arid woodland.	V	V	Moderate - preferred habitat is present within the Project Area but no recent (within the last 20 years) records of the species are located within 30km.
<b><i>Gallinago hardwickii</i></b>	Latham's Snipe	Latham's snipe is a passage migrant through northern Australia. It can be found in permanent and ephemeral wetlands up to 2,000 m above sea-level and usually inhabits open, freshwater wetlands with low, dense vegetation.	SLC	V/M	Confirmed - recorded by NGH ecologists during April 2024 survey. The bird was seen feeding at a large farm dam outside of the Disturbance Footprint.
<b><i>Geophaps scripta scripta</i></b>	Squatter Pigeon (southern)	The Squatter Pigeon (southern) is distributed within grassy plains and woodlands throughout New South Wales and Queensland. This species inhabits open-forests to sparse, open-woodlands and scrub that are: mostly dominated in the overstorey by Eucalyptus, Corymbia, Acacia and Callitris species; remnant,	V	V	High – This species has been recorded multiple times in Yelarbon State Forest, Texas State Forest and Dthinna Dthinnawan National Park. This species is highly nomadic and the majority of the records for this species are in Central Queensland. Suitable habitat for the species occurs in the crop land, around cattle yards and

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		regrowth or partly modified vegetation communities; and within 3km of water bodies or courses.			in grazed paddocks with low grass within the Project Area.
<b><i>Grantiella picta</i></b>	Painted Honeyeater	The painted honeyeater occurs from south-eastern Australia to north-western Queensland and eastern Northern Territory. It can be found in dry open forests and woodlands. May also occur along rivers, on plains with scattered trees and farmland with remnant vegetation. Predominantly in woodlands and forests which contain Eucalyptus and Acacia species. More abundant in areas of less fragmentation and land clearing, in locations where a large number of trees are present with a high percentage of canopy cover.	V	V	Moderate - preferred habitat is present adjacent to the Project Sits and suitable foraging habitat in the form of scattered eucalypts and trees containing mistletoe is present within the Disturbance Footprint. No recent (within the last 20 years) records of the species are located within 30km.
<b><i>Hirundapus caudacutus</i></b>	White-throated Needletail	Widespread in coastal regions of Queensland and is known to be almost exclusively aerial, roosting in trees in forests and woodlands. This species breeds in wooded lowlands and sparsely vegetated hills as well as mountains covered with coniferous forests. Non-breeding migrants. Almost exclusively aerial, over a wide variety of habitats. Will roost in trees.	V	V	Moderate – suitable habitat is known to be present within the Project Area.

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<b><i>Lathamus discolor</i></b>	Swift Parrot	Occurs dry sclerophyll forests and woodlands, suburban parks and gardens and flowering fruit trees. In Tasmania, they are often among Tasmanian Blue Gum, <i>Eucalyptus globulus</i> . They roost communally, often in the same tree each night. They are almost always in trees, only coming to ground to drink.	E	CE	Moderate - preferred habitat is present within the Project Area but not within the Disturbance Footprint and no recent (within the last 20 years) records of the species are located within 30km.
<b><i>Melanodryas cucullata cucullata</i></b>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	Hooded robins (south-eastern) are described as shy and largely sedentary, and are mostly seen in pairs or small groups. They prefer dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. They avoid woodlands with tall trees or dense tree cover but sometimes occur in tall, dense heaths with scattered open areas.	E	E	Moderate - disturbed and fragmented habitat is present within the Project Area. The species has been recorded recently (within the last 20 years) in the locality (30km).
<b><i>Neophema chrysostoma</i></b>	Blue-winged Parrot	Blue-winged parrots inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. The species can also be seen in altered environments such as airfields, golf-courses and paddocks. Pairs or small parties of blue-winged parrots forage mainly near or on the ground for seeds of a wide range of native and introduced grasses, herbs and shrubs (DCCEEW, 2024).	V	V	Moderate - preferred habitat is present within the Project Area but no recent (within the last 20 years) records of the species are located within 30km.

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<p><b><i>Rostratula australis</i></b></p>	<p>Australian Painted Snipe</p>	<p>The Australian painted snipe has been recorded at wetlands in all states of Australia. It is most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland and inhabits shallow, temporary freshwater wetlands or saltmarshes. Occurs on fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests consists of a scrape in the ground, lined with grasses and leaves on the ground amongst tall vegetation, such as grasses, tussocks or reeds.</p>	<p>E</p>	<p>E</p>	<p>Moderate - preferred habitat is present within the Project Area at farm dams with vegetation on the edges. These all lie outside the Disturbance Footprint. There has been no recent (within the last 20 years) records of the species are located within 30km.</p>
<p><b><i>Stagonopleura guttata</i></b></p>	<p>Diamond Firetail</p>	<p>Diamond Firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees. They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover (Antos et al. 2008). The species appears to be sedentary, though some populations move locally. . Birds roost in dense shrubs or in smaller nests built especially for roosting. (DCCEEW, 2024).</p>	<p>V</p>	<p>V</p>	<p>High – there are records for this species in similar habitat within 11 km of the Project Area. The record is older than 20 years but many other recent records lie within 30 km. Habitat for this species is within the Project Area.</p>
<p><b>Mammals</b></p>					

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<p><b><i>Chalinolobus dwyeri</i></b></p>	<p>Large-eared Pied Bat, Large Pied Bat</p>	<p>Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the fairy martin (<i>Petrochelidon ariel</i>). This species frequents low to mid-elevation dry open forest and woodland close to these features. Occasionally inhabits rainforest and moist eucalypt forest habitats on other geological substrates (rhyolite, trachyte and basalt) at high elevation are of similar importance. Box gum woodlands or river/rainforest corridors for foraging. Roosting has also been observed in disused mine shafts, caves, overhangs and disused Fairy Martin nests. It also possibly roosts in tree hollows. Caves are required for maternity roosts.</p>	<p>V</p>	<p>V</p>	<p>Low - suitable habitat is not present (or if present, modified and degraded) in the Project Area AND the species has not been recorded recently in the locality (30km). The nearby Yelarbon State Forest could offer suitable breeding and foraging habitat for this species.</p>
<p><b><i>Dasyurus maculatus maculatus (SE mainland population)</i></b></p>	<p>Spot-tailed Quoll</p>	<p>The Spotted-tailed Quoll is a mainly forest dependent species but occurs in a variety of habitats including closed forests (including temperate and sub-tropical rainforest), tall eucalypt forests, open woodlands, open forests, drier rain shadow woodlands and coastal heathlands. During the day Spotted-tailed Quolls shelter in fallen logs, boulder piles, burrows, tree hollows and occasionally under dwellings (DCCEEW, 2024).</p>	<p>E</p>	<p>E</p>	<p>Low - suitable habitat is not present within the Project Area although habitat may be present in the adjacent Yelarbon State Forest. Records for this species are mostly east of Texas and concentrated around the National Parks around Stanthorpe and Tenterfield.</p>

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<p><b><i>Nyctophilus corbeni</i></b></p>	<p>Corben's Long-eared Bat, South-eastern Long-eared Bat</p>	<p>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, buloke <i>Allocasuarina leuhmanni</i> 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. Inland woodland vegetation, including box, ironbark and cypress pine woodlands; Buloke, Belah, River Red Gum and Black Box woodlands as well as a variety of mallee vegetation. Favor large hollows as roosting sites.</p>	<p>V</p>	<p>V</p>	<p>High – preferred habitat is present along Brush Creek and in the Callitris, Poplar Box and Brigalow woodlands adjacent to the Disturbance Footprint.</p>
<p><b><i>Petauroides volans</i></b></p>	<p>Greater Glider</p>	<p>This species is found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. Widespread in forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers.</p>	<p>E</p>	<p>E</p>	<p>Confirmed - Three individual gliders were recorded by NGH ecologists during April 2024 spotlighting surveys. Glider habitat within the Project Area is restricted to the riparian vegetation of Brush Creek.</p>
<p><b><i>Phascolarctos cinereus</i></b></p>	<p>Koala</p>	<p>This species inhabits forest, woodlands and semi-arid communities dominated by <i>Eucalyptus</i> species.</p>	<p>E</p>	<p>E</p>	<p>High- preferred habitat located within the Project Area along Brush Creek and in the woodlands adjacent to the Disturbance Footprint. The species has been recorded recently (within the last 20 years) in the locality (30km) but the</p>

					landowners report that they have not seen a Koala within their property or in the region in more than 20 years. It's likely the species is present but sparsely distributed.
<b><i>Pteropus poliocephalus</i></b>	Grey-headed Flying-fox	The grey-headed flying-fox has a widespread distribution throughout Eastern Australia, with multiple nationally important camps throughout Queensland. This species forages extensively for blossoms and fruit in canopy vegetation and has reduced in numbers primarily due to habitat destruction and culling. East coast of Australia from Bundaberg to Melbourne. Variety of habitats, including rainforests, woodlands, mangroves, swamps, lowland forest, coastal stringybark, but also in agricultural, urban, suburban or cultivated areas. Typically found no more than 100 km inland, and amongst trees at around 200m above sea level.	-	V	Moderate – A roost for this species is mapped in Yetman (30 km south of the Project Area) near the Dthinna Dthinnawan National Park. This species can travel up to 50 km while foraging so it is possible that this species visits the Project Area occasionally when food resources are available. Very little foraging habitat for this species lies in the Disturbance Footprint.
<b>Reptiles</b>					

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<p><b><i>Anomalopus mackayi</i></b></p>	<p>Five-clawed Worm-skink, Long-legged Worm-skink</p>	<p>The Five-clawed Worm-skink is known from a relatively small area abutting the western edge of the Great Dividing Range, in north-eastern NSW and south-eastern Queensland. The Five-clawed Worm-skink occurs on the lower slopes of slight rises in grassy White Box woodland, open woodland and River Red Gum–Coolibah-Bimble Box woodland. The species lives in permanent deep tunnel-like burrows and deep soil cracks, using fallen logs and timber as sheltering sites on the surface. This species is found on low open grassland with scattered trees to open grassy dry Eucalyptus and Callitris forest/woodland. This skink is often found beneath logs. They occur on red-black to deep cracking black clay loam or sandy soils (including areas that are inundation prone and adjacent rises).</p>	<p>E</p>	<p>V</p>	<p>Low- suitable habitat is located adjacent to the Project Area and no recent (within the last 20 years) records of the species are located within 30km.</p>
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<p><b><i>Delma torquata</i></b></p>	<p>Collared Delma</p>	<p>Found in scattered populations across South East Queensland. It has been recorded from undisturbed open forests around western Brisbane (Upper Brookfield, Kenmore, Pullenvale, Anstead, Pinjarra Hills and Mount Crosby), in the Lockyer Valley and at the Bunya Mountains. Occurs on rocky hillsides in open eucalypt forests with a sparse understorey of shrubs and a groundcover of patchy native grasses. A leaf litter layer of 30-100 mm thick is required. Collared Delma prefers habitats with large numbers of small, exposed rocks (less than 3 cm in size). Eucalypt - dominated woodlands and open-forests in Queensland RE Land Zone: LZ 3; LZ 9; and LZ 10. RE's include: RE 11.3.2; RE 11.9.10; RE 11.10.1; and RE 11.10.4. In the eastern parts of the specie's range (Toowoomba Range), suitable habitats are commonly associated with exposed rocky outcrops on ridges or slopes in vegetation communities dominated by Narrow-leafed Ironbark (<i>Eucalyptus crebra</i>). Most westerly records were made in Polar Box open woodland on alluvial plains.</p>	<p>V</p>	<p>V</p>	<p>Low- rocky areas are absent from the Project Area but small areas of Polar Box woodland do occur within the Project Area. All of the records for this species are north of Inglewood and the majority are north of Toowoomba.</p>
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<b><i>Egernia rugosa</i></b>	Yakka Skink	The known distribution of the yakka skink extends from the coast to the hinterland of sub-humid to semi-arid eastern Queensland. This species is most likely to occur in open dry sclerophyll forest, woodland and scrub. The main threat to the yakka skink is habitat reduction and degradation. Habitat requirements are poorly known, however the species is known from rocky outcrops, sand plain areas and dense ground vegetation, in association with open dry sclerophyll forest (ironbark) or woodland, brigalow forest and open shrub land.	V	V	Low - degraded and fragmented habitat is present in the Project Area AND the species has not been recorded recently in the locality (30km). The nearby Yelarbon State Forest could offer suitable breeding and foraging habitat for this species.
<b><i>Furina dunmali</i></b>	Dunmall's Snake	Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200 – 500 m above sea level. Dunmall's Snake is found in open forest, particularly brigalow <i>Acacia harpophylla</i> forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils (Covacevich et al., 1988, Cogger et al., 1993). Little is known about this species though it is thought to be uncommon within its limited range (Wilson, 2003). Captive specimens indicate that it is a nocturnal species, sheltering under fallen timber and in deep soil cracks and other cavities.	V	V	High – This species is extremely rare and the distribution is sparse. A record for this species occurs just outside the Project Area on Beebo-Seventeen Mile Road. Another record lies on Inglewood Texas Road (around 13 km north-east). Another relatively recent (1993) record lies in Dthinna Dtinawan National Park. Given the number of records in the local area and the presence of areas of cracking clays, it's possible this species does inhabit the Project Area.

