



Environmental Assessment and Management Plan

Kojonup Wind Farm

Kojonup Wind Farm Pty Ltd

5 Barnfield Road, Claremont, WA 6010

Prepared by:

SLR Consulting Australia Pty Ltd

SLR Project No.: 675.073200.00001

4 November 2025

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	4 November 2025	EB	WK, FB	WK

Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Kojonup Wind Farm Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



Executive Summary

SLR Consulting (SLR) was commissioned by Kojonup Wind Farm Pty Ltd (KWF) to prepare an Environmental Assessment and Management Plan (EAMP) for the proposed Kojonup Wind Farm (the Project) located in the Shire of Kojonup, approximately 8 kilometres south of the Kojonup town centre.

This EAMP provides an overview of the environmental attributes of the Project Area and describes how the Project will respond to avoid or mitigate potential environmental impacts associated with the Project. The EAMP is intended to be presented as a supporting document to the Development Application for the Project.

Key environmental attributes identified include:

- Three watercourses that intersect the Project Area, namely the Balgarup River, Murrin Brook and an un-named watercourse;
- Two vegetation associations that are below the 30% threshold for retention of pre-European extent of vegetation;
- Two threatened flora species that may occur in the Project Area;
- One Priority 4 flora species recorded in the Project Area and a further five priority flora species that may occur in the Project Area;
- Areas of remnant native vegetation in Good or better condition were mapped across 7.74% of the Project Area;
- Five fauna species of conservation significance were recorded in the Project Area, with one additional species likely to occur and a further four species possibly occurring;
- Foraging habitat for Black Cockatoos;
- Seventeen (17) trees that may have suitable hollows for black cockatoo nesting were identified within the Project Area, eight of which are located within the disturbance footprint of the Project; and
- A significant Aboriginal Heritage site, the Balgarup River registered as ID 20434 Blackwood River in the Aboriginal Cultural Heritage Inquiry System.

Key social considerations for the Project include minimising potential impacts to sensitive receptors due to noise, shadow flicker and electromagnetic interference as well as potential changes to visual amenity, aviation risk and bushfire risk.

The key mitigation measure adopted by the Project is the avoidance of impacts, which has been achieved through an iterative design process to ensure the siting of Project infrastructure is in such a manner as to avoid the clearing of native vegetation and key fauna habitats, as far as feasibly possible. The impact on native vegetation amounts to 2.26 ha of remnant native vegetation considered to be Good or better condition.

Other measures to minimise potential environmental and social impacts include:

- Directional drilling under the Balgarup River;
- Micro-siting of infrastructure during implementation to further avoid sensitive environmental values that may be encountered as chance finds or could not have been avoided through the iterative planning process will be undertaken where possible;



- Where possible clearing of trees with potential black cockatoo hollows will be limited to outside of the breeding season (i.e. January – June);
- Pre-clearing surveys, by a suitably qualified zoologist, will be undertaken of trees to be cleared to reduce the risk of impact to black cockatoos. Pre-clearing surveys are typically undertaken approximately one week prior to clearing (only in the appropriate season) using appropriate methods;
- Should any black cockatoo nesting trees be taken, an investigation will be undertaken to determine if suitable artificial hollows can be placed within a 100 m radius.
- Rehabilitation of cleared areas with suitable native foraging species (Marri, Jarrah, Banksia etc.);
- Implementation of a construction environmental management plan that includes management measures for inter alia clearing, soil management, open trenches, erosion, weeds, dieback, dust, contamination and unexpected finds;
- Implementation of an adaptive bird and bat management plan;
- Implementation of a noise management plan;
- Installation of screening if shadow flicker is encountered; and
- Implementation of a bushfire management plan.

Development of the Project has considered the environmental attributes in the Project Area and planned for their protection, particularly through the direct avoidance of clearing of native vegetation through the strategic placement of wind turbine generators and associated infrastructure. Implementation of the Project can be appropriately managed in line with relevant legislation, policies, guidelines and management practices. Based on the results discussed in this EAMP, the potential environmental impacts to the identified environmental attributes can be managed and should not restrict development of the Project. Appropriate environmental approvals will be sought prior to implementation of the Project.



Table of Contents

Basis of Report	i
Executive Summary	ii
Acronyms and Abbreviations	vii
1.0 Introduction	9
1.1 Background	9
1.2 Kojonup Wind Farm Description	9
1.3 Scope	10
2.0 Key Environmental Legislation	11
2.1 Commonwealth Legislation	11
2.1.1 Environment Protection and Biodiversity Conservation Act 1999.....	11
2.2 State Legislation.....	11
2.2.1 Environmental Protection Act 1986.....	11
2.2.2 Other Legislation	12
2.3 Relevant Standards, Guidelines and Policies	14
3.0 Environmental Features and Management.....	16
3.1 Current Land Use	16
3.2 Reserves and Conservation Areas	16
3.2.1 Environmentally Sensitive Areas	16
3.2.2 Conservation Areas.....	16
3.3 Climate.....	17
3.3.1 Receiving Environment.....	17
3.3.2 Management	17
3.4 Topography	17
3.4.1 Receiving Environment.....	17
3.4.2 Management	17
3.5 Regional Geology and Soils	18
3.5.1 Receiving Environment.....	18
3.5.2 Management	18
3.6 Hydrogeology and Hydrology	19
3.6.1 Receiving Environment.....	19
3.6.2 Management	20
3.7 Flora and Vegetation	20
3.7.1 Receiving Environment.....	20
3.7.2 Management	24



3.8	Terrestrial Fauna	25
3.8.1	Receiving Environment.....	25
3.8.2	Management	31
3.9	Social Environment	32
3.9.1	Aboriginal Heritage.....	32
3.9.2	European Heritage	33
3.9.3	Noise	34
3.9.4	Visual Amenity	34
3.9.5	Shadow Flicker.....	35
3.9.6	Electromagnetic interference	36
3.9.7	Aviation	37
3.10	Bushfire Risk	39
3.10.1	Receiving Environment.....	39
3.10.2	Management	39
4.0	Summary and Conclusions	39
5.0	References.....	42

Tables

Table 1: Other State Legislation	12
Table 2: Relevant Standards, Guidelines and Policies	14
Table 3: Representation of vegetation system associations of the Project Area in the Jarrah Forest bioregion.....	21
Table 4: Summary of Vegetation Types Mapped within the Project Area and Development Footprint	22
Table 5: Summary of Vegetation Condition in the Project Area	24
Table 6: Broad Fauna Habitat Types within the Project Area	28

Figures

Figure 1: Site Location and Indicative Project Layout.....	A-1
Figure 2: Conservation and Environmentally Sensitive Areas	A-1
Figure 3: Soil Landscape Systems	A-1
Figure 4: Hydrology and Wetlands	A-1
Figure 5: Vegetation Types	A-1
Figure 6: Vegetation Condition.....	A-1
Figure 7: Fauna Habitat	A-1



Figure 8: Black Cockatoo Foraging Habitat and Potential Nesting Trees.....A-1

Appendices

Figures

Appendix A PMST Search Results

**Appendix B Flora, Vegetation and Fauna Assessment of the Kojonup Windfarm
Survey Area (Mattiske, 2025)**

**Appendix C Kojonup Windfarm Vertebrate Fauna, Bird and Bat Survey 2023-2024
(Western Wildlife, 2025)**



Acronyms and Abbreviations

ACHIS	Aboriginal Cultural Heritage Inquiry System
AH Act	<i>Aboriginal Heritage Act 1972</i>
AHD	Australian Height Datum
AIA	Aviation Impact Assessment
APZ	Asset Protection Zones
ASS	Acid Sulfate Soils
BC Act	<i>Biodiversity Conservation Act 2016</i>
BBAMP	Bird and bat adaptive management plan
BBUS	Bird and bat utilisation survey
BMP	Bushfire management plan
BoM	Bureau of Meteorology
CASA	Civil Aviation Safety Authority
CEMP	Construction environmental management plan
cm	Centimetres
DA	Development Application
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DBH	Diameter at Breast Height
DFES	Department of Fire and Emergency Services
DNV	DNV Australia Pty Ltd
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EAMP	Environmental Assessment and Management Plan
EMI	Electromagnetic interference
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i>
EPCAD	EPCAD Pty Ltd
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPHC	Environment Protection and Heritage Council
ESA	Environmentally Sensitive Area
ha	Hectares
IBRA	Interim Biogeographic Regionalisation of Australia
Mattiske	Mattiske Consulting Pty Ltd
MH New Hill	Moonies Hill New Energy Pty Ltd



MNES	Matters of National Environmental Significance
MW	Megawatt
nm	Nautical miles
PDWSA	Public Drinking Water Source Area
PEC	Priority Ecological Community
PMST	Protected Matters Search Tool
km	Kilometres
kV	Kilovolt
RSA	Rotor sweep area
SLR	SLR Consulting Australia Pty Ltd
SPP	State Planning Policy
TEC	Threatened Ecological Community
TPS	Town Planning Scheme
VIA	Visual Impact Assessment
VSA	Vegetation System Association
WAPC	Western Australian Planning Commission
WKSJ	Wagyl Kaip Southern Noongar
WoNS	Weeds of National Significance



1.0 Introduction

1.1 Background

Kojonup Wind Farm Pty Ltd (KWF) is proposing to develop the Kojonup Wind Farm (the Project). The Project Area is approximately ~3,819.87 hectares (ha) and is located within the Shire of Kojonup approximately 8 kilometres (km) south-southwest of the Kojonup town centre (Figure 1) and approximately 256 km southeast of Perth. The proposed Disturbance Footprint is approximately 174.73 ha.

The purpose of this Environmental Assessment and Management Plan (EAMP) is to provide an overview of the environmental attributes of the Project Area, identify the potential environmental impacts associated with the Project, and describe how the Project will respond to avoid or mitigate potential environmental impacts. The EAMP is intended to be presented as a supporting document to the Development Application for the Project.

1.2 Kojonup Wind Farm Description

The indicative Project layout is shown in Figure 1. Key proposed Project infrastructure comprises:

- Up to 33 wind turbine generators each with a 6.2 megawatt (MW) capacity to provide an energy output of approximately 204 MW;
- Associated turbine foundations and hardstand areas;
- A turbine design comprising:
 - Turbine tip height up to 206 m above ground level;
 - Hub height up to 125 m above ground level;
 - Separation (ground to tip) of 45 m; and
 - Turbine rotor diameter of 162 m.
- Internal sub-station;
- Underground cables connecting the wind turbines to the internal sub-station;
- Underground 132 kilovolt (kV) transmission line approximately 20 km in length connecting the internal sub-station to the existing sub-station on Tunney Road north-west of Kojonup;
- Battery Energy Storage System (BESS) with a battery capacity of 100MW/800 MWh;
- Access roads connecting with public roads and internal unsealed access roads between wind turbines and supporting infrastructure;
- Operation and maintenance building, workshops and associated car parking areas;
- Temporary construction facilities, including Project offices, construction compounds, laydown areas, and concrete batching plant; and
- Fire water tanks.



1.3 Scope

The scope of the environmental assessment is to identify environmental values in the Project Area and document how these environmental values have been considered in the design of the Project. Identification of environmental values was completed via a desktop review of information from government databases and site-specific surveys. The environmental assessment included consideration of:

- Relevant environmental legislation, policies and guidelines;
- Database layers for:
 - Reserves and Conservation Areas;
 - Landforms, soils and potential contaminated sites;
 - Hydrology and hydrogeology;
 - Biodiversity including flora, vegetation and terrestrial fauna and Environmentally Sensitive Areas (ESAs);
 - Social aspects including Aboriginal and European heritage; and
 - Bushfire risk.
- Review of site-specific technical reports prepared to inform the Project design, covering the following aspects:
 - Biodiversity: flora, vegetation and vertebrate fauna including bird and bat surveys; and
 - Social aspects including Aboriginal heritage, noise, visual, shadow flicker, traffic, electromagnetic interference (EMI) and aviation.

