BIODIVERSITY ASSESSMENT

Uranquinty Road Solar Farm

January 2022

Project Number: 20-703

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ACRONYMS AND ABBREVIATIONS

AoS	Assessment of Significance
BDAR	Biodiversity Development Assessment Report
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BOM	Australian Bureau of Meteorology
Cwth	Commonwealth
DPI	NSW Department of Primary Industry
EES	Environment Energy and Science
TEC	Threatened ecological community – as defined under relevant law applying to the proposal
EPBC Act	(Cwth) *Environment Protection and Biodiversity Conservation Act 1999*
EP&A Act	(NSW) *Environmental Planning and Assessment Act 1979*
ha	Hectares
HBT	Hollow Bearing Tree
IBRA	Interim Biogeographic Regionalisation for Australia
km	Kilometres
LEP	Local Environment Plan
LGA	Local Government Area
m	Metres
MLLS	Murrumbidgee Local Land Services
MNES	Matters of National environmental significance under the EPBC Act (*c.f.*)
NSW	New South Wales
DPE	Department of Planning and Environment
PCT	Plant Community Type
SEPP	State Environmental Planning Policy (NSW)
sp/spp	Species/multiple species
TEC	Threatened Ecological Community

WWCC	Wagga Wagga City Council

1. INTRODUCTION

This Biodiversity Assessment (BA) has been updated to include the proposed extended area of the proposed Uranquinty Solar Farm. This BA has been prepared to consider the potential biodiversity impacts associated with the proposed development of the Uranquinty Solar Farm, located approximately 1.5 km south east of Uranquinty, NSW.

Wagga Wagga City Council (WWCC) is the consent authority for the development, under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is therefore to be assessed under the provisions of the *Biodiversity Conservation Act 2016* (BC Act).

1.1. PURPOSE OF THIS REPORT

NGH was engaged by Habitat Planning, on behalf of Bison Energy, to undertake a Biodiversity Assessment for this proposal. This report assesses the impacts of the proposed development on biodiversity values in the development footprint. The report identifies and describes biodiversity values in terms of vegetation structure, composition, type and condition, and fauna habitats, sightings, and signs.

The potential for, and significance of, impacts to threatened species and communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) have been evaluated.

The report addresses the flora and fauna assessment requirements of clauses 1.7 and 4.15 of the *Environment Planning and Assessment Act 1979* (EP&A Act) and clause 7.3 of the Wagga Wagga Local Environmental Plan 2010. Where relevant, recommendations are provided to avoid and minimise flora and fauna impacts.

1.2. THE PROPOSAL

1.2.1. Site location and description

The proposed Uranquinty Solar Farm is located within Lot 43 DP754565 within the Wagga Wagga Local Government Area (LGA) (Figure 1-1).

The development footprint covers an area of approximately 23 (ha) and are bounded by Oxley Bridge Road to the west, a vehicular track to the north, and cropping and grazing agricultural land to the east and south (Figure 1-2).

The development footprint is located within the Inland Slopes of the NSW South Western Slopes IBRA biogeographic region. The subject site is zoned RU1 Primary Production under the Wagga Wagga Local Environment Plan (LEP 2010). The area has been largely cleared for agricultural purposes. Land use is recorded as primarily cropping, with a small area of grazing native vegetation on the Western boundary (DPE, 2017) (Figure 1-3).

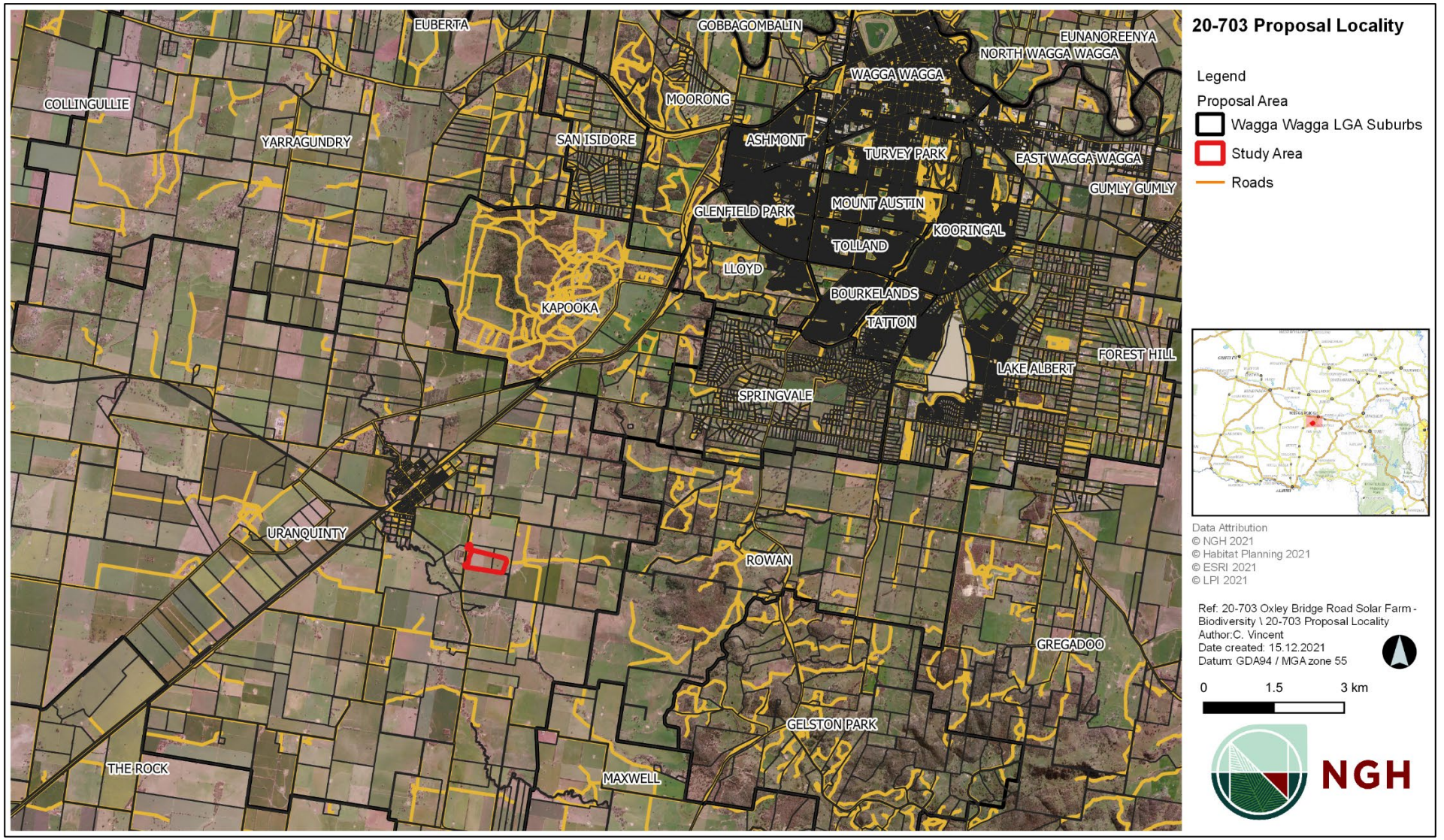

Figure 1-1: Location of development footprint.

Figure 1-2: Development footprint.

Figure 1-3: Land zoning and land use within development footprint.

1.2.2. Proposal description

The proposed Uranquinty Solar Farm (Figure 1-2) would comprise the installation of solar panels and their associated infrastructure. The intended capacity of the solar farm is up to 5MW AC. The project would comprise a footprint of approximately 17 hectares (ha).

Bison Energy intends to develop the proposed solar farm, which would broadly include the following:

- Installation of solar arrays
- Point of Connection compound, including Site office, secondary carpark, and MV power station
- Internal tracks within perimeter security fencing
- Car park (outside of security fencing)
- Lay-down area
- Waste area
- Water tanks
- Two entry/exit points to Oxley Bridge Road. The northern most entrance will be used for vehicle entry during construction and the southern-most entrance will be the exit route. During operation the southern-most entrance will be the main access.
- Vegetation screening between solar arrays and Oxley Bridge Road
- Security fencing

No hollow-bearing or mature trees would be removed for the proposed works. Regenerating native canopy species occurs within the southern entrance/exit area, between Oxley Bridge Road and the proposed security fence. Many mature and hollow-bearing trees occur immediately adjacent to the development footprint in adjoining lots.

This report contains an assessment of the likely impacts of the proposal and recommends mitigation measures for them.

1.3. TERMS USED IN THIS DOCUMENT

The '**development footprint'** is defined as the maximum potential impact of the proposal which includes the solar arrays and ancillary facilities.

The '**study area'** encompasses the area surveyed for the purposes of this assessment including the development footprint and immediate surrounds.

The '**locality**' encompasses a 10km radius of the development footprint.

2. STATUTORY CONSIDERATIONS

2.1. ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION (EPBC) ACT 1999 (CWTH)

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as matters of national environmental significance. Matters of national environmental significance relevant to biodiversity are:

- Wetlands of international importance
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas

Significance of impacts is determined in accordance with the Significance impact guidelines 1.1 – Matters of National Environmental Significance (DoE 2013). Where a proposal is likely to have a significant impact on a matter of national environmental significance, the proposal is referred to the Commonwealth Environment Minister via the Department of the Environment (DoE). The Minister then determines whether the proposal is a 'controlled action'. If a proposal is declared a controlled action, an assessment of the action is carried out and the Minister makes a decision to approve, approve with conditions, or not approve the proposed action.

This assessment considers the potential for the proposal to impact on matters of national environmental significance relevant to biodiversity.

2.2. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act* 1979 (EP&A Act) provides the framework for the assessment of development activities. The proposed development would be considered by the consent authority under clause. 4.2 of this Act, being development that is permitted with consent.

Section 1.7 and Part 4.15 of the EP&A Act requires the consent authority to consider the significance of the impact of the proposal on terrestrial and aquatic threatened species, populations and endangered ecological communities in accordance with the provisions of Part 7 of the Biodiversity Conservation Act 2016).

The potential for, and significance of, impacts to threatened species and communities listed under the NSW BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) have been evaluated in this Biodiversity Assessment. Where relevant, recommendations are provided to avoid and minimise flora and fauna impacts.

2.3. BIODIVERSITY CONSERVATION ACT 2016

In respect of Part 4 developments, the *Biodiversity Conservation Act 2016* (BC Act) establishes a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. It provides a scientific method for assessing the likely impacts of proposed development on biodiversity values, for calculating measures to offset those impacts and for assessing improvements in biodiversity values. The Act aims to maintain the diversity and quality of ecosystems and to support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature.

The primary requirement under the BC Act, is to determine whether the development is likely to significantly affect threatened species. According to clause 7.7(2) of the BC Act, if the proposed development is likely to significantly affect threatened species, the development application is to be accompanied by a biodiversity

development assessment report (BDAR). According to this clause, development is considered likely to significantly affect threatened species if:

> *(a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, (5-part Test) or,*
>
> *(b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
>
> *(c) it is carried out in a declared area of outstanding biodiversity value.*

2.4. STATE ENVIRONMENTAL PLANNING POLICY KOALA HABITAT PROTECTION 2020 AND 2021

This policy aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

Currently two Koala State Environmental Planning Policies (SEPPs) apply in NSW:

- The State Environmental Planning Policy (Koala Habitat Protection) 2020, which commenced on 30 November 2020 and largely reinstates the policy framework of SEPP 44
- The State Environmental Planning Policy (Koala Habitat Protection) 2021, which commenced on 17 March 2021 and largely reinstates the policy framework of the 2019 Koala SEPP.

NGH reviewed the Koala SEPP 2020 and 2021, to determine whether these Policies would apply to the proposed development. The land is zoned RU1 Primary Production within the Wagga Wagga LGA and thus only the Koala Habitat protection SEPP 2020 applies to this proposal. The Koala SEPP 2021 does not apply. An assessment of the koala habitat protection SEPP is detailed in Section 4.2.5.

2.5. NSW BIOSECURITY ACT

The *Biosecurity Act* guides the management of weeds at the regional level throughout NSW. Under the Act, all plants are regulated with a ***general biosecurity duty*** to prevent, eliminate, or minimise any biosecurity risk they may pose. Any person who deals with any plant who knows or ought to know of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated, or minimised, so far as is reasonably practicable. Individual landholders and managers are required under the Act to control priority weeds for their area according to the relevant biosecurity toolset (Table 2.1).

Three priority weeds were identified at the site. This is discussed further in section 4.3.4: Priority Weeds.

Table 2.1 Biosecurity Act 2015 toolset for weed management (Department of Primary Industry 2016)

Outcome category	***Biosecurity toolset***
Weeds excluded from entering state	Prohibited Matter: Declaration and management of significant weeds are not present in NSW or part of NSW.
Weeds to be eradicated	Control Order: Management of weeds that are the targets of approved eradication programs. Although a Control Order is for a five–year period, this can be renewed for longer eradication programs.
Weeds to be effectively managed to reduce spread on regional basis	Biosecurity Zone: Weeds subject to ongoing 'strategic' regional management.
All Weeds	General Biosecurity Duty: Requires any person dealing with biosecurity matter or a carrier of biosecurity matter and who knows or ought to know of the biosecurity risks associated with that activity to take measures to prevent, minimise or

Outcome category	*Biosecurity toolset*
	eliminate the risk as far as is reasonably practicable. Specific measures to reduce the risk will be detailed in regional weeds plans for priority weeds. Note however, that the General Biosecurity Duty exists for all weeds that present a biosecurity risk.
Other Biosecurity tools	Mandatory Measures Regulation: May require persons to take specific actions with respect to weeds or carriers of weeds. Emergency Order: To respond to a current or imminent biosecurity risk that may have a significant impact. Biosecurity Direction: An enforceable instruction to a person or class of persons to take action to: Prevent, eliminate, or minimise a biosecurity risk Prevent, manage, or control a biosecurity impact Enforce any instrument under the Act. Biosecurity Undertaking: An authorised officer may accept in writing an undertaking by a person that sets out the measures a person has agreed to implement to remedy a contravention, a likely contravention, or suspected contravention of the Act.

2.6. WAGGA WAGGA LOCAL ENVIRONMENTAL PLAN 2010

The particular aims of the Wagga Wagga LEP 2010 are as follows:

> *(a) to optimise the management and use of resources and ensure that choices and opportunities in relation to those resources remain for future generations,*
>
> *(b) to promote development that is consistent with the principles of ecologically sustainable development and the management of climate change,*
>
> *(c) to promote the sustainability of the natural attributes of Wagga Wagga, avoid or minimise impacts on environmental values and protect environmentally sensitive areas,*
>
> *(d) to co–ordinate development with the provision of public infrastructure and services.*

The provisions under Clause 7.3 Biodiversity under the WWLEP are relevant to the proposal.

Two small sections immediately adjacent to the development footprint is identified on the 'Terrestrial Biodiversity Map' as "Biodiversity" (Appendix A). These 'Biodiversity' areas contain large Eucalyptus trees that form important fauna habitat in the area. These individual trees do have branches that may overhanging the development footprint.

> ***7.3 Biodiversity (Wagga Wagga LEP 2010)***
>
> *(1) The objectives of this clause are to protect, maintain or improve the diversity of the native vegetation, including:*
>
> *(a) protecting biological diversity of native flora and fauna, and*
>
> *(b) protecting the ecological processes necessary for their continued existence, and*
>
> *(c) encouraging the recovery of threatened species, communities or populations and their habitats.*
>
> *(2) This clause applies to land identified as "Biodiversity" on the Terrestrial Biodiversity Map "BIO_003"*

This biodiversity assessment will address subclause (3) of the "Biodiversity" clause under the Wagga Wagga LEP 2010. Refer to Section 4.2.4.

3. METHODOLOGY

3.1. BACKGROUND REVIEW

3.1.1. Database searches and literature review

Database searches were undertaken on 4 November 2020 and again on 1 December 2021 to identify threatened species, populations and ecological communities known to occur, or with potential to occur, within a 10 km radius of the development footprint. The following online search tools were used:

- NSW Bionet Atlas database for species, populations and communities listed under the NSW BC Act and Commonwealth EPBC Act.
- Commonwealth *Protected Matters Search Tool* for threatened species and communities listed under the EPBC Act.
- Environment Energy and Science (EES) Interim Biogeographic Regionalisation (IBRA) search by region (Inland Slopes) and habitat (Western Slopes Grassy Woodlands) for threatened species and communities listed under the BC Act
- Other background searches undertaken were:
    - NSW Government Biodiversity Values Map and Threshold Tool
    - Australian Government Bureau of Meteorology Ground Water Dependent Ecosystems Atlas
    - Wagga Wagga Local Environmental Plan LEP 2010 Terrestrial Biodiversity Map
    - 2017 Land Use Dataset (Australian Land Use and Management (ALUM) Classification version 7 (Office of Environment and Heritage (DPE), 2017).
    - Riverina State Vegetation Mapping (DPE, 2016).

3.1.2. Threatened species evaluation

Information was compiled on threatened species, populations, and communities which have potential to be present in the study area from current scientific publications, environmental survey, and previous assessment reports. Online databases used include the EES Threatened Biodiversity Data Collection, particularly the Vegetation Information System (VIS) and threatened species profiles, and the Commonwealth EPBC Act Species Profiles and Threats Database (SPRAT).

The results of the database searches and literature review have been used to evaluate the potential for threatened species, ecological communities, and endangered populations to be present in the study area, and to be adversely affected by the works. The threatened species evaluation also considers field survey results in relation to habitat type and quality, and on–site records. The approach is consistent with the NSW Threatened Species Assessment Guidelines (DECC 2007). The threatened species evaluation is included within Appendix B.

3.2. FIELD SURVEYS

The study area was surveyed by an ecologist on 5 November 2020 to assess the biodiversity values of the site. The survey was undertaken over a period of 6 hours (flora, BAM plots, ecological communities, and fauna). Temperatures reached a top of 30.5°C, with a minimum of 11.8°C and 0 mm rainfall. An additional site assessment was undertaken on 1 December 2021 to determine the vegetation quality and biodiversity values of the proposed extended area of the works.

3.2.1. Flora

Random meanders (Cropper 1993) were used to survey vegetation at the development footprint. These methods provide good coverage in terms of area and microhabitats and maximises opportunities for detecting rare or sparsely distributed species. All species were recorded as documented in Appendix C. Any priority weeds were recorded opportunistically.

On 5 November 2020 three BAM plots were undertaken to quantify the presence and extent of native vegetation cover in the development footprint. The plots were surveyed according to the Biodiversity Assessment Method (2020).

On 1 December 2021 a rapid site assessment was undertaken in the proposed extended areas of the site.

Plant Community Types (PCT) were determined, according to the BioNet Vegetation Classification (DPIE, 2021a)

Botanical nomenclature follows the PlantNet website (National Herbarium of NSW) which aligns with the Australian Plant Census and Angiosperm Phylogeny Group.

3.2.2. Fauna and Habitat

The terrestrial fauna survey was undertaken to record and assess the value of fauna habitats within the development footprint, particularly for threatened species with potential to occur at the site. While only low-quality habitat features were present within the development footprint, key habitat features were recorded immediately adjacent to the development footprint, including:

- Hollows and fissures in standing trees and stags.
- Large woody debris and litter.
- Food tree species (for gliders and possums, koala).

All trees adjacent to the development footprint were individually inspected for trunk or limb hollows and any signs of occupation or use. Any disturbances and active threats to fauna or habitats were also recorded during the survey.

3.3. ASSUMPTIONS AND LIMITATIONS

The flora assessment is based on two single–visit random meander surveys. It is unlikely that all plant species were detected that may be present at the site due to the time of year the survey was undertaken and only one short site visit being conducted. Some inconspicuous or geophytic species which flower outside the survey period may not have been recorded. However, native grasses and forbs were visible along the roadside vegetation. If these species were present within the development footprint, it is likely they would have also been visible.

No targeted fauna surveys were undertaken. However, in view of the scale and disturbed context of the development footprint, and the assessed low potential for direct impacts to threatened species, the approach is considered adequate and appropriate for the identification and assessment of biodiversity impacts.

4. RESULTS

4.1. GENERAL

The development footprint is situated on the south western side of Wagga Wagga within the NSW South Western Slopes IBRA region The terrain is flat as the development footprint has been currently used for farming. Much of the site is comprised of pasture. Access roads and surrounds contain exotic vegetation.

Forty (40) flora species were detected within the development footprint in total comprised of 27 exotic and 13 native species. Flora species and BAM plot results are listed in Appendix C.

4.2. BACKGROUND SEARCHES

4.2.1. Threatened Species

The results of the desktop study identified 27 flora species, 5 Threatened Ecological Communities (TECs), 66 fauna species and one population with the potential to occur within the locality.

A full list of the threatened species identified through these searches with further description is available in Appendix B.

4.2.2. Biodiversity Values

The development footprint does not fall within an area of high or outstanding biodiversity value listed on the NSW Biodiversity Values Map (Appendix A.7).

4.2.3. Ground Water Dependent Ecosystems (GDE)

A search of the Australian Bureau of Meteorology Atlas of Groundwater Dependent Ecosystems determined no known aquatic or terrestrial Groundwater Dependent Ecosystems (GDEs) are present within the development footprint (Appendix A5 and A6).

4.2.4. Wagga Wagga Local Environmental Plan (LEP 2010) Terrestrial Biodiversity

A section immediately adjacent to the development footprint has been identified as “Biodiversity”. These areas map several *Eucalyptus melliodora* Yellow Box of considerable age, DBH more than 90cm, and high habitat value due to the presence of multiple hollows, crevices, and/or chimneys. Due to the scale of the biodiversity mapping tool it is indiscernible if any of the development footprint is affected. This report assumes presence of the Terrestrial Biodiversity within the development footprint.