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<b><i>Hemiaspis damelii</i></b>	Grey Snake	In south-eastern Queensland, the Grey Snake has a broader more dispersed distribution than in New South Wales. Specific areas the species is found include the Goondiwindi area and the adjacent Darling-Riverine Plain, from the Darling Downs and from the Lockyer Valley with an isolated sub-population near Rockhampton. In Queensland, the Grey Snake occurs in Brigalow <i>Acacia harpophylla</i> and Belah <i>Casuarina cristata</i> woodlands on heavy, cracking clay soils, particularly in association with water bodies, areas with small gullies and ditches, and floodplain environments where it shelters beneath logs, rocks and soil cracks (Queensland Government, 2020). The species predominantly feeds on frogs.	E	E	High- Although one paddock contains suitable gilgais and cracking black clays, the paddock has been continuously cleared and disturbed since at least 1947. No Brigalow remains and few suitable microhabitat features remain. Habitat remains in the remnant Brigalow patch and in Brigalow adjacent to the Project Area.
<b><i>Uvidicolus sphyrurus</i></b>	Border Thick-tailed Gecko	Occurs in well-shaded micro-sites amongst boulders, rock slabs, fallen timber (logs or debris), bark on standing trees and deep leaf litter in undisturbed habitat remnants on rocky outcrops and stony hills within eucalypt and cypress-pine open forest or woodland between 500-1100 m.	-	V	Low - preferred habitat is not present within the Project Area
<b>Ray-finned Fish</b>					
<b><i>Bidyanus bidyanus</i></b>	Silver Perch, Bidyan	Occurs in rapids, races and faster flowing open sections of rivers throughout the Murray-Darling Basin. Widespread throughout much of the Murray-Darling River System (approx. 150-140°00'E), and introduced	-	CE	Moderate- preferred habitat is not present within the Project Area. May occur within Brush Creek however the Disturbance Footprint does not intersect with this creek. All cable connections

		into the Lake Eyre Basin. The species is now sparsely distributed across a large proportion of its former range. Inhabits freshwater rivers, lakes and reservoirs, particularly in areas of high water flow.			will be drilled below the creek bed, thus avoiding any potential intersections with this species' habitat.
<b><i>Maccullochella peelii</i></b>	Murray Cod	They live in a wide range of habitats, from clear, rocky streams to slow flowing, turbid rivers and billabongs. They are generally found in waters to 5 m deep, in sheltered areas with cover from rocks, timber or overhanging banks. Adult fish are carnivorous, having a diet of invertebrates, fish, amphibians and occasionally reptiles, birds and aquatic mammals	-	V	Moderate- preferred habitat is not present within the Project Area. May occur within Brush Creek however the Disturbance Footprint does not intersect with this creek. All cable connections will be drilled below the creek bed, thus avoiding any potential intersections with this species' habitat.
<b>Invertebrates</b>					
<b><i>Hypochrysops piceatus</i></b>	Bullock Jewel Butterfly	Perches and breeds on <i>Allocasuarina leuhmannii</i> (bullock) trees within bullock woodland ecological communities. Known range is extremely limited, occupying suitable habitat between Toowoomba and Warwick (ALA, 2024).	CE	CE	Low – fragmented and disturbed habitat is present within the Project Area. No recent (within the last 20 years) records of the species are located within 30km.
<b>Plants</b>					
<b><i>Acacia lauta</i></b>	Tara Wattle	Occurs in open woodlands on sandy soils.	V	V	Low – only degraded and fragmented habitat is present in the Project Area and the species has not been recorded recently in the locality (30km).

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<b><i>Acacia pubifolia</i></b>	Velvet Wattle	This species grows on rocky granite hillsides, in sandy, stony or loamy soil in eucalypt-scrub woodland or Eucalyptus-Callitris forest (Orchard & Wilson 2001a). It has been recorded in cleared areas. In Qld it is recorded growing mostly on sandy soils in heath, shrubland, forest and woodland communities on rocky granite areas (McDonald et al. 1995). Associated species include Eucalyptus laevopinea, Eucalyptus caleyi ssp. caleyi, Eucalyptus dealbata, Angophora floribunda and Leptospermum brevipes (W.J.F.McDonald 2001, pers. comm.).	V	V	Low – no suitable habitat within the Project Area and the species has not been recorded recently in the locality (30km).
<b><i>Androcalva procumbens</i></b>	-	<i>Androcalva procumbens</i> grows in sandy soil mainly in the Dubbo, Mendooran and Gilgandra districts, but also in the Pilliga and Nymagee districts in central New South Wales.	-	V	Low – only degraded and fragmented habitat is present in the Project Area and the species has not been recorded recently in the locality (30km). This species has a limited known distribution, and the Project Area is not within the known distribution.
<b><i>Cadellia pentastylis</i></b>	Ooline	Ooline was once widespread in the bottle tree-dominated softwood scrubs, brigalow and belah communities of central and southern Queensland and north-western New South Wales. It is now restricted in distribution from near Duinga west of Rockhampton to the NSW border in Queensland, and on the western edge of the North West Slopes north of Gunnedah in northern New South Wales. Ooline occurs in a range of vegetation types including semi-evergreen vine thicket, brigalow-belah, poplar box and bendee communities.	V	V	Low – All known patches of Brigalow have been avoided and no other suitable habitat occurs within the Project Area.

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		Ooline often occurs on the edges of sandstone and basalt escarpments, 200 to 500 m above sea level.			
<b><i>Callistemon pungens</i></b>	-	This melaleuca occurs in the higher altitude regions of north eastern New South Wales and south eastern Queensland. It grows in granite and trachyte rock crevices in forest and heath and on sandy or shallow rocky soil.	V	V	Low - no preferred habitat is present in the Project Area AND the species has not been recorded recently in the locality (30km). The Project Area is outside this species' current extent.
<b><i>Dichanthium setosum</i></b>	bluegrass	Occurs in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. Often collected from disturbed open grassy woodlands on the northern tablelands, where the habitat has been variously grazed, nutrient-enriched and water-enriched) over heavy basaltic black soils and red-brown loams with clay subsoil.	-	V	Moderate – Suitable habitat occurs within the Project Area in the form of disturbed pastures on black soils. This species sometimes occurs in disturbed areas. There are no records of this species within 30 km. The majority of the records of this species lie in NSW and in central Qld.
<b><i>Eucalyptus caleyi subsp. ovendenii</i></b>	Ovenden's Ironbark	Ovenden's Ironbark is known only from a limited area west of Guyra to west of Tenterfield, NSW. Localities include 'Moorabinda' station and Torrington State Conservation Area. Ovenden's Ironbark grows on shallow soils in dry, open grassy woodlands, preferred altitudes are 610-820 m, on granitic substrates (DCCEEW, 2024).	-	V	Low - Project Area outside this species known distribution.

<b><i>Eucalyptus virens</i></b>	-	Occurs in open forest on sandy soil on flats and undulating country. It is only known from three small populations near the Maranoa River, Tara and Inglewood in south-eastern Queensland.	V	V	Low - only disturbed and fragmented habitat is present within the Project Area and there are no recent (within the last 20 years) records of the species are located within 30km. All the records for this species are located north of Inglewood.
<b><i>Homopholis belsonii</i></b>	Belson's Panic	Homopholis belsonii is known to occur within the southern Brigalow belt, Queensland and on the north-western slopes and plains of NSW. In Queensland, it has been recorded in the Darling Downs west of Toowoomba, near Oakey, Jondaryan, Bowenville, Dalby, Acland, Sabine, Quinalow, Goombungee, Gurulmundi and Millmerran, and further west between Miles and Roma. It is known to occur in dry woodland habitats on poor soils, such as those derived from basalt. It occurs on rocky hills supporting White Box ( <i>Eucalyptus albens</i> ) and in Wilga ( <i>Geijera parviflora</i> ) woodland; flat to gently undulating alluvial areas supporting Belah ( <i>Casuarina cristata</i> ) forest (Trémont & Whalley, 1993; DECC NSW, 2005a); and soils and plant communities of Poplar Box ( <i>Eucalyptus populnea</i> ) woodlands (Leigh et al., 1984; Menkins, 1998).	E	V	Moderate- only disturbed and fragmented habitat is present within the Project Area and no recent (within the last 20 years) records of the species are located within 30km. However in 1993, this species has been recorded just south of Dthinna Dthinnawan National Park. Many records for this species occur west of the Project Area.
<b><i>Homoranthus bebo</i></b>	-	Currently known from a single population in Dthinna Dthinnawan Nature Reserve (formerly Bebo State Forest)~20 km north-north east of Yetman New South Wales. This species grows in deep sandy soils over sandstone.	-	CE	Low - Project Area outside this species' known distribution. Recent records of this species are restricted to Dthinna Dthinnawan National Park, approximately 20 km south-east of the Site.

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<b><i>Lepidium aschersonii</i></b>	Spiny Pepper- cress	The species is found in New South Wales and Victoria, with an isolated population in Western Australia. It occurs around swamps and saltmarshes on heavy soils which are regularly waterlogged or flooded.	-	V	Low - Project Area outside this species' known distribution.
<b><i>Lepidium monoplacoides</i></b>	Winged Pepper- cress	Winged Pepper-cress occurs predominantly in mallee scrub in semi-arid areas (Leigh et al. 1984). Sites are seasonally moist to water-logged with heavy, fertile soils and a mean annual rainfall of around 300 to 500 mm. The predominant vegetation is usually an open-woodland dominated by <i>Allocasuarina leuhmannii</i> and/or eucalypts. Occurs predominantly in mallee scrub in semi-arid areas. Sites are seasonally moist to water-logged with heavy, fertile soils and a mean annual rainfall of around 300 to 500 mm.	-	E	Moderate – only disturbed and fragmented habitat is known to be present within the Project Area and habitat for this species occurs adjacent to the Disturbance Footprint. Despite the Project Area not being within this species' known distribution, the species has been recorded recently (within the last 20 years) within 30 km of the Site.
<b><i>Lepidium peregrinum</i></b>	Wandering Pepper-cress	Occurs in open riparian forest on the banks of the Tenterfield creek at Clifton. In Sandy alluvium soil types.	-	E	Low - Project Area outside this species' known distribution.
<b><i>Macrozamia cranei</i></b>	-	<i>Macrozamia cranei</i> occurs on hilly terrain between 400-650m above sea level. It grows on steep ridges in shallow, skeletal soil, among granite and limestone rocks and along seasonal/temporary watercourses. The species has been recorded in open forest communities and in fragmented semi-evergreen vine thicket. (Halford 1997)	E	E	Low- this species grows on slopes above 400 m above sea level. The site lies at 250 m above sea level and it flat. No habitat for this species occur in the Project Area.

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<b><i>Macrozamia machinii</i></b>	-	Occurs on flat plains and breakaways in deep sandy soils and in flat areas of open forest.	V	V	Low - disturbed and fragmented habitat is present within the Project Area but no recent (within the last 20 years) records of the species are located within 30km.
<b><i>Prasophyllum sp. Wybong (C.Phelps ORG 5269)</i></b>	Leekorchid	The Tarengo leek orchid grows in grassland and grassy woodland, often growing in colonies when not subject to grazing. It has been recorded at Hall, Boorowa, Ilford, Delegate, near Queanbeyan and Muswellbrook.	-	CE	Low- the entire Project Area is subject to disturbance through cropping and grazing. This species occurs in areas not subject to grazing.
<b><i>Rhaponticum australe</i></b>	Austral Cornflower, Native Thistle	Known from Mt Moffatt, Monto to Biloela, the eastern Darling Downs to Gatton in Queensland. Grows in eucalypt open forest with a grassy understory and in grasslands on black clay soil. It is often found on roadsides and on road or rail reserves.	V	V	Low – only one paddock contains black soil and this has been subject to grazing and cropping since at least 1947. No woodland remain.
<b><i>Styphelia sp. (Coolmunda D.Halford Q1635)</i></b>	-	This species is known from a small area south-east of Inglewood, within the McIntyre River catchment, occurring within the Border Rivers Maranoa–Balonne (Queensland) Natural Resource Management Region. Occurs in undulating terrain between 300 and 340 metres above sea level. The soils are shallow to 1 m in depth, light coloured sandy loams with mottled orange clayey subsoils. The vegetation is predominantly open forest to woodland with a dense lower stratum of heath to 1.5 m high.	E	E	Low- this species occurs in undulating terrain above 300-400 m above sea level. The soil is not suitable and the vegetation communities are suitable.

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<b><i>Thesium australe</i></b>	Austral Toadflax, Toadflax	The austral toadflax was considered extinct in Queensland prior to the mid-1980s. Collections since the 1990s have been made from Kumbia, Glen Rock Regional Park, Carnarvon National Park, Crows Nest, Clifton, Warwick, Greenmount, Cambooya, Dalby, the Bunya Mountains, Blackbutt and Imbil. Austral toadflax is semi-parasitic on roots of a range of grass species (Copeland 2000 pers. comm.; Leigh et al. 1984), notably kangaroo grass ( <i>Themeda triandra</i> ). It occurs on soils derived from sedimentary, igneous and metamorphic geology on a range of soils including black clay loams to yellow podzolics and peaty loams.	V	V	Low – Although some Kanagaroo Grass was found within the Project Area this was not abundant and the majority of the Project Area has been subject to grazing and cropping since the 1940s.
<b><i>Vincetoxicum forsteri</i></b>	-	The species is known from the Dubbo and Barraba areas of New South Wales and Glenmorgan in Queensland, where it grows in open forest, woodlands and dry scrub, in association with <i>Melaleuca uncinata</i> , <i>Eucalyptus fibrosa</i> , <i>E. sideroxylon</i> , <i>E. albens</i> , <i>Callitris endlicheri</i> , <i>C. glaucophylla</i> , <i>Allocasuarina luehmannii</i> , <i>Acacia hakeoides</i> , <i>A. lineata</i> , <i>Myoporum</i> spp., and <i>Casuarina</i> spp.	E	E	Low - Project Area outside this species' known distribution.
<b><i>Westringia parvifolia</i></b>	-	Known from small area near Yelarbon and Inglewood in south-east Queensland. Occurs with <i>Eucalyptus bakeri</i> and <i>E. viridis</i> and between clumps of <i>Spinifex (Triodia sp.)</i> on sandy and stony soils.	V	V	Low- this species grows in woodlands with <i>Eucalyptus bakeri</i> and <i>Eucalyptus viridis</i> with <i>Spinifex</i> . These species were not recorded in the Project Area nor are they likely to occur in the Project Area.