Following identification of the environmental attributes in the Project Area, the environmental assessment considered the suitability of intended land uses, potential impacts of the Project on the environmental features and identified mitigation measures to protect environmental features in the Project Area.



2.0 Key Environmental Legislation

2.1 Commonwealth Legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and is Australia's primary national environmental legislation. The EPBC Act provides for the protection of Matters of National Environmental Significance (MNES) at a national level. There are nine MNES including national heritage places, listed threatened species and ecological communities and listed migratory species.

Under the EPBC Act all actions that will have, or are likely to have, a significant impact on MNES are defined as 'controlled actions' and must be approved by the Commonwealth Minister for the Environment (the Commonwealth Minister) prior to implementation. The process for assessment and approval of a controlled action comprises:

- Referral – the action is referred to DCCEEW for the Commonwealth Minister to determine whether the action is a controlled action;
- Assessment – the potential impacts of the controlled action on MNES are assessed; and
- Decision – the Commonwealth Minister decides whether to approve the controlled action and, if so, whether conditions are to be attached to the approval.

A search using the Protected Matters Search Tool (PMST) showed (Appendix A):

- Three listed threatened ecological communities have been recorded within a 10 km radius of the Project Area;
- 16 listed threatened species, including Black Cockatoos, have been recorded within a 10 km radius of the Project Area; and
- Seven migratory species have been recorded within a 10 km radius of the Project Area.

A fauna survey of the Project Area (Western Wildlife, 2025) (refer Section 3.8) recorded two threatened species listed under the EPBC Act (Carnaby's Cockatoo (*Zanda latirostris*)) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) and identified one further listed threatened species as likely to occur and two others as potentially occurring. Two migratory species were also identified as possibly or potentially occurring in the Project Area.

As MNES are present in the Project Area and there is potential for impacts to MNES to occur due to implementation of the Project, the Project will be referred under the EPBC Act prior to development to provide certainty for the Project.

2.2 State Legislation

2.2.1 Environmental Protection Act 1986

The *Environmental Protection Act 1986* (EP Act) is the key legislation for environmental protection in Western Australia. The EP Act is administered by the Department of Water and Environmental Regulation (DWER), with the Environmental Protection Authority (EPA) operating as an independent statutory authority as established under the EP Act.



Part IV of the EP Act sets out the requirements for environmental impact assessment. The environmental impact assessment process provides an orderly and systematic evaluation of a proposal and its potential impact on the environment. A critical component of the assessment is the consideration of ways in which a proposal, if implemented, could avoid, or reduce any potential impact on the environment.

A proposal is referred to the Environmental Protection Authority (EPA) under Part IV of the EP Act if the proposal is likely, if implemented, to have a significant effect on the environment. The EPA will then decide whether to assess the proposal and, if so, set a level of assessment.

The EPA Environmental Factors that may be of relevance to the Project include:

- Flora and Vegetation;
- Terrestrial Fauna;
- Inland Waters; and
- Social Surroundings.

Based on the baseline environmental surveys and technical studies completed, it is expected that the Project can be managed to meet the EPA objectives for each of the above Environmental Factors through implementation of the mitigation hierarchy, in particular avoidance of impacts through Project design.

Although, the Project is unlikely to have a significant effect on the environment, the Project will be referred under Part IV of the EP Act to enable the Project to proceed with certainty.

Part V of the EP Act sets out the requirements for prevention, control and abatement of pollution or environmental harm as well as regulating clearing of native vegetation. Under Part V of the EP Act, a native vegetation clearing permit (NVCP) is required prior to clearing native vegetation unless an exemption applies.

Whilst the Project layout minimises the extent of native vegetation to be cleared, there are small areas of native vegetation that will need to be cleared to enable the Project to proceed. A native vegetation clearing permit will be sought for the Project pending the outcomes of the Part IV referral.

2.2.2 Other Legislation

Table 1 provides a summary of other environmental State legislation relevant to the Project.

Table 1: Other State Legislation

Key Legislation	Responsible Government Agency	Aspect
<i>Aboriginal Heritage Act 1972</i> (AH Act)	Department of Planning, Lands and Heritage (DPLH)	A registered Aboriginal Heritage site (ID 20434, the Blackwood River) intersects the Project Area (DPLH, 2025). A section 18 A section 18 application in terms of the AH Act will be completed for the transmission line crossing of the Balgarup Creek (Blackwood River Heritage Site ID 20434).



Key Legislation	Responsible Government Agency	Aspect
<i>Biodiversity Conservation Act 2016 (BC Act)</i>	Department of Biodiversity Conservation and Attractions (DBCA)	Threatened fauna species have been recorded within the Project Area. Activities which may result in the taking or disturbance of threatened species require lawful authority under the BC Act via Ministerial Authorisation under Section 40 of the BC Act. In the event that threatened species will be impacted a section 40 authorisation will be obtained prior to construction.
<i>Biosecurity and Agriculture Management Act 2007</i>	Department of Primary Industries and Regional Development (DPIRD)	Potential spread of weeds, pests, or diseases to nearby areas of native vegetation through the construction phase of work. This will be managed through the Project's construction management plan that will be developed prior to commencement of the construction phase.
<i>Bush Fires Act 1954</i>	Department of Fire and Emergency Services (DFES)	Some Project infrastructure is proposed to be situated within a designated bushfire prone area, which typically triggers bushfire planning requirements under <i>State Planning Policy (SPP) 3.7 Bushfire</i> . A bushfire management plan (BMP) will be developed for the Project to outline strategies and guidance to reduce the level of bushfire risk exposure.
<i>Conservation and Land Management Act 1984</i>	DBCA	No conservation areas are located within the Project Area. The nearest conservation area is located approximately 5.1 km west of the Project Area and is unlikely to be impacted by the Project.
<i>Contaminated Sites Act 2003</i>	Department of Water and Environmental Regulation (DWER)	No contaminated sites were identified within the Project Area. However, there is potential for contamination to occur within the Project Area given the existing agricultural land uses. The construction management plan will include management measures to address potential contamination found on site during the execution of the Project.
<i>Rights in Water and Irrigation Act 1914 (RiWI Act)</i>	DWER	Part of the Project Area is located within the Warren River and Tributaries proclaimed surface water management area. Where access roads and buried cables/ transmission lines may impact water courses within this proclaimed surface water management area, a Bed and Banks permit may be required. Should a Bed and Banks permit be required for any works that result in an alteration of the bed and banks this will be obtained prior to construction.



2.3 Relevant Standards, Guidelines and Policies

Clearing and development is subject to compliance with applicable standards, guidelines and policies developed by the State's regulators to assist proponents in understanding the minimum requirements for environmental protection. Table 2 details the key standards, guidelines, and State Planning Policies relevant to clearing and development in the Project Area.

Table 2: Relevant Standards, Guidelines and Policies

Document	Description
EPA Policies and Guidance	
<i>Statement of Environmental Principles, Factors and Objectives (EPA, 2023)</i>	States the objective and principles of the EP Act and provides the environmental factors and objectives the EPA uses for systematic environmental impact assessment.
<i>Environmental Factor Guideline – Flora and Vegetation (EPA, 2016)</i>	Provides guidance with the objective to protect flora and vegetation so that biological diversity and ecological integrity are maintained.
<i>Environmental Factor Guideline – Terrestrial Environmental Quality (EPA, 2016b)</i>	Provides guidance with the objective to maintain the quality of land and soils so that environmental values are protected.
<i>Environmental Factor Guideline – Terrestrial Fauna (EPA, 2016c)</i>	Provides guidance with the objective to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
<i>Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016d)</i>	Provides technical guidance to ensure adequate flora and vegetation data of an appropriate standard are obtained for use in environmental impact assessment.
<i>Technical Guidance – Terrestrial Fauna Surveys (EPA, 2020)</i>	Provides technical guidance to ensure adequate terrestrial fauna data of an appropriate standard are obtained for use in environmental impact assessment.
<i>Guidance Statement No. 33: Environmental Guidance for Planning and Development (EPA, 2008)</i>	Provides information and advice to assist land use planning and development processes to protect, conserve and enhance the environment.
<i>WA Environmental Offsets Policy (EPA, 2011)</i>	Seeks to protect and conserve environmental and biodiversity values for present and future generations. The policy ensures that economic and social development may occur while supporting long term environmental and conservation values.
Department of Water and Environmental Regulation (DWER) Guidelines and Operational Policies	
<i>Assessment and Management of Contaminated Sites Guideline (DWER, 2021)</i>	Provides guidance on the assessment and management of contaminated sites in Western Australia within legislative framework of the <i>Contaminated Sites Act 2003</i> and the <i>Contaminated Sites Regulations 2006</i> .
<i>Green Energy Proponent Guideline (DWER, 2024)</i>	This guideline has been prepared to assist proponents in undertaking assessments under Part IV of the EP Act and to identify key issues considered by the EPA when assessing green energy projects.



Document	Description
Western Australian Planning Commission (WAPC) Guidelines, Position Statements and State Planning Policies	
<i>Position Statement: Renewable Energy Facilities (WAPC, 2020)</i>	The policy identifies assessment measures to facilitate appropriate development of renewable energy facilities. It seeks to ensure these facilities are in areas that minimise potential impact upon the environment, natural landscape and urban areas while maximising energy production returns and operational efficiency.



3.0 Environmental Features and Management

3.1 Current Land Use

The Project Area is located in the Shire of Kojonup and is zoned as 'Rural' land under the Shire of Kojonup Town Planning Scheme No. 3.

The Project Area encompasses 42 lots (31 lots within the windfarm and adjacent road reserves and 11 in the transmission corridor) with a total area of 3,819.87 ha. The current land use is primarily agricultural, with cleared land and cropped areas, cleared pasture, planted and revegetated areas, development (roads and infrastructure) and dams (artificial water bodies) present. Pockets of native vegetation are also present in the Project Area.

Land uses around the Project Area are predominantly agricultural but also include:

- The township of Kojonup located approximately 8 km north of the Project Area;
- Albany Highway located 2 km east of the Project Area;
- Jingalup Nature Reserve and South Jingalup Nature Reserve located 5.1 km west and 6.2 km southwest of the Project Area respectively; and
- Pockets of native vegetation.

3.2 Reserves and Conservation Areas

3.2.1 Environmentally Sensitive Areas

Environmentally Sensitive Areas are declared by the DWER to prevent the degradation of important environmental values such as Threatened flora, Threatened Ecological Communities (TEC)s or significant wetlands.

No ESAs were identified within the Project Area (DWER, 2021). The nearest ESA is located approximately 36 km southwest of the Project Area (DWER, 2021).

3.2.2 Conservation Areas

Conservation Areas consist of areas protected for the purpose of conservation, including but not limited to National Parks, Nature Reserves, Conservation Parks, and Regional Parks.

No Conservation Areas were identified within the Project Area (DBCA, 2023). Four Conservation Areas occur within 10 km of the Project Area (DBCA, 2023) (Figure 2):

- Jingalup Nature Reserve (Parcel identifier R 17759) located 5.1 km west of the nearest Project boundary;
- South Jingalup Nature Reserve (Parcel Identifier R 17760) located 6.2 km southwest of the nearest Project boundary;
- 'Un-named' Nature Reserve (Parcel Identifier R 13102) located 8 km north of the nearest Project boundary; and
- 'Un-named' Nature Reserve (Parcel Identifier R 26158) located 8.1 km north of the nearest Project boundary.