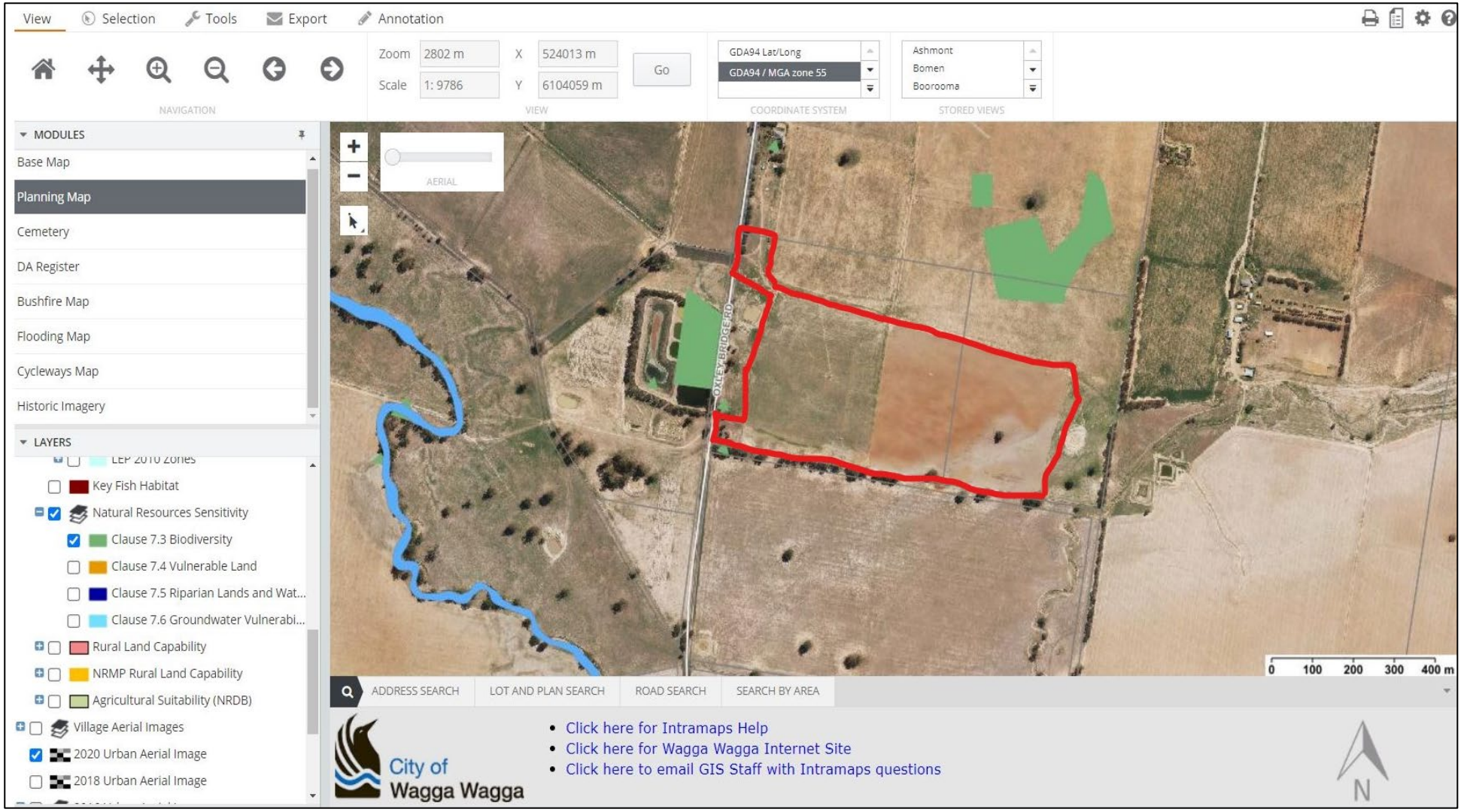

Figure 4-1 Terrestrial Biodiversity (Wagga Wagga LEP)

Under Clause 7.3 "Biodiversity" within the Wagga Wagga LEP 2010 development consent must not be granted to development on land to which this clause applies unless the consent authority has considered the following matters:

a)	***any potential adverse impact of the proposed development on any of the following:***

(i) a native vegetation community

The native Plant Community Type (PCT) 277 (4.3.2) is present in the proposed extended section of the proposed solar farm in low and moderate condition. This plant community type is consistent with the TEC White Box – Yellow Box – Blakley's Red Gum Woodland (Box-gum Woodland) listed under the NSW BC Act..

Based on the understorey in the low and moderate condition PCT 277 areas they do not meet the criteria for the Federally listed Critically Endangered Ecological Community (CEEC) White Box – Yellow Box – Blakley's red Gum Grassy Woodland and Derived Grassland listed under the EPBC Act (1999).

Approximately 0.81ha of PCT 277 (low condition but consistent with the BC Act listed TEC) would be impacted.

The native Plant Community Type (PCT) 276 (Section: 4.3.2) is present adjacent to and within the development footprint. This plant community type is consistent with the TEC *White Box – Yellow Box – Blakley's Red Gum Woodland* (Box-gum Woodland) listed under the NSW BC Act. Indicative canopy species are present adjacent to the development footprint, mapped in **Figure 4-2**, regardless of the absence of native understorey species. **R**egenerating Yellow Box and a White Box tree fall within the development footprint.

Based on the exotic understorey and poor condition of the adjacent woodland, this community is not considered to meet the criteria for the Federally listed Critically Endangered Ecological Community (CEEC) *White Box – Yellow Box – Blakley's red Gum Grassy Woodland and Derived Grassland* listed under the EPBC Act (1999).

Approximately 0.09ha of PCT 276 (low condition but consistent with the BC Act listed TEC) would be impacted. No excavation is to occur within 10m from the base of any mature tree for root protection purposes

(ii) the habitat of any threatened species, population, or ecological community

The habitat present within the development footprint consists of exotic dominated grassland that is regularly grazed and or disturbed by vehicle use, and a small grove of regenerating Yellow Box (less than 15cm DBH). Habitat potentially utilised by some threatened species (**Section: 4.1) is not present within the development footprint and therefore is not likely to be impacted. T**his is discussed further in Section 5. An Assessment of Significance has been undertaken (B.2).

(iii) a regionally significant species of plant, animal, or habitat,

No regionally significant flora or fauna species were observed during field surveys. Assessments of Significance have been conducted for the species with the potential to occur within the development footprint.

(iv) a habitat corridor

The development footprint was not identified as being part of or connected to a known habitat corridor.

(v) a wetland

No aquatic habitat is present within the development footprint. No aquatic habitat will be impacted by the proposed development.

(vi) the biodiversity values within a reserve, including a road reserve or a stock route

The development footprint includes road reserves for vehicle access to the proposal. No **native vegetation or trees will be impacted within a reserve.**

(b)	any proposed measures to be undertaken to ameliorate any such potential adverse impact

Mitigation measures for impacts assessed by this report have been provided (Section 7).

4.2.5. State Environment Planning Policy (Koala Habitat Protection 2020 and 2021)

Koala Habitat Protection SEPP 2020 Policy overview

The Koala SEPP 2020 aims to:

> "*Encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:*
>
> *(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat;*
>
> *(b) by encouraging the identification of areas of core koala habitat; and,*
>
> *(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones."*

The development controls under the Koala SEPP 2020 applies to all land:

1. **That is land to which the Koala SEPP 2020 applies.** The subject land contains areas zoned RU1 Primary Production under the Wagga Wagga LEP 2012. Therefore, the Koala SEPP 2020 applies.
2. **That is land in relation to which a development application has been made.** A DA for Proposal is in the process of being created by the Proponent
3. **That the size of the land, including any adjoining parcels of land owned by the development applicant, is more than 1 hectare.** The proposed development footprint is 23 ha. Therefore, the proposal meets this criterion.

Under Part 2 of the Koala SEPP 2020 Council may grant development consent if the applicant provides to the council evidence, prepared by a suitably qualified and experienced person, that the land subject to the development application:

- is not potential koala habitat; or,
- if it is potential koala habitat, it is not core koala habitat; or,
- if it is core koala habitat, a Koala Plan of Management (Koala PoM) must be either be in place or be prepared, and Council's determination of the DA cannot be inconsistent with the Koala PoM.

Under Part 1, Section 4 of the Koala SEPP 2020, the following definitions apply:"

Potential koala habitat means areas of native vegetation where trees of the types listed in Schedule 2 of the Koala SEPP 2020 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.

Core koala habitat means an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population.

Koala Habitat Protection SEPP 2020 Assessment

Does the proposed development area contain trees listed under Schedule 2 of the Koala SEPP 2020?

No, Yellow Box, White Box and Grey Box trees are not listed as feed tree trees under schedule 2 of the Koala Sepp

Is the land potential Koala habitat?

The majority of the land is derived grassland. Approximately 0.35 ha of regenerating yellow box occurs however these are not considered core feed trees for the Koala.

Is the land core Koala habitat?

There was no detection of Koala or evidence of their presence during site visit undertaken by an NGH ecologist. There are very few mature trees that can be used as habitat. There are 3 NSW Bionet Atlas records from 2006 for the Koala within 10 km of the subject land. The closest is approximately 6.1 km east.

NGH ecologists therefore do not consider the land to be potential or core Koala habitat, as defined under the Koala SEPP 2020, and a Koala Management Plan is not required for this proposed development.

Koala Habitat Protection SEPP 2021 Policy overview

The Koala SEPP 2021 does not apply to land zoned RU1 Primary Production, RU2 Rural Landscape or RU3 Forestry unless in the Sydney Metropolitan Area (Blue Mountains, Campbelltown, Hawkesbury, Ku-Ring-Gai, Liverpool, Northern Beaches, Hornsby, Wollondilly LGAs) or the Central Coast LGA where the Koala SEPP 2021 applies to all zones.

The subject land is zoned RU1 in the Wagga Wagga LGA and the Koala Habitat protection SEPP 2021 does not apply.

4.3. FLORA

4.3.1. Threatened Flora

No threatened flora species were identified during the field survey. No threatened flora species were concluded as having potential to occur within the development footprint, this was due to either lack of suitable habitat, no BioNet records in the locality and where flowering time was suitable the species were not observed during the site visit (Appendix B).

A full list of flora species recorded within the study area is within Appendix C.

4.3.2. Plant Community Types

Two plant community types were determined to occur within the study area.

The Plant Community Type (PCT) 276 – *Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion* was determined to occur, according to the BioNet Vegetation Classification (DPE, 2021a) in a small section in the south-western corner of the development footprint. This PCT occurs in moderate condition outside of the development footprint as canopy cover and one tree within the development footprint, and as low condition regenerating Yellow Box *Eucalyptus melliodora* within the development footprint in the south-east (Figure 4-2).

PCT 277 – *Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion* was determined to occur as derived grassland in the Eastern and Northern Sections of the study area. The area was predominantly in low condition with two small patches in moderate condition alongside the northern access track.

Both PCT 276 and PCT 277 are associated with the TEC *White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. The PCTs do not meet the requirements for EPBC listing but do meet the requirements for BC Act listing. A Test of Significance (ToS) has been completed in Appendix B.2. The ToS concluded it is unlikely there would be a significant impact on this community.

Figure 4-2 Biodiversity features within the development footprint.

4.3.3. Vegetation Types

The following vegetation types have been mapped within the development footprint (Figure 4-2).

Exotic Dominated Grassland

Much of the development footprint was comprised of exotic dominated grassland. The development footprint has been subject to previous disturbance because of cropping land use. A complete absence of overstorey or shrubs was observed in this area. The most abundant groundcover species in these areas included Ryegrass (**Lolium sp.*), Clover (**Trifolium sp.*), Oats (*Avena sp.*), Canola (**Brassica napus*), Capeweed (**Arctotheca calendula*), and Patterson's Curse *(*Echium plantagineum*). Two BAM plots were undertaken in this area and determined less than 0.1% native species at the time of survey (BAM Plots Appendix C.3).

Figure 4-3 Example of exotic dominated grassland in development footprint.

PCT 276 - Regenerating Yellow Box *(Eucalyptus melliodora)*

A patch of regenerating juvenile Yellow Box is present within the south western corner between Oxley Bridge Road and the proposed security fence (Figure 4-4

). This area consisted of 23 juvenile trees less than 15 cm DBH. This area was classified as PCT 276, due to the presence of PCT 276 in the adjacent area and the presence of regenerating canopy species in this small section. This area conforms to the BC Act listed TEC *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions.*

Groundcover in this area was comprised of the same dominant species as the exotic dominated grassland (see C.2) as well as native spear grass (*Austrostipa sp*) and Wallaby Grass (*Rytidosperma* sp.) Additional species observed in this area included **Malva sp*., **Erodium sp*., and Black-berry Nightshade (**Solanum nigrum*).

Figure 4-4 Regenerating Yellow Box patch.

PCT 276 - Canopy Cover Yellow Box (*Eucalyptus melliodora*))

Yellow Box (*Eucalyptus melliodora*) canopy cover is present adjacent to the southern boundary of the development footprint (Figure 4-5) and one mature tree occurs within the paddock. The bases of these trees, except for one, are in the freehold lot directly south of the development footprint. This vegetation includes hollow bearing limbs. This area was classified as PCT 276 and conforms to the BC Act listed Threatened Ecological Community White Box Yellow Box Blakely's Red Gum Woodland.

Figure 4-5 Example of overhanging canopy cover.

PCT 277 Low condition grassland

PCT 277 low condition native grassland (Figure 4-6 and Figure 4-7) was confirmed due to the presence of remnant White Box and Yellow Box in the surrounding area, light grey clay -loam soils and the area was flat and part of a floodplain. Visual assessment of the far eastern section of the development footprint found groundcover to be approximately 3% native grasses and forbs. The dominant species was Clover (**Trifolium sp*), Soft Brome (**Bromus molliformis*) and Great Brome (**Bromus diandrus)*. Other exotics included Rye grass *(*Lolium sp*), Wireweed (*P*olygonum aviculare*), **Vulpia sp*, St Barnabys thistle (**Centaurea solstitialis*), St Johns Wort (**Hypericum sp*), Natives present include: Windmill Grass (*Chloris truncata*), Rough Spear Grass (*Austrostipa scabra*), Spear Grass (*Austrostipa sp), Variable Sida (Sida corrugata),* One mature *White Box (Eucalyptus albens)* and one Grey Box *(Eucalyptus microcarpa)* (both with diameter at breast height >90cm) and hollows (approximately 15cm diameter) were present.

The low condition grassland within the eastern paddock comprises less than 50% native vegetation and can be classified as low conservation grassland under the *Local Land Services Act 2016* (LLS). Low Conservation Value Grassland is defined under the LLS Act as;

- Less than 50% of the native vegetation cover is comprised of native species

- At least 10% of the area is covered with vegetation (whether dead or alive)

An assessment of the paddock to determine whether it meets the definition of Category 1 -Exempt Land was undertaken. Refer to Section 5.

Figure 4-6 Example of PCT 277 in low condition

Figure 4-7 PCT 277 existing track that would be upgraded for the proposal

PCT 277 Moderate condition grassland

PCT 277 moderate condition (Figure 4-8) grassland was confirmed due to the presence of light grey clay - loam, the area was flat and part of a floodplain and the presence of Yellow Box in the surrounding area. This area occurred adjacent to the proposed new access track on the north- western side of the study area. Visual assessment of the entry to the property found ground cover to be dominated by Spear Grass (*Austrostipa sp*), **Vulpia sp* and Soft Brome (**Bromus molliformis*). The other native groundcovers present were Windmill Grass (*Chloris truncata*) and Wallaby Grass (*Rytidosperma sp*), in lower number. Exotic species included: Rye Grass (*Lolium sp*), Wireweed (**Polygonum aviculare*), **Vulpia sp*, St Barnabys thistle (**Centaurea solstitialis*), St Johns Wart (**Hypericum sp*) and Sow Thistle (**Sonchus sp*). Tree species present included Kurrajong (*Brachychiton sp.*) and Peppercorn Tree (**Schinus sp*).

Figure 4-8 Example of PCT 277 in moderate condition

4.3.4. Priority Weeds

Three priority weeds were detected within the development footprint, St. John's Wort (**Hypericum perforatum*), Bathurst Burr (**Xanthium spinosum*), and Khaki Weed (**Alternanthera pungens*).

These priority weeds have a general biosecurity duty throughout NSW to prevent, eliminate or minimise any biosecurity risk they may pose (DPI, 2019). This means any person who deals with these plants, has a duty to ensure the risk is prevented, eliminated, or minimised so far as is reasonably practicable (DPI, 2019).

4.3.5. Hollow Bearing Trees

Nine hollow bearing trees (HBTs) are present within the study area. The majority of the HBTs are located on neighbouring land directly south of the development footprint and are present as canopy only within the development footprint (Figure 4-5). Two other HBTs are present to the north of the southern entrance corridor. One White Box (*Eucalyptus albens*) and one Yellow Box (*Eucalyptus melliodora*) are surrounded by

the development footprint (

Figure 4-3) in the far eastern section. These two HBTs would not be removed for the works

Several threatened species with the potential to occur within the development footprint are hollow dependent (Section 4.4.2), making these trees an important resource. The proposal would not impact these trees.

Figure 4-9 Large hollow-bearing tree

4.4. FAUNA

4.4.1. Fauna habitat

Minimal habitat is present within the development footprint. Some foraging, nesting and roosting habitat is present within the vegetation adjacent to the development footprints, which includes hollow bearing trees. The groundcover is predominantly exotic.

Table 4.1 discusses fauna habitat located within and adjacent to the development footprint. The main habitat types identified were:

- Exotic dominated and low condition grassland
- Moderate condition grassland
- Hollow bearing trees
- Regenerating Yellow Box

Table 4.1 Identified habitats within the study area (adjacent to the development footprint).

Item	*Description*	*Photo*

Exotic dominated and low condition grassland	Predominately provides low quality foraging habitat for fauna. Regularly grazed by sheep.	 Typical Grassland within the development footprint.
Moderate condition grassland	Predominately provides moderate quality foraging habitat for fauna.	
Hollow bearing trees	Hollow bearing Yellow Box (*Eucalyptus melliodora*), and White Box (*Eucalyptus albens*) were observed as containing small to large hollows. Hollows provide nesting and roosting habitat for a range of threatened species. *NOTE: No hollow bearing trees are within the development footprint.	 Hollow bearing trees

Regenerating Yellow Box	23 regenerating Yellow Box (*Eucalyptus melliodora*) and a juvenile Kurrajong (*Brachychiton populneus)* are present in the south western corner of the study area and provide some low-quality foraging and potential nesting habitat for fauna species, as well as connectivity between other higher quality areas of remnant vegetation.	 Regenerating Yellow Box

4.4.2. Threatened Fauna

Five bird species, and one mammal (European Rabbit, *Oryctolagus cuniculus*) were observed during field surveys.

No threatened fauna species were detected during the field survey.

The development footprint has been previous disturbed from agricultural activities. As outlined earlier, minimal habitat is present within the development footprint. There was potential habitat for the following woodland bird species, which are addressed in Appendix B:

- *Chthonicola sagittata* Speckled Warbler BC - V
- *Glossopsitta porphyrocephala* Purple-crowned Lorikeet BC - V
- *Melanodryas cucullata cucullata* Hooded Robin (south-eastern form) BC - V
- *Neophema pulchella* Turquoise Parrot BC - V
- *Pachycephala inornata* Gilbert's Whistler BC - V
- *Petroica phoenicea* Flame Robin BC - V
- *Polytelis swainsonii* Superb Parrot BC – V, EPBC – V
- *Pomatostomus temporalis* Grey-crowned Babbler BC - V
- *Stagonopleura guttata* Diamond Firetail BC - V

4.5. EPBC MATTERS OF NATIONAL SIGNIFICANCE

The following matters of national significance relevant to biodiversity are considered to apply to the proposal. These matters are assessed further in this report.

4.5.1. Threatened Ecological Communities

Three TECs were identified to have the potential to occur within the study area by the Protected Matters (EPBC Act) search. Yellow Box within the development footprint is a characteristic species for the CEEC *White Box – Yellow Box – Blakley's red Gum Grassy Woodland and Derived Grassland*. However, based on the exotic understorey and poor condition of the adjacent woodland, this community is considered to not meet the criteria for the Federally listed Critically Endangered Ecological Community *White Box – Yellow Box – Blakley's red Gum Grassy Woodland and Derived Grassland* listed under the EPBC Act (1999) (DEH, 2020).

No other federally listed communities are present within the development footprint.

4.5.2. Threatened Species

No EPBC listed flora or fauna were identified during the field survey.

Based on the habitat assessment (Appendix B.1) one EPBC listed species - the Superb Parrot (*Polytelis swainsonii)* was determined as having potential to occur within the development footprint. An Assessment of Significance (AoS) has been completed in Appendix B.3.

4.5.3. Migratory Species

Migratory species are protected under the EPBC Act. Ten species listed as Migratory under the EPBC Act were determined by the EPBC protected Matters Search Tool as having potential habitat or occurrence within the area. Based on the habitat assessment (Appendix B), no habitat is present that would indicate the likely occurrence of these species. As such, no assessments of significance have been conducted for these species.