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<p><b><i>Xerothamnella herbacea</i></b></p>	<p>-</p>	<p>Occurs in brigalow (<i>Acacia harpophylla</i>) dominated communities in shaded situations, often in leaf litter and is associated with gilgais (shallow ground depressions). Soils are heavy, grey to dark brown clays. This species is not known to occur in any conservation reserves. Three of the four known populations occur in cleared areas or non-remnant vegetation that are not protected under the Vegetation Management Act 1999 (Queensland Herbarium 2012).</p>	<p>E</p>	<p>E</p>	<p>Moderate - Nearby accurate records occur within 30km of the site and suitable habitat is within the Project Area in one paddock. The remnant patch of Brigalow is being avoided by the Disturbance Footprint and the remaining paddock is heavily disturbed and has not Brigalow remaining.</p>
<p><b>Migratory species</b></p>					
<p><b><i>Apus pacificus</i></b></p>	<p>Fork-tailed Swift</p>	<p>The fork-tailed swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. This species mostly occurs over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand dunes. This species is generally found east of the Great Dividing Range from Cooktown to the New South Wales border, but extends further west in southern Queensland (Boehm 1939; DCCEEW 2024a)</p>	<p>SLC</p>	<p>M</p>	<p>Moderate- this species occurs over much of Australia and is known to forage over habitat similar to that in the Project Area.</p>

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<b><i>Motacilla flava</i></b>	Yellow Wagtail	Habitat requirements for the yellow wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves. The yellow wagtail is a regular wet season visitor to northern Australia. In Queensland this species is a regular visitor from Mossman south to Townsville. The species is a vagrant further south and on Heron Island (DCCEEW 2024a).	SLC	M	Low- this species is rarely seen in Australia and there are no records of this species within the region.
<b><i>Myiagra cyanoleuca</i></b>	Satin Flycatcher	Satin flycatchers are eucalypt forest and woodland inhabitants. They are particularly common in tall wet sclerophyll forest, often in gullies or along water courses. In woodlands they prefer open, grassy woodland. In Queensland, this species is widespread but scattered in the east, being recorded on passage on a few islands in the western Torres Strait. Satin flycatchers are widespread in south-eastern Queensland, in the area from Fraser Island, west to Goombi and south to the New South Wales border. This species is also found extensively along the Great Dividing Range (DCCEEW 2024a).	SLC	M	Low- this species prefers denser habitat which is not available in the Project Area.
<b><i>Rhipidura rufifrons</i></b>	Rufous Fantail	In east and south-east Australia, the rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts, usually with a dense shrubby	SLC	M	Low- this species prefers denser habitat which is not available in the Project Area.

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		understorey often including ferns. The rufous fantail is found in northern and eastern coastal Australia, being more common in the north. This species migrates to south-east Australia in October to April to breed, mostly in or on the coastal side of the Great Dividing Range (DCCEEW 2024a).			
<b><i>Gallinago hardwickii</i></b>	Latham's Snipe	Latham's snipe is a passage migrant through northern Australia. It can be found in permanent and ephemeral wetlands up to 2,000 m above sea-level and usually inhabits open, freshwater wetlands with low, dense vegetation.	SLC	V/M	Confirmed - recorded by NGH ecologists during April 2024 survey. The bird was seen feeding at a large farm dam outside of the Disturbance Footprint.

NCA Act: Listing under the Nature Conservation Act 1992- SLC-Special Least Concern, NT- Near Threatened, V-Vulnerable, E- Endangered, CE- Critically Endangered. EPBC Act: Listing under the Environment Protection and Biodiversity Conservation Act 1999- V-Vulnerable, E- Endangered, CE- Critically Endangered, M- Migratory.

## Appendix D Fauna species recorded

Species	Common name	Endemicity	Taxa
<i>Acanthophis antarcticus</i>	Common death adder		Reptile
<i>Acridotheres tristis</i>	Common Myna		Bird
<i>Anas superciliosa</i>	Pacific black duck		Bird
<i>Anthus novaeseelandiae</i>	Australasian pipit		Bird
<i>Aprosmictus erythropterus</i>	Red-winged parrot		Bird
<i>Artamus leucorhynchus</i>	White-breasted woodswallow		Bird
<i>Aviceda subcristata</i>	Pacific baza		Bird
<i>Bos taurus</i>	Domestic cattle	Introduced	Mammal
<i>Canis familiaris</i>	Domestic dog	Introduced	Mammal
<i>Chenonetta jubata</i>	Australian wood duck		Bird
<i>Coracina novaehollandiae</i>	Black-faced cuckoo-shrike		Bird
<i>Corvus orru</i>	Torresian crow		Bird
<i>Dromaius novaehollandiae</i>	Emu		Bird
<i>Eolophus roseicapilla</i>	Galah		Bird
<i>Gehyra sp.</i>	Gehyra species		Reptile
<i>Gerygone sp.</i>	Gerygone species		Bird
<i>Grallina cyanoleuca</i>	Magpie-lark		Bird
<i>Gymnorhina tibicen</i>	Australian magpie		Bird
<i>Lialis burtonis</i>	Burtons legless lizard		Reptile
<i>Litoria nasuta</i>	Striped rocket frog		Amphibian
<i>Macropus giganteus</i>	East grey kangaroo		Mammal
<i>Macropus rufogriseus</i>	Red neck wallaby		Mammal
<i>Malurus cyaneus</i>	Superb fairy-wren		Bird
<i>Malurus lamberti sensu lato</i>	Variiegated fairy-wren		Bird
<i>Meliphaga lewinii</i>	Lewin's honeyeater		Bird
<i>Myiagra inquieta</i>	Restless flycatcher		Bird
<i>Nymphicus hollandicus</i>	Cockatiel		Bird
<i>Ocyphaps lophotes</i>	Crested pigeon		Bird
<i>Oryctolagus cuniculus</i>	European wild rabbit	Introduced	Mammal
<i>Petauroides volans</i>	Greater Glider		Mammal

Species	Common name	Endemicity	Taxa
<i>Petrochelidon ariel</i>	Fairy martin		Bird
<i>Phaps chalcoptera</i>	Common bronzewing		Bird
<i>Philemon corniculatus</i>	Noisy friarbird		Bird
<i>Platyplectrum ornatum</i>	Ornate burrowing frog		Amphibian
<i>Pogona barbata</i>	Bearded dragon		Reptile
<i>Rattus rattus</i>	Black rat	Introduced	Mammal
<i>Rhipidura leucophrys</i>	Willie wagtail		Bird
<i>Strepera graculina</i>	Pied currawong		Bird
<i>Struthidea cinerea</i>	Apostlebird		Bird
<i>Sus domesticus</i>	Feral domestic pig	Introduced	Mammal
<i>Taeniopygia bichenovii</i>	Double-barred finch		Bird
<i>Todiramphus sanctus</i>	Sacred kingfisher		Bird
<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted lorikeet		Bird
<i>Trichoglossus moluccanus</i>	Rainbow lorikeet		Bird
<i>Varanus varius</i>	Lace monitor		Reptile
<i>Vulpes vulpes</i>	Red fox	Introduced	Mammal
<i>Wallabia bicolor</i>	Swamp wallaby		Mammal

## Appendix E Flora species recorded

Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Acacia harpophylla</i>	Brigalow	Least concern	Not listed	Native		
<i>Acacia sp.</i>	Wattles sp.	Least concern	Not listed	Native		
<i>Allocasuarina luehmannii</i>	Buloke	Least concern	Not listed	Native		
<i>Angophora floribunda</i>	Rough-barked Apple	Least concern	Not listed	Native		
<i>Aristida benthamii</i> var. <i>spinulifera</i>	N/A	Least concern	Not listed	Native		
<i>Aristida sp.</i>	Wiregrass	Least concern	Not listed	Native		
<i>Arundinella nepalensis</i>	N/A	Least concern	Not listed	Native		
<i>Bothriochloa bladhii</i>	N/A	Least concern	Not listed	Native		
<i>Bothriochloa decipiens</i> var. <i>decipiens</i>	N/A	Least concern	Not listed	Native		
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	Kurrajong	Least concern	Not listed	Native		

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Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Bryophyllum sp.</i>	N/A	Least concern	Not listed	Introduced	NA	NA
<i>Callitris glaucophylla</i>	White Cypress Pine	Least concern	Not listed	Native		
<i>Callitris sp.</i>	Cypress Pine	Least concern	Not listed	Native		
<i>Capparis lasiantha</i>	N/A	Least concern	Not listed	Native		
<i>Casuarina cristata</i>	N/A	Least concern	Not listed	Native		
<i>Casuarina cunninghamiana</i>	River She-oak	Least concern	Not listed	Native		
<i>Cenchrus ciliaris</i>	Buffel Grass	Least concern	Not listed	Introduced		
<i>Chloris divaricata</i>	N/A	Least concern	Not listed	Native		
<i>Chloris inflata</i>	N/A	Least concern	Not listed	Introduced		
<i>Chloris pectinata</i>	N/A	Least concern	Not listed	Native		
<i>Chloris sp.</i>	N/A	Least concern	Not listed	N/A		
<i>Chrysocephalum apiculatum</i>	Common Everlasting	Least concern	Not listed	Native		

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Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Chrysopogon fallax</i>	N/A	Least concern	Not listed	Native		
<i>Corymbia sp.</i>	Bloodwoods/ Ghost gum sp.	Least concern	Not listed	Native		
<i>Corymbia tessellaris</i>	Moreton Bay Ash	Least concern	Not listed	Native		
<i>Cylindropuntia sp.</i>	Cholla	Least concern	Not listed	Introduced		Yes
<i>Cyperus sp.</i>	Sedges	Least concern	Not listed	Native		
<i>Einadia nutans</i>	Climbing Saltbush	Least concern	Not listed	Native		
<i>Eragrostis curvula</i>	African Lovegrass	Least concern	Not listed	Introduced	Yes	
<i>Eragrostis sp.</i>	Lovegrasses	Least concern	Not listed	Native		
<i>Eremophila longifolia</i>	Berrigan	Least concern	Not listed	Native		
<i>Eremophila mitchellii</i>	False Sandalwood	Least concern	Not listed	Native		
<i>Eucalyptus coolabah</i>	Coolabah	Least concern	Not listed	Native		
<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	Least concern	Not listed	Native		

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Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Eucalyptus microcarpa</i>	Grey Box	Least concern	Not listed	Native		
<i>Eucalyptus moluccana</i>	Grey Gum	Least concern	Not listed	Native		
<i>Eucalyptus populnea</i>	Poplar Box	Least concern	Not listed	Native		
<i>Eucalyptus tereticornis</i> <i>subsp. tereticornis</i>	Forest Red Gum	Least concern	Not listed	Native		
<i>Eucalyptus woollsiana</i>	Mallee Box	Least concern	Not listed	Native		
<i>Geijera parviflora</i>	Wilga	Least concern	Not listed	Native		
<i>Gomphrena sp.</i>	Globe Amaranth	Least concern	Not listed	Native		
<i>Grevillea striata</i>	Beefwood	Least concern	Not listed	Native		
<i>Harrisia sp.</i>	Moonlight Cactus	Least concern	Not listed	Introduced	Category 3	
<i>Heteropogon contortus</i>	Black Speargrass	Least concern	Not listed	Native		
<i>Lobelia sp.</i>	Lobelias	Least concern	Not listed	Native		
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Least concern	Not listed	Native		
<i>Lomandra sp.</i>	Mat-rushes	Least concern	Not listed	Native		

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Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Melaleuca decora</i>	White Feather Honeymyrtle	Least concern	Not listed	Native		
<i>Melinis repens</i>	Natal grass	Least concern	Not listed	Introduced	Yes	
<i>Opuntia sp.</i>	Prickly Pear	Least concern	Not listed	Introduced	Category 3	Yes
<i>Opuntia tomentosa</i>	Velvet Opuntia	Least concern	Not listed	Introduced	Category 3	Yes
<i>Panicum effusum</i>	Hairy Panic	Least concern	Not listed	Native		
<i>Paspalidium distans</i>	N/A	Least concern	Not listed	Native		
<i>Paspalidium sp.</i>	N/A	Least concern	Not listed	Native		
<i>Ricinus communis</i>	Castor Bean	Least concern	Not listed	Introduced		
<i>Santalum lanceolatum</i>	Northern Sandalwood	Least concern	Not listed	Native		
<i>Sclerolaena muricata</i>	N/A	Least concern	Not listed	Native		
<i>Sida cordifolia</i>	Heartleaf Sida	Least concern	Not listed	Introduced		
<i>Sphaeromorphaea australis</i>	N/A	Least concern	Not listed	Native		

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Species	Common name	NC Act Status	EPBC Act Status	Endemicity	QLD Biosecurity Act (1994)	Weed of National Significance (WoNS)
<i>Sporobolus caroli</i>	N/A	Least concern	Not listed	Native		
<i>Sporobolus natalensis</i>	N/A	Least concern	Not listed	Introduced		
<i>Sporobolus sp.</i>	N/A	Least concern	Not listed	N/A		

## Appendix F Significant Impact Assessments

### F.1 Assessment of impacts to endangered ecological communities.

The Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (Brigalow TEC) was assessed to determine the significance of the impacts associated with the Project.