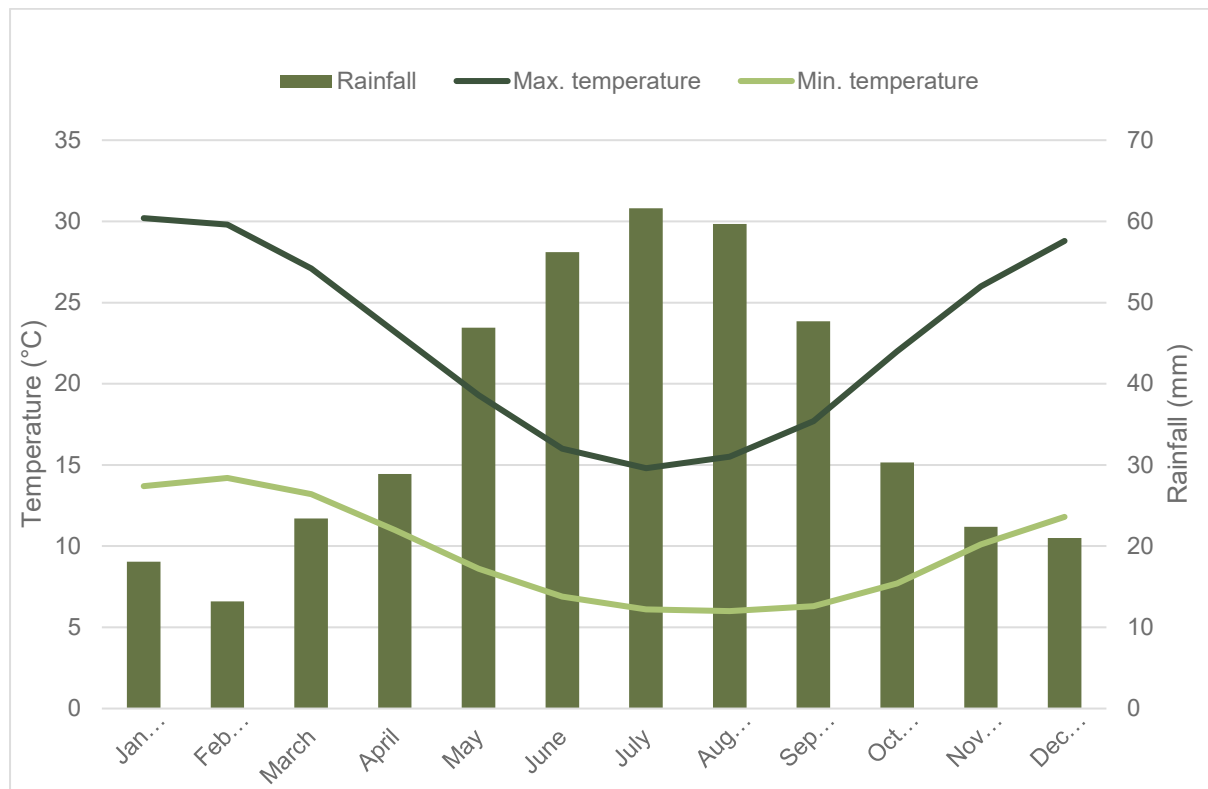


3.3 Climate

3.3.1 Receiving Environment

The closest long-term Bureau of Meteorology (BoM) weather station with a complete dataset is Katanning (Station 010916), located approximately 50 km northeast of the Project Area.

The long-term mean minimum temperature for Katanning weather station between 1999 and 2025 ranges from 6.0°C (August) to 14.2°C (February), and the long-term mean maximum temperature ranges from 14.8°C (July) to 30.2°C (January) (BoM, 2025) (Graph 1). The long-term average annual rainfall for the area is 427 mm (BoM, 2025).



Graph 1: Climate Statistics for Katanning (Station 010916) (BoM, 2025)

3.3.2 Management

There are no specific management considerations in relation to climate.

3.4 Topography

3.4.1 Receiving Environment

The Project Area and surrounds range from a flat open landscape to gently undulating sections with some steeper, hilly terrain. Elevation typically ranges from 250 m AHD to 400 m AHD, with high points in the central and eastern sections of the Project Area, while the lowest points are to the north and west.

3.4.2 Management

There are no specific management considerations that related directly to topography.



3.5 Regional Geology and Soils

3.5.1 Receiving Environment

3.5.1.1 Soil Landscapes and Land Systems

Soil landscapes and land system mapping of Western Australia describes broad soil and landscape characteristics from regional to local scales, and has been mapped at scales ranging from 1:20,000 to 1:250,000 (DPIRD, 2025b).

The Project Area occurs within two soil land systems (Figure 3) (DPIRD, 2025b):

- Farrar System (257Fa): Undulating rises and low hills on granite, in the southern Zone of Rejuvenated Drainage. Grey sandy duplex (mostly deep), sandy gravel, bare rock and red shallow loamy duplex, with wandoo-jarrah-marri woodland.
- Jingalup System (257Jp): Gently undulating rises, on the southern edge of the Zone of Rejuvenated Drainage. Sandy gravel, grey sandy duplex (mostly deep) and shallow loamy duplex with marri-wandoo-jarrah woodland.

Based on aerial imagery, no unique landforms are known from the Project Area.

3.5.1.2 Acid Sulfate Soils

A review of the DWER Acid Sulfate Soil (ASS) risk mapping did not identify an available risk map for the Project Area (DWER, 2017). The ASS risk maps are primarily focused on coastal and estuarine areas where the ASS likelihood is expected to be higher.

A search of the National Atlas of Australian Acid Sulfate Soils classifies the Project Area and surrounds as being 'potential acid sulfate soils with a low probability of occurrence' (Fitzpatrick et al., 2011). However, this is considered to be a provisional classification due to the limited availability of data (Fitzpatrick et al., 2011).

3.5.1.3 Contaminated Sites

A review of the DWER Contaminated Sites database did not identify any sites within a 10 km radius of the Project Area that are classified as 'contaminated – remediation required', 'contaminated – restricted use' or 'remediated for restricted use' (DWER, 2025). However, the Contaminated Sites database does not list all contamination classifications and therefore the presence of contaminated sites cannot be ruled out.

3.5.2 Management

The Project Area does not include any known unique landforms, known contaminated sites, and has a low risk of ASS occurring. There are, therefore, no specific management considerations in relation to soils and land systems for the Project Area.

A construction environmental management plan (CEMP) will be prepared during detailed design which will outline management measures to be put in place during construction to avoid potential contamination and ASS risk during development. The CEMP will include an Unexpected Finds Procedure in the event that potential contamination or ASS are encountered during earthworks.



3.6 Hydrogeology and Hydrology

3.6.1 Receiving Environment

3.6.1.1 Hydrogeology

Groundwater

The Project Area is located within the Karri unproclaimed groundwater area (DWER, 2024d). The Project Area does not intersect with any groundwater licences (DWER, 2024e).

Public Drinking Water Source Areas

The Project Area is not located within a Public Drinking Water Source Area (PDWSA) (DWER, 2024b). The nearest PDWSA is the Priority 1 Katanning Water Supply Catchment Area, which lies approximately 44 km northeast of the Project Area.

3.6.1.2 Hydrology

The Project Area extends across three catchment areas (DWER, 2024a):

- Warren River catchment: covers the central and western parts of the Project Area. This catchment is proclaimed as a surface water management area in terms of the RiWI Act;
- Hardy Estuary – Blackwood River catchment: covers the northern and eastern parts of the Project Area; and
- Nornalup Inlet – Frankland River catchment: covers the southern part of the Project Area.

Three surface water features intersect the Project Area (DWER, 2018) (Figure 4):

- One major river (Balgarp River) runs directly adjacent to the north-eastern boundary of the main part of the Project Area and is intersected by the proposed transmission corridor;
- One mainstream (Murrin Brook) flows to the northwest through the central portion of the Project Area. Two tributaries to Murrin Brook are also located in the Project Area joining Murrin Brook from the south and east; and
- One significant stream ('Un-named') intersects the edge of the Project's southern boundary.

The DPIRD Soil Landscape Land Quality – Flood Risk Map indicates that the majority of the Project Area is classified as L1 (<3% of map unit has a moderate to high flood risk), equivalent to a low to moderate risk (DPIRD, 2025a). While the north-eastern part of the Project Area immediately adjacent to the Balgarup River has a higher flood risk of M2 (30-50% of map unit has a moderate to high flood risk) (DPIRD, 2025a).

No geomorphic wetlands were identified within the Project Area or within a 10 km radius. No wetlands listed in the Directory of Important Wetlands of Ramsar listed wetlands were identified within the Project Area (DBCA, 2017; DBCA, 2018). The nearest listed wetlands are the Byenup Lagoon System and Lake Muir wetlands, located approximately 45 km southwest of the Project Area (DBCA, 2018).



3.6.2 Management

Water supply for the Project will be sourced from both scheme water and farm dams, with scheme water to be used for the concrete foundations for the wind turbine generators and farm dams supplying water for other construction activities.

The Project layout has avoided surface water features in the siting of wind turbine generators, with proposed wind turbine locations setback a minimum of 50 m from the watercourses identified in Section 3.6. Other Project infrastructure, such as internal access roads and cable routes, have been designed to avoid watercourses and to utilise existing disturbance where possible. However, there will be instances where infrastructure corridors need to cross watercourses. In these locations, existing disturbance will be utilised where possible, a Bed and Banks permit will be sought under the RiWI Act if required for water course crossings located within the Warren River and Tributaries proclaimed surface water management area and appropriately designed culverts will be installed where required.

Based on the desktop assessment, there are no nearby wetlands present in the Project Area, nor is the Project Area near a PDWSA. Management measures are, therefore not required in relation to these aspects.

A CEMP will be prepared that will include management measures to be implemented during construction to address potential surface water or groundwater impacts associated with the Project. Management measures will include:

- Micro-siting of wind turbine pads prior to construction;
- Stormwater, sediment and erosion controls;
- Bed and banks permit applications (if required); and
- Contamination and spill prevention controls.

3.7 Flora and Vegetation

3.7.1 Receiving Environment

3.7.1.1 Regional Vegetation

Interim Biogeographic Regionalisation of Australia

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical, and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (DCCEEW, 2025). The Project occurs within the Jarrah Forest bioregion and the Southern Jarrah Forest subregion, near the western border of the Avon Wheatbelt subregion.

The Southern Jarrah Forest subregion is characterised by jarrah forest on duricrusted plateaus and loam soils of valleys, with marri-wandoo woodlands on laterite-free soils (Beard, 1990). The Avon Wheatbelt bioregion is characterised by scrub-heath on sandplains, Acacia-Casuarina thickets on ironstone gravels, woodlands of *Eucalyptus loxophleba*, *Eucalyptus salmonophloia* and *Eucalyptus wandoo* on varying soil types (Beard, 1990).

The proximity of the Project Area to the western border of the Avon Wheatbelt subregion indicates that characteristics of both regions are likely to be present within the Project area.



Pre-European Vegetation Extent

Mapping of pre-European vegetation in WA was completed on a broad scale (1:1,000,000) by Beard (1976). These vegetation associations were later refined by Shepherd et al. (2002) resulting in 819 associations.

Three vegetation system associations (VSAs) are mapped within the Project Area, and described below (DPIRD, 2019):

- **Jingalup_3:** Forest; Mainly jarrah and marri, *Eucalyptus marginata*, *Corymbia calophylla*;
- **Jingalup_4:** Woodland southwest; jarrah, marri and wandoo *Eucalyptus marginata*, *Corymbia calophylla*, *E. wandoo*; and
- **Jingalup_968:** Woodland southwest; jarrah, marri and wandoo *Eucalyptus marginata*, *Corymbia calophylla*, *E. wandoo*.