5. LAND CATEGORY ASSESSMENT

The native regulatory land mapping under the *Local Land Service Act 2016* (LLS Act) determining Category 1-Exempt land and Category 2- regulated land is not yet finalised. During the transitional period, land categories are to be determined in accordance with the definitions of regulated land in the LLS Act.

An assessment of the paddock to determine whether it meets the definition of Category 1 -Exempt Land was undertaken. The assessment concluded that;

- The paddock occurs on RU1 Land
- The paddock is not mapped as Category 2 – Regulated Land (Appendix D.1)
- Historic aerial imagery shows the paddock had been continuously cropped since at least 1980 and up to 2018 (Appendix D.2)
- The paddock was cleared of native vegetation (cropped) in 1990
- Land use mapping (DPE, 2017) shows the paddock mapped as ‘Cropping’ (Figure 1-3)
- The paddock meets the definition of low condition grassland (Section 4.3.3)

Thus, it is considered that the eastern paddock can be classified as Category 1 -Exempt Land (Figure 6-1). Impacts to Category 1- Exempt Land are excluded under the BOS area threshold assessment.

Figure 5-1 Proposed Category 1 - Exempt Land

6. ASSESSMENT OF IMPACTS

6.1. CONSTRUCTION IMPACTS

6.1.1. Vegetation loss

The proposal involves the removal of up to approximately 0.09ha of woodland areas and 0.08 ha of low condition native grassland along the northern access track. (Table 2).

The low condition native grassland within the eastern paddock comprises less than 50% native vegetation and meets the definition of low conservation grasslands under the Local Land Services Act (LLS). This area can be classified as Category 1 -Exempt Land (Section 5). Impacts to Category 1- Exempt Land are excluded under the BOS area threshold assessment.

There is approximately 16.29 ha of exotic dominated grassland within the development footprint that would also be removed. Areas of mature canopy trees have been avoided by the proposal to minimise impacts on native vegetation.

The proposal would have a direct impact on a small area of grassland and woodland vegetation communities and fauna habitat, as a result of habitat removal and groundcover disturbance for installation and construction of the solar panels and infrastructure.

Table 2 Native vegetation loss

Vegetation	Extent within study area (ha)	Maximum area to be impacted by proposed works (ha)
PCT 276 Regenerating Yellow Box	0.09	0.09
PCT 276 Yellow Box Canopy Cover	0.38	0.00
PCT 277 Low condition grassland	0.15	0.08
PCT 277 Moderate condition grassland	0.64	0.00
Total	**1.26**	**0.17**

Note: canopy cover is present over exotic dominated grassland, though would not be cleared.

Figure 6-1 Native vegetation loss

6.1.2. Threatened species

The development footprint is considered to provide potential habitat for nine threatened woodland birds. Assessments of Significance have been conducted for these species in Appendix B.

A significant threat is considered unlikely based on the following conclusions:

1 The amount of habitat to be removed or disturbed by the proposal is relatively small in an already fragmented area.
2 No further fragmentation of the habitat would occur.
3 No substantial contribution to any key threatening process would be expected.

6.1.3. The impacts of the proposal on the assessed species listed under the BC Act and EPBC Act are manageable. Threatened communities

The development footprint contains the TEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Assessments of Significance have been conducted for this community in Appendix B.2.

The impacts of the proposal on the assessed TEC listed under the BC Act are manageable. A significant threat is considered unlikely based on the following conclusions:

1. The amount of habitat to be removed or disturbed by the proposal is relatively small in an already fragmented area.
2. No further fragmentation of the habitat would occur.
3. No substantial contribution to any key threatening process would be expected.

6.1.4. Priority weeds

The spread of priority weeds may occur during the construction of the proposal. Three priority weeds were identified during the field survey. This species requires specific treatments in order to mitigate risk of spread. Detailed information on managing this species can be sought from the Noxious and Environmental Weed Control Handbook (DPI 2015).

6.1.5. Key threatening processes

Key threatening processes relevant to the proposed development are listed below (Table 6.3) with a description of how the proposal is expected to impact the process. Thirty-nine Key Threatening Processes are listed by DPE within NSW.

Table 6.3: Key threatening processes and their relevance to the development footprint.

Key Threatening Processes (KTPs)		
BC Act	**EPBC Act**	**Relevance**
Clearing of native vegetation	***Land clearance***	The clearing of native vegetation is considered a major contributor to the loss of biodiversity. In the determination, the NSW Scientific Committee found that 'clearing of any area of native vegetation, including areas less than two hectares in extent, may have significant impacts on biological diversity'. Clearing can lead to direct habitat loss, habitat fragmentation and associated genetic impacts, habitat degradation and off–site impacts such as downstream sedimentation. Most of the clearance would be limited to areas classes as 'exotic dominated grassland'. The proposal may involve the clearance of up to 0.09 ha of regenerating native vegetation. Therefore, the proposal would result in a very minor increase to the KTP.
Competition and grazing by feral European Rabbit (Oryctolagus cuniculus)	***Competition and land degradation by European Rabbit***	Disturbance to vegetation and soil may attract this species to the development footprint. However, as most of the study area is highly disturbed pasture it is expected the population numbers of European Rabbit will not increase.
Infection of native plants by Phytophthora cinnamomi	***Dieback caused by the root–rot fungus (Phytophthora cinnamomi)***	The proposal is not considered likely to exacerbate this KTP. No native plants would be impacted by this KTP.
Invasion and establishment of exotic vines and scramblers		No exotic vines or scramblers were observed in the development footprint. The proposal has the potential to contribute to the spread of exotic species in the development footprint through the transfer and introduction of plant material and soil on machinery. Mitigation measures have been recommended to prevent the spread of weeds on site.
Invasion of native plant communities by exotic perennial grasses		Rehabilitation works and regular weed management at the site would help prevent these species from spreading further, and recommendations have been made accordingly.
Loss of hollow–bearing trees		Hollow bearing trees are present in the study area but but will not be removed for the works. The proposal is not likely to exacerbate this KTP.
Predation by European Red Fox (Vulpes vulpes)	***Predation by European Red Fox***	Disturbance to native fauna and their habitat may attract this species to the study area or modify its current population density. However, as most of the development footprint is highly disturbed pasture it is expected the population numbers of European red Fox will not increase.

Key Threatening Processes (KTPs)		
Predation by Feral Cat (Felis catus)	***Predation by Feral Cat***	Disturbance to native fauna and their habitat may attract this species to the development footprint or modify its current population density. However, as the majority of the study area is highly disturbed pasture it is not expected the population numbers of Feral Cat will not increase.
Removal of dead wood and dead trees		No large dead standing trees or quantitative amount of dead wood are to be impacted by the proposal.
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	***Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species***	The proposal is not considered likely to exacerbate this KTP. The proposal will not increase the risk of this KTP.

6.2. OPERATIONAL IMPACTS

Activity associated with operation of the proposal includes noise, light spill, and foot traffic. As the development footprint is already disturbed by agricultural activities and the water treatment plant nearby, it is unlikely that these activities would significantly reduce the value of the site for fauna sensitive to such activities. Vegetation screening will be installed to reduce visual impacts from Oxley Bridge Road.

These impacts are expected to be very limited, geographically, to the area immediately surrounding the development footprint. The landscape will be altered for the development of a solar farm. This will have impacts including the reduction of open foraging area, however given the existing agricultural land use, impacts from the proposal on fauna are expected to be minor and limited. After construction is completed, similar understorey species are expected to recolonise the cleared areas.

6.3. BIODIVERSITY CONSERVATION ACT THRESHOLDS

A summary of the potential impacts from the proposal against the Biodiversity Offset Scheme (BOS) thresholds is provided in Table 6.4 below.

Table 6.4 Impact assessment against the BOS Thresholds.

<table>
<tr><th>Threshold</th><th>Application to the Proposal</th><th>Threshold Exceeded?</th></tr>
<tr><td>The development is likely to significantly affect threatened species, populations or ecological communities (clause 7.2(1)(a))</td><td>Threatened species are unlikely to be significantly affected (refer to 6.1.2, 6.1.3, Appendix B).</td><td>No</td></tr>
<tr><td><table><tr><th>Minimum lot size associated with the property</th><th>Threshold for clearing of native vegetation</th></tr><tr><td>40 ha to less than 1000 ha</td><td>1 ha or more</td></tr></table></td><td>The minimum lot size for the land is 200 ha according to the Wagga Wagga LEP 2010.
Less than 1 ha of native vegetation would be cleared. (The development footprint contains approximately 0.17 ha native vegetation that would be impacted). Therefore, the BOS threshold would not be exceeded.</td><td>No</td></tr>
</table>

The clearing of native vegetation, or other action prescribed by clause 6.1, on land identified on the Biodiversity Values map;	The land is not identified on the Biodiversity Values map (Appendix A.6).	No
The development is in an area of Outstanding Biodiversity Value (clause 7.2(1)(c))	None occur in the development footprint.	No

The proposal does not trigger the BOS thresholds; therefore, a Biodiversity Development Assessment Report is not required.

6.4. ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT MATTERS

The proposal would not have a significant impact on matters of national environmental significance under the EPBC Act (see Section 4.5).

One federally listed species (Superb Parrot) was considered to have the potential to occur within the development footprint. An assessment of Significant Impact was undertaken for the Superb Parrot and determined the proposal would not have a significant impact on this species as;

1. The amount of habitat to be removed or disturbed by the proposal is relatively small in the context of the greater area of habitat that would remain.
2. No further fragmentation of habitat would occur.
3. No substantial contribution to any key threatening process would be expected.
4. Mitigation measures would be implemented to prevent significant impact to these species.

No referral is recommended for this proposal.

7. MITIGATION MEASURES

These safeguards are a tool to assist with minimising the impacts on biodiversity during vegetation removal and maintenance works (Table 7.1).

Table 7.1 Safeguards for Protection of Flora and Fauna.

Impact	*Environmental safeguards*	*Responsibility*	*Timing*
Introduction and spread of priority weeds	• Declared priority weeds should be managed according to the requirements stipulated by the Biosecurity Act, and recommendations made by the local control authority (MLLS) and the Noxious and Environmental Weed Handbook (DPI, 2018), which contains details as to the management of specific noxious weeds.	Contractor	Construction Operation
	• All weed material containing seed heads, weeds that contain toxins, and weeds that are able to reproduce vegetatively should be disposed of at an appropriate waste management facility or otherwise properly treated to prevent weed growth.	Contractor	Construction
	• All herbicides should be used in accordance with the requirements on the label. Any person undertaking pesticide (including herbicide) application should be trained to do so and have the proper certificate of completion/ competency or statement of attainment issued by a registered training organisation.	Contractor	Construction Operation
Unexpected threatened species finds	• The site induction should include measures to make employees aware of potential threatened flora and fauna during works and understand the procedures if threatened fauna are detected, this will be recorded as a part of the induction procedure and toolbox talks: o Stop work o Alert an Ecologist for assessment and possible re–location during works.	Contractor	Construction Operation
Clearing of native vegetation and EEC	• Vegetation clearing would be limited to the area described in this BA, as a *maximum* clearing envelope. Detailed design would endeavour to reduce this footprint.	Contractor	Construction
	• Prior to the commencement of works, a physical clearing boundary is to be demarcated and implemented. Clearing would not occur outside of the area identified in this assessment.	Contractor	Construction

Impact	*Environmental safeguards*	*Responsibility*	*Timing*
	• If groundcover clearing is to occur within close vicinity to trees along the southern border of the development footprint and the two trees in the eastern section of the study area, tree protection measures are required. No excavation is to occur within 10m from the base of any mature tree for root protection purposes (including trees from neighbouring properties).	Contractor Contractor	Construction Construction Operation
	• No stockpiling or storage to occur within 10m of any tree trunk or under the canopy line.	Contractor	Construction Operation
	• No mature or hollow bearing trees will be impacted by the works.	Contractor	Construction Operation
	• Areas of canopy cover are to remain intact. No limb removal or pruning is to occur without further assessment.	Contractor	Construction Operation
	• Additional assessment is required if development footprint is altered to include additional areas of native vegetation or hollow bearing trees. • No excavation is to occur within 10m from the base of any mature tree for root protection purposes • Landscaping species should consist predominantly of species that comprise the TEC White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Contractor	Construction

8. CONCLUSION

Bison Energy proposes to construct a solar farm off Oxley Bridge Road at Uranquinty, NSW. The development footprint is located within Lot 43 DP754565 and comprises an area of approximately 23 ha. The area has been largely cleared for agricultural purposes. Land use is primarily cropping, with a small area of grazing native vegetation.

The proposal would result in the removal of approximately 16.44 ha of non-native vegetation, including exotic pastures and crops. This constitutes the removal of potential low-quality foraging habitat for some fauna species.

The proposal will impact on regenerating native canopy species (PCT 276) that occur in the southern entrance area (see Figure 6-1 for extent) and PCT 277 that occurs in the north-east proposed entry area. Both PCT 276 and PCT 277 are associated with the Critically Endangered *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina* Bioregions as listed under the BC Act. In total approximately 0.17 ha of this TEC would be impacted by the proposal. The ToS concluded it is unlikely there would be a significant impact on this community.

ToS and AoS were conducted for threatened birds predicted to occur in the development footprint. The assessments concluded there is unlikely to be a significant impact on these species.

Based on the assessment in this report, no BOS thresholds are considered to be exceeded and a BDAR is not required to be submitted with the development application.

Direct impacts to native vegetation have been avoided by the proposal where possible. Given the local context and small area of native vegetation to be impacted, the works are considered unlikely to have a significant environmental impact.

Mitigation and management measures have been recommended in order to minimise impacts to threatened entities, prevent disruptions to the life cycle or harm to individual animals of these species and minimise the contribution of the proposal to key threatening processes.

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APPENDIX A DATABASE SEARCH RESULTS

A.1 BIONET ATLAS SEARCH

Table 9.1 Bionet Atlas Search – threatened species recorded within 10km of the study area.

Scientific Name	Common Name
Falco subniger	Black Falcon
Grus rubicunda	Brolga
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)
Petrogale penicillata	Brush-tailed Rock-wallaby
Burhinus grallarius	Bush Stone-curlew
Stagonopleura guttata	Diamond Firetail
Artamus cyanopterus cyanopterus	Dusky Woodswallow
Petroica phoenicea	Flame Robin
Calyptorhynchus lathami	Glossy Black Cockatoo
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)
Pteropus poliocephalus	Grey-headed Flying-fox
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)
Phascolarctos cinereus	Koala
Miniopterus orianae oceanensis	Large Bent-winged Bat
Hieraaetus morphnoides	Little Eagle
Petroica boodang	Scarlet Robin
Myotis macropus	Southern Myotis
Chthonicola sagittata	Speckled Warbler
Circus assimilis	Spotted Harrier
Petaurus norfolcensis	Squirrel Glider
Petaurus norfolcensis	Squirrel Glider in the Wagga Wagga Local Government Area
Polytelis swainsonii	Superb Parrot
Lathamus discolor	Swift Parrot
Neophema pulchella	Turquoise Parrot
Daphoenositta chrysoptera	Varied Sittella
Haliaeetus leucogaster	White-bellied Sea-Eagle
Epthianura albifrons	White-fronted Chat
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat

A.2 EPBC PROTECTED MATTERS SEARCH TOOL

Australian Government

Department of Agriculture, Water and the Environment

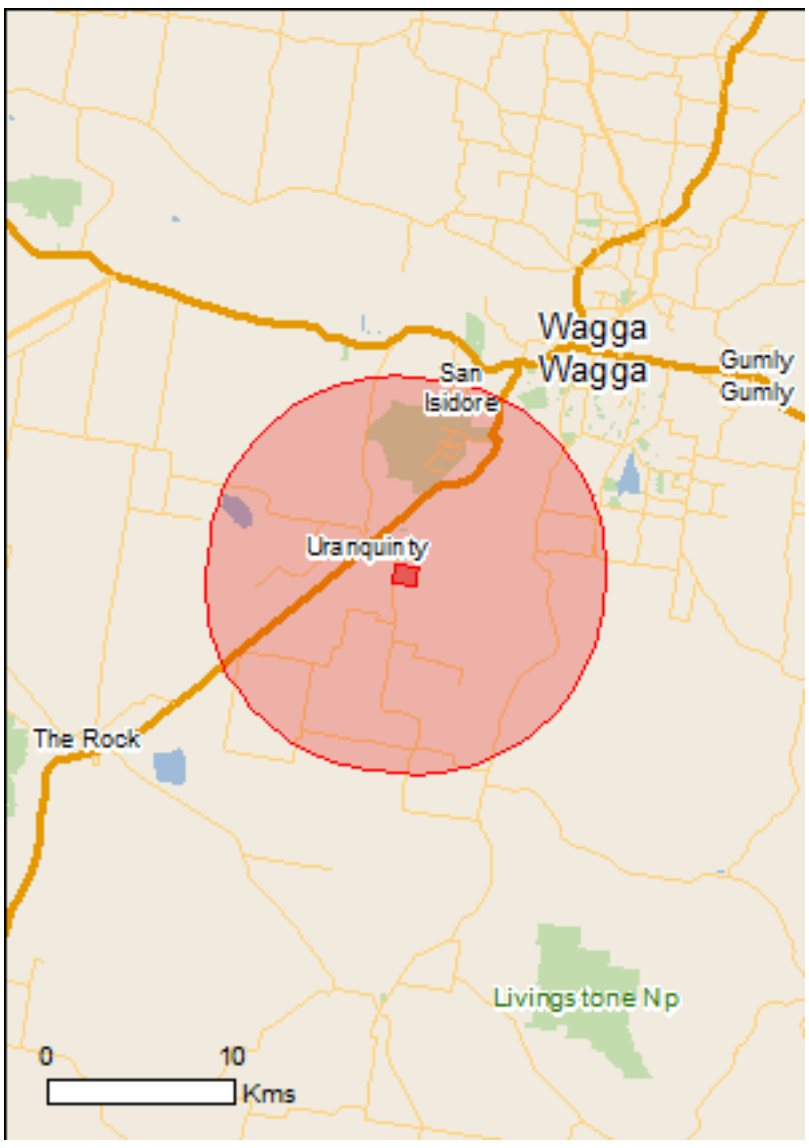
EPBC Act Protected Matters Report

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

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

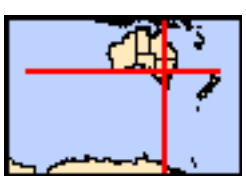
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 30/11/21 17:51:39



Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	28
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	29
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Banrock station wetland complex	600 - 700km upstream
Hattah-kulkyne lakes	400 - 500km upstream
Riverland	500 - 600km upstream
The coorong, and lakes alexandrina and albert wetland	600 - 700km upstream

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Falco hypoleucos		
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii		
Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Galaxias rostratus		
Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Nannoperca australis Murray-Darling Basin lineage		
Southern Pygmy Perch (Murray-Darling Basin lineage) [91711]	Vulnerable	Species or species habitat may occur within area
Frogs		
Crinia sloanei		
Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area
Litoria raniformis		
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Austrostipa wakoolica		
[66623]	Endangered	Species or species habitat may occur within area
Brachyscome muelleroides		
Mueller Daisy [15572]	Vulnerable	Species or species habitat may occur within area
Caladenia arenaria		
Sand-hill Spider-orchid [9275]	Endangered	Species or species habitat may occur within area
Lepidium monoplocoides		
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
[Prasophyllum petilum](#) Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
[Swainsona recta](#) Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area
Reptiles		
[Aprasia parapulchella](#) Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area
Migratory Wetlands Species		
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [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.