The MNES significant impact guidelines (DoE 2013b) state that an action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- *reduce the extent of an ecological community*
- *fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines*
- *adversely affect habitat critical to the survival of an ecological community*
- *modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns*
- *cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting*
- *cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:*
  - *assisting invasive species, that are harmful to the listed ecological community, to become established, or*
  - *causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or*
  - *interfere with the recovery of an ecological community.*

Table A- 1 Assessment of significant impact: Brigalow

Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant) ecological community
<b>Reduce the extent of an ecological community</b>
<p>Four patches of Brigalow vegetation representative of RE 11.4.10 that meet the threshold criteria for Brigalow TEC are located within the Project Area. One section of Brigalow TEC is present within the Disturbance Footprint Area, however, is still located exterior to the solar panels and footings by approximately 10 meters (see Figure A-5). Approximately 0.305 hectares of this TEC falls within the Disturbance Footprint area, however as it is still located exterior to the solar array, no impacts to this TEC will occur. No other patches lie within the Disturbance Footprint and will not be directly impacted by the Project. Indirect impacts may occur from dust, weed incursion and increased risk of bushfire, however these impacts are likely to be mitigated by the proposed mitigation measures including:</p> <ul style="list-style-type: none"> <li>• Dust control and suppression</li> <li>• Weed management and monitoring</li> <li>• Weed hygiene protocols to stop the introduction of new weed species</li> </ul> <p>Clearing boundaries will be clearly marked to ensure no disturbance occurs outside of approved areas. The Project commits to maintaining a minimum 10m buffer to patches of Brigalow to reduce potential impacts. As construction will only involve minor soil disturbance for the footings and narrow trenches (2.3m wide) for underground cables impacts to soil in the area around the brigalow patches will be minor. Any potential indirect impacts to Brigalow are not considered to be significant.</p>
<b>Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads</b>

<b>Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) ecological community</b>
<b>or transmission lines</b>
<p>The Brigalow TEC extends from south of Charters Towers in Queensland, in a broad swathe east of Blackall, Charleville and Cunnamulla, south to northern New South Wales. The size of many Brigalow remnants across the range of the listed ecological community is small, and the community has been significantly cleared and fragmented historically; however, they still exist throughout the Brigalow Belt Bioregion.</p> <p>The patches of Brigalow TEC within the Project Area will be avoided by Project design and indirect impacts will be managed, therefore impacts to that patch are unlikely.</p> <p>No existing patches of Brigalow will be directly impacted and therefore the Project will not fragment the existing community.</p>
<b>Adversely affect habitat critical to the survival of an ecological community</b>
<p>No Brigalow TEC will be directly impacted by the Project and indirect impacts will be managed through:</p> <ul style="list-style-type: none"> <li>• Weed control and management</li> <li>• Dust management</li> <li>• Bushfire management and risk reduction measures</li> <li>• Temporary fencing during clearing</li> <li>• A minimum 10m buffer to reduce potential impacts to roots.</li> </ul> <p>Provided the mitigation measures are implemented, the Project is unlikely to affect habitat critical to the survival of the species.</p>
<b>Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns</b>
<p>As there will be no direct clearing of Brigalow TEC and only minor earthworks in the Project Area, overland flow and surface drainage is not expected to be affected. It is expected that based on implementation of management strategies (e.g. erosion and sediment control and weed hygiene protocols, management of hazardous materials) that impacts on habitat quality of the retained areas of Brigalow TEC will be avoided. A 10 m buffer will ensure that impacts to roots of the Brigalow are not impacted by the installation of footings or trenching for cabling.</p> <p>The Project is unlikely to modify or destroy abiotic factors necessary for the ecological community's survival.</p>
<b>Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting</b>
<p>The patches of Brigalow adjacent to the Disturbance Footprint are in areas that have had repeated and ongoing clearing of regrowth since the 1940s. With appropriate mitigation measures (weed hygiene and erosion and sediment control), it is not anticipated that a substantial change in the species composition of retained areas will occur.</p> <p>Brigalow mainly reproduces by suckering, rather than by pollination or seed dispersal. As mature brigalow trees will remain, there is unlikely to be a decline in the species, which is functionally important for the community.</p> <p>To ensure the Brigalow TEC's composition and function is not impacted from threats such as hot bushfires or new weed encroachment, actions such as controlling weeds and hygiene protocols preventing introduction and spread of weeds to site will be implemented over the life of the Project.</p> <p>The Project will not cause a substantial change to the species composition or ecological function of Brigalow TEC.</p>
<b>Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community</b>
<p>The patches of Brigalow adjacent to the Disturbance Footprint are in areas that have had repeated and ongoing clearing of regrowth since the 1940s. The patches are exposed significant existing stressors attributed to historic broadscale clearing and weed encroachment. Weeds can alter the structure and function of Brigalow ecosystems and affect their suitability as habitat for native species. Introduced grasses, such as buffel grass (<i>Cenchrus ciliaris</i>), Rhodes grass (<i>Chloris gayana</i>) and green panic grass (<i>Megathyrsus maximus</i>), pose the greatest threat by altering fuel loads in the Brigalow TEC and increasing fire severity.</p> <p>There is potential for the Project to facilitate the spread of these weeds through the operation of machinery, vehicles and bringing materials to site. Livestock may also spread weeds. With the implementation of hygiene protocols to minimise the risk of weed spread and weed management to be undertaken across the Project Area, it is unlikely the further establishment of these weeds across the Project Area will occur. No fertilisers will be used during construction or operation of the Project.</p> <p>A 10 m buffer will be applied around Brigalow patches to reduce impacts on roots during soil disturbance.</p>

Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant) ecological community
The Project is unlikely to cause a substantial reduction in the quality or integrity of an occurrence of an ecological community.
Interfere with the recovery of an ecological community
There is no adopted or made Recovery Plan for this ecological community. Priority recovery and threat abatement actions listed in the community's Conservation Advice (DoE 2013a) include threat reduction and control, land management, wildlife management and development of conservation information. The Project will not directly conflict with any of the recovery actions. The Project will not interfere with the recovery of the extant patch of Brigalow TEC.
Conclusion
Weed hygiene protocols will be implemented to minimise the risk of project activities facilitating the spread of weeds, and weed management will occur to ensure weeds do not encroach into the remaining patch of Brigalow TEC. A 10 m buffer from Brigalow will be implemented for all soil disturbance to reduce impacts on roots of trees. Erosion and sediment control measures will also ensure that the integrity of abiotic factors in retained Brigalow TEC is maintained. The Project is unlikely to significantly impact the Brigalow TEC.

## F.2 Assessment of impacts to threatened species

The Koala and Greater Glider were assessed against the Endangered species significant impact guidelines to determine whether the Project is likely to have a significant impact on the species. Squatter Pigeon, Glossy Black-cockatoo, Latham's Snipe, Diamond Firetail and South-eastern Long-eared Bat were assessed against the Vulnerable species criteria to determine the significance of the impacts associated with the Project. The assessments are detailed in Table A- 1 and Table A- 10. A summary of significant impacts to MNES is provided in Table 6-3. The assessments were undertaken using the MNES significant impact guidelines (DoE 2013b).

The MNES significant impact guidelines (DoE 2013b) state that an action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- *lead to a long-term decrease in the size of a population*
- *reduce the area of occupancy of the species*
- *fragment an existing population into two or more populations*
- *adversely affect habitat critical to the survival of a species*
- *disrupt the breeding cycle of a population*
- *modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline*
- *result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat*
- *introduce disease that may cause the species to decline, or*
- *interfere with the recovery of the species.*

The MNES significant impact guidelines (DoE 2013b) state that an action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- *lead to a long-term decrease in the size of an important population of a species*
- *reduce the area of occupancy of an important population*
- *fragment an existing important population into two or more populations*
- *adversely affect habitat critical to the survival of a species*

- *disrupt the breeding cycle of an important population*
- *modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline*
- *result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat*
- *introduce disease that may cause the species to decline, or*
- *interfere substantially with the recovery of the species.*

Table A- 2 Assessment of significant impact: Koala

<b>Koala (<i>Phascolarctos cinereus</i>)</b>
<b>Lead to a long-term decrease in the size of a population</b>
<p>No koala have been recorded in the Project Area or within the immediate surrounding area. Indirect evidence (scat and scratches) was also not recorded during survey efforts. The landowners report not having seen a Koala in the property within the last 20 years. If the species occurs, it is likely to be in the remnant vegetation associated with Brush Creek. Reasonable tracts of suitable breeding and foraging habitat is also present within Lot 3 SP310351, Lot 1 SP310351 and 73 CLV34123. Vegetation within these lots and Brush Creek form a wildlife corridor into the nearby Yelarbon State Forest, which will likely contain Koalas.</p> <p>The remainder of the Project Area is largely cleared, very heavily modified (for cropping) and devoid of trees and shrubs and provides little connectivity in the landscape. It is possible Koala are using the paddocks for dispersal between habitat patches. If Koalas are moving through the paddocks currently, they are moving through large areas with no trees or shrubs and no protection from predators (of which many were recorded). It is more likely that Koala are using trees along fence lines, roads and between paddocks to move through the landscape. These wooded areas do not occur within the Disturbance Footprint.</p> <p>Brush Creek is likely to be a very important corridor for Koala moving from the Dumaresq River to Yelarbon State Forest. Brush Creek will not be impacted by the Disturbance Footprint and impacts will be limited to clearing of scattered eucalypts in paddocks outside of Brush Creek. The Project will result in the loss of 4.4ha of isolated stands of paddock trees within the Koala dispersal habitat.</p> <p>The planned sequential clearing of eucalypt trees will provide the opportunity for any koalas that may be present to safely move into adjacent habitats. A sequential clearing protocol where FSCs are present during clearing will ensure koalas are not harmed during clearing and there are safe movement opportunities. This sequential clearing protocol is summarised below:</p> <ul style="list-style-type: none"> <li>• any clearing would take place in a way to allow koalas (if present) to move into adjacent areas of retained vegetation. This will include setting clearing limits per day and allowing escape paths to retained vegetation to be maintained. If koalas are encountered they are to be left in-situ, works stop in the area, and wait for the animal to move to retained habitat. This will entail:             <ul style="list-style-type: none"> <li>○ leaving a 30 m buffer of vegetation around the tree in which the koala is located and a corridor of vegetation to retained habitat</li> <li>○ monitoring the koala location and if the animal appears stressed</li> <li>○ allowing the koala to relocate without assistance unless the animal is in immediate danger or is injured.</li> </ul> </li> </ul> <p>The Project will result in the installation of solar panels which will be installed on frames off the ground. Koala will still be able to move through and under the panel arrays. Given the paddocks are mostly cleared currently and shelter opportunities are already absent or very sparse, dispersal through the panel arrays is not likely to be significantly different to that which already exists. The panels may benefit dispersing Koalas by providing cover from aerial predators and shade during hot weather.</p> <p>Indirect impacts may occur to koalas from the Project as a result of noise and lighting associated with construction activities. Additionally, by opening up further areas of habitat there is the potential for an increase in weeds and pest animals to infiltrate adjacent bushland although the Project Area is already subject to extensive weed infestation and pest fauna presence.</p> <p>Due to the low likelihood of koala being present in large numbers and that the most likely habitat (Brush Creek riparian corridor) for the species is not being impacted, the Project is not expected to result in a long-term decrease in the size</p>

<b>Koala (<i>Phascolarctos cinereus</i>)</b>
of a population.
<b>Reduce the area of occupancy of the species</b>
<p>No koalas have been recorded in the Project Area but records for the species occur in Dhinna Dhinawan National Park, Texas State Forest and near Texas. Indirect evidence (scat and scratches) which provide characteristic evidence of presence, was not recorded during field survey. The species has the potential to utilise Brush Creek and adjacent habitat along with scattered eucalypts in the paddocks within the Project Area although. Any presence within the Development Footprint is likely to be sporadic and infrequent.</p> <p>The Disturbance Footprint includes 901.42ha of marginal dispersal habitat. The proposed clearing is limited to scattered <i>Eucalypt</i> trees within non-remnant vegetation. Koala will still be able to move through the dispersal habitat as they will still be able to go under and through the panel arrays. The panels will provide shade for and protection of Koalas if they move through the landscape so not loss of occupancy is expected in dispersal habitat.</p> <p>Due to the low likelihood of the species being present in large numbers and limited clearing of foraging habitat, the Project is not expected to reduce the area of occupancy of the species.</p>
<b>Fragment an existing population into two or more populations</b>
<p>It is recognised that roads and development are fragmenting koala habitats and increasing threats to koala populations. Threats are coming from habitat loss and fragmentation, vehicle strike, dog attack, and increased stress on populations which then increases chance of disease.</p> <p>The Project Area is already heavily fragmented because of historical and contemporary land clearing for agriculture. It is highly unlikely that the solar array will cause any fragmentation of potentially existing Koala populations within the Project Area. The Project is proposed to be constructed between the intact forest communities of Dhinna Dhinawan National Park and Yelarbon State Forest, within land largely devoid of native vegetation suitable for Koalas. Moreover, even with the installation of the solar array, Koalas will still be able to traverse across the landscape, either by using the forested corridors provided by Brush Creek, or across the open paddocks where the solar array will be installed.</p>
<b>Adversely affect habitat critical to the survival of a species</b>
<p>Habitat critical to the survival of a species is defined as the areas that the species relies on to avoid decline, promote recovery, and meet essential life cycle requirements (DAWE 2022). For koalas, critical habitat includes:</p> <ul style="list-style-type: none"> <li>• Areas used during periods of stress.</li> <li>• Habitats essential for their life cycle.</li> <li>• Locations used by significant populations.</li> <li>• Areas necessary for genetic diversity and long-term evolution.</li> <li>• Corridors allowing free movement between essential sites.</li> <li>• Any other habitat crucial for their survival.</li> </ul> <p>Adjacent the Project Area, critical koala habitat occurs in remnant forested communities, particularly in Dhinna Dhinawan National Park and Yelarbon State Forest. Additionally, suitable forested riparian vegetation along Brush Creek serves as critical habitat, acting as a dispersal corridor to nearby forested patches. Notably, the Disturbance Footprint lies entirely within non-remnant vegetation, with only sporadic and small patches of <i>Eucalypt</i> trees proposed to be removed. These trees do not constitute critical habitat, as suitable foraging and breeding habitat exists exterior to the Disturbance Footprint, within suitable woodland habitat.</p>
<b>Disrupt the breeding cycle of a population</b>
<p>Female koalas can potentially produce one offspring each year, with births occurring between October and May. All breeding habitat for the Koala is located within remnant woodlands or large stands of wooded vegetation within the Project Area. No suitable breeding habitat for the Koala is located within the Disturbance Footprint. Male dispersal across the site during the breeding season will remain unchanged, as no barriers will be constructed for the solar array and any fencing constructed will be designed to allow Koala to disperse through. This includes the use of chainwire fencing with suitable gaps or wooden climbing posts over the fence to allow Koalas to move through the landscape. During construction, FSCs will be present to identify if koalas are present during the clearing process and ensure they are not harmed during works. Overall, since the breeding and foraging habitat for this species is largely avoided and dispersal can still take place, it is considered that the Project will not significantly disrupt the breeding cycle of Koalas that may be present.</p>
<b>Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b>