Representation of the vegetation associations within the Jarrah Forest bioregion is summarised in Table 3 (Government of Western Australia, 2019).

Table 3: Representation of vegetation system associations of the Project Area in the Jarrah Forest bioregion.

Vegetation System Association	Extent			
	Pre-European (ha)	Current (ha)	Remaining (%)	Managed in DBCA lands (%)*
Jingalup_3	49,350.81	16,725.02	33.89	12.25
Jingalup_4	166,658.79	35,568.48	22.34	5.08
Jingalup_968	7,735.68	1,629.67	21.07	-

*As a portion of the current extent

The threshold level of retention for the pre-European extent of each vegetation association within a local area and bioregion is considered to be 30% or more. The proportion of vegetation associations Jingalup_4 and Jingalup_968 remaining within the Jarrah Forest bioregion is below the 30% threshold with 22.34% and 21.07% respectively. Given the small percentage of Jingalup_4 and Jingalup_968 protected within DBCA managed lands, it places these vegetation associations at risk of future loss.

3.7.1.2 Desktop Assessment

A desktop assessment completed by Mattiske Consulting Pty Ltd (Mattiske) (2025) (Appendix B) identified 14 threatened flora species as occurring or potentially occurring in the vicinity of the Project Area. Assessment of the likelihood of occurrence of these 14 species found all but two species are unlikely or highly unlikely to occur in the Project Area. *Gastrolobium lehmannii* (Vu) was considered to possibly occur in the Project Area. *Eleocharis keigheryi* (Vu) was also considered as possibly occurring but with reduced likelihood as the species is considered a specialist emergent in freshwater, creeks and claypans (Mattiske, 2025).

The desktop assessment also identified eight Priority flora species as occurring or potentially occurring in the vicinity of the Project Area (Mattiske, 2025). Assessment of the likelihood of occurrence of these eight species found six may occur in the Project Area (Mattiske, 2025).



A full list of significant flora taxa known from within the desktop study area is presented in Appendix B of Appendix B (Mattiske, 2025).

A search using the Protected Matters Search Tool (PMST) identified that one listed TEC, the Eucalyptus Woodlands of the Western Australian Wheatbelt (Critically Endangered), may occur in the Project Area. The PMST also identified two TECs that may occur in the vicinity of the Project Area (Clay Pans of the Swan Coastal Plain (Critically Endangered) and Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Endangered).

3.7.1.3 Flora and Vegetation Survey

Flora of Conservation Significance

A flora and vegetation survey was conducted in the Project Area in February, July, November and December 2023, and January, July, September, and October 2024.

A total of 179 vascular plant taxa from 119 plant genera and 45 plant families were recorded during the surveys (Mattiske, 2025).

No Threatened flora species listed under the BC Act or the EPBC Act were recorded in the Project Area (Mattiske, 2025).

One Priority species, *Xanthorrhoea brevistylis* (Priority 4 (P4)) was recorded at five locations in the Project Area in woodland comprising *Eucalyptus wandoo* with patches of *Allocasuarina huegeliana* over low subshrubs and introduced grasses on sandy soils and near shallow granites on mid and upper slopes (Figure 5) (Mattiske, 2025). None of the remnant vegetation in which these species were identified will be impacted by the proposed Project.

Introduced Flora

A total of 21 introduced flora taxa were recorded in the Project Area, none of which are Declared Pests or Weeds of National Significance (WoNS) (Mattiske, 2025).

Vegetation Types

A total of nine vegetation types were defined and mapped during the field surveys (Figure 5) (Mattiske, 2025). The native plant communities were restricted in occurrence due to the degree of land clearing and historical agricultural activities in the area (Mattiske, 2025). Table 4 presents a description of each of the vegetation types mapped in the Project Area (Mattiske, 2025). In total, 9.31 ha of native vegetation will be cleared/ impacted. This amounts to only 1.29% of native vegetation mapped within the Project Area.

Table 4: Summary of Vegetation Types Mapped within the Project Area and Development Footprint

Code	Description	Total Area (ha), (Proportion of Project Area [%])	Total Area in Development Footprint (Proportion of Project Area [%])
AH1	Open woodland of <i>Allocasuarina huegeliana</i> with <i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> and <i>Eucalyptus wandoo</i> over low undergrowth	41.45 ha (1.09%)	0.08 ha (0.18%)



Code	Description	Total Area (ha), (Proportion of Project Area [%])	Total Area in Development Footprint (Proportion of Project Area [%])
	of grasses and herbs on sandy-loams to clay loams on slopes and ridges.		
AH2	Open woodland of <i>Allocasuarina huegeliana</i> with <i>Corymbia calophylla</i> and <i>Eucalyptus wandoo</i> over low undergrowth of grasses and herbs on sandy-loams on slopes and ridges.	76.97ha (2.02%)	3.57 ha (4.64%)
AH3	Open woodland of <i>Allocasuarina huegeliana</i> with <i>Eucalyptus rudis</i> over low undergrowth of grasses and herbs on fringes of creeklines on lower slopes with patches of granite near or on surface.	12.99 ha (0.34%)	0.12 ha (0.93%)
E1	Open woodland of <i>Corymbia calophylla</i> with some patches of <i>Eucalyptus marginata</i> and <i>Eucalyptus wandoo</i> over low undergrowth of grasses and herbs sandy-loams on slopes and ridges.	175.74 ha (4.60%)	0.48 (0.27%)
E2	Open woodland of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges.	83.80 ha (2.19%)	0.61 ha (0.73%)
E3	Open woodland of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> with some <i>Eucalyptus wandoo</i> patches over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges.	89.76 ha (2.35%)	0.73 ha (0.81%)
E4	Open woodland of <i>Eucalyptus wandoo</i> over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges.	45.20 ha (1.18%)	0.11 ha (0.24%)
E5	Open woodland of <i>Eucalyptus rudis</i> with patches of <i>Corymbia calophylla</i> and <i>Eucalyptus wandoo</i> over grasses and herbs on lower moist sandy-loam clays on the slopes and with Paperbarks (<i>Melaleuca raphiophylla</i> and <i>Melaleuca cuticularis</i>) on the wetter lower slopes in gullies and creeklines.	178.56 ha (4.67%)	3.62 ha (2.03%)
E6	Open woodland of <i>Eucalyptus astringens</i> with patches of <i>Eucalyptus wandoo</i> over low undergrowth of grasses and herbs on slopes and ridges.	19.71 ha (0.52%)	0 ha (0%)
PL	Plantation	69.03 ha (1.81%)	0.71 ha (1.03%)
CL	Cleared	3,026.58 ha (79.23%)	164.71 (5.44%)
Total		3,819.87 ha	174.74 ha



Vegetation Condition

A breakdown of vegetation condition mapped across the Project Area is provided in Table 5 (Mattiske, 2025). Vegetation condition in the majority (92.26%) of the Project Area is in either Completely Degraded or Degraded condition (Mattiske, 2025) (Figure 6). Areas of remnant native vegetation in Good or better condition occur across 7.74% of the Project Area and are primarily located in the eastern section of the Project Area (Figure 6). The Project will impact on 2.26 ha remnant native vegetation considered to be Good or better condition.

Table 5: Summary of Vegetation Condition in the Project Area

Vegetation Condition	Area within Project Area (ha)	Area within Development Footprint (ha)
Excellent	65.90	1.78
Very Good	58.24	0.26
Good	171.69	0.21
Degraded	307.27	5.34
Completely Degraded	3,216.77	167.14
Total	3,819.87	174.74

Tree Assessments

During the field work more than 151 trees with diameters at breast height greater than 30cm for *Eucalyptus wandoo* and diameters at breast height of greater than 50cm for *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus rudis* were recorded. As indicated in Mattiske (2025), 38 trees have the potential to be directly or indirectly impacted within the maximum Disturbance Footprint boundary. During the detailed design phase it is expected that further avoidance strategies will be implemented to reduce the number of trees impacted. Many of the trees may only need a pruning rather than removal.

Fauna utilisation of the trees was assessed by Western Wildlife (2025), and is summarised in **Section 3.8.1.4** below.

3.7.1.4 Threatened and Priority Ecological Communities

No TECs or Priority Ecological Communities (PECs) have been recorded within the Project Area (Mattiske, 2025). The TEC, Eucalyptus Woodlands of the Western Australian Wheatbelt, identified during the desktop assessment was not identified in the Project Area (Mattiske, 2025).

The claypans with mid dense shrublands of *Melaleuca lateritia* over herbs PEC was recorded outside the Project Area, approximately 5.6 km to the east (Mattiske, 2025).

3.7.2 Management

No TECs, PECs or Threatened flora species have been recorded within the Project Area, as such a management response for these values is not required.

One Priority flora species, *Xanthorrhoea brevistylis* (P4), has been recorded in the Project Area at five locations as shown on Figure 5. None of these areas will be impacted by the proposed Project. Management measures to reduce impacts to native vegetation in general will also reduce impacts to this species.



The Project has been designed to avoid clearing of native vegetation, primarily through siting the wind turbine generators and associated infrastructure away from patches of native vegetation. Project infrastructure is primarily sited or located in areas that have been previously cleared. Route alignments for access roads and buried cables/ transmission lines has been selected to avoid native vegetation wherever possible, existing roads have been used where possible.

A CEMP will be prepared that will include management measures to be implemented during construction to address potential impacts to flora and vegetation. Management measures will include:

- Micro-siting of Project infrastructure (including inter alia wind turbine generators, access roads, underground cables and transmission lines) to avoid impacts to native vegetation;
- Vehicle hygiene procedures to minimise the risk of introduction or spread of weeds and dieback, including:
 - Inspections to ensure vehicles are free from soil and plant material upon entry to the Project Area; and
 - Minimising ground disturbance during wet conditions.
- Dust management.
- Soil management measures, including inter alia limiting soil disturbance, and separately stripping and stockpiling topsoil (including log debris and leaf litter where possible) for future use in rehabilitation activities.

3.8 Terrestrial Fauna

3.8.1 Receiving Environment

3.8.1.1 Desktop Assessment

A desktop assessment completed by Western Wildlife (2025) identified 242 vertebrate fauna species as potentially occurring in the vicinity of the Project Area, comprising 151 birds, 46 reptiles, 33 mammals and 12 amphibians. Of these, 22 are species of conservation significance, comprising 11 birds and 11 mammals (Western Wildlife, 2025).

3.8.1.2 Fauna Survey

The following surveys were undertaken in November 2023, August 2024 and November 2024 to identify terrestrial vertebrate fauna in the survey area (Western Wildlife, 2025) (Appendix C):

- Basic vertebrate fauna survey;
- Bird and bat utilisation survey; and
- Black Cockatoo habitat assessment.

A total of 94 vertebrate fauna species were recorded in the survey area, comprising 77 birds, 10 mammals, 4 reptiles and 2 amphibians (Western Wildlife, 2025).



Birds

A bird utilisation survey was undertaken by Western Wildlife (2025) (Appendix C) in November 2023, August 2024 and November 2024. Bird survey sites were at proposed turbine locations ('impact sites') and in the surrounding areas ('reference sites'). Each site was surveyed on four occasions, two in the morning and two in the afternoon, with the exception of when vehicle movement bans prohibited site access. Each bird survey was undertaken for 20 minutes by a single observer. All birds seen or heard within 200 m of the observer were recorded. Bird flight heights were recorded as one of the following categories (Western Wildlife, 2025):

- Below rotor swept area (RSA) (0-50 m);
- At RSA (50-200 m);
- Above RSA (>200 m); and
- Not observed flying.