Name
Commonwealth Land -
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Defence Housing Authority
Defence - BLAMEY BARRACKS - KAPOOKA

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Neophema chrysostoma		
Blue-winged Parrot [726]		Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
Southern RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Alauda arvensis		
Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis		
European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus		
House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus		
Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Sturnus vulgaris		
Common Starling [389]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-35.199749 147.260375,-35.199819 147.260461,-35.201011 147.271018,-35.201011 147.271018,-35.208726 147.270246,-35.207814 147.259002,-35.199749 147.260375

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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A.3 DPE DATABASE SEARCH RESULTS

NSW GOVERNMENT

NSW Department of Planning, Industry and Environment

Combined geographic and habitat search

Use the form below to submit a search

IBRA Inland Slopes — *Choose an Interim Biogeographic Regionalisation of Australia region or sub-region*

Habitat Type Western Slopes Grassy Woodlands — *Search by habitat type.*

Species Type All species types — *You can search by all species or by a particular species.*

Search

Matching records: 79 Save to CSV

Click on column headers to sort

IBRA Subregion	Scientific name ▲	Common name	NSW status	Commonweath status	Occurrence	Vegetation class
Inland Slopes	**Acacia ausfeldii**	**Ausfeld's Wattle**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Ammobium craspedioides**	**Yass Daisy**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Anthochaera phrygia**	**Regent Honeyeater**	Critically Endangered	Critically Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Aprasia parapulchella**	**Pink-tailed Legless Lizard**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Artamus cyanopterus cyanopterus**	**Dusky Woodswallow**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Austrostipa wakoolica**	**A spear-grass**	Endangered	Endangered	Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Bossiaea fragrans**	***Bossiaea fragrans***	Critically Endangered	Critically Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Bothriochloa biloba**	**Lobed Bluegrass**	Not listed		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Burhinus grallarius**	**Bush Stone-curlew**	Endangered		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Caladenia concolor**	**Crimson Spider Orchid**	Endangered	Vulnerable	Known	**Western Slopes Grassy**

						Woodlands
Inland Slopes	**Callocephalon fimbriatum**	**Gang-gang Cockatoo**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Calyptorhynchus lathami**	**Glossy Black-Cockatoo**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Cercartetus nanus**	**Eastern Pygmy-possum**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Chalinolobus dwyeri**	**Large-eared Pied Bat**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Chalinolobus picatus**	**Little Pied Bat**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Chthonicola sagittata**	**Speckled Warbler**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Circus assimilis**	**Spotted Harrier**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Climacteris picumnus victoriae**	**Brown Treecreeper (eastern subspecies)**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Coolac-Tumut Serpentinite Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions**	**Coolac-Tumut Serpentinite Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions**	Endangered Ecological Community		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Crinia sloanei**	**Sloane's Froglet**	Vulnerable	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Cullen parvum**	**Small Scurf-pea**	Endangered		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Daphoenositta chrysoptera**	**Varied Sittella**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Dasyurus maculatus**	**Spotted-tailed Quoll**	Vulnerable	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Delma impar**	**Striped Legless Lizard**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Dichanthium setosum**	**Bluegrass**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**

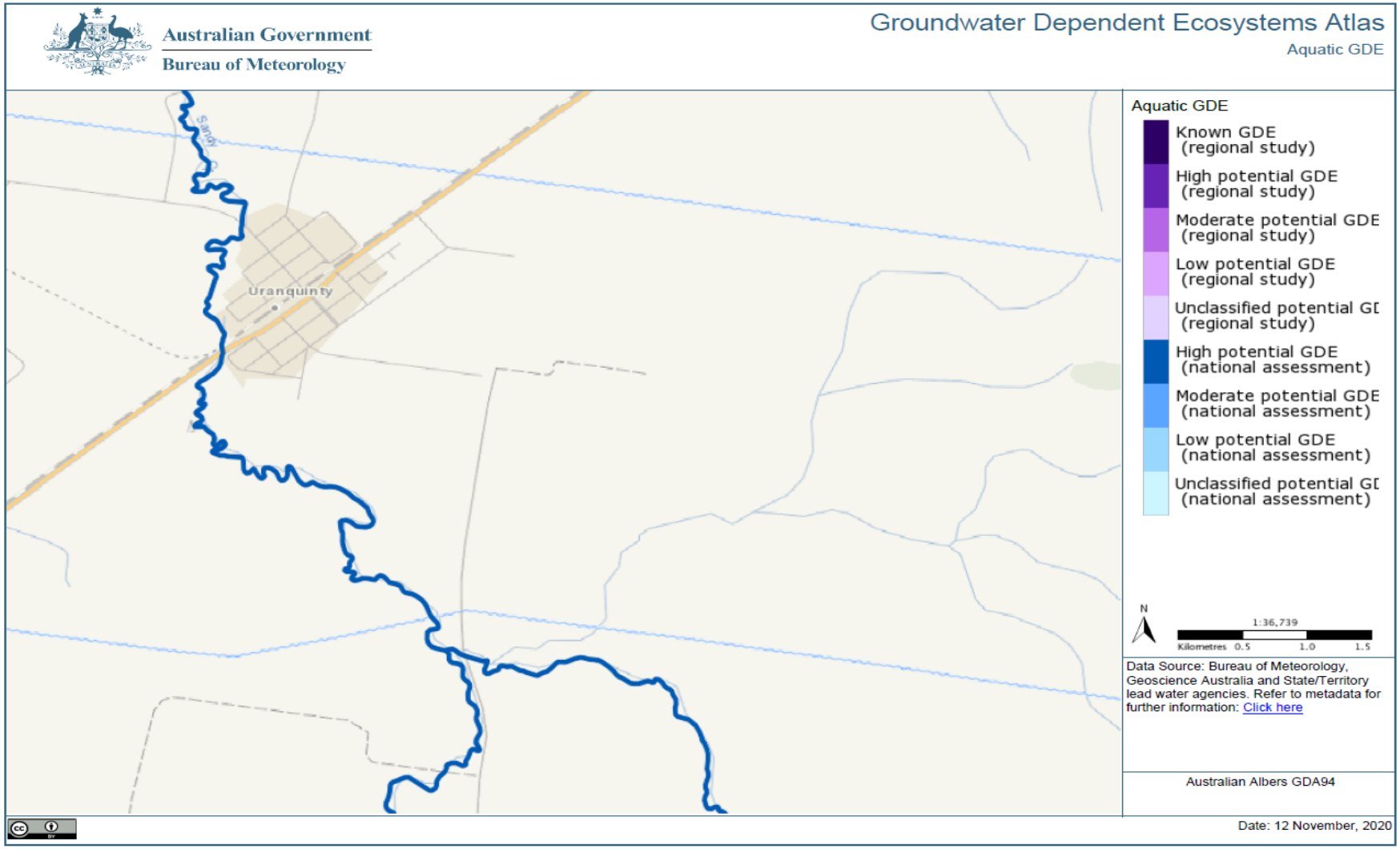
Inland Slopes	**Diuris tricolor**	**Pine Donkey Orchid**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Eucalyptus cannonii**	**Capertee Stringybark**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Euphrasia arguta**	***Euphrasia arguta***	Critically Endangered	Critically Endangered	Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Falsistrellus tasmaniensis**	**Eastern False Pipistrelle**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions**	**Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions**	Endangered Ecological Community		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Glossopsitta porphyrocephala**	**Purple-crowned Lorikeet**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Glossopsitta pusilla**	**Little Lorikeet**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Goodenia macbarronii**	**Narrow Goodenia**	Not listed		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Grantiella picta**	**Painted Honeyeater**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Grevillea wilkinsonii**	**Tumut Grevillea**	Critically Endangered	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Haliaeetus leucogaster**	White-bellied Sea-Eagle	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Hieraaetus morphnoides**	**Little Eagle**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Homoranthus darwinioides**	***Homoranthus darwinioides***	Vulnerable	Vulnerable	Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Hoplocephalus bitorquatus**	**Pale-headed Snake**	Vulnerable		Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Lathamus discolor**	**Swift Parrot**	Endangered	Critically Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Leucochrysum albicans var. tricolor**	**Hoary Sunray**	Not listed	Endangered	Known	**Western Slopes Grassy Woodlands**

Inland Slopes	**Litoria booroolongensis**	**Booroolong Frog**	Endangered	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Lophochroa leadbeateri**	**Major Mitchell's Cockatoo**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Lophoictinia isura**	**Square-tailed Kite**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Melanodryas cucullata cucullata**	**Hooded Robin (south-eastern form)**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Melithreptus gularis gularis**	**Black-chinned Honeyeater (eastern subspecies)**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Miniopterus orianae oceanensis**	**Large Bent-winged Bat**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Myotis macropus**	**Southern Myotis**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Neophema pulchella**	**Turquoise Parrot**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Ninox connivens**	**Barking Owl**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Ninox strenua**	**Powerful Owl**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Nyctophilus corbeni**	**Corben's Long-eared Bat**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Pachycephala inornata**	**Gilbert's Whistler**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Petaurus australis**	**Yellow-bellied Glider**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Petaurus norfolcensis**	**Squirrel Glider**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Petaurus norfolcensis - endangered population**	**Squirrel Glider in the Wagga Wagga Local Government Area**	Endangered Population		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Petrogale penicillata**	**Brush-tailed Rock-wallaby**	Endangered	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Petroica boodang**	**Scarlet Robin**	Vulnerable		Known	**Western Slopes**

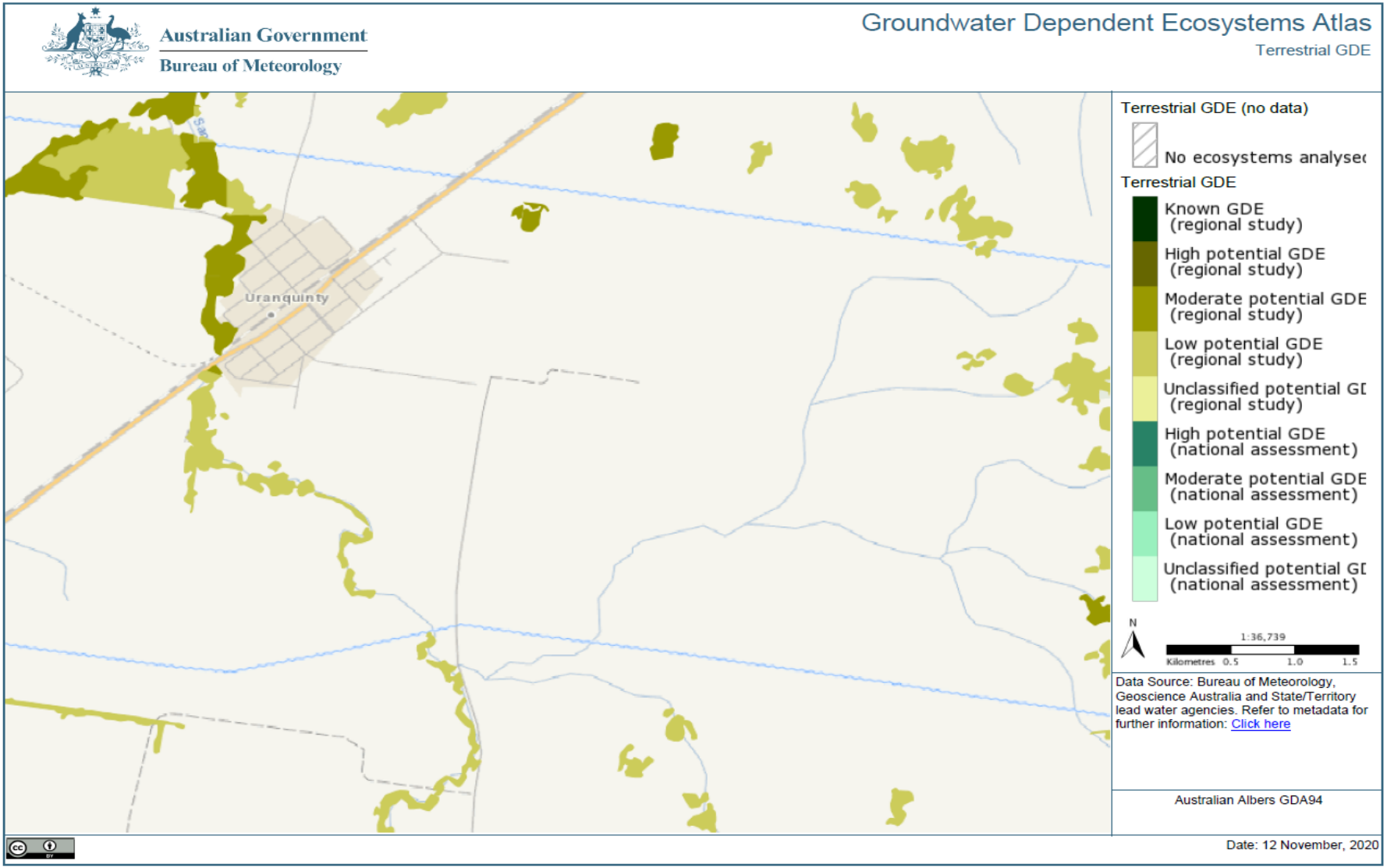
						Grassy Woodlands
Inland Slopes	**Petroica phoenicea**	**Flame Robin**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Phascogale tapoatafa**	**Brush-tailed Phascogale**	Vulnerable		Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Phascolarctos cinereus**	**Koala**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Polytelis swainsonii**	**Superb Parrot**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Pomaderris queenslandica**	**Scant Pomaderris**	Endangered		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Pomatostomus temporalis temporalis**	**Grey-crowned Babbler (eastern subspecies)**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Prasophyllum petilum**	**Tarengo Leek Orchid**	Endangered	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Prasophyllum sp. Wybong**	***Prasophyllum* sp. Wybong**	Not listed	Critically Endangered	Predicted	**Western Slopes Grassy Woodlands**
Inland Slopes	**Pteropus poliocephalus**	**Grey-headed Flying-fox**	Vulnerable	Vulnerable	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Pultenaea humilis**	**Dwarf Bush-pea**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Saccolaimus flaviventris**	**Yellow-bellied Sheathtail-bat**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Senecio garlandii**	**Woolly Ragwort**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Stagonopleura guttata**	**Diamond Firetail**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Swainsona recta**	**Small Purple-pea**	Endangered	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Swainsona sericea**	**Silky Swainson-pea**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Synemon plana**	**Golden Sun Moth**	Endangered	Critically Endangered	Known	**Western Slopes Grassy Woodlands**

Inland Slopes	**Tylophora linearis**	***Tylophora linearis***	Vulnerable	Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Tyto novaehollandiae**	**Masked Owl**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Varanus rosenbergi**	**Rosenberg's Goanna**	Vulnerable		Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions**	**White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions**	Critically Endangered Ecological Community	Critically Endangered	Known	**Western Slopes Grassy Woodlands**
Inland Slopes	**Zieria obcordata**	**Granite Zieria**	Endangered	Endangered	Known	**Western Slopes Grassy Woodlands**

A.4 AQUATIC GROUND WATER DEPENDENT ECOSYSTEM (GDE) ATLAS



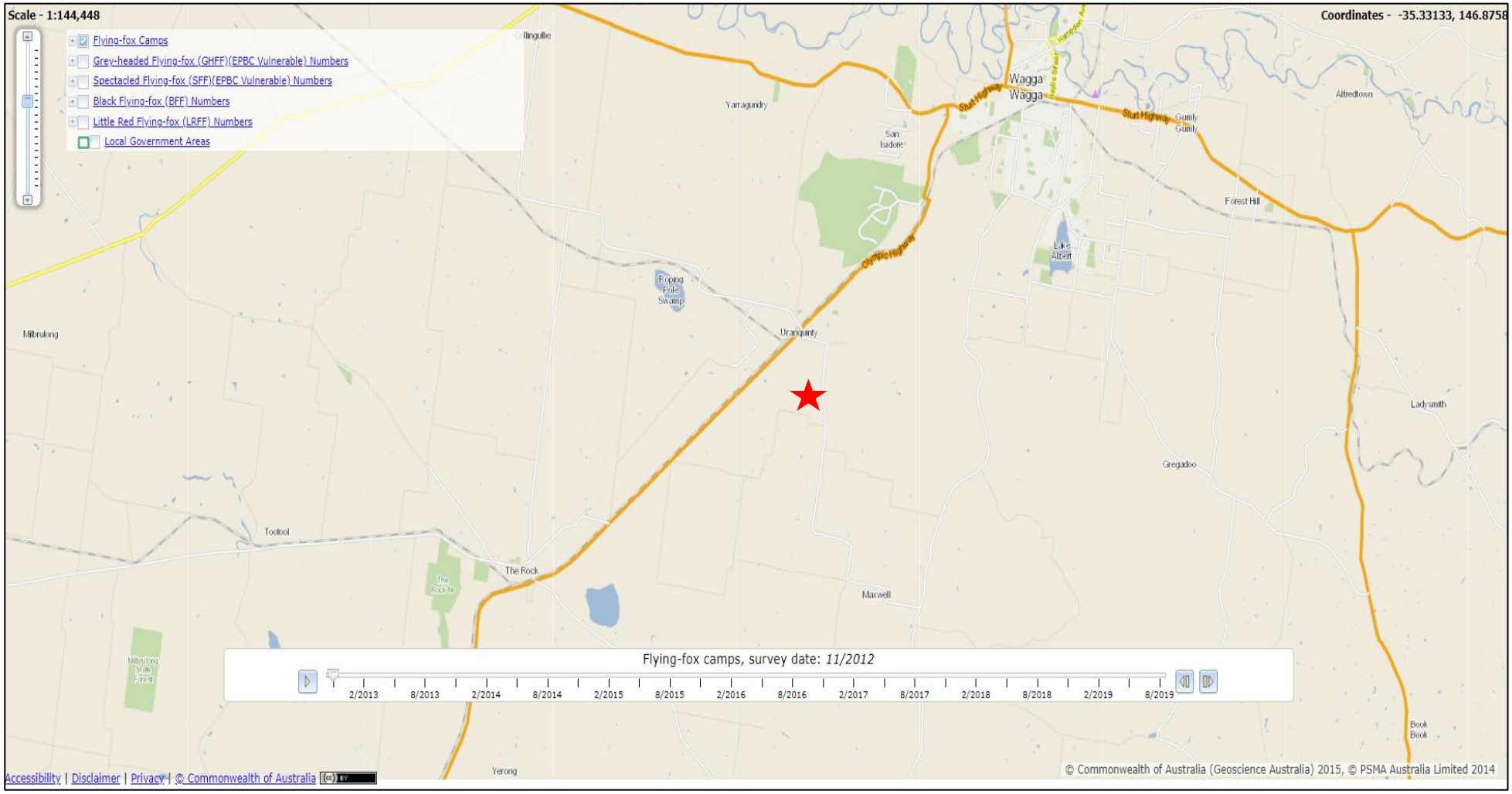
A.5 TERRESTRIAL GROUND WATER DEPENDENT ECOSYSTEM (GDE) ATLAS



A.6 NSW GOVERNMENT BIODIVERSITY VALUES MAP AND THRESHOLD TOOL, AREAS OF OUTSTANDING BIODIVERSITY VALUE

A.7 GREY HEADED FLYING FOX CAMP WAGGA WAGGA LGA

Red star marks the location of the study area. Small pink triangle on Murrumbidgee River denotes nearest Flying Fox camp



APPENDIX B THREATENED SPECIES EVALUATIONS

The tables in this appendix present the habitat evaluation for threatened species, ecological communities and endangered populations listed within 10km of the development footprint in the *NSW BioNet* [1], those identified as potentially occurring in the area according to the Commonwealth EPBC *Protected Matters Search Tool*[2] and those identified in the *Wagga Wagga Inland Slopes IBRA Sub–region*[3] *and Western Slopes Grassy Woodlands (DPE habitat and region search).*

The likelihood of occurrence is based on presence of habitat, proximity of nearest records and mobility of the species (where relevant). The assessment of potential impact is based on the nature of the proposal, the ecology of the species and its likelihood of occurrence. The following classifications are used:

Presence of habitat:

Present: Potential or known habitat is present within the study area

Absent: No potential or known habitat is present within the study area

Likelihood of occurrence

Unlikely: Species known or predicted within the locality but unlikely to occur in the study area

Possible: Species could occur in the study area

Present: Species was recorded during the field investigations

Possible to be impacted

No: The proposal would not impact this species or its habitats. No Assessment of Significance (AoS) is necessary for this species.

Yes: The proposal could impact this species or its habitats. An AOS has been applied to these entities

[1] The *NSW BioNet* is administered by the NSW Department of Planning and Environment (DPE) and is an online database of fauna and flora records that contains over four million recorded sightings.

[2] This online tool is designed for the public to search for matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is managed by the Commonwealth Department of the Environment, Water, Heritage and the Arts.

[3] This online tool is administered by the NSW Department of Planning and Environment (DPE) and is designed for the public to search the data base of threated flora and fauna in NSW by geographic region and habitat.