<b>Koala (<i>Phascolarctos cinereus</i>)</b>
<p>The Disturbance Footprint does not contain remnant habitat. Scattered stands of trees are present within the cropping and grazing paddocks. While these trees may occasionally serve Koalas for foraging and shelter, they do not qualify as quality or critical habitat. Suitable habitat lies just outside the site boundaries in Dhinna Dhinawan National Park and Yelarbon State Forest. Overall, the proposal won't remove quality habitat, and given the already significant landscape modifications, no changes to nearby vegetation communities are expected. The Project will not interfere with any high value habitat resources for Koala in the locality. The Project will not decrease the availability to the extent the species is likely to decline</p>
<b>Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat</b>
<p>While invasive plant species can significantly alter remnant vegetation communities by outcompeting native species and increasing the risk of fire due to higher biomass, this scenario is highly unlikely in the Project Area. The proposed development of the solar array will take place in an already highly modified zone with diverse non-native species. Additionally, the Disturbance Footprint lies outside remnant native vegetation suitable for Koala, eliminating the risk of introducing invasive plants. Although invasive and pest fauna species like dogs and foxes exist on the site, the proposal is unlikely to introduce additional invasive species beyond what's already present.</p>
<b>Introduce disease that may cause the species to decline</b>
<p>The two main diseases of concern for the koala are chlamydia and koala retrovirus (Ashman, Watchorn &amp; Whisson 2019) Many more koalas may be infected with the pathogens that can cause disease than show clinical signs of the disease, and this can make it difficult to demonstrate that disease is a major driver of decline in many areas (McCallum et al. 2018). Chlamydia and koala retrovirus are found in most koalas and many live with the infections and never show outward signs of illness or suffer measurable reproductive consequences (Polkinghorne, Hanger &amp; Timms 2013; Quigley &amp; Timms 2020).The Project is not likely to directly result in an increase in chlamydia or koala retrovirus in koalas. This is a broader issue for the population.</p>
<b>Interfere with the recovery of the species</b>
<p>DAWE (2022) identifies a number of conservation and recovery strategies through Commonwealth Conservation Advice. These are listed below:</p> <ul style="list-style-type: none"> <li>• build and share knowledge</li> <li>• strong community engagement and partnership</li> <li>• increase habitat protection</li> <li>• koala conservation is integrated into policy, and statutory and land-use plans</li> <li>• strategic habitat restoration</li> <li>• active metapopulation management</li> </ul> <p>The National Recovery Plan for the Koala identifies three objectives for the 10-year life of the plan. These are listed below:</p> <ol style="list-style-type: none"> <li>1A. the area of occupancy and estimated size of populations that are declining, suspected to be declining, or predicted to decline are instead stabilised then increased</li> <li>1B. the area of occupancy and estimated size of populations that are suspected and predicted to be stable are maintained or increased</li> <li>2. metapopulation processes are maintained or improved</li> <li>3. partners, communities and individuals have a greater role and capability in listed koala monitoring, conservation and management</li> </ol> <p>The Project will not interfere substantially with any of these strategies and objectives. Additionally, the habitat within the Disturbance Footprint is not considered to be critical to the survival of the species.</p>
<b>Conclusion</b>
<p>The Project will result in modifications to dispersal habitat within the cleared cattle grazing and agricultural paddocks. However, the Project is not expected to create any new barriers or threats that would significantly alter dispersal opportunities. Presence of the Koala is likely to be restricted to the patches of suitable eucalypt forest near Yelarbon State Forest, Brush Creek and surrounding remnant vegetation within the Project Area (primarily along Brush Creek) which lies outside the Disturbance Footprint. Overall, due to the proposal largely avoiding suitable habitat for Koalas, a significant impact to this species is unlikely to occur from the Project.</p>

Table A- 3 Assessment of significant impact: Greater Glider

<b>Greater Glider (<i>Phascolarctos cinereus</i>)</b>
<b>Lead to a long-term decrease in the size of a population</b>
<p>Due to the endangered listing, all populations of the Greater Glider (southern and central populations) are considered important populations within their geographic range. Greater Glider was observed during the field component of this survey (along Brush Creek) and is considered to have a high likelihood of occurrence within the forested portions of the Project Area. These forested portions of the Project Area occur within several lots in the north, bordering on Yelarbon State Forest. Forested communities also occur within lots on the east of the Project Area, predominantly on Lot 3 SP310351, and along Brush Creek, where feeding and hollow bearing trees, such as <i>Eucalyptus tereticornis</i>, is present.</p> <p>The proposed solar array will be constructed predominantly within cleared areas and small patches of non-remnant vegetation. In the Disturbance Footprint, non-remnant vegetation generally consists of cleared open agricultural pastures for cattle grazing and crop plantations. Greater Glider habitat within these areas is considered marginal and is generally only present as a sparse layer of individual Eucalypt paddock trees. Greater Glider within the Project Area are only expected to occur within the remnant forested communities, which will not be impacted and as such no decrease in any populations on the site is likely.</p>
<b>Reduce the area of occupancy of the species</b>
<p>All Greater Glider within the Project Area are expected to only occur within suitable Eucalypt Forest and woodland communities. The proposed development of the solar array will occur within the non-remnant portions of the Disturbance Footprint. These vegetation communities generally consist of a modified, open landscape that is dominated by a mixture of native and introduced grass species and scattered individual Eucalypt trees. This is habitat that is considered at best only marginal dispersal habitat for this species and as such Greater Glider is not expected to occupy these habitats consistently, if at all. Approximately 1.15 of potential breeding and denning habitat for the Greater Glider is present within the Disturbance Footprint (See Figure A-9). This habitat, is however, located along the periphery of suitable remnant habitat (such as Brush Creek) or associated with isolated paddock trees and small vegetation patches and is not considered critical habitat for this species. No impact from the proposal will occur to the extent that it will reduce the area of occupancy of the species.</p>
<b>Fragment an existing population into two or more populations</b>
<p>The Project Area is already heavily fragmented, within forest communities on the site separated by modified agricultural landscapes. These areas will provide very marginal dispersal wildlife corridors on the site, given the very low connectivity of forest cover, which are important for the Greater Glider. A partial exception is the Brush Creek riparian corridor where Greater Glider was observed. There will be no impacts to the vegetation along Brush Creek, which lies outside the Disturbance Footprint. Suitable contiguous habitat will be maintained, preventing fragmentation of the existing population occurring within the forest communities along Brush Creek, Yelarbon State Forest and Dthinna Dthinnawan National Park</p>
<b>Adversely affect habitat critical to the survival of a species</b>
<p>Habitat critical to the survival of the Greater Glider, as described in DCCEEW (2022b), is any habitat whereby any of the criteria listed below is met for a given vegetation community:</p> <ul style="list-style-type: none"> <li>• large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region; and</li> <li>• smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization; and</li> <li>• cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes); and</li> <li>• areas identified as refuges under future climate changes scenarios; and</li> <li>• short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas.</li> </ul> <p>In general, these habitat attributes are restricted to the forested portions of the Project Area, near Yelarbon State Forest and along the riparian communities associated with Brush Creek. Small areas of marginal Greater Glider habitat may be cleared for the proposed solar farm. An estimated 1.15 ha of potential habitat in the form of isolated paddock tree stands may be cleared for the project. Since this habitat is isolated from intact wooded vegetation, it is unlikely that the Greater Glider will occur within these stands, which may only provide occasional foraging benefits. The Project will not result in adverse impacts upon habitat critical to the survival of the species.</p>

<b>Greater Glider (<i>Phascolarctos cinereus</i>)</b>
<b>Disrupt the breeding cycle of a population</b>
The construction of the solar array will not disrupt the breeding cycle of the Greater Glider, as the breeding habitat for this species will be avoided throughout the construction and operation of the proposed solar farm. Very minor areas of marginal foraging and potential denning habitat will be cleared. These areas are located within the open paddock pastures as isolated stands of trees. The Project is not expected to disrupt the breeding cycle of a population by avoiding forested areas containing habitat important for the breeding cycle.
<b>Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b>
Since the Disturbance Footprint is located entirely within non-remnant vegetation, the proposal will not have any effect on remnant forested vegetation communities. Forest edges of remnant or wooded communities will also remain intact, with buffers and exclusion zones to the retained remnant vegetation communities within the Project Area.
<b>Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat</b>
Several species of invasive flora and fauna have been identified on the site during field surveys. All species identified are well established across the project area and have likely resided there for many years as a result of clearing for agriculture. The proposed development will not cause any change to the distribution and abundance of invasive species. A detailed weed and pest management plan will be adopted for the Project to mitigate any further impacts.
<b>Introduce disease that may cause the species to decline</b>
There are no known diseases of the Greater Glider that will be introduced from the development of the solar array. No significant impact will occur under this category.
<b>Interfere with the recovery of the species</b>
Habitat loss from land clearing and timber harvesting, frequent and severe wildfires and climate change are considered key threats to the Greater Glider that are likely to inhibit the recovery of this species across its geographical range. The proposed project is located outside of any critical habitat areas and the land will be used solely for the purposes of energy production from a solar array. As such, no land uses that can interfere with the recovery of this species are proposed for the project.
<b>Conclusion</b>
The Greater Glider has been confirmed within the Project Area along Brush Creek, where suitable woodland habitat is present for breeding, feeding and denning. No clearing or direct impacts upon Greater Glider habitat will occur. This species is not likely to occur within the Disturbance Footprint, which contains only non-remnant vegetation communities within a matrix of cleared agricultural lands. As a result of this, no significant impact to this species is expected to occur from the proposed works.

Table A- 4 Assessment of significant impact: Squatter Pigeon

<b>Squatter Pigeon (southern) (<i>Geophaps scripta scripta</i>)</b>
<b>Lead to a long-term decrease in the size of an important population</b>
Important populations of Squatter Pigeon are considered to be the small, isolated and sparsely distributed sub-populations that occur south of the Carnarvon Ranges in Central Queensland (TSSC 2015b). The Project Area is situated south-east of the Carnarvon Range and therefore is in the region of important populations.
Within the Project Area, open grassy habitats along forest edges provide suitable habitat for the Squatter Pigeon. However, most of the site consists of modified pastures for cattle grazing. The proposed Disturbance Footprint will occur predominantly within non-remnant vegetation, primarily in modified grasslands. Proposed vegetation will be cleared will be isolated paddock trees and ground cover loss for the solar ancillary infrastructure. These areas may offer occasional foraging opportunities for the Squatter Pigeon. Grazing pressure in these non-remnant grasslands and the conversion of vegetation to crops could further limit food availability for the species, making it more likely to associate with open woodlands in the Project Area. Overall, 904.64 hectares of available habitat is present within the Disturbance Footprint for the Squatter Pigeon, although notably, almost all of this habitat is not remnant and conforms to marginal suitable habitat.
The Project will implement measures to minimise impacts to Squatter Pigeon, including:

- weed control measures
- presence of a FSC to conduct pre-clearance surveys for nests/young prior to clearing and to supervise all clearing activities
- if eggs or young are detected, an exclusion zone will be established and demarcated, sufficient to ensure that clearing will not interfere with the nest. For example, trees will not be felled if they, or a tree they fall on, are within striking distance of the nest
- clearing works will not continue in the exclusion zone until the species young fledge, or as per the instruction of a suitably qualified FSC
- sequential clearing to minimise total unavailable habitat to Squatter Pigeon at any one time
- pest management measures outlining requirements for managing introduced predators
- allow natural regeneration of native grasses under powerlines and other infrastructure where safe to do so to provide foraging opportunities for Squatter Pigeon
- reduced speed limits ( $\leq 40$  km/hr) during construction and operation to avoid unintended collisions with wildlife or destruction of nests
- best practice erosion and sediment controls to be implemented to maintain/improve condition of water resources.

Remnant vegetation will be retained in the Project Area which will provide breeding, foraging and dispersal resources for Squatter Pigeon during and post-construction. Habitat loss will be restricted entirely to non-remnant areas where weedy introduced grasses are the dominant species.

Given the low-density of Squatter Pigeon records, the poor-quality habitat, combined with the implementation of mitigation measures outlined above, it is unlikely that the Project will result in direct mortality of Squatter Pigeon.

The Project is unlikely to lead to a long-term decrease in the size of an important population.

**Reduce the area of occupancy of an important population**

Important populations of Squatter Pigeon are considered to be the small, isolated and sparsely distributed sub-populations that occur south of the Carnarvon Ranges in Central Queensland (TSSC 2015b). The Project Area is situated south-east of the Carnarvon Range and therefore is in the region of important populations. In 2000, the estimated area of occupancy was 10,000 km<sup>2</sup> (with low reliability), while the total known occurrence covered approximately 440,000 km<sup>2</sup> (with medium reliability)

Although Squatter Pigeons may occasionally forage within the open grassy pastures on the site, the vast cropped areas and current cattle grazing make this habitat marginal at best. Suitable foraging and breeding areas exist near Yelarbon State Forest and Dthinna Dthinnawan National Park. After construction, Squatter Pigeon will still be able to forage around the solar array, as no ground cover clearing or land leveling will occur.

Overall, the species' occupancy area will remain unaffected by the Project due to minimal disturbance of suitable habitat.

**Fragment an existing important population into two or more populations**

Squatter Pigeons will be able to traverse across the Project Area despite the construction of the solar array. This species is highly mobile and can easily fly over or walk underneath the solar array. No isolation of the potentially occurring populations will result from the proposal.

**Adversely affect habitat critical to the survival of a species**

There has been no critical habitat defined specifically for this species. The MNES Significant Impact Guidelines provide a general definition of critical habitat as: 'Habitat critical to the survival of a species or ecological community' and 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.
- For the reintroduction of populations or recovery of the species or ecological community.

The general habitat description for the Squatter Pigeon includes remnant, regrowth, or partly modified *Eucalyptus*, *Corymbia*, *Acacia*, or *Callitris*-dominated open forests, as well as sparse woodlands and scrub. These habitats should be located within 1 km (for breeding) or 3 km (for foraging) of waterbodies or watercourses (DCCEEW 2023b). The Squatter Pigeon prefers patchy ground cover with up to 33% native seeding grasses and forbs.