Over the three bird utilisation survey periods, a total of 4,052 bird flights were recorded at impact sites and 891 at reference sites. A total of 73 bird species were recorded during the bird utilisation survey, including four conservation significant species (Western Wildlife, 2025):

- Carnaby's Cockatoo (*Zanda latirostris*) (En) recorded at impact and reference sites;
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (Vu) recorded at impact and reference sites;
- Muir's Corella (*Cacatua pastinator pastinator*) (Conservation Dependent) recorded at impact sites only; and
- Inland Western Rosella (*Platycercus icterotis xanthagenys*) (DBCA P4) recorded at impact and reference sites.

Of the bird flights recorded at impact sites, 204 birds (5% of flights) of 12 species were recorded in the RSA. The remaining 3,848 birds (95% of flights) of 59 species were recorded below the RSA.

All flight records within the survey area for Carnaby's Black Cockatoo, Forest Red-tailed Black Cockatoo, Muir's Corella and Inland Western Rosella were below the RSA (Western Wildlife, 2025).

A risk assessment for turbine collision was undertaken for all conservation significant bird species as well as bird species considered to be at risk of collision (e.g. birds of prey). The risk assessment considered flight height, flight behaviour, likelihood of occurrence in the Project Area, habitat preference, migration and known windfarm mortalities (Western Wildlife, 2025).

Three bird species of conservation significance (Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo), and two other species, (the Wedge-tailed Eagle and Purple-crowned Lorikeet) were considered to have a 'Moderate' collision risk (Western Wildlife, 2025). No birds were assessed as being at 'Very High' or 'High' risk. The complete bird risk assessment is presented in Appendix 9 of Western Wildlife (2025).



Bats

A bat utilisation survey was undertaken by Western Wildlife in November 2023, August 2024 and November 2024 to identify the bat assemblage in the study area (Western Wildlife, 2025) (Appendix C). Bat activity was captured using Anabat Swift and Anabat Ranger call detectors placed one metre above ground level. It was not possible place detectors high enough to obtain data on the use of the RSA due to the lack of sufficiently tall structures to attach the detectors to. Detectors were deployed for three to four nights at each sampling sites to give a total of 22 nights of recordings across six sites in November 2024 and 16 nights of recordings across four sites each in August and November 2024 (Western Wildlife, 2025).

Ten species (or subspecies) of bat potentially occur within the Project Area (Western Wildlife, 2025). A total of five species were confirmed as occurring in the Project Area, with at least a sixth species recorded but unable to be identified to the species level (Western Wildlife, 2025). No Threatened bat species are expected to occur in the Project Area but the Central Long-eared Bat (*Nyctophilus major tor*) (P3) and the Western False Pipistrelle (*Fasistrellus mackenziei*) (P4) possibly occur in the Project Area (Western Wildlife, 2025).

A risk assessment for turbine collision was undertaken for all ten bat species that may occur in the Project Area. No bat species were assessed as being at 'Very High' or 'High' risk of turbine collision. Two species, Gould's Wattled Bat (*Chalinolobus gouldiand*) and the White-striped Freetail Bat (*Austronomus australis*), were assessed as being at 'Moderate' risk of turbine collision (Western Wildlife, 2025). Both species are common and widespread across Australia, so although there is a risk of an impact to the local population of these species, it is unlikely there would be an impact to the population as a whole (Western Wildlife, 2025). The remaining species were determined to have a 'Minor' or 'Negligible' risk of collision. The complete bat risk assessment is presented in Appendix 9 of Western Wildlife (2025).

Fauna Habitats

A total of six fauna habitats (including cleared area) were identified within the Project Area. The fauna habitats are described in Table 6 and represented in Figure 7.

The majority (77.9%) of the study area has been cleared, primarily for agriculture, and the remaining habitats identified are considered common within the region (Western Wildlife, 2025). The remaining vegetation occurs in patches and is impacted by loss of native understorey habitat due to livestock trampling, weed invasion, feral predators, feral herbivores, historical ringbarking of trees for timber and timber cutting for firewood (Western Wildlife, 2025).



Table 6: Broad Fauna Habitat Types within the Project Area

Habitat Type	Habitat Description	Key Habitat Elements	Total Area, Proportion of Project Area
Eucalypt Woodland	<p>Occurs in remnant patches of various sizes, usually on low lateritic hills and rises, as the lower lying areas have been cleared for agriculture. Comprising mainly of Wandoo (<i>Eucalyptus wandoo</i>), Jarrah (<i>Eucalyptus marginata</i>) and/or Marri (<i>Corymbia calophylla</i>) with Powderbark Wandoo (<i>Eucalyptus accedens</i>) on laterite rises.</p> <p>The understorey is mostly limited to native and introduced grasses with sparse low native shrubs, with small stands of Banksia and other shrubs in the larger patches. Understorey vegetation remains in the two largest woodland patches (approximately 57 ha).</p>	<ul style="list-style-type: none"> Tree hollows provide nesting and shelter habitat for arboreal mammals and reptiles and nesting habitat for birds; Fallen logs provide shelter habitat; and Where present, Marri and Jarrah in the canopy and Banksia spp. in the understorey provide food-plants for Threatened Black Cockatoos. <p>This habitat is considered quite disturbed, with disturbances including usage as shelter for stock, firewood, and historic timber sourcing. In some areas the larger trees have been historically ring-barked, these trees will gradually fall and it will take many years for new trees to bear hollows.</p>	552.3 ha (14.5%)
Granite Woodland	<p>Small granite outcrops surrounded by a dense woodland of Rock Sheoak (<i>Allocasuarina huegeliana</i>), with occasional Wandoo (<i>Eucalyptus wandoo</i>) over White Myrtle (<i>Hypocalymma angustifolium</i>) and sedges.</p>	<ul style="list-style-type: none"> Granite outcrops provide exfoliating rock and ephemeral pools as habitat for reptiles and frogs; Dense vegetation surrounding outcrops provide shelter habitat for birds; and Ephemeral pools and run-off areas provide breeding habitat for frogs. <p>Where present, Marri and Jarrah in the canopy and Sheoak in the understorey provide food-plants for Black Cockatoos.</p>	78.23 ha (2.0%)



Habitat Type	Habitat Description	Key Habitat Elements	Total Area, Proportion of Project Area
Creek	Small seasonal creeks occur in the shallow valleys on generally sandy-clay soils. The riparian zone supports an open woodland of Flooded Gum (<i>Eucalyptus rudis</i>), sometimes with Swamp Paperbark (<i>Melaleuca raphiophylla</i>) and Marri (<i>Corymbia calophylla</i>) on the higher ground, over Knotted Club-rush (<i>Ficinia nodosa</i>) and introduced grasses.	<ul style="list-style-type: none"> Creeks may provide ecological linkages; Creeks provide breeding habitat for frogs; and Where present, Marri and Jarrah in the canopy provide food-plants for Black Cockatoos. <p>This habitat is generally very disturbed, with disturbances including historic clearing, weeds, grazing and trampling by livestock. This has resulted in a lack of native understorey vegetation and a gradual loss of trees.</p>	142.4 ha (3.7%)
Pine Plantation	Small parts of the study area comprise pine plantations. There are more extensive pine plantations adjacent to the study area.	<ul style="list-style-type: none"> Pines provide food-plants for Black Cockatoos. 	19.60 ha (0.5%)
Planted	Planted vegetation primarily consisted of local or non-local eucalypts planted in rows with no understorey.	<ul style="list-style-type: none"> Planted vegetation may provide ecological linkage in the absence of remnant native vegetation. 	50.9 ha (1.3%)
Cleared (includes isolated paddock trees and farm dams)	A large part of the study area comprises cleared land which has been generally utilised for cropping or pasture.	<ul style="list-style-type: none"> Isolated paddock trees provide habitat for fauna, including potential tree hollows and foraging habitat for Black Cockatoos; Cleared areas provide foraging habitat for aerial birds, including birds of prey; Farm dams provide breeding habitat for frogs; and Farm dams provide breeding habitat for a small number of common waterbirds. 	2,973.3 ha (77.9%)



3.8.1.3 Fauna of Conservation Significance

Of the 94 species recorded during the field survey, five are species of conservation significance (Western Wildlife, 2025):

- Carnaby's Cockatoo (*Zanda latirostris*) (Endangered [En] under the BC Act and EPBC Act);
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable [Vu] under the BC Act and EPBC Act);
- Inland Western Rosella (*Platycercus icterotis xanthagenys*) (DBCA P4);
- Muir's Corella (*Cacatua pastinator pastinator*) (Conservation Dependent under the BC Act); and
- Peregrine Falcon (*Falco peregrinus*) (Specially Protected under the BC Act).

One additional fauna species of conservation significance was assessed as likely to occur in the survey area (Western Wildlife, 2025):

- Red-tailed Phascogale (*Phascogale calura*) (Vu under the EPBC Act and Conservation Dependent under the BC Act).

Four species of conservation significance were assessed as potentially occurring in the survey area (Western Wildlife, 2025):

- Baudin's Black Cockatoo (*Zanda baudinii*) (En under the BC Act and EPBC Act);
- Chuditch (*Dasyurus geoffroii*) (Vu under the BC Act and EPBC Act);
- Fork-tailed Swift (*Apus pacificis*) (Migratory under the EPBC Act and BC Act); and
- Brush-tailed Phascogale (*Phascogale tapoatafa*) (Conservation Dependent under the BC Act).

A further 12 species of conservation significance were considered to possibly occur in the survey area (Western Wildlife, 2025).

3.8.1.4 Black Cockatoo

The habitats of the Project Area were assessed for potential to support Black Cockatoos through examination of the presence of plant species known to provide Black Cockatoo habitat and for any evidence of foraging (such as chewed fruit or flowers) or roosting (such as aggregations of scats and feathers). Known, suitable or potential nesting trees were also recorded and assessed for suitability where they occur in or near the Development Footprint.

Records

Carnaby's Cockatoo was recorded on 75 occasions during the vertebrate fauna survey. Thirty-one of these records were primary observations (visual sightings), and 44 were secondary observations (foraging evidence and calls) (Western Wildlife, 2025). The largest group sighted in the Project Area was 10 birds, with a flock of 40 recorded outside the Project Area in pine plantations to the east (Western Wildlife, 2025). Sixty-five individuals were recorded during bird utilisation surveys (Western Wildlife, 2025).



The Forest Red-tailed Black Cockatoo was recorded on 59 occasions during the vertebrate fauna survey. Thirty-five of these records were primary observations and 24 were secondary observations (Western Wildlife, 2025). The largest flock observed was five birds (Western Wildlife, 2025). Thirty-three individuals were recorded during bird utilisation surveys (Western Wildlife, 2025).

Baudin's Cockatoo was not recorded during the fauna survey nor was evidence of foraging found (Western Wildlife, 2025). However, the Project Area is on the eastern edge of the species' current range and is considered likely to occur in the Project Area.

Nesting Habitat

Potential breeding habitat for Carnaby's Cockatoo occurs mostly in the eucalypt woodland habitat, but also in the granite woodlands, some of the creek habitat and in isolated trees in cleared areas (Western Wildlife, 2025). There are several known breeding sites for Carnaby's Cockatoo in the region, the nearest is approximately 7 km south of the Project Area (Western Wildlife, 2025).

Potential breeding habitat for Forest Red-tailed Black Cockatoo and Baudin's Cockatoo is likely present in the eucalyptus woodlands and creeks habitats (Western Wildlife, 2025). A single known breeding site for each of these two species have been recorded in the region, and it is likely that there are others that remain unrecorded (Western Wildlife, 2025).

Trees in proximity to the proposed Development Footprint that contain potentially suitable hollows were identified and assessed (Figure 8) (Western Wildlife, 2025). A total of 17 trees were identified with potential Black Cockatoo hollows (Western Wildlife, 2025). An additional 225 live trees were recorded with hollows that are too small to be suitable for Black Cockatoos (Western Wildlife, 2025). No known Black Cockatoo breeding trees were recorded in the Project Area.