B.1 EVALUATION OF THE LIKELIHOOD AND EXTENT OF IMPACT ON THREATENED FLORA AND FAUNA SPECIES

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Threatened Ecological Communities				
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia BC - E EPBC - E	Inland Grey Box Woodland includes those woodlands in which the most characteristic tree species, *Eucalyptus microcarpa* (Inland Grey Box), is often found in association with *E. populnea* subsp. *bimbil* (Bimble or Poplar Box), *Callitris glaucophylla* (White Cypress Pine), *Brachychiton populneus* (Kurrajong), *Allocasuarina luehmannii* (Bulloak) or *E. melliodora* (Yellow Box), and sometimes with *E. albens* (White Box). Shrubs are typically sparse or absent, although this component can be diverse and may be locally common, especially in drier western portions of the community. A variable ground layer of grass and herbaceous species is present at most sites. At severely disturbed sites the ground layer may be absent. The community generally occurs as an open woodland 15–25 m tall but in some locations the overstorey may be absent because of past clearing or thinning, leaving only an understorey. Inland Grey Box Woodland occurs predominately within the Riverina and South West Slopes regions of NSW down to the Victorian border. It includes Albury to the east and may extend out west towards Hay. This community also extends across the slopes and plains in Central and Northern NSW up to the Queensland Border. This includes Yetman and Inverell in the North, Molong to the east of the Central Slopes and plains and out towards Nymagee to the west.	Absent.	Unlikely	No
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions BC - E	Tall woodland or open forest dominated by Fuzzy Box *Eucalyptus conica*, often with Grey Box *Eucalyptus microcarpa*, Yellow Box *Eucalyptus melliodora*, or Kurrajong *Brachychiton populneus*. Buloke *Allocasuarina luehmannii* is common in places. Shrubs are generally sparse, and the groundcover moderately dense, although this will vary with season. Alluvial soils of the South West Slopes, Brigalow Belt South, and Darling Riverine Plains Bioregions. Mainly in the Dubbo-Narromine-Parkes-Forbes area.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Weeping Myall Woodlands BC - E EPBC - E	This ecological community is scattered across the eastern parts of the alluvial plains of the Murray-Darling River system. The community is also known as Boree particularly in the southern part of its distribution. Typically, it occurs on red-brown earths and heavy textured grey and brown alluvial soils within a climatic belt receiving between 375 and 500 mm mean annual rainfall. The structure of the community varies from low woodland and low open woodland to low sparse woodland or open shrubland, depending on site quality and disturbance history. The tree layer grows up to a height of about 10 metres and invariably includes *Acacia pendula* (Weeping Myall or Boree) as one of the dominant species or the only tree species present. The understorey includes an open layer of chenopod shrubs and other woody plant species and an open to continuous groundcover of grasses and herbs.	Absent	Unlikely	No
Coolac-Tumut Serpentinite Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions BC - E	Coolac-Tumut Serpentinite Shrubby Woodland consists of an overstorey of drooping Sheoak (*Allocasuarina verticillata*) with the shrubs, hickory wattle (*Acacia implexa*), grasstrees (*Xanthorrhoea glauca*) and *Ricinocarpos bowmanii*. The ground layer is consisting of a range of native grasses and herbs, often including kangaroo grass (*Themeda australis*), wiregrasses (*Aristida* spp.), wallaby grasses (*Rytidosperma* spp.), *Senecio quadridentatus*, rock fern (*Cheilanthes sieberi*) and *Carex breviculmis*. Scattered trees of white box (*Eucalyptus albens*) and bundy (*Eucalyptus nortonii*) can occur. Many sites are degraded and have a poor level of regeneration, no longer supporting the full complement of species. Serpentinite Shrubby Woodland is restricted to soils derived from serpentinite in the Tumut-Coolac-Gundagai area. The largest occurrence is on the Honeysuckle range to the east of Tumut which extends from Argalong to the Murrumbidgee River. There are other smaller areas near Coolac and Gundagai.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland BC - E EPBC - CE	White Box Yellow Box Blakely's Red Gum Woodland (commonly referred to as Box-Gum Woodland) is an open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: White Box *Eucalyptus albens*, Yellow Box *E. melliodora* and Blakely's Red Gum *E. blakelyi*. Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses, and a very high diversity of herbs. The community also includes a range of mammal, bird, reptile, frog, and invertebrate fauna species. Intact stands that contain diverse upper and mid-storeys and ground layers are rare. The Australian Government listing of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is slightly different to the NSW listing. Areas that are part of the Australian Government listed ecological community must have either; an intact tree layer and predominately native ground layer; or an intact native ground layer with a high diversity of native plant species but no remaining tree layer. Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the tablelands and western slopes of NSW.	Present	Possible	Yes
Flora				
Acacia ausfeldii Ausfeld's Wattle BC - V	*Acacia ausfeldii* is an erect or spreading shrub 2 - 4 m high with branchlets angled or flattened, resinous and smooth. The phyllodes (leaves) are narrowly elliptic to linear-oblong, straight to slightly curved, 2 - 7 cm long, 2 - 5 mm wide, hairless and are dotted with resin glands. *Acacia ausfeldii* phyllodes have a prominent mid-vein and less pronounced lateral veins, they also have an obtuse apex with a short sharp tip. There is a small gland located near the base of the phyllode and the pulvinus is less than 2 mm long. Two or sometimes 3 flower clusters stemming from the leaf axil and the flower stalks are 4 - 9 mm long, hairy and enclosed by small oval shaped bracts. Flower heads are bright yellow and 6 - 8 mm in diameter. Seed pods are straight or slightly curved and 4 - 9 cm long by 2 - 4 mm wide. Found to the east of Dubbo in the Mudgee-Ulan-Gulgong area of the NSW South Western Slopes bioregion, with some records in the adjoining Brigalow Belt South, South Eastern Highlands, and the Sydney Basin bioregions. Populations are recorded from Yarrobil National Park, Goodiman State Conservation Area and there is a 1963 record from Munghorn Gap Nature Reserve. A large population is also known from Tuckland State Forest to the northwest of Gulgong.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Ammobium craspedioides Yass Daisy BC - V EPBC - V	The Yass Daisy is a rosette-forming perennial. Leaves are spoon-shaped, to 12 cm long and 17 mm wide, hairy on top and white and woolly underneath. The spring flowerheads are hemispherical buttons, to 20 mm wide, and surrounded at the base by papery leaf-like structures (bracts). The solitary flowerheads are borne on unbranched stems to 60 cm tall; the stems are sparsely leafed and edged with narrow "wings". Rosettes die off after fruiting. Found from near Crookwell on the Southern Tablelands to near Wagga Wagga on the South Western Slopes. Most populations are in the Yass region.	Present	Unlikely Not observed during site visit. No records within locality.	No
Austrostipa wakoolica A spear-grass BC - E EPBC - E	A densely tufted, perennial spear-grass that grows to 1 m tall. The leaves are flattened or rolled, 1.5 - 2.5 mm wide at their bases, slightly to strongly ribbed, and densely hairy. The flower-heads are spreading and moderately dense, to 36 cm long, comprising gaping spikelets 11 - 15 mm long (excluding the awn). The awn (bristle) is twice-bent and 3.5 - 6 cm long. Confined to the floodplains of the Murray River tributaries of central-western and south-western NSW, with localities including Manna State Forest, Matong, Lake Tooim, Merran Creek, Tulla, Cunninyeuk, and Mairjimmy State Forest (now part of South West Woodland Nature Reserve).	Absent	Unlikely	No
Bossiaea fragrans BC - CE EPBC - CE	An erect shrub that grows to 1-2.5m high. The cladodes (stems with foliage leaves reduced or absent) are flattened, glaucous green and range from 8-14mm wide. Leaf scales are present and ranging from 1.5-1.9mm long. The flowers, which can be seen from September through to October, are yellow with red markings, except for the keel (the pair of petals beneath the flower) which is dark red. The pods are oblong in shape. Currently only known from the Abercrombie Karst Conservation Reserve, south of Bathurst on the NSW central tablelands. It is highly restricted, with only a small number of known populations.	Absent	Unlikely	No
Brachyscome muelleroides Claypan Daisy BC - V EPBC - V	The Claypan Daisy is an annual herb that grows to 14 cm tall. Its single white flowers, only 4 mm across, are produced from September to November, at the ends of thread-like stems to 3 cm long. The 5.5 cm long leaves, growing from the stem, are also thread-like. The Claypan Daisy occurs in the Wagga Wagga, Narrandera, Tocumwal and Walbundrie areas. Also occurs in north-central Victoria (only along the Murray from Tocumwal to the Ovens River).	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Caladenia arenaria Sand-hill Spider Orchid BC - E EPBC - E	Sand-hill Spider Orchid is from a group of orchids characterised by five long, spreading petals and sepals around a broad down-curled labellum ('lip'). Its densely hairy leaves are reddish at the base, up to 10 cm long and 6 mm wide. The flower stalk is up to 40 cm tall and has 1 or 2 pale yellow flowers. The petals and lateral sepals are stiffly spread into a cross shape; the tips of all are red and hairy. The labellum is only 8 mm across when flattened out and without lobes; this combination of flower characters is unique. The flowers appear between September and November. *Caladenia arenaria* is found mostly on the south west plains and western south west slopes. The original description is of a plant from Nangus, west of Gundagai (1865) and there is a report of the species from Adelong near Tumut. A record near Cootamundra needs verifying. The Sand-hill Spider Orchid is currently only known to occur in the Riverina between Urana and Narrandera.	Absent	Unlikely	No
Caladenia concolor Crimson Spider Orchid BC - E EPBC - V	The Crimson Spider Orchid is from a group of orchids characterised by five long spreading petals and sepals around a broad down-curled labellum ('lip'). It has a single leaf up to 15 cm long. The flower stem is up to 30 cm tall with 1 or 2 deep purplish-red flowers, 80 mm across. Flowering generally occurs in September. The flowers are said to smell strongly like a hot motor. In the area where this species occurs, only the Rosella Spider Orchid *C. rosella* is similar, but it is musk-scented and has paler, pink-streaked flower-parts. The current NSW Scientific Committee listing incorporates two populations which have each been described as separate species by D.L. Jones. One of these populations comprises a few hundred plants on private property near Bethungra and the other of about 100 plants occurs in Burrinjuck Nature reserve. The other occurrences of the Crimson Spider Orchid in NSW are from the Nail Can Hill Crown Reserve near Albury. The species also occurs at two localities in Victoria near Beechworth and Chiltern.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Cullen parvum Small Scurf-pea BC - E	The Small Scurf-pea is a small perennial pea that may either trail or stand erect. Its leaves comprise three elongated leaflets to 25 mm long by 8 mm wide. Its flowers are usually also in threes, purple-pink (or sometimes white), appearing in summer. This species was previously called *Psoralea parva*. The Small Scurf-pea is known in NSW from only two herbarium collections; one from Wagga Wagga in 1884 and the other from Jindera (near Albury) in 1967. A small population was recently reported from near Jerilderie (although it has not been relocated). In recent years, two populations have been recorded in travelling stock reserves south-west of Wagga Wagga, and a population reputedly exists on a roadside near Galong. Another population has recently been discovered on private land near Young. Large populations have been recorded in grassy gaps in the Red Gum Woodlands of Barmah State Park, just across the border in Victoria. Extensive suitable habitat probably occurs across the border in NSW.	Absent	Unlikely	No
Dichanthium setosum Bluegrass BC - V EPBC - V	Bluegrass is an upright grass less than 1 m tall. It has mostly hairless leaves about 2-3 mm wide. The flowers are densely hairy and are clustered together along a stalk in a cylinder-shape. The flower-clusters grow in pairs at the end of an 8 cm-long stem and appear mostly during summer. Bluegrass occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale, and Glen Innes areas. Associated species include *Eucalyptus albens, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus viminalis, Myoporum debile, Aristida ramose, Themeda triandra, Poa sieberiana, Bothriochloa ambigua, Medicago minima, Leptorhynchos squamatus, Lomandra* aff. *longifolia, Ajuga australis, Calotis hispidula and Austrodanthonia, Dichopogon, Brachyscome, Vittadinia, Wahlenbergia* and *Psoralea* species. Flowering Mid to late summer.	Present	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Diuris tricolor Pine Donkey Orchid BC - V	The Pine Donkey Orchid (formerly known as *Diuris sheaffiana*) is a terrestrial species (it grows from the ground rather than from rocks or vegetation). It has between one and three leaves, to 30 centimetres long and 4mm wide. The flower stalk is between 20-40cm high and has 2-6 flowers, which are bright yellow to orange, speckled with red to purple and white markings. The sepals (the down-pointing slender green segments) are very long and often crossed. Sporadically distributed on the western slopes of NSW, extending from south of Narrandera all the way to the north of NSW. Localities in the south include Red Hill north of Narrandera, Coolamon, and several sites west of Wagga Wagga. Condobolin-Nymagee Road, Wattamondara towards Cowra, Eugowra, Girilambone, Dubbo, and Cooyal, in the Central West. Pilliga SCA, Pilliga National Park and Bibblewindi State Forest in the north and Muswellbrook in the east.	Absent	Unlikely	No
Eucalyptus cannonii Capertee Stringybark BC - V	Usually occurs as a tree 10 – 15 m high with persistent, stringy bark. Leaves are lance-shaped, 9 – 15 cm long and 1. 5– 2.5 cm wide. Buds and bud stems are angular, and fruits are generally greater than 10 mm diameter, often with a distinct rim around the middle. Can be distinguished from *E. macrorhyncha*, a closely related species that may grow in similar habitat, by the angular buds and usually larger fruit with a medial rim and shorter pedicels. Hybrids between the two species are common in some places where they co-exist. Hybrids may be distinguished in the field based on fruit diameter, lack of prominence of the medial rim and reduced angularity of buds. The Capertee Stringybark is predominantly restricted to the central tablelands and slopes of NSW between the Golden Highway in the north, and the Mitchell Highway in the south. The species' distribution is bounded from east of Bathurst to Wallerwang near Lithgow, north along the western edge of Wollemi National Park and north-west to Mudgee; isolated occurrences are known from a short way north of Goulburn River National Park between Dunedoo and Merriwa. Within this area the species is often locally frequent.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Euphrasia arguta BC - CE EPBC - CE	*Euphrasia arguta* is an erect annual herb ranging in height from 20-35 cm. Collectively, the *Euphrasia* are commonly known as 'eyebrights'. Its branches are densely covered with stiff hairs and the leaf margins usually have 2-4 pairs of teeth. The flowers vary in colour from white to lilac with yellow and are borne on flower spikes of 50 to 90 flowers. Plants from the Nundle area have been reported from eucalypt forest with a mixed grass and shrub understorey; here, plants were most dense in an open disturbed area and along the roadside, indicating the species had regenerated following disturbance. *Euphrasia arguta* has an annual habit and has been observed to die off over the winter months, with active growth and flowering occurring between January and April.	Absent	Unlikely	No
Goodenia macbarronii Narrow Goodenia	Narrow Goodenia grows on the western slopes of the Great Dividing Range in NSW, south from the Guyra and Inverell districts. It is widely distributed throughout the tablelands, western slopes, and western plains. The species also occurs in north-eastern Victoria and the Darling Downs in Queensland. In NSW it has been recorded at Tingha, Guyra, the Warrumbungle Ranges, east of Rylstone, the Pilliga and Denobollie State Forests, the Narrabri, Coonabarabran, Torrington and Tocumwal districts, Grenfell, Weddin Mountain, Gungal, the Milthorpe district, and Holbrook (the Type locality). Often found in sites with some form of recent disturbance, such as depressions and clearings made by grading and excavation along roadsides, open grazing land and paddocks inundated by weed species and areas previously cleared and grazed by cattle.	Present	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Grevillea wilkinsonii Tumut Grevillea BC - CE EPBC - E	The Tumut Grevillea typically grows to a large spreading shrub up to 2.5 m tall and 2 m wide. The plants at Gundagai, however, are essentially prostrate shrubs with a spread of up to 3 m. The leaves are more or less oblong, to 15 cm long by 2 cm wide, with scalloped edges; each scallop is separated by a small sharp tooth. The leaves are green (sometimes bronze on young foliage) and almost hairless on the upper surface; the lower surface has a silky covering of short silvery-grey hairs. The individual flowers are small and distinctive, with pinkish to purple petals and a lilac-pink, green, or yellow tipped style. The flowers form toothbrush-like clusters that are usually 3 - 5 cm long. The fruits are woody capsules to 9 mm long; splitting lengthways to release one (rarely two) ovoid dark-brown seed. The seed is 5-6.5 mm long, 2.5-3 mm in diameter and slightly flattened along one side. The Tumut Grevillea has a highly restricted distribution in the NSW South-west Slopes region. Its main occurrence is along a 6 km stretch of the Goobarragandra River approximately 20 km east of Tumut where about 1,000 plants are known. The other occurrence is a small population that straddles the boundary of two private properties at Gundagai where only eight mature plants survive.	Absent	Unlikely	No
Homoranthus darwinioides BC - V EPBC - V	Slender hairless shrub, characterised by its distinctive drooping flower heads, each consisting of two flowers on a stalk. Leaves are linear, cylindrical, 2-5 mm long in some populations, 6-11 mm long in others. Rare in the central tablelands and western slopes of NSW, occurring from Putty to the Dubbo district. It is found west of Muswellbrook between Merriwa and Bylong, and north of Muswellbrook to Goonoo SCA. Grows in in various woodland habitats with shrubby understoreys, usually in gravely sandy soils. Landforms the species has been recorded growing on include flat sunny ridge tops with scrubby woodland, sloping ridges, gentle south-facing slopes, and a slight depression on a roadside with loamy sand. Associated species include *Callitris endlicheri, Eucalyptus crebra, E. fibrosa, C. trachyphloia, E. beyeri* subsp. *illaquens, E. dwyeri, E. rossii, Leptospermum divaricatum, Melaleuca uncinata, Calytrix tetragona, Allocasuarina* spp. and *Micromyrtus* spp. Flowers March to December.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Indigofera efoliata Leafless Indigo EPBC – E BC - E	Dies back to a substantial underground rootstock in unfavourable seasons and it is possible that aerial parts do not appear at all unless there is significant rainfall. Associated species include Allocasuarina luehmannii, Exocarpos cupressiformis, Alectryon oleifolius, Geijera parviflora, Eucalyptus melliodora, Acacia deanei, Acacia buxifolia, Acacia hakeoides, Acacia spectabilis, Acacia lineata, Acacia oswaldii, Eremophila mitchellii, Myoporum platycarpum, Hakea leucoptera, Dodonaea viscosa, Apophyllum anomalum, Cassinia aculeata and Lissanthe strigosa. Herbarium records indicate that Indigofera efoliata flowers from August to October and fruits from November to February. Recorded in Goonoo State Forest in Eucalyptus crebra and Callitris glaucophylla dry sclerophyll forest, and in Eucalyptus microcarpa and Callitris glaucophylla tall woodland. Herbarium records note the species as growing on slight rises amongst ironstone formation in stony red-brown sandy loam.	Absent Soil in site is grey clay loam	Unlikely	No
Lepidium monoplocoides Winged Peppercress EPBC – E BC - E	Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by Allocasuarina luehmannii (Bulloak) and/or eucalypts, particularly Eucalyptus largiflorens (Black Box) or Eucalyptus populnea (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses.	Absent	Unlikely Lack of preferred habitat	No
Leucochrysum albicans var. tricolor Hoary Sunray EPBC - E	A perennial everlasting daisy. Stems are 10–15 cm tall, with narrow leaves 2–10 cm long, covered in white cottony hairs. Yellowish flowerheads are 2–5 cm in diameter, surrounded by numerous papery, white, overlapping ovate-oblong bracts, with the outer layers tinged red, pink, purple or brown. Fruits are brown, ovoid, 2–3 mm long, with 14–20 pappus bristles. *Leucochrysum albicans* var. *tricolor* is distinguished from the other varieties within *L. albicans* by its white involucral bracts and narrow, linear-oblanceolate leaves. Endemic to south-eastern Australia, where it is currently known from three geographically separate areas in Tasmania, Victoria and south-eastern NSW and ACT. In NSW it currently occurs on the Southern Tablelands adjacent areas in an area roughly bounded by Albury, Bega, and Goulburn, with a few scattered localities know from beyond this region. Occurs in a wide variety of grassland, woodland, and forest habitats, generally on relatively heavy soils.	Present	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Pomaderris queenslandica Scant Pomaderris BC - E	Scant Pomaderris is a medium-sized shrub 2 - 3m tall. The stems are whitish with tiny star-shaped hair clusters. The leaves are oval to narrow elliptical, 2.5 - 7 cm long and 10 - 25 mm wide. They are shiny on the top and woolly underneath. The small creamy yellow flowers appear during spring-summer. Widely scattered but not common in north-east NSW and in Queensland. It is known from several locations on the NSW north coast and a few locations on the New England Tablelands and North West Slopes, including near Torrington and Coolata.	Absent	Unlikely	No
Prasophyllum petilum Tarengo Leek Orchid BC - E EPBC - E	Tarengo Leek Orchid reaches to 35 cm tall. This species can be distinguished from the more common onion orchids (*Microtis* spp.) that grow in its habitat by the pinkish-purple base to the leaf. Each plant produces a solitary, tubular, fleshy, dull green leaf, growing to 35 cm tall. The flower-spike emerges in mid spring to early summer from a hole near the base of the leaf. The spike, reaching to 12 cm tall, has about 20 fragrant flowers with pointed petals. The flowers are usually a pale whitish-green but can be pink or pale purple. Plants can be very cryptic when growing in small numbers and within tall grasses. The flowering time for this species varies from north to south. Populations around Muswellbrook and Ilford tend to flower in September, with the Boorowa and Hall populations flowering in October and the Queanbeyan area and Delegate populations in December. Annual abundance varies significantly depending on winter and early spring rainfall, biomass and potentially other variables including the severity of winter frosts. Natural populations are known from a total of five sites in NSW. These are near Boorowa, Queanbeyan area, Ilford, Delegate, and a newly recognised population c.10 km west of Muswellbrook. It also occurs at Hall in the Australian Capital Territory. This species has also been recorded at Bowning Cemetery where it was experimentally introduced, though it is not known whether this population has persisted.	Present	Unlikely	No
Prasophyllum sp. Wybong EPBC - CE	*Prasophyllum* sp. Wybong (C. Phelps ORG 5269) is a terrestrial orchid that grows to approximately 30 cm high. It has a single dull-green basal leaf that is tubular and fleshy. The single flower spike has numerous fragrant flowers. Endemic to NSW, it is known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula, and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. A perennial orchid, appearing as a single leaf over winter and spring. Flowers in spring and dies back to a dormant tuber over summer and autumn. Known to occur in open eucalypt woodland and grassland.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Pultenaea humilis Dwarf Bush-pea BC - V	*Pultenaea humilis* is an erect to prostrate shrub, 0.2–0.8 m high with branchlets erect or drooping that are sparsely to moderately hairy. The leaves are alternate, 3.9–12.5 by 1–2.5 mm, flat, straight, smooth, leathery, and light green. Leaves are sparsely hairy or may be hair free. The inflorescence is subterminal or apparently terminal and is dense to somewhat lax and leafy with bracts absent. Individual flowers are 10–13 mm long. *Pultenaea humilis* is rare in New South Wales and Tasmania, but relatively common in Victoria. In NSW, *Pultenaea humilis* is currently known from three confirmed localities in the NSW South Western Slopes bioregion. The extent of occurrence of *Pultenaea humilis* in NSW is estimated to be approximately 6000 km2. However, the total population of *Pultenaea humilis* in NSW is not known.	Absent	Unlikely	No
Senecio garlandii Woolly Ragwort BC - V	Woolly Ragwort is a many-branched perennial herb or shrub growing to 1.2 m tall. It has woolly stems, and large leaves, which are also woolly below, to 15 cm long and 8 cm wide, with toothed edges. The leaves are stalkless and clasp the stem. The numerous small yellow flower-heads are clustered in sprays. This daisy is found between Temora, Bethungra, and Albury and possibly Burrinjuck near Yass. The largest populations are at The Rock and Mt Tabletop (and surrounds). There is a single population in Victoria at Chiltern.	Present	Unlikely	No
Swainsona recta Small Purple-pea BC - E EPBC - E	Small Purple-pea is a slender, erect perennial herb growing to 30 cm tall. The leaves are divided into up to six pairs of 10 mm long, very narrow leaflets, each with a pointed tip. There is also a single leaflet at the end of each divided leaf. It bears one to several sprays of between 10 and 20 purple, pea-shaped flowers, between late September and early December. Flowers are followed by pods up to 10 mm long in summer. Small Purple-pea was recorded historically from places such as Carcoar, Culcairn, and Wagga Wagga where it is probably now extinct. Populations still exist in the Queanbeyan and Wellington-Mudgee areas. Over 80% of the southern population grows on a railway easement. It is also known from the ACT and a single population of four plants near Chiltern in Victoria.	Present	Unlikely Not observed during site visit. No records within locality.	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Swainsona sericea Silky Swainson-pea BC - V	The Silky Swainsona-pea is a prostrate or erect perennial, growing to 10 cm tall. The stems and leaves are densely hairy. The leaves are up to 7 cm long, composed of 5 - 13 narrow, pointed leaflets, each up to 15 mm long. The purple pea-shaped flowers are to 11 mm long and are held in groups of up to 8 flowers, on a stem to 10 cm tall. The spring flowers are followed by hairy pods, up to 17 mm long. Silky Swainsona-pea has been recorded from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains. There is one isolated record from the far north-west of NSW. Its stronghold is on the Monaro. Also found in South Australia, Victoria, and Queensland.	Present	Unlikely Not observed during site visit. No records within locality.	No
Tylophora linearis BC - V EPBC - E	Slender, almost hairless twiner with a clear sap. Leaves dark green, linear, 1-5 cm long, 0.5-3 mm wide. Flowers purplish, 3-6 mm in diameter, in radiating groups of 3-8. Fruit is cigar shaped, up to 100mm long and approximately 5 mm diameter, hairless. Majority of records occur in the central western region. Records from Goonoo, Pillaga West, Pillaga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA. Also has been recorded Hiawatha State Forest near West Wyalong in the south and there are old records as far north as Crow Mountain near Barraba. Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of *Eucalyptus fibrosa, Eucalyptus sideroxylon, Eucalyptus albens, Callitris endlicheri, Callitris glaucophylla* and *Allocasuarina luehmannii*. Flowers in spring, with flowers recorded in November or May with fruiting probably 2 to 3 months later.	Absent	Unlikely	No
Zieria obcordata BC - E EPBC - E	Dense, rounded, perennial shrub to 0.5 m high. Leaves composed of 3 wedge-shaped leaflets, covered with small warts on the upper surface. The tip of the central leaflet is characteristically recurved to give it a notched appearance. Each leaflet 3-8.5 mm long and 1.3-3.7 mm wide, the margins somewhat toothed. Flowers with 4 petals, each 2-2.5 mm long, pale pink rapidly fading to white. Fruit a capsule about 5 mm across, deeply divided into 4 chambers. Occurs at two sites with a geographic range of 105 km. These are in the Wuuluman area near Wellington, comprising of a single subpopulation over 3 sites comprising 209 plants and Crackerjack Rock/Rock Forests area NW of Bathurst, with a subpopulation comprising of 14 sites, totalling to approximately 700 adult plants.	Absent	Unlikely	No
Birds				