While several vegetation communities within the Project Area, such as RE 11.5.1 (*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces) and 11.3.2 (*Eucalyptus populnea* woodland on alluvial plains), provide suitable habitat, these communities are absent within the proposed Disturbance Footprint. The Project Area predominantly consists of open grazing pastures and cropped lands. These non-remnant vegetation communities do not represent the known preferred habitat for the Squatter Pigeon and are thus not considered critical for this species. Suitable habitat in the

<p>form of the vegetation communities described above will occur within and near Yelarbon State Forest and Dthinna Dthinnawan National Park.</p>
<p><b>Disrupt the breeding cycle of an important population</b></p>
<p>Squatter Pigeon can breed throughout most of the year; therefore, it is possible breeding may occur concurrently with construction. Mitigation measures will be implemented to ensure the breeding cycle is maintained within the Project Area, including:</p> <ul style="list-style-type: none"> <li>• FSC to conduct pre-clearance surveys for nests/young prior to clearing and to supervise all clearing activities.</li> <li>• If eggs or young are detected an exclusion zone will be established and demarcated, sufficient to ensure that clearing will not interfere with the nest. For example, trees will not be felled if they, or a tree they fall on, are within striking distance of the nest.</li> <li>• Clearing works will not continue in the exclusion zone until the species young fledge, or as per the instruction of a suitably qualified FSC.</li> <li>• Weed and pest management measures to outline requirements for managing introduced weeds and predators.</li> <li>• Reduced speed limits (<math>\leq 40</math> km/hr) during construction and operation to avoid collisions with wildlife or destruction of nests.</li> <li>• Best practice erosion and sediment controls to be implemented to maintain/improve condition of water resources.</li> </ul> <p>With the mitigation measures in place, it is unlikely that the Project will disrupt the breeding cycle of an important population.</p>
<p><b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b></p>
<p>Habitat in the Project Area will not be isolated as connectivity to suitable Squatter Pigeon habitat outside of the Project Area will be maintained.</p> <p>A total of 904.64 hectares of habitat for the Squatter Pigeon will be impacted for the installation of the solar array. This habitat is not remnant and consists largely of cleared grasslands and cropped fields. Squatter Pigeon will be able to disperse from the Project Area into surrounding habitat without obstruction. Furthermore, this species will continue to forage beneath the solar array, as limited land clearing or levelling will occur.</p> <p>Impacts to Squatter Pigeon will be minimised through the implementation of mitigation measures, including:</p> <ul style="list-style-type: none"> <li>• weed management measures to be implemented</li> <li>• pest management measures to be implemented</li> <li>• FSC pre-clearance surveys for nests/young prior to clearing and to supervise all clearing activities</li> <li>• establishment of an exclusion zone around nests (if they are located), sufficient to ensure that clearing will not interfere with the nest. For example, trees will not be felled if they, or a tree they fall on, are within striking distance of the nest</li> <li>• clearing works will not continue in the exclusion zone until the species young fledge, or as per the instruction of a suitably qualified FSC</li> <li>• staged, sequential clearing and rehabilitation to minimise total unavailable habitat to Squatter Pigeon at any one time</li> <li>• where practicable, allow natural regeneration of native grasses under infrastructure to provide foraging opportunities for Squatter Pigeon</li> <li>• reduced speed limits during construction and operation to <math>\leq 40</math> km/hr to avoid unintended collisions with wildlife or destruction of nests</li> <li>• best practice erosion and sediment controls to be implemented to maintain/improve condition of water resources.</li> </ul> <p>Given the Project Area does not contain habitat critical to the survival of the species, it is unlikely that the Project will result in decline of the species. The implementation of the above mitigation measures will ensure Project impacts are minimised.</p> <p>The Project is unlikely to decrease the availability or quality of habitat to the extent that the species is likely to decline.</p>
<p><b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat</b></p>
<p>Predation by feral cats and introduction of weeds are two of the current key threats to Squatter Pigeon (TSSC 2015b). European red fox were recorded in the Project Area. This species is likely to prey on Squatter Pigeon. Habitat degradation by the establishment of invasive buffel grass can also fragment populations (DCCEEW 2023b). Buffel grass has been confirmed in the Project Area and weed infestation is common throughout the Project Area, and in some areas severe.</p> <p>Weed and pest management measures will be developed for the Project which will outline mitigation and monitoring measures to reduce the likelihood of the Project spreading or increasing the number of invasive flora and fauna found in the Project Area.</p> <p>Measures for controlling weed and pests in the Project Area will include (but not be limited to):</p>

<ul style="list-style-type: none"> <li>• development of a weed and pest management plan outlining control measures for invasive species, including tangible on-ground actions for management and allowing for adaptable measures</li> <li>• feeding any wildlife will be prohibited</li> <li>• appropriate disposal of rubbish.</li> </ul> <p>With these measures in place the Project is not expected to increase the number of invasive species in the Project Area beyond those which already exist. As such, the Project will not result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.</p>
<p><b>Introduce disease that may cause the species to decline</b></p>
<p>Currently there are no diseases on the list of threats to Squatter Pigeon. Vehicle hygiene procedures will be implemented to ensure contaminants are not introduced to the Project Area. In the event that sick or injured birds are found in the Project Area, they will be taken to a vet for assessment and not released if they are showing signs of disease.</p> <p>It is unlikely that the Project will introduce disease that will cause a decline in Squatter Pigeon</p>
<p><b>Interfere with the recovery of the species</b></p>
<p>There is no recovery plan in place for Squatter Pigeon.</p> <p>Whilst 904.64ha of potential foraging and breeding habitat for the Squatter Pigeon occurs within the Disturbance Footprint, much of this habitat is considered marginal and is non-remnant. It does not comprise habitat critical for survival of the species. Squatter Pigeon will be able to disperse from the Project Area into surrounding habitat without obstruction. Threats to the species are unlikely to increase as a result of the Project. Impacts to Squatter Pigeon will be reduced through implementation of the mitigation measures listed in the sections above.</p> <p>Given the above considerations, the Project is not expected to interfere substantially with the recovery of the species</p>
<p><b>Conclusion</b></p>
<p>Approximately 904.64 ha of potential foraging and breeding, which includes cleared grasslands and cropping fields, intersects with the Disturbance Footprint. These vegetation communities do not constitute naturally occurring and preferred habitats for the Squatter Pigeon. Given that this species can still forage on site, the overall impact represents a very small fraction of a much larger foraging and breeding range for this species.</p>

Table A- 5 Assessment of significant impact: South-eastern Long-eared Bat

<p><b>South-eastern Long-eared Bat (<i>Nyctophilus corbeni</i>)</b></p>
<p><b>Lead to a long-term decrease in the size of an important population</b></p>
<p>An important population of <i>Nyctophilus corbeni</i> has not yet been defined. A determination of an important population will be assessed against the criteria set out in the Significant impact guidelines 1.1 (2013). The criteria for determining the presence of an important population are to ascertain if populations are:</p> <ul style="list-style-type: none"> <li>• key source populations either for breeding or dispersal</li> <li>• populations that are necessary for maintaining genetic diversity, and/or</li> <li>• populations that are near the limit of the species range.</li> </ul> <p>The distribution of <i>Nyctophilus corbeni</i> is very large, extending from the Brigalow Belt South bioregion in southern central Queensland, along the Murray Darling Basin to north-western Victoria and eastern South Australia. This species occurs patchily across this distribution, where it occurs within open woodland vegetation communities west of the Great Dividing Range. The varied distribution suggests that the Project Area may contain an important population of this species, as it could be isolated from those populations further south.</p> <p>Whilst this is possible, the Disturbance Footprint is largely fragmented and is generally devoid of remnant woodland and forest communities, thus it is unlikely that this microbat will occur within the proposed Disturbance Footprint. This species is known to prefer landscapes that offer more structurally complex vegetation communities, such as woodlands with an intact canopy and shrub layer, which is not present within the open pasture matrix currently across most of the site. Small, isolated patches of woodland may attract occasional foraging grounds for this species, however it has been noted that large areas of extensive woodland stands are preferred (TSSC 2015b). Given that the proposal will occur in non-remnant vegetation, and that extensive woodland and forest communities are present in Yelarbon State Forest and Dthinna Dthinnawan National Park, the Project will not lead to any decrease in the important population of this species.</p>
<p><b>Reduce the area of occupancy of an important population</b></p>
<p>The Brigalow Belt South bioregion has experienced significant fragmentation over time, and the Project Area lies within this fragmented landscape. However, the proposed construction of the solar array, situated in an area cleared of remnant native vegetation, is unlikely to further fragment the habitat for this species. Microbats, being highly mobile, are likely to traverse between Yelarbon State Forest and Dthinna Dthinnawan National Park. The Disturbance Footprint</p>

of 904.64 ha will not hinder their movement across the site and will not reduce the area of occupancy of an important population.
<b>Fragment an existing important population into two or more populations</b>
Large scale fragmentation of the Brigalow Belt South bioregion has occurred over time, with the Project Area occurring within this fragmented landscape. This species is highly unlikely to be further fragmented from the proposed construction of the solar array, which is situated within an area cleared of remnant native vegetation. Microbats are highly mobile and are likely to be traversing across the region between Yelarbon State Forest and Dthinna Dthinnawan National Park. The Disturbance Footprint of 904.64 ha will not prevent this species from flying across the Project Area and thus no population fragmentation will occur.
<b>Adversely affect habitat critical to the survival of a species</b>
Habitat critical for the survival of <i>Nyctophilus corbeni</i> has not been formally described. Under the criteria described in the Significant impact guidelines 1.1 (2013), habitat critical to the survival of a vulnerable species refers to areas that are necessary for: <ul style="list-style-type: none"> <li>• for activities such as foraging, breeding, roosting, or dispersal</li> <li>• 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)</li> <li>• to maintain genetic diversity and long-term evolutionary development, or</li> <li>• or the reintroduction of populations or recovery of the species or ecological community.</li> </ul> <p>Suitable foraging, breeding, roosting and dispersal habitat is present within the Project Area, within sites bordering Yelarbon state forest, however, habitat is not present within the Disturbance Footprint which is within an area largely devoid of remnant vegetation. The woodland habitat within and on the edges of Yelarbon state forest and Dthinna Dthinnawan National Park will provide critical habitat for this microbat, however the habitat qualities within these forests are not present in the Project Area.</p>
<b>Disrupt the breeding cycle of an important population</b>
The proposed Disturbance Footprint lies outside any forested habitat that hosts a potentially important population of this species. <i>Nyctophilus corbeni</i> is expected to maintain its usual breeding behaviour. The implementation of the solar array on the site is unlikely to negatively impact this bat species due to the change in land use.
<b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b>
The proposed solar array will be constructed in an area exterior to the favoured habitat of this species, which occurs within the woodland and forest habitats associated with Yelarbon State Forest, and Dthinna Dthinnawan National Park and nearby fringing woodlands. Contraction will not occur within favoured habitat; thus no impacts are expected to occur from this proposal.
<b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat</b>
The interaction of invasive species with <i>Nyctophilus corbeni</i> has not been well-documented. Currently, it remains uncertain whether invasive feral predators, such as feral cats and foxes, significantly impact this microbat. While invasive flora species can alter woodland environments' structure, no new weeds are expected to be introduced due to the construction of the solar array. This expectation holds, especially since the Project will be developed so as to avoid removal of remnant vegetation communities.
<b>Introduce disease that may cause the species to decline</b>
No diseases of <i>Nyctophilus corbeni</i> are known at this stage. TSSC (2015), in the conservation advice for <i>Nyctophilus corbeni</i> lists exposure to agrichemicals as a potential impact to this species. These chemicals can bio-accumulate within bats after consuming insects that have the chemicals sprayed on them. This will not occur from the proposed solar array, as no large-scale pest and weed control using boom spraying will occur.
<b>Interfere with the recovery of the species</b>
Since the proposed solar array is expected to be constructed outside of known <i>Nyctophilus corbeni</i> habitat, the proposal will not impact on any recovery actions for this species. Suitable foraging and dispersal habitat will remain despite the proposal.
<b>Conclusion</b>
The location of the Disturbance Footprint outside of suitable remnant high-quality habitat will avoid any significant impacts occurring to this species.