No evidence of roosting was observed in the Project Area for the three Black Cockatoo species. Roosting of 'white-tailed Black Cockatoos' is known to occur in Kojonup, with a maximum count of 48 birds at a roost in 2017 (Western Wildlife, 2025). There are no known roost sites for the Forest Red-tailed Black Cockatoo in the region (Western Wildlife, 2025).

Foraging Habitat

Carnaby's Cockatoo has been confirmed to forage within the Project Area, in the eucalypt woodland, creek and pine plantation habitats (Figure 8) (Western Wildlife, 2025). Potential foraging habitat for Forest Red-tailed Black Cockatoo and Baudin's Cockatoo is present in areas of eucalypt woodland or creek habitat with Marri or Jarrah, including woodland areas without understorey (Western Wildlife, 2025).

The foraging habitat within the Project Area was assessed as a score of 10 'High-quality foraging habitat' for both Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo in accordance with the Commonwealth Black Cockatoo referral Guidelines foraging tool (DAWE, 2022). The Project Area was assessed as a score of 8 'High-quality foraging habitat' for Baudin's Cockatoo due to an absence of foraging evidence during the survey (Western Wildlife, 2025). Refer to Western Wildlife (2025) for the full assessment.

3.8.2 Management

Baseline surveys completed for the Project have identified conservation significant species that are known to occur, likely to occur or potentially occur in the Project Area, along with the associated fauna habitat values.



A key mitigation measure for the Project is a focus on the implementation of an avoidance strategy and the ability for the development to maximise the retention of native vegetation in particular those patches of high value habitat for Black Cockatoos by utilising existing areas of disturbance.

Specific management measures for terrestrial fauna to be implemented during detailed design and construction include:

- Commitments to minimise the clearing of suitable Black Cockatoo trees through the siting of wind turbine generators and associated Project infrastructure in previously disturbed areas where possible.
- Micro-siting of infrastructure during implementation to avoid sensitive environmental values that may be encountered or could not be avoided through the iterative planning process, this includes on-site alignment of roads and cables to avoid identified trees with suitable hollows for black cockatoos.
- Where possible, clearing of trees with potential black cockatoo hollows will be limited to outside of the breeding season (typically January – June);
- Pre-clearing surveys will be undertaken by a suitably qualified zoologist of trees to be cleared to reduce the risk of impact to black cockatoos. Pre-clearing surveys are typically undertaken approximately one week prior to clearing (usually only required when clearing during the breeding season) using appropriate methods;
- Should any black cockatoo nesting trees be taken, an investigation will be undertaken to determine if suitable artificial hollows can be placed within a 100 m radius.
- Rehabilitation of cleared areas with suitable native foraging species (Marri, Jarrah, Banksia etc.).
- Preparation of a CEMP to manage fauna within the Project Area. This will include development and implementation of protocols for clearing vegetation and managing open trenches during construction.
- Preparation of a bird and bat adaptive management plan (BBAMP) to minimise and mitigate potential impacts on bird and bat species at risk of collision with wind turbines due to their flying behaviour, habitat requirements, size or feeding strategies.

3.9 Social Environment

3.9.1 Aboriginal Heritage

3.9.1.1 Receiving Environment

Aboriginal cultural heritage in Western Australia is managed under the *Aboriginal Heritage Act 1972* (AH Act).

A search of the DPLH Aboriginal Cultural Heritage Inquiry System (ACHIS) identified one registered Aboriginal Heritage site that intersects the Project Area (DPLH, 2025):

- ID 20434: Blackwood River – Registered Place; Type: Creation/Dreaming Narrative
 - Location: Runs adjacent to and briefly intersects the northern border of the Project Area.

No lodged Aboriginal Heritage sites were identified within a 5 km radius of the Project Area (DPLH, 2025).



The Project Area is covered by the South West Settlement determination (WCD2021/010) and the Wagyl Kaip & Southern Noongar Indigenous Land Use Agreement (DPLH, 2025).

An Aboriginal Heritage Survey was conducted in the Project Area (Brad Goode, 2025) with the cooperation of the Wagyl Kaip Southern Noongar (WКСN) Aboriginal Corporation. Following ethnographic consultations with eight representatives from the WКСN Aboriginal Corporation, no new Aboriginal Cultural Heritage sites as defined by Section 5 of the AH Act were identified within the Project Area (Brad Goode, 2025). The Balgarup River, registered as ID 20434: Blackwood River in ACHIS, was confirmed by WКСN representatives to contain Aboriginal cultural heritage values, holding both religious and customary significance (Brad Goode, 2025).

3.9.1.2 Management

The following management measures recommended by Brad Goode (2025) are to be implemented to minimise impacts to Aboriginal Heritage:

- Directional drilling, rather than trenching, will be used to install cables under the Balgarup River.

The following measures will be considered to address further recommendations by Brad Goode (2025) that the Project give due consideration to other mitigation and management measures:

- Aboriginal heritage monitors will be invited to attend initial excavations and road construction works;
- Where open trenching is utilised in the small creeks, the bed and banks of the riparian zone will be reinstated to preserve the habitat for fauna and aesthetic amenity of the area.
- Employment opportunities will be offered to the local Kojonup Noongar community via consultation with the Cultural Advisory Committee at the WКСN Aboriginal Corporation as part of the Project;
- All contractors required to undertake a site induction, which will include cultural and environmental awareness training; and
- Where any new native vegetation planting is required or chosen to offset clearing, the local Noongar Rangers will be consulted to explore opportunities.

3.9.2 European Heritage

3.9.2.1 Receiving Environment

No State Registered Places or Local Heritage Survey sites were identified within the Project Area (DPLH, 2024). The nearest sites and places within a 5 km radius of the Project Area are (DPLH, 2024):

- Local Heritage Survey:
 - Balgarup River Road Bridge (No. 13,075) – Shire of Kojonup; Located approximately 0.1 km north of the Project Area; and
 - Balgarup (No. 10,573) – Shire of Kojonup; Located approximately 3.3 km east of the Project Area.



3.9.2.2 Management

There are no specific management considerations in relation to European heritage.

3.9.3 Noise

3.9.3.1 Receiving Environment

The Western Australian Planning Position Statement: Renewable energy facilities (March 2020), establishes the noise impact of proposed wind farms in Western Australia should be assessed in accordance with the South Australia EPA *‘Wind Farms – Environmental noise guidelines – July 2009, Updated November 2021’*. This guideline recommends the predicted equivalent noise level, adjusted for tonality in accordance with the guideline, should not exceed:

- 35 dB(A); or
- 40 dB(A) in a primary production / rural industry zone; or
- The ‘Alternative Minimum Criteria’ (varying with wind speed); or
- The background noise by more than 5 dB(A).

Additionally, the South Australia EPA (2021) recommend that noise level criteria of not greater than 30 dB(A) indoors and 45 dB(A) is considered acceptable for “stakeholder” premises.

Herring Storer Acoustics (2025) carried out a Noise Impact Assessment for the Project, with noise levels assessed at 44 identified receiver points. The assessment found the calculated noise levels for nine receiver points exceeded the background noise criteria for some wind speeds (Herring Storer Acoustics, 2025). However, all of these locations are “stakeholder” premises for which the calculated noise levels are below the South Australia EPA Guidelines (2021) recommended level of 45 dB(A) for “stakeholders” (Herring Storer Acoustics, 2025).

Calculated noise emissions for all “non-stakeholder” premises are expected to comply with the noise criteria based upon background noise monitoring. The Project is considered to meet all relevant criteria established by the South Australia EPA Guidelines (2021) (Herring Storer Acoustics, 2025) for “stakeholder” and “non-stakeholder” premises.

3.9.3.2 Management

A noise management plan will be prepared to manage noise emissions during construction and operation of the Project, as well as to demonstrate compliance with the South Australia EPA Guidelines (2021).

3.9.4 Visual Amenity

3.9.4.1 Receiving Environment

A visual impact assessment (VIA) was conducted by EPCAD (2025) for the Project.

The assessment included a viewshed analysis for 33 wind turbines with a 125 m hub height and a blade height of 80 m and preparation of photomontage images to assist with visualisation of the Project.

According to EPCAD (2025) the surrounding landscape is typical of the Western Australian Wheatbelt i.e., a gently undulating terrain, with topography featuring long and subdued slopes, shallow drainage lines with occasional outcrops of granite and lateritic breakaways.



The elevation ranges between 240 to 300 metre above sea level. This results in open agricultural land that have the potential to present views of the site from the wider areas.

EPCAD (2025) have determined that the scenic value of the landforms to be of a Low to Moderate value, due to the slightly undulating landscape and lack of wilderness qualities, ongoing clearing and rural land uses have significantly altered the natural landscape.

The Project Area is positioned generally obliquely to Albany Highway, which is the key arterial route in the Shire of Kojonup, with viewing opportunities of the project occurring from local roads closer to the development. On these roads the speed limit ranges from 50 – 100 km/h. There are no designated walking paths or formal public viewpoints in the immediate vicinity of the site. Residences and private buildings in the surrounding landscape are sparsely distributed and typically located several kilometres from the proposed turbines.

Sensitive receptors within the Project Area include:

- Motorists travelling along Albany Highway, east-west travel routes and local access roads,
- Residents and visitors within Kojonup and scattered rural properties,

The overall potential visual impact to the public was assessed by EPCAD (2025) as being of a low to moderate significance, this being due to the relatively low population density, the orientation of road networks and the broad-scale agricultural context.

3.9.4.2 Management

There are no specific management considerations that related directly to visual impact.

3.9.5 Shadow Flicker

3.9.5.1 Receiving Environment

Shadow flicker may occur under certain combinations of geographical position and time of day when the sun passes behind the rotating blades of a wind turbine and casts a moving shadow over neighbouring areas. When viewed from a stationary position the moving shadows cause periodic flickering of the light from the sun, giving rise to the phenomenon of 'shadow flicker'.

A shadow flicker assessment was completed by DNV (2025a) to assess the expected annual shadow flicker durations in the vicinity of the Project, in accordance with the Environment Protection and Heritage Council (EPHC) draft National Wind Farm Development Guidelines (2010). The guidelines recommend limits of 30 hours per year for theoretical shadow flicker duration, and 10 hours per year for actual shadow flicker duration.

The assessment considered a layout of 33 wind turbines with a maximum rotor diameter of 162 m and a hub height of 125 m, as well as the locations of 118 dwellings in the vicinity of the Project Area (DNV, 2025a).

The assessment determined that 14 dwellings are expected to experience shadow flicker above a moderate level of intensity within 50 m of the dwelling (DNV, 2025a). Of these 14 dwellings, 12 are Project participants.

Of the 14 dwellings predicted to experience shadow flicker above a moderate level of intensity, seven dwellings (dwellings 1, 9, 10, 14, 17, 31, 207) are predicted to experience theoretical shadow flicker durations above the recommended limit of 30 hours per year within 50 m of the dwelling (DNV, 2025a). All seven dwellings are Project participants. Consideration of the likely reduction in shadow flicker due to cloud cover and rotor orientation showed that for all seven dwellings, the predicted actual shadow flicker durations



within 50 m of the dwelling are also above the recommended limit of 10 hours per year (DNV, 2025a). The predicted shadow flicker durations at two dwellings (dwellings 9 and 10) significantly exceeds the recommended limits (DNV, 2025a).