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Anthochaera phrygia Regent Honeyeater BC - CE EPBC - CE	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. In NSW, the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. For example, the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events. There are three known key breeding areas, two of them in NSW - Capertee Valley and Bundarra-Barraba regions. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest dominated by River Sheoak. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks.	Present	Possible	No – no mature trees to be removed.
Artamus cyanopterus cyanopterus Dusky Woodswallow	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Present	Possible	No
Botaurus poiciloptilus Australasian Bittern BC - E EPBC - E	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (Typha spp.) and spike rushes (Eleocharis spp.)	Absent. No wetland habitat present within development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Burhinus grallarius Bush Stone-curlew BC - E	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and, in the south-east, it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. The species is largely nocturnal, being especially active on moonlit nights.	Present. Open woodland but no fallen timber within development footprint	Unlikely	No
Calidris ferruginea Curlew Sandpiper BC - E EPBC - CE	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes, and lagoons on the coast and sometimes inland.	Absent	Unlikely	No
Callocephalon fimbriatum Gang-gang Cockatoo BC - V	In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (*Eucalyptus pauciflora*) woodland and occasionally in temperate rainforests.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Calyptorhynchus lathami Glossy Black-cockatoo BC - V	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Dependent on large hollow-bearing eucalypts for nest sites. One or two eggs are laid between March and August. Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (*Allocasuarina littoralis*), Forest She-oak (*A. torulosa*) or Drooping She-oak (*A. verticillata*) occur. In the Riverina area, inhabits open woodlands dominated by Belah (*Casuarina cristata*). Feeds almost exclusively on the seeds of several species of she-oak *(Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill.	Absent	Unlikely	No
Chthonicola sagittata Speckled Warbler BC - V	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth, and an open canopy.	Absent	Possible	Yes
Circus assimilis Spotted Harrier BC - V	The Spotted Harrier is a medium-sized, slender bird of prey having an owl-like facial ruff that creates the appearance of a short, broad head, and long bare yellow legs. The upperparts are blue-grey with dark barring, and the wingtips are black. The face, inner wing patch, and underparts are chestnut. The long tail is boldly banded, with a wedge-shaped tip. Juveniles are mottled and streaked ginger and brown, with prominent ginger shoulders, fawn rump, and banded tail. The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment, and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population.	Present	Possible	No – no breeding habitat to be removed.

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Climacteris picumnus victoriae Brown Treecreeper (eastern subspecies) BC - V	The Brown Treecreeper, Australia's largest treecreeper, is a grey-brown bird with black streaking on the lower breast and belly and black bars on the undertail. Pale buff bands across the flight feathers are obvious in flight. The face is pale, with a dark line through the eye, and a dark crown. Sexes differ slightly in all plumages, with small patches of black and white streaking on the centre of the uppermost breast on males, while the females exhibit a rufous and white streaking. Juveniles differ from adults mainly by the pattern of the under-body, and by their pale bill and gape. Subspecies *victoriae* is distinguished from subspecies picumnus by colour differences on the face, body, and tail markings. The two subspecies grade into each other through central NSW. Individuals are active, noisy, and conspicuous, and give a loud 'pink' call, often repeated in contact, and sometimes given in a series of 5 - 10 descending notes. Breeds from July to Feb across its range. The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of *Climacteris picumnus victoriae* runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper *Climacteris picumnus picumnus* which then occupies the remaining parts of the state. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, which have been isolated or fragmented for more than 50 years.	Present	Possible	No – no breeding habitat to be removed.
Daphoenositta chrysoptera Varied Sittella BC - V	In NSW most individuals have a grey head and are streaked with dark brown, but in the extreme north-east they have a white head, and in the extreme south-west a black cap. The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades.	Present	Possible	No – no breeding habitat to be removed.

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Ephippiorhynchus asiaticus Black-necked Stork BC - V	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries.	Absent	Unlikely	No
Epthianura albifrons White-fronted Chat BC - V	Gregarious species usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground.	Absent	Unlikely	No
Falco hypoleucos Grey Falcon BC - E	The Grey Falcon is a medium-sized, compact, pale falcon with a heavy, thick-set, deep-chested appearance. It is smaller than the Peregrine Falcon but similar in shape and flight, although with longer wings. Upperparts are uniform light grey, shading to blackish on the primaries, forming conspicuous dark wing tips. The tail has narrow blackish bars. The chin, throat and cheeks are white, and the rest of the underbody is pale grey. The eye-ring, cere and base of the bill are bright orange-yellow, and the tip of the bill black. The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW.	Present	Possible	No – no breeding habitat to be removed.

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Falco subniger *Black Falcon* *BC - V*	The Black Falcon inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalypt- dominated) watercourses; it also uses agricultural land with scattered remnant trees. The Falcon is often associated with streams or wetlands, visiting them in search of prey.	Present	Possible	No – no breeding habitat to be removed.
Glossopsitta porphyrocephala - Purple-crowned Lorikeet BC - V	A small (17 - 18.5cm) parrot. Upper parts are bright green, with a wash of bronze across the nape and mantle, while underparts are greenish-yellow with a pale blue belly. The crown is purple, appearing black in the field while the ear coverts and forehead are orange yellow. The bend of the wing is narrowly edged bright blue while the underwing coverts are bright red and obvious in flight. They are more often heard than seen, calling often in flight. The call is a high-pitched slightly metallic 'tziet, tziet, tziet'. It occurs across the southern parts of the continent from Victoria to south-west Western Australia. It is uncommon in NSW, with records scattered across the box-ironbark woodlands of the Riverina and south west slopes, the River Red Gum forests and mallee of the Murray Valley as far west as the South Australian border, and, more rarely, the forests of the South Coast. The species is nomadic and most, if not all, records from NSW are associated with flowering events. It is found in open forests and woodlands, particularly where there are large flowering eucalypts. Also recorded from mallee habitats. It feeds primarily on nectar and pollen of flowering Eucalypts, including planted trees in urban areas. It breeds away from feeding areas, utilising hollow branches or holes in trees. Also roosts in dense vegetation up to several kilometres away from feeding areas.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Grantiella picta Painted Honeyeater BC - V EPBC - V	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria, and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall (Acacia pendula), Brigalow (A. harpophylla) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema. Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark, or mistletoe branches.	Absent	Unlikely	No
Grus rubicunda Brolga BC - V	Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged.	Present	Possible	No
Haliaeetus leucogaster White-bellied Sea Eagle BC - V EPBC - M	The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. The species also occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).	Absent	Unlikely	No
Hamirostra Black-breasted Buzzard *BC - V*	Lives in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat. Also hunts over grasslands and sparsely timbered woodlands. Not a powerful hunter, despite its size, mostly taking reptiles, small mammals, birds, including nestlings, and carrion.	Present	Possible	No No mature trees would be removed.

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Hieraaetus morphnoides Little Eagle BC - V	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. The species often occupies open eucalypt forest, woodland, or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Present	Possible	No No mature trees would be removed.
Hirundapus caudacutus White-throated Needletail EPBC - V	This large swift has long curved wings and white markings. The plumage of the White-throated Needletail is predominantly grey-brown, glossed with green and the wings are long and pointed. The tail is short and square, with the protruding feather shafts giving a spiky appearance. The throat and undertail are white. White-throated Needletails arrive in Australia from their breeding grounds in the northern hemisphere in about October each year and leave somewhere between May and August. White-throated Needletails are non-breeding migrants in Australia. Breeding takes place in northern Asia.	Absent	Unlikely	No
Lathamus discolor Swift Parrot BC - E EPBC - CE	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. No breeding in NSW. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Leipoa ocellata Malleefowl BC - E EPBC - V	The Malleefowl is a large (60 centimetres long, 43 centimetres high and weighing between 1.5 and 2.5 kilograms), distinctive, ground-dwelling bird. It possesses robust, powerful legs, a short bill, and a flattish head while the wings are short, broad and rounded at the tip. The head and neck are greyish above, topped with black, the chin is chestnut, and the throat and chest are white with a central black stripe. A crest extends from the front of the crown to the nape and is raised when the bird is alarmed. The upper body is boldly barred and is fringed and streaked grey, white, black, and rufous. The lower breast and belly are cream. Although strikingly marked, Malleefowl are particularly well camouflaged in the dappled light of their mallee habitat. Most easily seen at their nest mound, this species usually quietly walks away from observers and rarely flies. The most frequently heard call is loud booming made by the male, usually from on or near its mound. Predominantly inhabit mallee communities, preferring the tall, dense, and floristically rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species.	Absent	Unlikely	No
Lophochroa leadbeateri Major Mitchell's Cockatoo BC - V	An unmistakable cockatoo of the dry inland, Major Mitchell's Cockatoo is the only Australian cockatoo that is salmon-pink below and white above. It is also called the Pink Cockatoo, and until recently was listed under the name of Cacatua leadbeateri. It is smaller than the Sulphur-crested Cockatoo *C. galerita*, but slightly larger than a Galah *Eolophus roseicapillus*. Its most prominent feature is its large, white-tipped crest that is banded in red and gold. Its call is a distinctive stammering whinny. Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Lophoictinia isura Square-tailed Kite BC - V	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW, and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland.	Present	Possible	No No mature trees would be removed.
Melanodryas cucullata cucullata Hooded Robin (south-eastern form) BC - V	The Hooded Robin is a large Australian robin reaching 17 cm in length. The male is strikingly marked in black and white, with a bold black hood extending down a white breast. The back is black with distinct white shoulder and wing-bar. The tail is black, with prominent white side-panels. Females and immatures are duller, with light brownish-grey upperparts, but the same striking black and white wings. Flight is short and swiftly undulating. The call is a series of descending, fading, mellow notes. The adult male is unmistakable, but the female and young males may be confused with other species, such as the Jacky Winter. Hooded Robins are distinguished by their larger size, distinctive white wing bar and different shaped tail markings ('hourglass' shaped). The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies *cucullata*) is found from Brisbane to Adelaide and throughout much of inland NSW, apart from the extreme north-west, where it is replaced by subspecies *picata*. Two other subspecies occur outside NSW.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Melithreptus gularis gularis Black-chinned Honeyeater (eastern subspecies) BC - V	The Black-chinned Honeyeater is the largest of its genus, reaching 17 cm in length. The cap is black, with a white crescent around the nape, and there is a diagnostic black 'chin' beneath the bill and extending down the white throat (though this can be difficult to see in the field). There is a small crescent of blue skin above the eye. The back and wings are a dull olive-green and the tail is greyish brown. The underparts are white, with a greyish-buff tint on the breast. The bill is short, black, and slightly downcurved. The call is a ringing, bubbling trill, repeated several times. A combination of larger size, black chin, bright blue eye crescent and call distinguishes this from similar species, such as the White-naped (*Melithreptus lunatus*) and White-throated (*M. lunatus*) Honeyeaters. The Black-chinned Honeyeater has two subspecies, with only the nominate (*gularis*) occurring in NSW. The other subspecies (*laetior*) was formerly considered a separate species (Golden-backed Honeyeater) and is found in northern Australia between central Queensland west to the Pilbara in Western Australia. The eastern subspecies extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast, and Illawarra regions, though it is very rare in the latter.	Present	Possible	No
Neophema pulchella Turquoise Parrot BC - V	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges, and creeks in farmland.	Present	Possible	Yes
Ninox connivens Barking Owl BC - V	Although common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests. Many populations crashed as woodland on fertile soils was cleared over the past century, leaving linear riparian strips of remnant trees as the last inhabitable areas. Surveys in 2001 demonstrated that the Pilliga Forest supported the largest population in southern Australia. The owls sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights.	Present	Possible	No No hollow bearing trees would be removed

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Ninox strenua Powerful Owl BC - V	In NSW, the Powerful Owl lives in forests and woodlands occurring in the coastal, escarpment, tablelands, and western slopes environments. Specific habitat requirements include eucalypt forests and woodlands on productive sites on gentle terrain; a mosaic of moist and dry types, with mesic gullies and permanent streams; presence of leafy sub-canopy trees or tall shrubs for roosting; presence of large old trees to provide nest hollows. Optimal habitat includes a tall shrub layer and abundant hollows supporting high densities of arboreal marsupials. Roosts in groves of dense mid-canopy trees or tall shrubs in sheltered gullies, typically on wide creek flats and at the heads of minor drainage lines, but also adjacent to cliff faces and below dry waterfalls. Species commonly used for roosting include the She-oaks Allocasuarina spp., rainforest species such as Coachwood Ceratopetalum apetalum, Lilly Pilly Acmena smithii and Sassafras Doryphora sassafras, Black Wattle Acacia melanoxylon, Turpentine Syncarpia glomulifera and eucalypts.	Present	Possible	No No hollow bearing trees would be removed
Numenius madagascariensis Eastern Curlew BC - EPBC - CE	In NSW, the species occurs across the entire coast but is mainly found in estuaries such as the Hunter River, Port Stephens, Clarence River, Richmond River and ICOLLs of the south coast. It generally occupies coastal lakes, inlets, bays, and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets.	Absent	Unlikely	No

Pachycephala inornata Gilbert's Whistler BC - V	The Gilbert's Whistler is a stocky whistler (17 to 20 centimetres), possessing a short but robust bill. The male is a brownish-grey, with a black patch between the red eyes and bill (the lores), and a distinctive orange-rufous chin and throat. The female is more uniformly brownish-grey, lacking the male's lore and throat pattern and has a pale eye-ring. This species, particularly the female, can be difficult to distinguish from other whistlers. Both sexes of the adult Red-lored Whistler (*Pachycephala rufogularis*) possess red (rather than black or grey) lores, while immatures of this species can be very difficult to separate from female and immature Gilbert's Whistlers. The female Golden Whistler (*P. pectoralis*) which overlaps with this species in the eastern parts of its distribution (particularly during winter) is separated from the Gilbert's by its slightly smaller size, proportionally smaller bill, and overall browner (rather than grey) colouration (some may also possess a yellow vent). Young birds of this species usually have distinctive rufous feathers in the wing. The Gilbert's Whistler usually occur singly or in pairs and can be unobtrusive and hard to see. Like other whistlers, this species is a wonderful bush songster and is often first detected by its call. Its powerful song is complex and far-carrying (up to 900 metres) and often consists of a series of 'chop' and 'er-whit' calls. The Gilbert's Whistler is sparsely distributed over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW to the Western Australian wheatbelt. The species was probably once distributed almost continuously across the woodlands and mallee of southern NSW, but this range has been greatly reduced, chiefly by clearance of habitat. The eastern population extends from the central NSW mallee (Yathong, Nombinnie and Round Hill NRs), south and east through the Cocoparra Range to Pomingalama Reserve (near Wagga Wagga) then north through the South West Slopes east as far as Cowra and Burrendong Dam, to the Goonoo reserves (with scattered records as far north as Pilliga). The north western limits of this population are poorly known, with records from as far west as Cobar and recent records from Quanda NR, though records further west may be due to confusion with the Golden Whistler. In a number of reserves in this area there have been no recent records (last records from Pulletop NR 1982, Pomingalama Reserve 1995 and Ingalba NR 1999) and this species may be locally extinct. Occasional records are also made of this species in the Capertee Valley. The species is also recorded in River Red Gum forests along the Murray River valley between Mathoura and Wentworth, with the eastern populations (between Mathoura and Barham) apparently isolated from other NSW populations. West of Swan Hill, this population may interact with populations found to the north of the Murray River west of Balranald and as far north as the Scotia country (Tarawi NR and Scotia Sanctuary).	Present	Likely	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Petroica boodang Scarlet Robin BC - V	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude. The Scarlet Robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees. The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter.	Absent	Unlikely	No
Petroica phoenicea Flame Robin BC - V	The Flame Robin is a small Australian robin that reaches 14 cm in length. The male has a dark grey head and upperparts, a small white forehead patch, and white wing stripes and white tail-edges. The male has a bright orange-red throat, breast, and upper-belly. The lower belly is white. The female is brown, darker above, and has a whitish throat and lower belly. The whitish mark on the female's forehead is inconspicuous. Female Flame Robins also have white and buffish marked wings and tail. Immature males resemble females. The main call of the Flame Robin is a thin, pretty, piping descending song. The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to south east South Australia and in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Polytelis swainsonii Superb Parrot BC - V EPBC - V	The Superb Parrot is a distinctive large, bright grass-green parrot with a long, narrow tail and sharply back-angled wings in flight. Males have yellow foreheads and throats and a red crescent that separates the throat from the green breast and belly. Females are slightly duller green and have a dull, light blue wash in place of the males' red and yellow markings. The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra, and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward, and Murrumbidgee Rivers where birds are present all year round. It is estimated that there are less than 5000 breeding pairs left in the wild.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Pomatostomus temporalis Grey-crowned Babbler BC - V	The Grey-crowned Babbler has two distinctive subspecies that intergrade to the south of the Gulf of Carpentaria. West of here the subspecies *rubeculus*, formerly considered a separate species (Red-breasted Babbler) is still widespread and common. The eastern subspecies (*temporalis* occurs from Cape York south through Queensland, NSW, and Victoria and formerly to the south east of South Australia. This subspecies also occurs in the Trans-Fly Region in southern New Guinea. In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Flight is laborious so birds prefer to hop to the top of a tree and glide down to the next one. Birds are generally unable to cross large open areas. Live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen birds. All members of the family group remain close to each other when foraging. A soft 'chuck' call is made by all birds as a way of keeping in contact with other group members. Breed between July and February. Usually, two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group. Territories range from one to fifty hectares (usually around ten hectares) and are defended all year. Territorial disputes with neighbouring groups are frequent and may last up to several hours, with much calling, chasing and occasional fighting.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Rostratula australis Australian Painted Snipe BC - E EPBC - E	The Australian Painted Snipe is small freshwater wader, with a long bill that droops slightly at the tip. The female has a chestnut-black hood with a bold white eye-patch and a cream stripe along the middle of the crown. The back and wings are patterned bronzy-greenish-grey with a few cream streaks and the underparts are white. The male is slightly smaller and has greyer, less contrasting patterns, but also has large cream spots on the wings. The Australian Painted Snipe is restricted to Australia. Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW, many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams, and nearby marshy areas where there is a cover of grasses, lignum, low scrub, or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks, or reeds. The nest consists of a scrape in the ground, lined with grasses and leaves.	Absent	Unlikely	No
Stagonopleura guttata Diamond Firetail BC - V	The Diamond Firetail is a large (length 10 to 12 cm, weight 17 grams), striking finch with a bright red bill, and red eyes and rump. The white throat and lower breast are separated by a broad black breast-band that extends into the strongly white-spotted, black flanks. It has a grey back and head, and ashy-brown wings. The call is a plaintive, drawn-out, nasal ‘twoo-wheee’. Flight is low and direct, with slight undulations. Given good views it should not be confused with any other species. The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley, and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River.	Present	Possible	Yes