Table A- 6 Assessment of significant impact: Glossy Black-cockatoo

<b>Glossy Black-cockatoo (<i>Calyptorhynchus lathami lathami</i>)</b>
<b>Lead to a long-term decrease in the size of an important population</b>
This species has a wide distribution to the north and south of the Project Area, and the Project Area does not contain the preferred foraging species normally associated with an important population for this species. Suitable nesting trees and habitat will not be interfered with or removed. As such, no impacts to any population of this species on the site is expected to occur.
<b>Reduce the area of occupancy of an important population</b>
The distribution of the south-eastern Glossy Black Cockatoo populations extends from the Southeast Queensland and Brigalow Belt Bioregions south through to East Gippsland in Victoria. Populations within this distribution are widespread, and occur in within a range of vegetation communities, from coastal forests to areas inland of the Great Dividing Range. The species has a broad distribution to the north and south of the Project and the Project Area is not considered to be a location with attributes capable of supporting an important population. Furthermore, there is a distinct lack of suitable foraging and nesting trees within the Disturbance Footprint. All potential feeding and breeding habitat within the local remnant forested sections of the Project Area will be retained. A total of 0.76ha of potential Glossy Black Cockatoo habitat intersects with the Disturbance Footprint. This habitat is considered marginal and as such will not reduce the impact of an important population.
<b>Fragment an existing important population into two or more populations</b>
Although the Glossy Black Cockatoo was not observed during field component of this study, this species is expected to occur within the Project Area as an occasional visitor for foraging and potentially breeding. This is due to the presence of suitable forested vegetation communities that are likely to contain the desired food trees for the Glossy Black-cockatoo, such as <i>Allocasuarina cristata</i> , which was observed within the Project Area. Furthermore, proximate records for Glossy Black-cockatoo are present within the locality, with records occurring in Yelarbon State Forest immediately to the north of the project area, and Dthinna Dthinnawan National Park to the south. The total Disturbance Footprint area of 904.64 ha for the solar array is not large enough to isolate or fragment any populations of this species within the region especially since the development occurs within suboptimal habitat. Glossy Black Cockatoos are a highly mobile aerial species and will continue to disperse across the Project Area to nearby areas of suitable foraging and breeding habitat within remnant forest communities, regardless of the proposed development. Furthermore, the solar array will be constructed within areas that are already highly modified from the original forest communities that occurred there prior to land clearing and thus no change or fragmentation is expected to occur.
<b>Adversely affect habitat critical to the survival of a species</b>
Foraging habitat for the Glossy Black Cockatoo is within those vegetation communities that contain <i>Allocasuarina</i> spp. and <i>Casuarina</i> spp. (She-oak) feed trees. Southeastern Glossy Black-cockatoos are known to feed from nine species of she-oak (DCCEEW 2022e), of which three species, <i>Casuarina cunninghamiana</i> , <i>Casuarina cristata</i> and <i>Allocasuarina luehmannii</i> was observed in the Project Area. These three species are, generally regarded as less favourable feed trees. Glossy Black Cockatoos within Southeast Queensland and Northeast New South Wales prefer to feed on <i>Allocasuarina littoralis</i> and <i>Allocasuarina torulosa</i> . Whilst this is the case, Glossy Black Cockatoos within the Project Area may still feed on the she-oaks identified on the site, as they may be locally favourable, due to the absence of the preferred feed trees in the area.
The Project Area contains a matrix of open pastures, plantations and remnant, forested vegetation communities. The Disturbance Footprint is proposed to be built within non-remnant vegetation portion of the project area, which currently contains a modified landscape for agricultural purposes. These areas are also very lightly timbered and contain a very sparse layer or feeding and nesting trees for the Glossy Black Cockatoo. Breeding habitat for the Glossy Black Cockatoo within the region occurs within open eucalypt forest communities, where adequate hollow bearing trees large enough for the Glossy Black Cockatoo are present. These forest communities will occur within the in Yelarbon State Forest immediately to the north of the project area, and Dthinna Dthinnawan National Park to the south. Furthermore, suitable vegetation communities fringing Brush Creek on the Project Area are also likely to support adequate feed tree and roosting habitat.
Neither of these vegetation communities will be cleared or indirectly impacted during construction, which is proposed to be entirely within non-remnant areas with a very sparse cover of paddock trees. Individual trees within the cleared pasture matrix may provide occasional habitat for transient Glossy Black Cockatoo, however they are not considered critical habitat for this species, thus no significant impact on habitat critical for the survival of the species will occur.
<b>Disrupt the breeding cycle of an important population</b>
The breeding cycle of Glossy Black Cockatoos begins between March and September in Australia. After mating, the female bird lays one egg within a suitable Eucalypt tree hollow. The female cares entirely for the chick, whilst the male cockatoo feeds the female. Fledglings are generally independent after 3 months of age. The estimated generation length for this species is 11.9 years (DCCEEW 2022e). Given that no habitat for this species will be removed from the

Project Area, and population will not be isolated for breeding purposes, the proposal will not disrupt the breeding cycle of this species.
<b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b>
Suitable high-quality habitat, in the form of open Eucalypt forests, occurs within the property lots near the Yelarbon State Forest and along parts of Brush Creek within the Project Area. The Disturbance Footprint, which will include the solar array, construction compound and access tracks will be located exterior to these habitat areas. As such, the Project Area will not modify or destroy these habitat areas. Furthermore, as the Disturbance Footprint is located entirely within non-remnant vegetation, there will be no decrease in the availability or quality of habitat associated with the Project.
<b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat</b>
Invasive species can alter the structure and composition of ecological communities, through increased competition and predation to naturally occurring native species. Several weed species were found across the Project Area, and these were mostly located within the matrix of introduced pastures on the site. Since these weeds are already established, and the Disturbance Footprint is situated outside areas of suitable Glossy Black Cockatoo habitat, no change to the distribution of weeds on the site within critical habitat areas is expected to occur. Invasive species, such as the feral cat and Red Fox are not considered a major threat to Glossy Black Cockatoos. These species are already present across the Project Area, and no change to their distribution and abundance is expected as a result of the proposal.
<b>Introduce disease that may cause the species to decline</b>
Glossy Black Cockatoos are susceptible to Psittacine Beak and Feather Disease (Pbfd). This disease is generally regarded as low threat to Glossy Black Cockatoos, relative to other impacts such as habitat loss (DCCEEW 2022e). The proposed project will have no connection to this disease, or other diseases known to the Glossy Black Cockatoo. The project will not cause any further transmission amongst individuals other than that which may be naturally occurring.
<b>Interfere with the recovery of the species</b>
Isolated stands of paddock trees on the property provide marginally suitable habitat for occasional foraging by the Glossy Black Cockatoo. However, high-quality habitat associated with Eucalypt and Brigalow woodlands and forests is not present within the Disturbance Footprint. Therefore, the project will not interfere with the recovery of this species, as no critical habitat is affected within the Disturbance Footprint.
<b>Conclusion</b>
Overall, given the lack of suitable habitat within the Disturbance Footprint, none of the assessment criteria listed in this table are expected to trigger a significant impact for this species.

Table A- 7 Assessment of significant impact: Grey Snake

<b>Grey Snake (<i>Hemiaspis damelii</i>)</b>
<b>Lead to a long-term decrease in the size of an important population</b>
An important population of the Grey Snake has not yet been formalised or identified. For this assessment, a determination of an important population has been made against the criteria set out in the Significant impact guidelines 1.1 (2013). The criteria for determining the presence of an important population are to ascertain if populations are: <ul style="list-style-type: none"> <li>• key source populations either for breeding or dispersal</li> <li>• populations that are necessary for maintaining genetic diversity, and/or</li> <li>• populations that are near the limit of the species range.</li> </ul> <p>The Grey Snake is found in Southeastern Queensland to southern Inland New South Wales, primarily within the Brigalow Belt bioregions. Populations along this distribution are fragmented and potentially isolated. Although the species has a large extent of occurrence (approximately 471,500 km<sup>2</sup>), the actual area of occurrence is smaller (164 km<sup>2</sup>) (DCCEEW 2022c).</p> <p>Despite historical and ongoing habitat degradation due to land clearing and agricultural practices, any population within the Project Area would be regarded as significant. However, the proposed solar farm is unlikely to cause long-term population to decline due to the marginal and degraded habitat in the Project Area. Grey Snakes prefer heavy cracking clay soils and inhabit areas near ephemeral wetlands and watercourses, where they primarily hunt frogs. While the Project Area is generally considered marginal habitat for this species, the presence of gilgais may provide additional foraging habitat during water inundation when frogs are drawn to the water within the gilgais.</p> <p>Gilgais are present within the Disturbance Footprint, particularly within Lot 54 CV91. However, analysis of aerial imagery suggests that these gilgais have been subjected to tilling and raking of the land for agriculture and are considered of</p>

<p>lesser quality than those to the north in Lot 54 CVE91, which falls within the Avoidance Area of the Project. Additionally, microhabitat features such as coarse woody debris and rocks are scarce across the site, and the Project Area generally lacks the typical heavy cracking clay soils associated with this species' foraging habitat. Lastly, the proposed solar farm is not expected to clear or level any areas within the Disturbance Footprint to significantly impact the species. Grey Snake will still be able to traverse through the landscapes on which the solar panels are constructed. It is considered that Project will not lead to a long-term decrease in the size of an important population.</p>
<p><b>Reduce the area of occupancy of an important population</b></p>
<p>Parts of the Project Area that contain the most preferable habitat for the Grey Snake are within a portion of the property that contains gilgais. This area is exterior to the proposed Disturbance Footprint. As suitable habitat is not going to be lost for this species, the area of occupancy at the site will remain unchanged.</p>
<p><b>Fragment an existing important population into two or more populations</b></p>
<p>Grey Snake populations within the Goondiwindi region are already likely to be fragmented due to historical land clearing of brigalow communities for cattle grazing and copping. The proposed construction of the solar array will not cause any substantial ground disturbance, and no large scale clearing of the ground cover layer or levelling of the land is expected. As such all potentially occurring Grey Snake individuals will continue to move freely across the landscape. The project is unlikely to fragment an existing population into two or more populations.</p>
<p><b>Adversely affect habitat critical to the survival of a species</b></p>
<p>The preferred habitat for the Grey Snake includes ephemeral wetlands and floodplains on cracking clay soils. These areas provide important seasonal habitat for frogs, on which the Grey Snake feeds almost exclusively on.</p> <p>Within the Project Area, gilgais may act as suitable foraging and sheltering habitat for the Grey Snake. These gilgais are found in dense numbers within Lot 54CVE91. Within the northern sections of this lot, the Gilgais retain higher quality than those in the south of the lot, which has been previously raked and cleared for agricultural purposes. As such, the northern section of this lot will be retained as gilgai habitat for the Grey Snake, whilst the areas in the southern portion of the lot will be developed as part of the solar array. No clearing of the land or further levelling will occur for the installation of the solar array. The project will not adversely affect habitat critical to the survival of the species.</p>
<p><b>Disrupt the breeding cycle of an important population</b></p>
<p>The proposed construction of the solar farm and ancillary infrastructure is located outside areas of high quality Grey Snake habitat. In particular, the part of the Project Area where less-disturbed gilgais are present will be retained, thus reducing potential impacts to the breeding cycle of this species.</p>
<p><b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b></p>
<p>Most of the habitat for the Grey Snake across the project area is considered marginal, due to the absence of cracking clay soils and remnant ephemeral wetlands and floodplains. Gilgais on the property may provide some important habitat, however past disturbances to these gilgais have likely reduced their overall habitat quality. An estimated 168.03 ha of already impacted gilgai habitat will intersect with the solar array in the Disturbance Footprint.</p> <p>Gilgais will be preserved within the northern sections of Lot54CVE91. This Avoidance Area of Grey Snake habitat will total approximately 116ha and represents the higher quality gilgais in the Project Area The retention of this habitat is not guaranteed if the current agricultural practices continue.</p>
<p><b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat</b></p>
<p>Several invasive species are considered potentially harmful to the Grey Snake. Foxes and feral cats may impact on individual Grey Snakes through direct predation. Feral pigs are prevalent in floodplain habitat, where they damage the ground by upturning large areas of soil as they forage, which degrades the preferred habitat for the Grey Snake. Foxes and feral pigs were observed in the current survey effort, and feral cats, although not detected are highly likely to occur there. These species are likely to have been established across the Project Area for several decades.</p> <p>Cane Toads also pose a serious threat to the Grey Snake; however, toads were not observed during the current field survey effort. Overall, the construction of the solar array and ancillary infrastructure is not expected to change the distribution or abundance of either of the invasive species and thus will not have a significant impact.</p>
<p><b>Introduce disease that may cause the species to decline</b></p>
<p>There are no known diseases of the Grey Snake that will be introduced from the construction of the solar farm.</p>
<p><b>Interfere with the recovery of the species</b></p>
<p>It is highly unlikely that the proposal will impact on potential Grey Snake habitat in the Project Area. As such, the proposal will not interfere with the recovery of this species.</p>
<p><b>Conclusion</b></p>

Gilgai habitat within cracking clay soils is present within the Project Area and Disturbance Footprint. Those gilgais that intersect with the Disturbance Footprint are within a part of the property heavily modified from agricultural practices and are considered sub-optimal. Where suitable gilgais do occur, the Disturbance Footprint has avoided these areas. Installation of the solar array will entail minimal ground cover disturbance and thus the Grey Snake will continue to occur within these areas of the Disturbance Footprint.

Table A- 8 Assessment of significant impact: Dunmall's Snake

<b>Dunmall's Snake (<i>Furina dunmalli</i>)</b>
<b>Lead to a long-term decrease in the size of an important population</b>
<p>An important population of the Dunmall's Snake has not yet been formalised or identified. For this assessment, a determination of an important population has been made against the criteria set out in the Significant impact guidelines 1.1 (2013). The criteria for determining the presence of an important population are to ascertain if populations are:</p> <ul style="list-style-type: none"> <li>• key source populations either for breeding or dispersal</li> <li>• populations that are necessary for maintaining genetic diversity, and/or</li> <li>• populations that are near the limit of the species range.</li> </ul> <p>This species occurs across the Brigalow Belt Bioregion in Queensland, from the border of New South Wales, north to Rockhampton. This species may potentially occur further south, into north-eastern inland New South Wales. An important population of this snake is not expected to occur on the Project Area. This is in part due to the overall lack of suitable habitat.</p> <p>The Disturbance Footprint is cleared of remnant woodland habitats and does not contain the complex structural ground cover layer favoured by this species. Furthermore, the Disturbance Footprint is modified for cattle grazing and other agricultural practices, and any potential available habitat is considered marginal for this species. Suitable gilgai habitat within Lot 54CVE91 is present for this species and has been allocated as an 'Avoidance Area' which will limit any adverse impacts to a potential occurring population. The Project will not lead to a long-term decrease in the size of an important population.</p>
<b>Reduce the area of occupancy of an important population</b>
<p>An important population for this snake is not expected to occur within the Project Area due to the lack of habitat required to support the species. Suitable habitat occurs within the nearby Yelarbon State Forest and may support a population there.</p> <p>Given the degraded habitat within the Disturbance Footprint due to clearing and ongoing agricultural practices it is expected that there is a low likelihood of an important population being present. Occupancy will not be reduced within the broader locality, as the proposed project is located exterior to more suitable habitat.</p>
<b>Fragment an existing important population into two or more populations</b>
<p>It is unlikely that an important population of the Dunmall's Snake is found within the Project Area, as much of the site is severely degraded from the remnant woodland that once occurred there. The solar farm is proposed to be constructed within non-remnant vegetation, with minimal ground cover layer and other necessary habitat attributes. Clearing and minor earthworks for the solar farm and related infrastructure will occur within defined areas within the Disturbance Footprint. It is not expected that construction or operation of the solar farm will fragment, any potentially occurring populations.</p>
<b>Adversely affect habitat critical to the survival of a species</b>
<p>Habitat critical for the survival of this snake was not identified in the Project Area, although marginal suitable habitat associated with the gilgais is present on Lot54CVE91. Suitable habitat is likely at the nearby Yelarbon State Forest.</p> <p>Construction for the Project within the Disturbance Footprint is highly unlikely to affect potential habitat on the site. Where the marginal gilgai habitat remains in the Project Area, the proponent has allocated this as an Avoidance Area, further mitigating potential impacts to this species. The Project will avoid potential habitat suitable for the Dunmall's Snake and it is unlikely that habitat critical to the survival of the species will be adversely impacted</p>
<b>Disrupt the breeding cycle of an important population</b>
<p>Suitable habitat capable of supporting an important population this snake was not identified in the Project Area. Marginal habitat associated with the gilgais on 54CVE91 is present, though higher quality habitat is located in the nearby Yelarbon State Forest. As the habitat within the Disturbance Footprint is generally unsuitable for this species, no impacts to the breeding cycle of a potentially important population is expected to occur.</p>

<b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b>
Marginal suitable habitat for the Dunmall's Snake is present within the Project Area, near Yelarbon State Forest and within the areas dominated by gilgais. The Disturbance Footprint does not intersect with extensive woodland habitat. Degraded gilgai habitat that has been previously subject to raking and levelling for agricultural purposes will be impacted from the proposal however, approximately 116 hectares of marginal gilgai habitat will be retained within the Project Avoidance Area. The project is unlikely to impact available habitat to the extent that the species will decline.
<b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat</b>
Invasive species such as the fox, feral cat, feral pig and Cane toad are harmful to the Dunmall's Snake. All of these pest species were confirmed on site during survey, with the exception of Cane toad. The distribution and abundance of these pest species is not expected to change because of the proposed solar farm.
<b>Introduce disease that may cause the species to decline</b>
There are no known diseases of the Dunmall's Snake that will be introduced from the construction and operation of the solar farm.
<b>Interfere with the recovery of the species</b>
The Project is unlikely to interfere with the recovery of this species. The installation of the solar array across modified gilgai habitat will not interfere with any recovery actions for this species. Marginal and better quality gilgai habitat within the Project Area will be avoided.
<b>Conclusion</b>
Given the limited extent and quality of suitable habitat within Project Area, and avoidance of those areas with potential to support Dunmall's Snake, a significant impact to this species is considered unlikely.