The predicted actual shadow flicker durations do not consider reductions in shadow flicker that may result from low wind speeds and shielding effects from vegetation and structures. Further assessment was, therefore, completed to include consideration of localised shielding effects. The additional assessment was completed for the five dwellings (1, 10, 17, 31, 207) for which photomontage images were available showing the modelled visibility of the turbines. Results of the additional assessment are (DNV, 2025a):

- Dwelling 1: Amenity of the dwelling unlikely to be affected by shadow flicker.
- Dwelling 31: Amenity of the dwelling and all areas within 50 m of the dwelling are unlikely to be affected by shadow flicker.
- Dwelling 10: Shadow flicker is likely to be significantly less than the predicted durations but further modelling would be required to establish whether it would be below recommended thresholds. Shadow flicker is not expected in the afternoon periods, but during morning periods there is still potential for shadow flicker to occur.
- Dwelling 17: Shadow flicker at the dwelling may be less than the predicted durations but further modelling would be required to establish whether it would be below recommended thresholds. The potential reduction in shadow flicker at the dwelling may not apply to all areas within 50 m of the dwelling.
- Dwelling 207: Shadow flicker at the dwelling may be less than the predicted durations but further modelling would be required to establish whether it would be below recommended thresholds. The potential reduction in shadow flicker at the dwelling is unlikely to apply to all areas within 50 m of the dwelling.

3.9.5.2 Management

The effects of shadow flicker can be adequately managed through installation of blinds or screening structures, or planting of trees to block shadows cast by the turbines (DNV, 2025a). Potential use of blinds and additional vegetation screening to mitigate shadow flicker has been discussed with relevant landowners.

3.9.6 Electromagnetic interference

3.9.6.1 Receiving Environment

An electromagnetic interference (EMI) assessment (DNV, 2025b) was completed for the Project in accordance with the Draft National Wind Farm Development Guidelines (EPHC, 2010). The assessment considered:

- Fixed point-to-point links;
- Fixed point-to-multipoint links;
- Emergency services radiocommunication assets;
- Meteorological radars;
- Trigonometrical stations;
- Citizen's band (CB) radio and mobile telephones;
- Wireless internet;



- Satellite television and internet; and
- Broadcast radio and television.

The potential for EMI impacts was evaluated at 58 identified dwellings located within 5 km of the Project Area. The assessment found there is potential for the Project to interfere with (DNV, 2025b):

- Point-to-area style communications hosted by one radiocommunication tower to the east of the Project Area, located 1 km from the nearest wind turbine;
- Point-to-area services such as mobile telephone signals, radio broadcasting, and terrestrial television broadcasting, particularly in areas with poor or marginal signal coverage; and
- Signals from geostationary satellites that transmit programs for Australian audiences at one nearby dwelling.

The EMI assessment also identified eight weather radars within 250 nautical miles (nm) of the Project, with the closest located approximately 120 km southeast of the Project at Albany airport. Engagement with the Bureau of Meteorology to seek feedback as to whether interference is likely is recommended (DNV, 2025b).

Potential EMI impacts on other services, including fixed point-to-point links, trigonometrical stations and survey marks, and CB radio, are not expected or are considered likely to be minor (DNV, 2025b).

The potential impact from EMI was rated as being of a low significance by DNV (2025b).

3.9.6.2 Management

Ongoing consultation with relevant stakeholders will be undertaken throughout the construction and operational phases of the Project, as needed, including the Shire of Kojonup, Department of Fire and Emergency Services (DFES) and the Bureau of Meteorology (BoM). Engagement has already commenced, and DFES and BoM have not raised any concerns to date.

If EMI should become an issue, the source of the potential impact will be determined and suitable mitigation measures will be implemented (as required). Such mitigations could include (DNV, 2025b):

- Increasing signal strength from the affected tower;
- Installation of a signal repeater/s;
- Installation of an additional tower/s;
- Re-routing of communication links; and
- Use of alternative technology.

3.9.7 Aviation

3.9.7.1 Receiving Environment

Aviation Projects (2025) completed an aviation impact assessment (AIA) to assess the potential aviation impacts of the Project and provide aviation safety advice in respect of relevant requirements of air safety regulations and procedures, as well as to inform and document consultation with the relevant aviation agencies. The AIA includes an aviation impact statement.



The AIA found the following (Aviation Projects, 2025):

- The Project Area is located within 30 nm (56 km) of one certified aerodrome, the Katanning Airport
 - The wind turbine generators will not impact the obstacle limitation surfaces or the instrument flight rules circling areas; and
 - The 25 nm minimum sector altitude will need to be increased by 100 ft to 3000 ft or sectorised to exclude the wind farm.
- The Project Area is located within 3 nm of four uncertified aerodromes
 - The wind turbine generators may impact operation of the aerodromes; and
 - Downstream wake turbulence might extend into the circuit area of the aerodrome and may impact on aircraft operations.
- The Project is located within Class G airspace and is outside all controlled airspace, Prohibited, Restricted and Danger areas;
- The Project will not impact any Grid or air route Lowest Safe Altitudes, nor infringe any protection areas associated with aviation facilities;
- The Project Area is situated outside the ranges of radar systems in the Perth area, and as such will not impact the aviation navigation facilities; and
- The proposed wind turbine generators will likely not require obstacle lighting to maintain an acceptable level of safety to aircraft. However, it will be determined by the Civil Aviation Safety Authority (CASA).

The Project satisfies the planning provisions related to aviation safety matters and will not create incompatible intrusions or compromise the safety of existing airports and associated navigation and communication facilities.

3.9.7.2 Management

Potential aviation impacts will be managed through the following:

- Details of the Project, including coordinates of the wind turbine generators and their elevation will be provided to CASA and Airservices Australia, details of the final layout will be provided to Airservices Australia at least 2 weeks prior to construction;
- Any obstacles 100 m or above AGL (including temporary construction equipment), including their operational parameters, will be reported to Airservices Australia NOTAM office until they are incorporated in published operational documents.
- To facilitate the flight planning of aerial application operators, details of the Project, including the 'as constructed' location and height information of WTGs and overhead transmission lines will be provided to landowners so that, when asked for hazard information on their property, the landowner may provide the aerial application pilot with all relevant information;
- Details of the Project will be provided to local and regional aircraft operators, and landowners;
- Ongoing engagement with the National Council for Fire and Emergency Services, Wind Farms and Bushfire Operations will be undertaken, as required, to ensure relevant fire and land management can be undertaken;



- Wind turbines generators will be shut down immediately during emergencies e.g., bush fires; and
- The rotor blades, nacelle and supporting mast of the wind turbine generators should be in a low reflective off-white or white, typical of most wind turbine generators in Australia.

3.10 Bushfire Risk

3.10.1 Receiving Environment

The majority of the Project Area is mapped within Bush Fire Prone Areas (DFES, 2024). Therefore, the State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas applies to the site.

SPP 3.7 establishes that to reduce the vulnerability to bushfire, the identification of bushfire risks should be considered in decision making at all stages of the planning and development process.

Western Environmental (2025) undertook a desktop assessment to demonstrate that the Project has adequately considered bushfire risk in compliance with SPP 3.7, the Planning and Development (Local Planning Scheme) Regulations (2015) and the Position Statement: Renewable Energy Facilities (WAPC, 2022). The desktop assessment considered the wind turbine generators, BESS, substation/ switchyard and project site offices.

The desktop assessment determined that bushfire risk has been adequately considered at the preliminary design phase, and outlines how these risks can be managed through asset protection zones and development of a bushfires management plan (BMP).

3.10.2 Management

The proposed Project is required to comply with policy measure 7.1 of SPP 3.7, as well as the Bushfire Protection Criteria 7 in the Planning for Bushfire Guidelines.

A BMP will be developed and implemented that will ensure bushfire risk is appropriately managed through the Project layout and the implementation of sufficient asset protection zones.

4.0 Summary and Conclusions

The following key conclusions and recommendations on environmental aspects applicable to the site include:

- **Flora and Vegetation:** The majority (79.23%) of vegetation within the Project Area was mapped as cleared and 92.25% was mapped as being in Degraded or Completely Degraded condition. The Project has been designed to avoid clearing of native vegetation and individual trees through the siting of wind turbine generators and associated infrastructure away from remnant vegetation. A CEMP will be prepared to manage potential impacts to flora and vegetation including those associated with clearing, weeds, dieback and dust.
- **Fauna:** Five conservation significant species were recorded in the Project Area, including Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo. A total of 17 trees were identified with potential black cockatoo hollows within the Project Area, eight of which are located within the Development Footprint. Black Cockatoo foraging habitat was largely considered to be High quality foraging habitat. The Project has been designed to avoid clearing fauna habitat through the siting of wind turbine



generators and associated infrastructure away from significant fauna habitat where possible. A CEMP will be prepared to manage potential impacts to fauna species and habitat, including potential impacts due to clearing and open trenches. A BBAMP will be prepared to manage potential impacts on bird and bat species from collision with wind turbine generators

- **Hydrology:** The Project Area intersects three surface water features (Balgarp River, Murrin Brook and 'Un-named' significant stream). The Project has been designed with a minimum 50 m setback between wind turbine generators and identified watercourses. Where creek crossings are required they have been designed to utilise previously cleared areas where possible to minimise additional impacts to creek lines. A CEMP will be prepared to manage potential impacts to surface water or groundwater, including potential impacts associated with erosion, sedimentation and contamination.
- **Acid Sulfate Soils and Contamination:** The area surrounding the Project is generally considered to have a low risk of acid sulfate soils and no known contaminated sites are present in the Project Area. A CEMP will be prepared prior to construction, which will outline management measures to be put in place during construction to avoid potential contamination and ASS risk during development. The CEMP will include an Unexpected Finds Procedure in the event that potential contamination or ASS are encountered during earthworks.
- **Heritage:** The Balgarup River has been identified as holding Aboriginal cultural heritage value. Installation of a buried transmission line that is required to go under the river will, therefore, be undertaken using directional drilling rather than trenching. A section 18 approval in terms of the AH Act will be obtained.
- **Noise:** The Project is considered to meet all relevant noise criteria established by the South Australia EPA Guidelines (2021) for both "stakeholder" and "non-stakeholder" premises. A noise management plan will be prepared to manage noise emissions during construction and operation of the Project, as well as to demonstrate compliance with the South Australia EPA Guidelines (2021).
- **Visual Amenity:** The impact to the visual amenity was assessed to be of Low to Moderate significance. No mitigation measures were proposed.
- **Shadow Flicker:** Assessment of shadow flicker including consideration of likely reductions due to cloud cover and rotor orientation showed shadow flicker durations within 50 m of seven dwellings are predicted to be above the recommended limit of 10 hours per year (DNV, 2025b). Further assessment of five of these dwellings showed shadow flicker is likely to be reduced compared with the modelled durations when the screening effect of existing vegetation is considered. If impacts to dwellings are experienced from shadow flicker they will be managed through installation of blinds or screening structures or planting of trees to block shadows cast by the turbines.
- **EMI:** The Project may impact on point-to-area communications hosted by a radiocommunication tower to the east of the Project Area, point-to-area services such as mobile telephone and television broadcasting and signals from geostationary satellites. Stakeholder consultation in relation to potential EMI impacts is ongoing. Potential mitigation measures for EMI include increasing signal strength, installing signal repeater, installing additional tower and re-routing links. The preferred mitigation measure will be determined in the event that EMI occurs after the construction is completed and the source of the EMI has been determined.



- **Aviation:** The Project satisfies the planning provisions related to aviation safety matters and will not create incompatible intrusions or compromise the safety of existing airports and associated navigation and communication facilities. Details of the Project infrastructure that may result in impacts to aviation will be provided to CASA, Airservices Australia, local and regional aircraft operators and landowners. Ongoing consultation with relevant stakeholders will be undertaken throughout the construction and operational phases of the project. No further mitigation is required.
- **Bushfire Risk:** The majority of the Project Area is mapped within Bushfire Prone Areas (DFES, 2024). Therefore, the State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas applies to the Project Area. A BMP will be prepared that outlines the management measures to be put in place during design, construction and operation of the Project to reduce bushfire risk.