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Tringa stagnatilis Marsh Sandpiper EPBC	The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks. They are recorded less often at reservoirs, waterholes, soaks, bore-drain swamps and flooded inland lakes.	Absent	Unlikely	No
Tyto novaehollandiae Masked Owl BC - V	Extends from the coast where it is most abundant to the western plains. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. Habitat for this species is also widespread throughout the dry eucalypt forests of the tablelands, western slopes, and the undulating wet-dry forests of the coast. Optimal habitat includes an open understorey and a mosaic of sparse (grassy) and dense (shrubby) ground cover on gentle terrain. Roosts in hollows in live or occasionally dead eucalypts; dense foliage in gullies; and caves. Nest in old hollow eucalypts, live or dead, in a variety of topographic positions, with hollows greater than 40 cm wide and greater than 100 cm deep. Hollow entrances are at least 3 m above ground, in trees of at least 90 cm diameter at breast height. A specialist predator of terrestrial mammals, particularly native rodents. Home range has been estimated as 400-1000 ha according to habitat productivity.	Present	Possible	No No hollow bearing trees would be removed
Fish				
Galaxias rostratus - Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow BC - CE EPBC - CE	They are about 150mm in length, olive-green with a silver belly, transparent fins, and a slightly mottled appearance on their upper sides and back. They have a forked tail, long slender body and a large mouth that extends back to below the eye. They are known from the southern part of the Murray Darling Basin. They have been recorded in the Macquarie, Lachlan, Murrumbidgee, and Murray Rivers in NSW. The species has not been recorded and is considered locally extinct in the lower Murray, Murrumbidgee, Macquarie, and Lachlan Rivers. It is now only known from the upper Murray River near Tintaldra and wetland areas near Howlong. They are found in still or slow-moving water bodies such as wetlands and lowland streams. They have been associated with a range of habitats including rock and sandy bottoms and aquatic vegetation.	Absent. No open water in development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Maccullochella peelii - Murray Cod EPBC - V	The largest freshwater fish in Australia. It has been measured at up to 1.8m in length and over 100kg in weight. It has a broad head with a rounded snout and a concave profile. It has a large mouth with the lower jaw approximately equal in length with the upper jaw or slightly protruding. The species is predominantly light olive to dark green in colour with mottled patterning and white to cream-coloured undersides. The pectoral (side) fins are large and rounded, and the soft dorsal (lower back), anal and caudal (tail) fins usually have distinct white, sometimes red, edges. The caudal fin is rounded and has 65-81 scales in the lateral line. The Murray Cod was historically distributed throughout the Murray-Darling Basin from southern Queensland, through New South Wales, the ACT, and Victoria to South Australia, with the exception of the upper reaches of some tributaries. The species still occurs in most parts of this natural distribution up to approximately 1000m above sea level. The distribution of the Murray Cod occurs in the following bioregions: Murray-Darling Depression, Riverina, NSW South Western Slopes, South Eastern Highlands, Cobar Peneplain, Darling Riverine Plains, Brigalow Belt South, and Nandewar.	Absent. No open water in development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Macquaria australasica - Macquarie Perch BC - E EPBC - E	A moderate-sized fish with an elongate-oval body which is laterally compressed. The lateral line is obvious and there are conspicuous open pores on the lower jaw. They have been recorded growing to 46cm and 3.5kg within the western distribution of their range but are distinctly smaller in the eastern distribution of their range where they grow to less than 25cm and 1.5kg. In the Murray-Darling Basin the species varies from almost black or dark silvery grey to bluish grey or green, brown above, paler to off-white below, often with a yellowish tinge. In the Shoalhaven and Hawkesbury River systems, fish are usually blotched with grey-brown, buff and dark-greyish over the head and body and can be pale grey-brown when living in shallow sandy streams. It was once widespread through the cooler upper reaches of the southern tributaries of the Murray-Darling river system in Victoria and New South Wales, Although it was considered rare downstream in the Murray River, in Victoria it occurred in the Barmah Lakes area and tributaries such as Broken Creek. In NSW, the species occurred in the upper reaches of the Macquarie River. Prior to 1970 it was recorded at 52 localities within its natural geographical range in the Murray-Darling Basin. However, it has since been recorded at only 20 localities. Only small, discrete populations remain in the upper reaches of the Mitta Mitta, Ovens, Broken, Campaspe and Goulburn Rivers in northern Victoria. In NSW they are now considered isolated to the upper reaches of the Lachlan and Murrumbidgee Rivers in southern NSW. It is also found in low numbers in the Mongarlowe River, and it persists in the Burrinjuck, Cotter and Wyangala impoundments. In the ACT, it is restricted to the Murrumbidgee, Paddys and Cotter Rivers.	Absent. No open water in development footprint	Unlikely	No
Nannoperca australis Murray-Darling Basin lineage Southern Pygmy Perch EPBC - V	Can be found in both still or slow flowing waters and they have been recorded in low current streams, lakes, billabongs, ditches, impoundments, swamps and ephemeral wetlands. In all of these habitats they prefer the vegetated marginal areas.	Absent. No open water in development footprint	Unlikely	No
Frogs				

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Crinia sloanei Sloane's Froglet BC - V EPBC - E	Sloane's Froglet is a small ground-dwelling frog belonging to the family Myobatrichidae. This species superficially resembles other frogs of the genus *Crinia*, but it can be readily identified by its physical characteristics and call. *C. sloanei* shows far less variation in back colour pattern than other *Crinia* species, having a mustard yellow or greyish back with large patches of darker pigment over the body. The throat of males is greyish green. The call is described as a short metallic 'chick chick chick chick' repeated frequently. Sloane's Froglet has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with most records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in New South Wales. It has not been recorded recently in the northern part of its range and has only been recorded infrequently in the southern part of its range in NSW. At a number of sites where records are verified by museum specimens, the species has not been subsequently detected during more recent frog surveys in the vicinity (e.g., Holbrook, Nyngan, Wagga Wagga and Tocumwal). The low number of sites, low number of recorded individuals per site, and the low proportion of records of this species in regional surveys all indicate that a moderately low number of mature individuals exist. The apparent loss from previous recorded sites and decline in recording rates indicates that this is not just a rare or uncommonly encountered species, but that there has been a reduction in population size and range.	Absent. No open water/ wetland in development footprint	Unlikely	No
Litoria booroolongensis Booroolong Frog BC - E EPBC - E	The Booroolong Frog is a medium sized tree frog, with adults growing to about 5 cm. Their body-colour may be grey, olive or brown with indistinct black markings. The abdomen is white. The skin usually has a slightly warty appearance. The fingers and toes have well developed discs, and the toes are strongly webbed. The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands; however, several populations have recently been recorded in the Namoi catchment. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses with riffles, cobble banks and other rock structures within stream margins. Breeding occurs in spring and early summer and tadpoles metamorphose in late summer to early autumn.	Absent. No open water/ wetland in development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Litoria raniformis Southern Bell Frog BC - E EPBC - V	One of the largest frog species in Australia, these animals may reach up to 104 mm in length, with females usually larger than males. Animals vary greatly in colour and pattern but are typically olive to bright emerald green, with irregular gold, brown, black, or bronze spotting with a pale green stripe down the centre of the back. Undersides are white and coarsely granular, although during the breeding season males may become yellow or dark grey/black under the throat. The groin and posterior of the thighs is turquoise blue. They lack webbing on their fingers, but the toes are almost fully webbed and toe discs are small and approximately equal in width to the digits. The male's call is a growling, engine-like "waaa waaa waaa", heard during the breeding season. In NSW, the species was once distributed along the Murray and Murrumbidgee Rivers and their tributaries, the southern slopes of the Monaro district and the central southern tablelands as far north as Tarana, near Bathurst. Currently, the species is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. A few yet unconfirmed records have also been made in the Murray Irrigation Area in recent years. The species is also found in Victoria, Tasmania, and South Australia, where it has also become endangered.	Absent. No open water/ wetland in development footprint	Unlikely	No
Invertebrates				
Synemon plana Golden Sun Moth BC - E EPBC - CE	The Golden Sun Moth is a medium-sized, day-flying (diurnal) moth. Females have a wingspan of 31 mm; the male's wingspan is 34 mm. The female has a reduced hindwing and is a very poor flyer. The female's upper side of the fore-wing is dark grey, patterned with paler grey, and the hindwing is bright orange with black spots near the edge. The undersides of both wings are white with small black spots near the edges. The male's upper side of the fore-wing is dark brown, patterned with pale grey, and the hindwing is bronzy-brown with dark brown patches. The undersides of both wings are pale grey with dark brown spots. Both males and females have clubbed antennae. Functional mouthparts are lacking in both sexes. The immature stages have not been described. The Golden Sun Moth's NSW populations are found in the area between Queanbeyan, Gunning, Young and Tumut. The species' historical distribution extended from Bathurst (central NSW) through the NSW Southern Tablelands, through to central and western Victoria, to Bordertown in eastern South Australia.	Absent No areas with wallaby Grass dominant	Unlikely	No
Mammals				

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Cercartetus nanus Eastern Pygmy Possum BC - V	The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW, it extends from the coast inland as far as the Pilliga, Dubbo, Parkes, and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Chalinolobus dwyeri Large-eared Pied Bat BC - V EPBC - V	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 (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Found in well-timbered areas containing gullies.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Chalinolobus picatus Little Pied Bat BC - V	The Little Pied Bat is a distinctive black and white bat that weighs four to eight grams. The head and body are about 4.5 cm in length; the tail 3.5 cm. The fur is glossy black on the back, grey on the belly, with white fur along the flanks forming a 'V' in the pubic area. The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Dasyurus maculatus maculatus Spot-tailed Quoll BC - V EPBC - E	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath, and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Use communal ‘latrine sites’, often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Falsistrellus tasmaniensis Eastern False Pipistrelle BC - V	The Eastern False Pipistrelle is found on the south-east coast and ranges of Australia, from southern Queensland to Victoria and Tasmania. Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Miniopterus orianae oceanensis Large Bent-winged Bat BC - V	This species has recently been renamed to *Miniopterus orianae oceanensis* or the large bent-winged bat, from *Miniopterus schreibersii subsp. oceanensis* or the eastern bent-wing bat. The Eastern Bentwing-bat has chocolate to reddish-brown fur on its back and slightly lighter coloured fur on its belly. It has a short snout and a high 'domed' head with short round ears. The wing membranes attach to the ankle, not to the base of the toe. The last bone of the third finger is much longer than the other finger-bones giving the "bent wing" appearance. It weighs up to 20 grams, has a head and body length of about 6 cm and a wingspan of 30 - 35 cm. Eastern Bentwing-bats occur along the east and north-west coasts of Australia.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
*Myotis macropu*s Southern Myotis BC - V	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Present Two mature trees in development footprint	Possible Suitable habitat and recent record within 10 km.	No The two mature trees would not be removed
Nyctophilus corbeni Corben's Long-eared Bat BC - V EPBC - V	Overall, the distribution of the south eastern form of Corben's Long-eared Bat 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 *Allocasuarina leuhmanni* and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark. Mating takes place in autumn with one or two young born in late spring to early summer.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Petauroides Volans Greater Glider EPBC - V	The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees	Present 2 HBTs in development footprint	Possible Suitable habitat present	No HBTs would not be removed for works

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Petaurus australis Yellow-bellied Glider BC - V	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.	Present Two mature trees in development footprint	Possible Suitable habitat	No The two mature trees would not be removed
Petaurus norfolcensis *Squirrel glider* BC - V	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum Forest west of the Great Dividing Range and Blackbutt-Bloodwood Forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites.	Present 2 HBTs in development footprint	Possible Suitable habitat present	No HBTs would not be removed for works
Petaurus norfolcensis Squirrel Glider in the Wagga Wagga LGA BC – Endangered Population	Inhabits a wide range of open forest, woodland and riverine forest habitats. Utilise remnants of various sizes, including small remnants and even small stands of trees within Travelling Stock Reserves, roadside reserves or private land. Often utilise linear remnant vegetation along roadsides or rivers and streams. Eucalypt species known to provide suitable denning and foraging resources include (but are not restricted to): Blakely's Red Gum (Eucalyptus blakelyi), Grey Box (E. microcarpa), Red Box (E. polyanthemos), Mugga Ironbark (E. sideroxylon), River Red Gum (E. camaldulensis), White Box (E. albens) and Yellow Box (E. melliodora). Some Acacia species are also a key foraging habitat at certain times of the year.	Present 2 HBTs in paddock	Possible Suitable habitat present	No HBTs would not be removed for works
Petrogale penicillata Brush-tailed Rock-wallaby BC - E EPBC - V	In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops, and cliffs with a preference for complex structures with fissures, caves and ledges facing north. Throughout their range, Brush-tailed Rock-wallabies feed on a wide variety of grasses and shrubs and have flexible dietary requirements. Shelter or bask during the day in rock crevices, caves and overhangs and are most active at night.	Absent. No rocky outcrops in development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) - Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) BC - V EPBC - V	An arboreal marsupial with fur ranging from grey to brown above and is white below. It has large furry ears, a prominent black nose, and no tail. During breeding, males advertise with loud snarling coughs and bellows. It has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. It inhabits eucalypt woodlands and forests. It feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.	Present Two mature trees in development footprint	Possible Two mature trees in development footprint and 3 recent koala records within 10km	No No mature trees would be removed for works
Phascogale tapoatafa Brush-tailed Phascogale BC - V	The Brush-tailed Phascogale is tree-dwelling marsupial carnivore. It has a characteristic, black, bushy 'bottlebrush' tail, with hairs up to 4 cm long. Its fur is grey above and pale cream below and it has conspicuous black eyes and large naked ears. Adults have a head and body length of about 20 cm, a tail length of about 20 cm and weigh 110 - 235 grams. The Brush-tailed Phascogale has a patchy distribution around the coast of Australia. In NSW it is mainly found east of the Great Dividing Range although there are occasional records west of the divide.	Present Two mature trees in development footprint	Possible Two mature trees in development footprint	No No mature trees would not be removed for works
Pteropus poliocephalus Grey-headed Flying-fox BC - V EPBC - V	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Absent. Two mature trees in development footprint	Unlikely Camp not near development footprint (see Appendix A.8). Mature trees would not be removed for works	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Saccolaimus flaviventris Yellow-bellied Sheathtail-Bat BC - V	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW, and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March when single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn.	Present Two HBTs trees in development footprint	Possible Two HBTs in development footprint	No No HBTs would be removed for works
Reptiles				
Aprasia parapulchella Pink-tailed Worm-lizard BC - V EPBC - V	The Pink-tailed Legless Lizard (also known as the Pink-tailed Worm-lizard) is worm-like, with a dark-brown head and nape, gradually merging with the pale grey or grey-brown body. The tail, nearly as long as its body, is pink or reddish-brown towards the tip. Its snout and tail are both rounded. There are no external ear openings. The broad, non-forked tongue, frequently used to wipe the eyes, and the presence of small hind-limb flaps, distinguishes it from a juvenile snake. Specimens grow to about 25 cm in length. The Pink-tailed Legless Lizard is only known from the Central and Southern Tablelands, and the South Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury, and West Wyalong. Inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (*Themeda australis*). Commonly found beneath small, partially embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants, and termites.	Absent. No rocky areas in development footprint	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Hoplocephalus bitorquatus Pale-headed Snake BC - V	In NSW it has historically been recorded from as far west as Mungindi and Quambone on the Darling Riverine Plains, across the north west slopes, and from the north coast from Queensland to Sydney. A small number of historical records are known for the New England Tablelands from Glenn Innes and Tenterfield; however, most records appear to be from sites of relatively lower elevation. Although the Pale-headed snake distribution is very cryptic, it now appears to have contracted to a patchy and fragmented distribution.	Present Two HBTs trees in development footprint	Possible but unlikely Two HBTs in development footprint. not known to occur in the area	No No HBTs would be removed for works
Varanus rosenbergi Rosenberg's Goanna BC - V	Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. There are records from the South West Slopes near Khancoban and Tooma River. Also occurs in South Australia and Western Australia. Found in heath, open forest, and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component.	Absent	Unlikely	No

Species	Habitat	Presence of habitat	Likelihood of Occurrence	Possible Impact
Delma impar *Striped Legless Lizard* *EPBC – V* *BC - V*	Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Also found in secondary grassland near Natural Temperate Grassland and occasionally in open Box-Gum Woodland. Habitat is where grassland is dominated by perennial, tussock-forming grasses such as Kangaroo Grass Themeda australis, spear-grasses Austrostipa spp. and poa tussocks Poa spp., and occasionally wallaby grasses Austrodanthonia spp. Sometimes present in modified grasslands with a significant content of exotic grasses. Sometimes found in grasslands with significant amounts of surface rocks, which are used for shelter. Sometimes utilises dried cowpats for shelter.	Present *Austrostipa sp* dominated patch present. Associated PCT 277 present	Possible	No The development footprint encompasses low quality PCT 277. The track that runs through the moderate condition grassland is in low condition due to presence of exotics and current and previous disturbance from vehicles.

B.2 BIODIVERSITY CONSERVATION ACT 5 PART TEST

Section 7.3 of the *Biodiversity Conservation Act 2016* specifies five factors to be taken into account in deciding whether a development is likely to significantly affect threatened species, populations or ecological communities, or their habitats, listed at the state level under the Act.

This *Five–part Test* characterises the significance of likely impacts associated with the proposal on the following species:

Threatened Ecological Community

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland BC - E; EPBC - CEEC

Woodland Birds

- *Chthonicola sagittata* Speckled Warbler BC - V
- *Glossopsitta porphyrocephala* Purple-crowned Lorikeet BC - V
- *Melanodryas cucullata cucullata* Hooded Robin (south-eastern form) BC - V
- *Neophema pulchella* Turquoise Parrot BC - V
- *Pachycephala inornata* Gilbert's Whistler BC - V
- *Petroica phoenicea* Flame Robin BC - V
- *Polytelis swainsonii* Superb Parrot BC – V, EPBC – V
- *Pomatostomus temporalis* Grey-crowned Babbler BC - V
- *Stagonopleura guttata* Diamond Firetail BC - V

a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

Woodland Birds

The proposal w**ould** not involve the removal of any mature trees or native understorey vegetation and therefore only exotic grassland foraging habitat and up to 23 juvenile Eucalyptus individuals in a small 900m^2 grove would be impacted. Tracts of native vegetation adjacent to the development footprint will remain and provide habitat for this species. The development footprint itself is not considered important habitat for this species.

The young age class of the canopy species occurring in the development footprint are not useful for nesting, and do not contain hollows of any size. No breeding habitat will be impacted and therefore the proposal is unlikely to adversely affect the life cycle of these species such that a viable local population of the species is likely to be placed at risk of extinction.

b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

- ***a. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction.***
- ***b. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.***

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

a. The proposal is unlikely to have a significant adverse effect on this TEC as it occurs as a small grove of regenerating Yellow Box immediately adjacent to suitable remnants along the road reserve, in freehold land on the southern boundary outside of the development footprint and as a derived grassland in the north-western entrance. It also occurs in low condition derived grassland in the far east of the

development footprint where solar panels would be placed. This area is highly disturbed from continuous agricultural impacts of grazing and cropping. Minimal clearing is required for the solar panels.

Impacts would occur to 0.17 ha of Box-gum Woodland which includes regenerating Yellow Box and low condition derived grassland. 1.3 ha of Box-gum Woodland would be retained within the study area. The derived grassland is highly exotic, with a low diversity of native species. The species present are mostly common disturbance species. The disturbance of up to approximately 0.17 ha of Box-gum woodland would be unlikely to place the local occurrence at risk of extinction.

b. Areas of TEC that would be impacted contain disturbance tolerant species that are common in the area. There would be no impacts to areas of TEC outside the development footprint. The proposal is unlikely to substantially modify the composition of species of this community in the vicinity as the diversity in the adjacent areas is significantly higher.

Woodland Birds

Not applicable.

c) In relation to the habitat of a threatened species or ecological community:

- ***i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and***
- ***ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and***
- ***iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long–term survival of the species or ecological community in the locality.***

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

I. Up to 23 juvenile *Eucalyptus melliodora* Yellow Box and a Kurrajong *Brachychiton populneus* would be removed by the proposal, but removal will not impact on the connectivity of vegetation across the locality. Native vegetation remnants adjacent to the development footprint would not be impacted. Up to 0.17 ha of Box-gum Woodland which includes regenerating Yellow Box and low condition derived grassland would be impacted.

II. No further fragmentation of isolation is expected to occur due to the proposal. Existing fragmentation would not be increased. Mitigation measures will be followed to ensure threatened species are not impacted. The proposal includes planting a corridor of vegetation which will improve connectivity from its current pre-construction status.

III. The area of habitat to be disturbed/removed is small given the local context and the individual eucalyptus are not mature enough to compose of hollows or suitable nesting or roosting habitat. The derived grassland is highly exotic, with is a low diversity of native species. The species present are mostly common disturbance species. This habitat is not likely to be important for the long-term survival of the ecological community in the locality, given the previous agricultural disturbance.