Table A- 9 Assessment of significant impact: Latham's Snipe

<b>Latham's Snipe (<i>Gallinago hardwickii</i>)</b>
<b>Lead to a long-term decrease in the size of an important population</b>
An important population of the Latham's snipe in Australia has not yet been formalised or identified. For this assessment, a determination of an important population will be assessed against the criteria set out in the Significant impact guidelines 1.1 (2013). The criteria for determining the presence of an important population are to ascertain if populations are: <ul style="list-style-type: none"> <li>• key source populations either for breeding or dispersal</li> <li>• populations that are necessary for maintaining genetic diversity, and/or</li> <li>• populations that are near the limit of the species range.</li> </ul> <p>The distribution of this migratory species across eastern Australia is very large. Individual birds can travel significant distances to locate suitable foraging habitat, which occurs as either remnant wetland ecosystems or non-remnant waterbodies, such as cattle dams. This species is likely to be attracted to the gilgais in the Project Area, during periods of seasonal water inundation.</p> <p>Given the considerable extent of distribution of this species and the general lack of remnant wetland ecosystems, this species is only expected to occur on the site as individuals of a larger population, seeking temporary foraging grounds at cattle dams and at seasonally inundated wetlands. As such, an important population is not expected to occur on the site, due to the general lack of permanent, suitable wetland ecosystems required to support large numbers of these birds.</p>
<b>Reduce the area of occupancy of an important population</b>
The proposed solar farm will not occur within any areas of wetlands or water bodies on the Project Area. There is a lack of preferred roosting habitat (wet tussock grassland and other dense ground vegetation) within the Disturbance Footprint. Potential roosting habitat may be found in areas outside the Development Footprint (such as along Brush Creek). The Project is not expected to impact the current availability of foraging and roosting habitat. The Project will not reduce the occupancy of an important population.
<b>Fragment an existing important population into two or more populations</b>
An important population of Latham's snipe is not expected to occur within the Project Area.
All wetland and associated habitat supportive of the species is located exterior to the Disturbance Footprint. Natural and non-natural lacustrine and mapped wetland communities will remain undisturbed in the Project Area. No direct impacts will occur during construction or operation. Latham's snipe will continue to fly across the Project Area extent to utilise potential foraging and roosting habitat and thus no fragmentation is likely to occur.

<p><b>Adversely affect habitat critical to the survival of a species</b></p> <p>Habitat critical to the survival on the species is characterised as open freshwater or brackish wetlands with cover nearby (typified by tussock grasslands and/or dense ground vegetation. There is an absence of this type of habitat across the Project Area, with the partial exception of one reasonable sized farm dam and some small ephemeral wetland areas associated with Brush Creek.</p> <p>There is no suitable habitat located within the Disturbance Footprint. More suitable and extensive wetland and artificial waterbodies exist throughout the region. No removal of any wetland ecosystem will occur and the Project is not considered to result in impacts that will adversely affect habitat critical to the survival of the species.</p>
<p><b>Disrupt the breeding cycle of an important population</b></p> <p>Latham’s Snipe breed in the northern hemisphere, primarily within suitable habitats in Japan and on islands off eastern Russia. The proposed solar farm will not impact their breeding or foraging habitats, ensuring that Latham’s Snipe can continue to migrate to their breeding grounds. The Project will not disrupt the breeding cycle of an important population.</p>
<p><b>Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</b></p> <p>This species occupies a range of wetland habitats, such as open freshwater wetlands with dense vegetation and modified and artificial wetlands, such as the cattle dams in the Project Area. The proposed solar farm and ancillary infrastructure will not remove any such habitat found on the site, and thus no significant impact under this criterion will occur for the Latham’s snipe. The Project will not impact habitat to the extent that the species is likely to decline.</p>
<p><b>Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species’ habitat</b></p> <p>The proposed project will not influence any changes to the abundance or distribution of invasive flora and fauna in the Project Area. No significant impact will occur. The Project will not result in harmful invasive species becoming established in Latham’s Snipe habitat.</p>
<p><b>Introduce disease that may cause the species to decline</b></p> <p>Currently there are no diseases on the list of threats to the Latham’s Snipe. Vehicle hygiene procedures will be implemented to ensure contaminants are not introduced to the Project Area. If sick or injured birds are found in the Project Area, they will be taken to a vet for assessment and not released if they are showing signs of disease. It is unlikely that the Project will introduce disease that will cause a decline of Latham’s Snipe.</p>
<p><b>Interfere with the recovery of the species</b></p> <p>There is no recovery plan in place for the Latham’s snipe. Habitat for this species will not be impacted or damaged as a result of the Project. The Project is unlikely to interfere with the recovery of the species.</p>
<p><b>Conclusion</b></p> <p>Suitable habitat within the Project Area is restricted to wetland communities, where Latham’s Snipe can forage and roost. The proposed solar farm will be situated within land that has been cleared and used for agriculture, mostly associated with cattle grazing. Suitable foraging and roosting habitat is located outside the Disturbance Footprint and will be avoided, and thus no significant impact to this species from the proposal will occur.</p>

Table A- 10 Assessment of significant impact: Diamond Firetail

<p><b>Diamond Firetail (<i>Stagonopleura guttata</i>)</b></p>
<p><b>Lead to a long-term decrease in the size of an important population</b></p> <p>An important population of the Diamond Firetail in Australia has not yet been formalised or identified. For this assessment, a determination of an important population will be assessed against the criteria set out in the Significant impact guidelines 1.1 (2013). The criteria for determining the presence of an important population are to ascertain if populations are:</p> <ul style="list-style-type: none"> <li>• key source populations either for breeding or dispersal</li> <li>• populations that are necessary for maintaining genetic diversity, and/or</li> <li>• populations that are near the limit of the species range.</li> </ul> <p>The Diamond Firetail has a large distribution, extending from southern Queensland through to Southern New South Wales , northern Victoria, and southeastern South Australia. Within the Goondiwindi region, this species is likely to be found in suitable open woodlands and native/exotic grassland communities. Records of the Diamond Firetail exist near Yelarbon State Forest and within Dthinnia Dthinwan National Park south of the Project Area.</p>

Although records become sparser further north of the Project Area, any potentially occurring populations are still within the species' overall range. Additionally, due to the species' likely widespread distribution in the region, the Project Area would not be considered a critical location containing key source populations necessary for genetic diversity, as records exist throughout the region. The Project is unlikely to cause a long-term decrease in the size of an important population.

**Reduce the area of occupancy of an important population**

An important population of the Diamond Firetail does not occur on the Project Area. The solar array will be installed across 573.28 hectares of potentially suitable foraging habitat within the Disturbance Footprint. Since the ground cover component under the solar array will remain, there is potential for this species to forage beneath and around the panels. Furthermore, suitable woodland vegetation will be retained within the Project Area, and as such, this species is likely to still occur on the site after the construction of the solar farm. It is considered that the Project will not reduce the occupancy of an important population.

**Fragment an existing important population into two or more populations**

The construction impacts within the Disturbance Footprint are not considered to be at a scale or extent to isolate any Diamond Firetail population in the area. Connectivity across farmlands and watercourse corridors will remain within the Project Area, despite the construction and operation of the solar array and ancillary infrastructure. The Project will not create impacts, or result in barriers, that will fragment an existing important population into two or more populations.

**Adversely affect habitat critical to the survival of a species**

DCCEEW (2023b) described habitat critical to the survival of the Diamond Firetail as areas of:

- Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats.
- low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding.
- Drooping she-oak (*Allocasuarina verticillata*) within the Mt Lofty Ranges.

The Project Area does contain suitable open woodland environments on the properties bordering the nearby Yelarbon State Forest, including areas suitable for foraging. Within the Disturbance Footprint, suitable open pastures consisting of native and introduced grasses are present, although are generally considered marginal due to cattle grazing pressure and the presence of weeds. The Disturbance Footprint will result in potential impacts to 573.28ha of marginal foraging habitat for this species during construction. This is unlikely to cause a significant impact, as suitable habitat does remain exterior to the Project footprint, particularly alongside Yelarbon State Forest and within suitable habitats within and nearby Dhinna Dhinawan National Park in New South Wales.

**Disrupt the breeding cycle of an important population**

Suitable breeding habitat for the Diamond Firetail occurs within areas that contain a structural shrub and canopy layer to build nests in. These areas are located outside of the Disturbance Footprint, which is typified by open cattle grazing pastures and crop fields.

**Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

The Disturbance Footprint is an area 904.64ha across open pastures, suitable as marginal foraging habitat for the Diamond Firetail. These areas may become more suitable with the grasses growing to heights and assemblages consistent with preferred foraging vegetation, although this is dependent on cattle grazing pressure and density of weedy annual grass species. Impacts to this existing non-remnant foraging habitat will not cause the species to decline in the region. More suitable habitat is located exterior to the Disturbance Footprint, within open woodland communities and vegetation associations containing a mix of foraging and breeding habitat. Furthermore, open pasture habitat will remain post-construction for this species to occasionally forage within.

**Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat**

Invasive weed species pose a potential threat to the habitat of the Diamond Firetail. They can displace native grasses that provide a year-round seed source. Several weed grasses, such as *Eragrostis curvula*, were observed on the site during field surveys. Feral animals, such as feral cats, may also impact the Diamond Firetail through predation and Feral pigs can disturb the ground cover layer, thus increasing weed established through colonisation of disturbed ground.

The installation of the solar array and related infrastructure will not affect the distribution or abundance of these invasive flora and fauna species. However, implementing strict weed and feral animal management plans for the construction and operation of the solar farm will likely mitigate any further introductions within the Project Area.

**Introduce disease that may cause the species to decline**

There are no known diseases of the Diamond Firetail that will be introduced from the construction of the solar farm.

**Interfere with the recovery of the species**

There is no recovery plan in place for the Diamond Firetail. The Disturbance Footprint is located exterior to suitable breeding habitat for this species, and thus will not have any influence on the recovery of this species population in the region.

<p><b>Conclusion</b></p> <p>Overall, the impact to the Diamond Firetail is expected to be low, particularly since no clearing of breeding habitat will take place. There will be some impacts within the Disturbance Footprint to marginal foraging habitat. This marginal foraging habitat includes non-remnant open pastures currently under use for grazing and other agricultural practices. Post-construction of the solar farm, Diamond Firetail will still be able to forage in and around the solar arrays.</p>
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### F.3 Assessment of impacts to migratory species

<p><b>Latham's Snipe (<i>Gallinago hardwickii</i>)</b></p>
<p><b>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</b></p> <p>The Latham's Snipe's habitat within the Project Area includes cattle dams, seasonally water-filled depressions (gilgais) and some small wetland areas, including ephemeral patches. Brush Creek with runs through the Project Area also provides habitat which may attract Latham's Snipe. The wetland areas, Brush Creek and cattle dams will not be impacted or modified by the Project.</p> <p>The proposed solar farm and its ancillary infrastructure, constructed within the Disturbance Footprint of 904.64ha, will occur across areas used for cattle grazing and cropping. Some of these areas contain gilgais that have been highly modified and degraded. Gilgais that have been less impacted by agricultural practices will be avoided. The Project will not substantially modify, destroy or isolate an area of important habitat for Latham's Snipe.</p>
<p><b>Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species</b></p> <p>The proposed solar farm will be constructed within areas that already contain established populations of invasive flora and fauna species within non-remnant modified habitat. Furthermore, the Project will be located exterior to any areas of important habitat for the Latham's snipe, such as artificial waterbodies, riparian vegetation along Bush Creek and the seasonally inundated wetlands.</p>
<p><b>Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.</b></p> <p>Latham's Snipe breed in the northern hemisphere, primarily in suitable habitats in Japan and on islands off eastern Russia. The proposed solar farm will not impact their breeding or foraging habitats, ensuring that Latham's Snipe can continue to migrate to their breeding grounds. The expected impacts associated with the Project within the Disturbance Footprint will be in areas of open pastures and cropping land which are not considered important for the Latham's Snipe. No significant disruptions to this species lifecycle will occur from the proposal.</p>
<p><b>Conclusion</b></p> <p>The proposed solar array will be located exterior to any areas of known habitat for the Latham's snipe, which includes minor wetlands, seasonally inundated gilgais and artificial water bodies for cattle grazing. As such, the impact to this species from the construction and operation of the solar array are considered to be negligible.</p>

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