Woodland Birds

I. Woodland birds would primarily utilise the tree species which compose a small area in the development footprint in comparison to the local context. Native vegetation remnants adjacent to the development footprint would not be impacted.

II. No further fragmentation of isolation is expected to occur due to the proposal. Existing fragmentation would not be increased. Mitigation measures would be followed to ensure threatened species are not impacted. The proposal includes planting a corridor of vegetation which would enhance connectivity from its pre-construction status.

III. The area of habitat to be disturbed/removed is small given the local context. This habitat is not likely to be important for these threatened species, given the previous agricultural disturbance.

d) Whether the action proposed is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).

No areas of outstanding biodiversity value occur within or adjacent to the development footprint. There would be no adverse direct or indirect effects on any declared areas of outstanding biodiversity value.

e) Whether the action proposed constitutes or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key Threatening Processes (KTPs) relevant to the proposal include the following:

I. *Clearing of native vegetation; Removal of dead wood and dead trees; Loss of hollow–bearing trees*

The clearing of native vegetation is considered a major contributor to the loss of biodiversity. In the Scientific Committee's determination, it was found that 'clearing of any area of native vegetation, including areas less than two hectares in extent, may have significant impacts on biological diversity.' Clearing can lead to direct habitat loss, habitat fragmentation and associated genetic impacts, habitat degradation and off–site impacts such as downstream sedimentation.

The proposal has the potential to increase the impact of this KTP. However, the contribution of this proposal would be relatively minor given the relatively small amount of fragmented habitat to be removed and/or disturbed and the area of habitat that would remain in the study area and locality.

II. *Invasion of native plant communities by exotic perennial grasses*; *Invasion and establishment of exotic vines and scramblers*

Exotic perennial grasses are currently dominant throughout the development footprint. The proposal has the potential to contribute to the introduction or spread of exotic perennial grasses to the study area through the transfer and introduction of plant material and soil on machinery. The proposal would be likely to make only a minor contribution to this KTP. Vines and scramblers were not observed within or adjacent to the development footprint and are unlikely to exacerbate this KTP.

III. *Competition and grazing by feral European Rabbit (Oryctolagus cuniculus); Predation by Feral Cat (Felis catus); Predation by European Red Fox (Vulpes vulpes)*

Disturbance to native fauna and their habitat may attract feral species to the study area or modify its current population density. However, as most of the study area is highly disturbed pasture, it is expected the population numbers of feral animals would not increase.

CONCLUSION

The impacts of the proposal on the assessed threatened species listed under the BC Act are manageable. A significant threat is considered unlikely based on the following conclusions:

4 The amount of habitat to be removed or disturbed by the proposal is relatively small in an already fragmented area.
5 No further fragmentation of the habitat would occur.
6 No substantial contribution to any key threatening process would be expected.

B.3 EPBC ACT PRINCIPAL SIGNIFICANT IMPACT ASSESSMENT

The *Environment Protection and Biodiversity Conservation Act 1999* specifies factors to be considered in deciding whether a development is likely to significantly affect Endangered Ecological Communities, threatened species and migratory species, listed at the Commonwealth level. These assessments characterise the significance of likely impacts associated with the proposal on the following:

Woodland Birds

- *Polytelis swainsonii* Superb Parrot BC – V, EPBC – V

An action is likely to have a significant impact on a species if there is a real chance or possibility that it will:

a) Will the action lead to a long–term decrease in the size of an important population of a species?

Superb Parrot (*Polytelis swainsonii*)

The National Recovery Plan for the Superb Parrot lists Wagga Wagga as an area where breeding is likely to occur. The population within Wagga Wagga may thus be an important population.

Potential foraging habitat for this species occurs adjacent to the development footprint in the form of PCT 2***76*** vegetation, and hollow bearing trees. There are several records for this species within the Wagga Wagga LGA.

The proposal would not involve the removal of any mature native canopy vegetation, and therefore only immature canopy species and exotic grassland foraging habitat would be impacted. Tracts of native vegetation adjacent to the development footprint would remain and provide habitat for this species. While the adjacent area would be suitable habitat, the development footprint itself is not considered important habitat for this species and the proposal would not impact on the adjacent habitat.

The National Recovery Plan for states this species is known to dislike disturbance and has been recorded avoiding hollow use due to human presence. The area has already been heavily disturbed by agricultural activities. The proposal will not lead to a long-term decrease in the size of an important population of this species.

b) Will the action reduce the area of occupancy of an important population of a species?

Superb Parrot (*Polytelis swainsonii*)

The proposal would result in the removal of potential foraging habitat for this species, which exists in the form of exotic grassland. The development footprint is not located in a known important population of these species. In this context, the removal of a relatively small area of foraging habitat because of the proposal is considered unlikely to reduce the area of occupancy of an important population of this species.

c) Will the action fragment an existing important population into two or more populations?

Superb Parrot (*Polytelis swainsonii*)

The proposal would result in the removal of up to 23 regenerating individual *Eucalyptus melliodora* and one Kurrajong *Brachychiton populneus* which does not form potential habitat for this species. The development footprint is entirely agricultural land and contains no hollow bearing trees. Suitable habitat for this species exists adjacent to the development footprint. Vegetation disturbance is not expected to impact movement of this species between remnant vegetation patches.

The proposal would not impact any hollow bearing tees, which are the preferred breeding criteria for the Superb Parrot. Therefore, it is unlikely to impact on any potential breeding habitat. There is a remnant native vegetation within the locality. The development footprint is not located in a known important population of these species. The proposal would not fragment an existing important population into two or more populations.

d) Will the action adversely affect habitat critical to the survival of a species?

Superb Parrot (*Polytelis swainsonii*)

Critical breeding habitat, (relevant to this report) for this species within the Riverina is Box-gum Woodlands along the Murrumbidgee River, large trees, including River Red Gum (*E. camaldulensis*) with many hollows, typically located an average of 25m from watercourses (Baker-Gabb, 2011).

Large hollow bearing trees are not present within the development footprint. This potential vegetation habitat will not be impacted by the proposal.

e) Will the action disrupt the breeding cycle of an important population?

Superb Parrot (*Polytelis swainsonii*)

The development footprint is agricultural land with no hollow-bearing trees. This species requires an abundance of hollow bearing trees for nesting as they nest colonially.

The proposal does not meet the breeding criteria for the Superb Parrot. Therefore, the proposal will not disrupt the breeding cycle of this species.

f) Will the action modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline?

Superb Parrot (*Polytelis swainsonii*)

The development footprint is agricultural land with no hollow-bearing trees. The habitat within the development footprint is not considered habitat critical to the survival of this species. This species is not known to reside within the development footprint.

The development footprint only contains a small amount of potential foraging habitat for this species in the form of an exotic grassland. The removal of exotic pasture vegetation from the development footprint is unlikely to impact the distribution of this species as it is not near the known roosting colony within Wagga Wagga. The proposal will not modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.

g) Will the action result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?

The proposal has the potential to contribute to the spread of invasive species in the development footprint through the transfer and introduction of plant material and soil on machinery. Mitigation measures have been recommended to prevent the spread of weeds on site. The proposal would therefore be unlikely to result in invasive species that are harmful to these species becoming established in their potential habitat.

h) Will the action introduce disease that may cause the species to decline?

There is a risk that pathogens could be established or spread in the development footprint via machinery during construction. However, with the recommended mitigation measures, the action would be unlikely to introduce any disease which may cause the species to decline.

i) Will the action interfere substantially with the recovery of the species?

Superb Parrot (*Polytelis swainsonii*)

The National Recovery Plan for Superb Parrot lists the following specific objectives:

1. Determine population trends in the Superb Parrot.
2. Increase the level of knowledge of the Superb Parrot's ecological requirements.

3. Develop and implement threat abatement strategies.
4. Increase community involvement in and awareness of the Superb Parrot recovery program.

The proposal would not interfere with any of these objectives.

Conclusion

The impacts of the proposal on the assessed vulnerable species listed under the EPBC Act are considered to be manageable. A significant impact is considered unlikely based on the following conclusions:

5. The amount of habitat to be removed or disturbed by the proposal is relatively small in the context of the greater area of habitat that would remain.
6. No further fragmentation of habitat would occur.
7. No substantial contribution to any key threatening process would be expected.
8. Mitigation measures would be implemented to prevent significant impact to these species.

APPENDIX C SPECIES LIST

C.1 FAUNA SPECIES RECORDED WITHIN THE STUDY AREA

Scientific Name	*Common Name*	*Exotic Species*
Birds		
Corcorax melanorhamphos	White-winged Chough	
Cracticus tibicen	Australian Magpie	
Craticus nigrogularis	Pied Butcherbird	
Manorina melanocephala	Noisy Miner	
Psephotus haematonotus	Red-rumped Parrot	
Mammals		
Oryctolagus cuniculus	European Rabbit	*

C.2 FLORA SPECIES RECORDED WITHIN STUDY AREA

*C – Common, U – Uncommon, O – Occasional, * Indicates Exotic Species, ∆ Indicates Priority Weed*

Family	Exotic	Scientific Name	Common Name	Abundance C=common; O= occasional
Trees				
Myrtaceae		*Eucalyptus melliodora*	Yellow Box	O
Myrtaceae		*Eucalyptus microcarpa*	Grey Box	O
Myrtaceae		*Eucalyptus albens*	White Box	O
Malvaceae		*Brachychiton sp*	Kurrajong	O
Anarcardiaceae	*	*Schinus sp*	Peppercorn Tree	O
Herbs				
Amaranthaceae	*∆	*Alternanthera pungens*	Khaki Weed	O
Asteraceae	*	*Lactuca serriola*	Prickly Lettuce	O
Asteraceae	*	*Arctotheca calendula*	Capeweed	O
Asteraceae	*∆	*Xanthium spinosum*	Bathurst Burr	O
Asteraceae	*	*Sonchus oleraceus*	Common Sowthistle	O
Asteraceae	*	*Taraxacum officinale*	Dandelion	C
Boraginaceae	*	*Echium plantagineum*	Patterson's Curse	O
Brassicaceae	*	*Brassica napus*	Canola	C
Chenopodiaceae		*Dysphania pumilio*	Small Crumbweed	U
Clusiaceae	*∆	*Hypericum perforatum*	St. John’s Wort	O
Fabaceae (Faboideae)	*	*Trifolium spp.*	A Clover	C
Geraniaceae	*	*Erodium cicutarium*	Common Crowfoot	O
Lamiaceae	*	*Plectranthus amboinicus*	Five Seasons Herb	U
Lythraceae	*	*Lythrum junceum*	Loosestrife	U
Malvaceae	*	*Malva parviflora*	Small-flowered Mallow	U
Polygonaceae	*	*Polygonum aviculare*	Wireweed	U
Urticaceae	*	*Urtica urens*	Small Nettle	O
Zygophyllaceae	*	*Tribulus terrestris*	Cat-heads	O

Asteraceae		*Vittadinia sp*		O
Malvaceae		*Sida corrugata*	Variable sida	O
Brassicaceae	*	*Lepidium sp*	Peppercress	O
Polygonaceae		*Rumex brownii*	Swamp Dock	O
Grasses				
Poaceae	*	*Avena fatua*	Wild Oats	C
Poaceae		*Chloris truncata*	Windmill Grass	O
Poaceae		*Cynodon dactylon*	Common Couch	O
Poaceae		*Austrostipa scabra*	Spear grass	O
Poaceae		*Austrostipa sp*	Spear grass	C in moderate condition grassland O in low condition grassland
Poaceae			Wallaby	C
Poaceae	*	*Bromus diandrus*	Great Brome	C
Poaceae	*	*Bromus catharticus*	Prairie Grass	O
Poaceae	*	*Bromus molliformis*	Soft Brome	C
Poaceae	*	*Digitaria ciliaris*	Summer Grass	O
Poaceae	*	*Hordeum spp.*	A Barley Grass	C
Poaceae	*	*Lolium perenne*	Perennial Ryegrass	C
Poaceae	*	*Paspalum dilatatum*	Paspalum	O
Poaceae	*	*Triticum spp.*	Wheat sp.	O

C.3 BAM PLOTS

BAM Site Field Survey									
Project:	20-703	**Plot Identifier**	1	**Pic 20x20**		**Pic 20x50**			
Survey date:	5.11.2020		**Compass Orientation (head of 20x20 plot)**				32t		
Recorders		KV	**PCT:**						
GPS Easting	524021.18	**GPS Northing**	6103988.94		**Datum**		**Zone**		

COMPOSITION & STRUCTURE

Species recorded for		1								
Abbreviation	**Scientific Name**	**Common Name**	**Family**	**% Cover**	**Abundance**	**Exotic**	**Growth Form**	**High Threat?**	**EPBC Status**	**BCA Status**
loli	*Lolium spp.*	A Ryegrass	Poaceae	25	10000	*		No		
trif	*Trifolium spp.*	A Clover	Fabaceae (Fat	70	50000	*		No		
aven	*Avena spp.*	Oats	Poaceae	5	100	*		No		
bras napu	*Brassica napus*	Canola	Brassicaceae	0.2	50	*		No		

BAM Site Field Survey								
Project:	20-703	**Plot Identifier**	2	**Pic 20x20**		**Pic 20x50**		
Survey date:	5.11.2020		**Compass Orientation (head of 20x20 plot)**				270	
Recorders		KV	**PCT:**					
GPS Easting	39.2939.2	**GPS Northing**	6104074.55		**Datum**		**Zone**	

COMPOSITION & STRUCTURE

Species recorded for	2									
Abbreviation	**Scientific Name**	**Common Name**	**Family**	**% Cover**	**Abundance**	**Exotic**	**Growth Form**	**High Threat?**	**EPBC Status**	**BCA Status**
loli	*Lolium spp.*	A Ryegrass	Poaceae	25	10000	*		No		
trif	*Trifolium spp.*	A Clover	Fabaceae (Fab	50	50000	*		No		
aven	*Avena spp.*	Oats	Poaceae	1	100	*		No		
bras napu	*Brassica napus*	Canola	Brassicaceae	0.5	50	*		No		
arct cale	*Arctotheca calendula*	Capeweed	Asteraceae	0.5	200	*		No		
echi plan	*Echium plantagineum*	Patterson's Curse	Boraginaceae	0.5	20	*		No		
TARA	*Taraxacum spp.*	Dandelion	Asteraceae	0.1	15	*		No		
lyth hyss	*Lythrum hyssopifolia*	Hyssop Loosestrife	Lythraceae	0.1	5		Forb (FG)	No		
trit	*Triticum spp.*		Poaceae	0.1	5	*		No		

BAM Attribute (20x20m plot)		
Count of Native Richness	Stratum	Sum
	Tree (TG)	1
	Shrub (SG)	0
	Forb (FG)	0
	Grass & grasslike (GG)	0
	Fern (EG)	0
	Other (OG)	0
	TOTAL	1

BAM Attribute (20x20m plot)		
Count of cover abundance (native vascular plants)	Stratum	Sum
	Tree (TG)	5
	Shrub (SG)	0
	Forb (FG)	0
	Grass & grasslike (GG)	0
	Fern (EG)	0
	Other (OG)	0
	TOTAL Native	5
	TOTAL 'HTE'	0

BAM Attributes (1 x 1m Plots)			
	Tape length	% cover	Average %
Litter Cover	5m	10%	5.0%
	15m	5%	
	25m	5%	
	35m	5%	
	45m	0%	
Bare ground cover	5m	1%	4.2%
	15m	10%	
	25m	5%	
	35m	5%	
	45m	0%	
Cryptogam cover	5m	0%	0.0%
	15m	0%	
	25m	0%	
	35m	0%	
	45m	0%	
Rock Cover	5m	0%	0.0%
	15m	0%	
	25m	0%	
	35m	0%	
	45m	0%	

BAM Attribute (20 x 50m plot) Tree Stem Counts			
DBH (cm)	Euc	Non Euc	Hollows
>80			
50-79			
30-49			
20-29	2		
10-19	4		
5-9	5		
<5	4		N/A
Length of logs (m)		0	

COMPOSITION & STRUCTURE

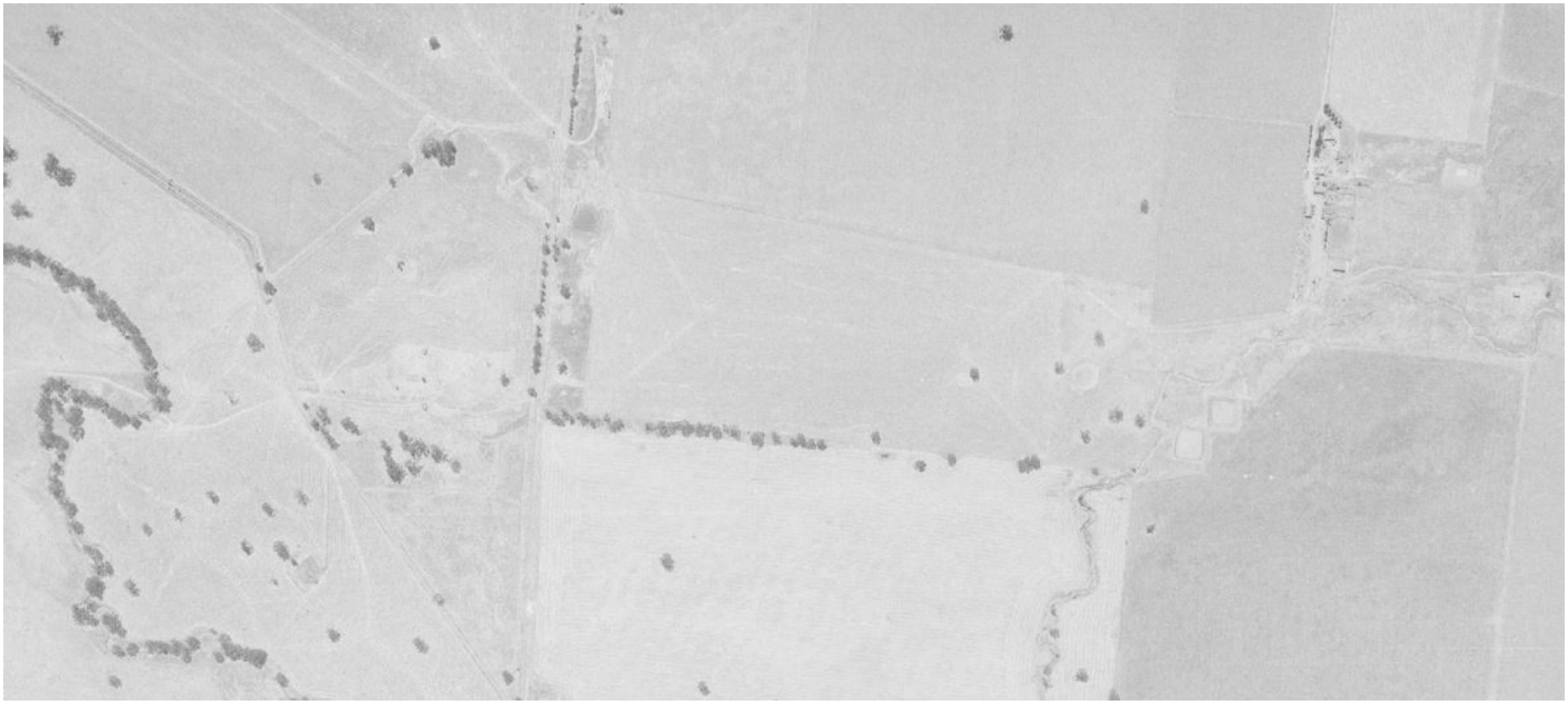
Species recorded for	3									
Abbreviation	Scientific Name	Common Name	Family	% Cover	Abundance	Exotic	Growth Form	High Threat?	EPBC Status	BCA Status
loli	*Lolium spp.*	A Ryegrass	Poaceae	15	500	*		No		
trif	*Trifolium spp.*	A Clover	Fabaceae (Fat	20	500	*		No		
aven	*Avena spp.*	Oats	Poaceae	0.2	100	*		No		
bras napu	*Brassica napus*	Canola	Brassicaceae	0.5	40	*		No		
arct cale	*Arctotheca calendula*	Capeweed	Asteraceae	1	200	*		No		
echi plan	*Echium plantagineum*	Patterson's Curse	Boraginaceae	0.5	50	*		No		
TARA	*Taraxacum spp.*	Dandelion	Asteraceae	0.1	5	*		No		
malv	*Malva sp.*	Mallow	Malvaceae	0.1	5	*		No		
trit	*Triticum spp.*		Poaceae	0.1	5	*		No		
erod	*Erodium spp.*	Crowfoot	Geraniaceae	0.1	20	*		No		
stipa	*Austrostipa sp*	Spear Grass	Poaceae	25	500			No		
euca mell	*Eucalyptus melliodora*	Yellow Box	Myrtaceae	5	3		Tree (TG)	No		
lamiaceae sample	*Lamiacea*		Lamiaceae	0.1	20			No		
wallaby grass	*Austrodanthonia sp*	Waallaby Grass	Poaceae	0.1	30			No		
xant	*Xanthium spp.*		Asteraceae	0.1	2	*		No		
sola nigr	*Solanum nigrum*	Black-berry Nightshade	Solanaceae	0.1	7	*		No		

APPENDIX D LAND CATEGORY ASSESSMENT

D.1 NATIVE VEGETATION REGULATORY MAP (DPE,2021B)

D.2 HISTORIC AERIAL IMAGES

D2.1 1980



D2.2 1990

D2.3 1998