The key environmental values identified in this EAMP do not pose a significant constraint to development of the Project. Use of an iterative design process demonstrates how the Project has responded to the environmental values present in the Project Area and has resulted in a proposed footprint that avoids areas with significant environmental values. In particular, infrastructure has been located in previously cleared areas as far as possible and directional drilling will be used under the Balgarup River to minimise impacts to this Aboriginal Heritage site. Where impacts to environmental values cannot be avoided, implementation of the Project will include management measures to ensure potential environmental impacts are minimised.



5.0 References

- Aviation Projects. (2025). *Aviation Impact Assessment Kojonup Wind Farm September 2025 Version 1*. Prepared for Kojonup Wind Farm Pty Ltd.
- Beard, J. S. (1975). *The vegetation survey of Western Australia*. Plant Ecology (Plant Ecology) 179-187.
- Beard, J. S. (1980). *A New Phytogeographic Map of Western Australia*. Western Australian Herbarium Notes Number 3: 37-58.
- Beard, J. S. (1990). *Plant Life of Western Australia*. Kangaroo Press, Kenthurst, New South Wales.
- Brad Goode & Associates Consulting Anthropologists & Archaeologists [Brad Goode]. (2025). *Report of an Aboriginal Heritage Survey for a Proposed Wind Farm in Kojonup: Western Australia April 2025*. Prepared for Kojonup Wind Farm Pty Ltd.
- Bureau of Meteorology [BoM] (2025). *Monthly Climate Statistics*. Available at: http://www.bom.gov.au/climate/averages/tables/cw_010916.shtml
- DNV Australia Pty Ltd [DNV]. (2025a). *Kojonup Wind Farm Shadow Flicker and Blade Glint Assessment October 2025 Revision D*. Prepared for Moonies Hill New Energy Pty Ltd.
- DNV Australia Pty Ltd [DNV]. (2025b). *Kojonup Wind Farm EMI Assessment September 2025 Revision B*. Prepared for Moonies Hill New Energy Pty Ltd.
- Department of Agriculture, Water and the Environment [DAWE] (2022). *Referral guidelines for 3 WA threatened black cockatoo species*. Available online at: <https://www.dcceew.gov.au/sites/default/files/documents/referral-guideline-3-wa-threatened-black-cockatoo-species-2022.pdf>
- Department of Biodiversity, Conservation and Attractions [DBCA] (2017). *RAMSAR Sites (DBCA-010) – GIS Dataset*.
- Department of Biodiversity, Conservation and Attractions [DBCA] (2018). *Directory of Important Wetlands in Australia – Western Australia (DBCA-045) – GIS Dataset*.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2025a). *Dandjoo biodiversity data platform*. Available from: <https://bio/wa/gov.au/dandjoo>.
- Department of Biodiversity, Conservation and Attractions [DBCA] (2025b). *Legislated Lands and Waters (DBCA-011) – GIS Dataset*.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2025c). *Wildlife conservation (threatened and priority flora) listings March and April 2025, Minister for the Environment under section 2 of the BC Act*. Available from: <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants>
- Department of Biodiversity, Conservation and Attractions (DBCA). (2025d). *Threatened and Priority Ecological Communities for Western Australia*. Available from: <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/wa-s-threatened-ecological-communities>.
- Department of Biodiversity, Conservation and Attractions (DBCA). (2025e). *Threatened flora, fauna and ecological communities database searches*. Available from: <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/database-search-request-information-sheet.pdf>.
- Department of Climate Change, Energy, the Environment and Water [DCCEEW] (2024). *Protected Matters Search Tool*. 12 August 2025. Available at:



- <https://pmst.environment.gov.au/#/map?lng=131.52832031250003&lat=-28.6905876542507&zoom=5&baseLayers=Imagery,ImageryLabels>
- Department of Climate Change, Energy the Environment and Water (DCCEEW). (2025). *Interim Biogeographic Regionalisation for Australia (IBRA)*.
- Department of Fire and Emergency Services [DFES]. (2024). *Bush Fire Prone Areas (OBRM-001)* – GIS Dataset.
- Department of Planning, Lands and Heritage [DPLH]. (2025). *Aboriginal Cultural Heritage Inquiry System*. Available from:
<https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS>
- Department of Planning, Lands and Heritage [DPLH]. (2024). *inherit*. Available from:
<https://inherit.dplh.wa.gov.au/Public/>
- Department of Primary Industries and Regional Development [DPIRD] (2019). *Pre-European Vegetation (DPIRD-006)* - GIS Dataset.
- Department of Primary Industries and Regional Development [DPIRD] (2025a). *Soil landscape land quality – Flood risk (DPIRD-007)* – GIS Dataset.
- Department of Primary Industries and Regional Development [DPIRD] (2025b). *Soil landscape mapping – Systems (DPIRD-064)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2018). *Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2018). *Hydrography Linear (Hierarchy)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2021). *Clearing Regulations – Environmentally Sensitive Areas (DWER-046)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2024a). *Hydrographic Catchments – Catchments (DWER-028)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2024b). *Public Drinking Water Source Areas (DWER-033)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2024d). *WRIMS – Groundwater Areas (DWER-085)* – GIS Dataset.
- Department of Water and Environmental Regulation [DWER] (2024e). *Water Register*. Government of Western Australia.
- Department of Water and Environmental Regulation [DWER] (2025). *Contaminated Sites Database (DWER-059)* – GIS Dataset.
- EPCAD Pty Ltd [EPCAD]. (2025). *Kojonup Windfarm – Visual Impact Assessment October 2025 Issue 4*. Prepared for Moonies Hill New Energy Pty Ltd.
- Environment Protection and Heritage Council [EPHC]. (2010). *Draft National Wind Farm Development Guidelines*. Available from:
<https://www.nepc.gov.au/sites/default/files/2022-09/draft-national-wind-farm-development-guidelines-july-2010.pdf>
- Fitzpatrick, Rob; Powell, Bernie; & Marvanek, Steve (2011): *Atlas of Australian Acid Sulfate Soils*. v4. CSIRO. Data Collection. <https://doi.org/10.4225/08/512E79A0BC589>
- Government of Western Australia. (2019). *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report)*. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth,
<https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>



- Herring Storer Acoustics. (2025). *Kojonup Wind Farm Noise Impact Assessment September 2025 Revision 1*. Prepared for Moonies Hill New Energy Pty Ltd.
- Mattiske Consulting Pty Ltd [Mattiske]. (2025). *Flora, Vegetation and Fauna Assessment of the Kojonup Wind Farm Survey Area October 2025 Version 4*. Prepared for Kojonup Wind Farm Pty Ltd.
- South Australia Environmental Protection Authority [EPA]. (2009). *Wind farms environmental noise guidelines*. Updated: November 2021. Available from: https://www.epa.sa.gov.au/files/47788_windfarms.pdf
- Western Australian Planning Commission [WAPC]. (2020). *Position statement: Renewable energy facilities*. Available from: <https://www.wa.gov.au/system/files/2021-07/POS-Renewable-energy-facilities-position-statement.pdf>
- Western Environmental. (2025). *Bushfire Planning Technical Note: Kojonup Wind Farm October 2025*. Prepared for Moonies Hill New Energy Pty Ltd.
- Western Wildlife. (2025). *Kojonup Wind Farm Vertebrate Fauna, Bird and Bat Survey 2023 – 2024 October 2025*. Prepared for Kojonup Wind Farm Pty Ltd.





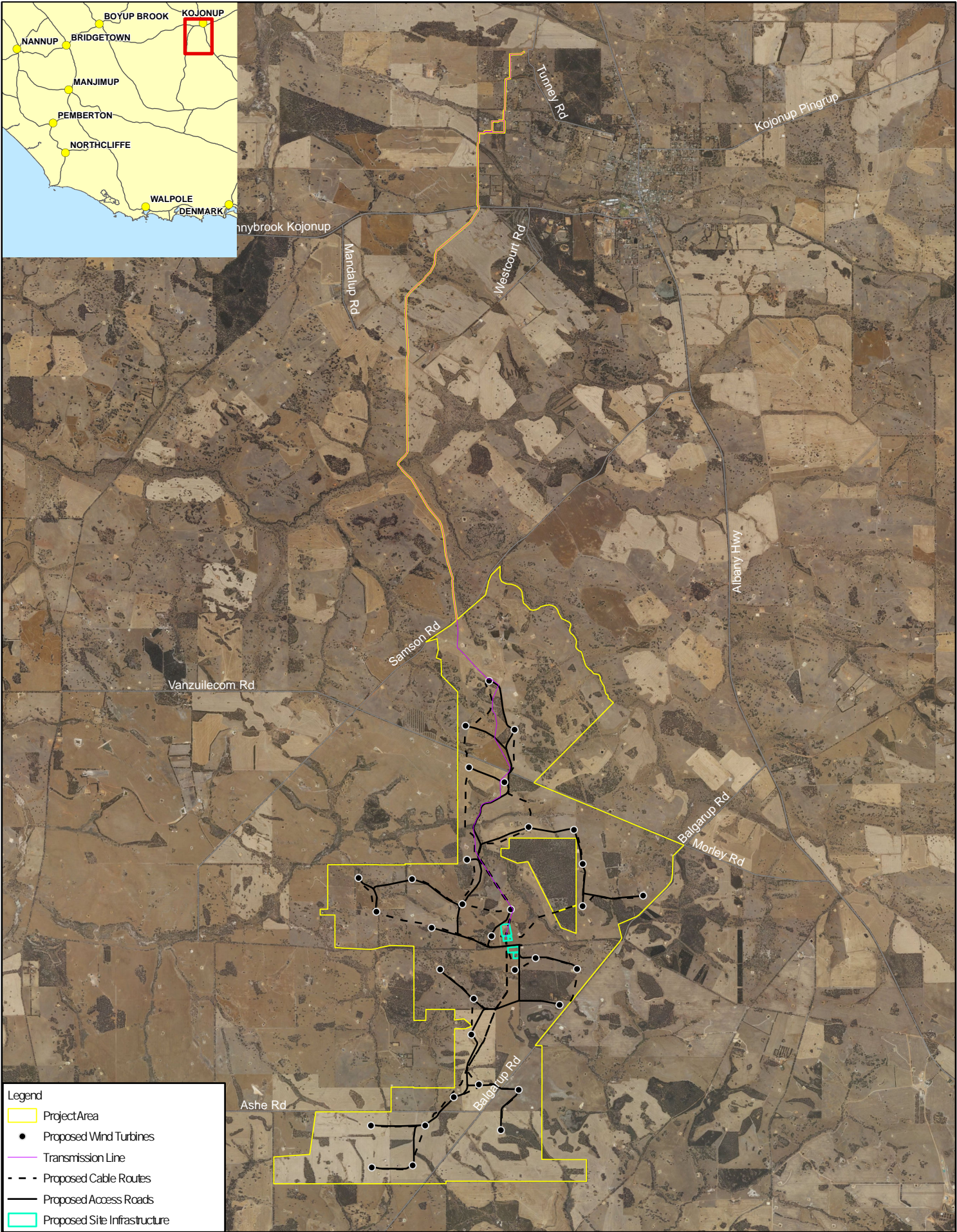
Figures

Environmental Assessment and Management Plan

Kojonup Wind Farm Pty Ltd

SLR Project No.: 675.073200.00001

4 November 2025



Legend

- Project Area
- Proposed Wind Turbines
- Transmission Line
- Proposed Cable Routes
- Proposed Access Roads
- Proposed Site Infrastructure



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

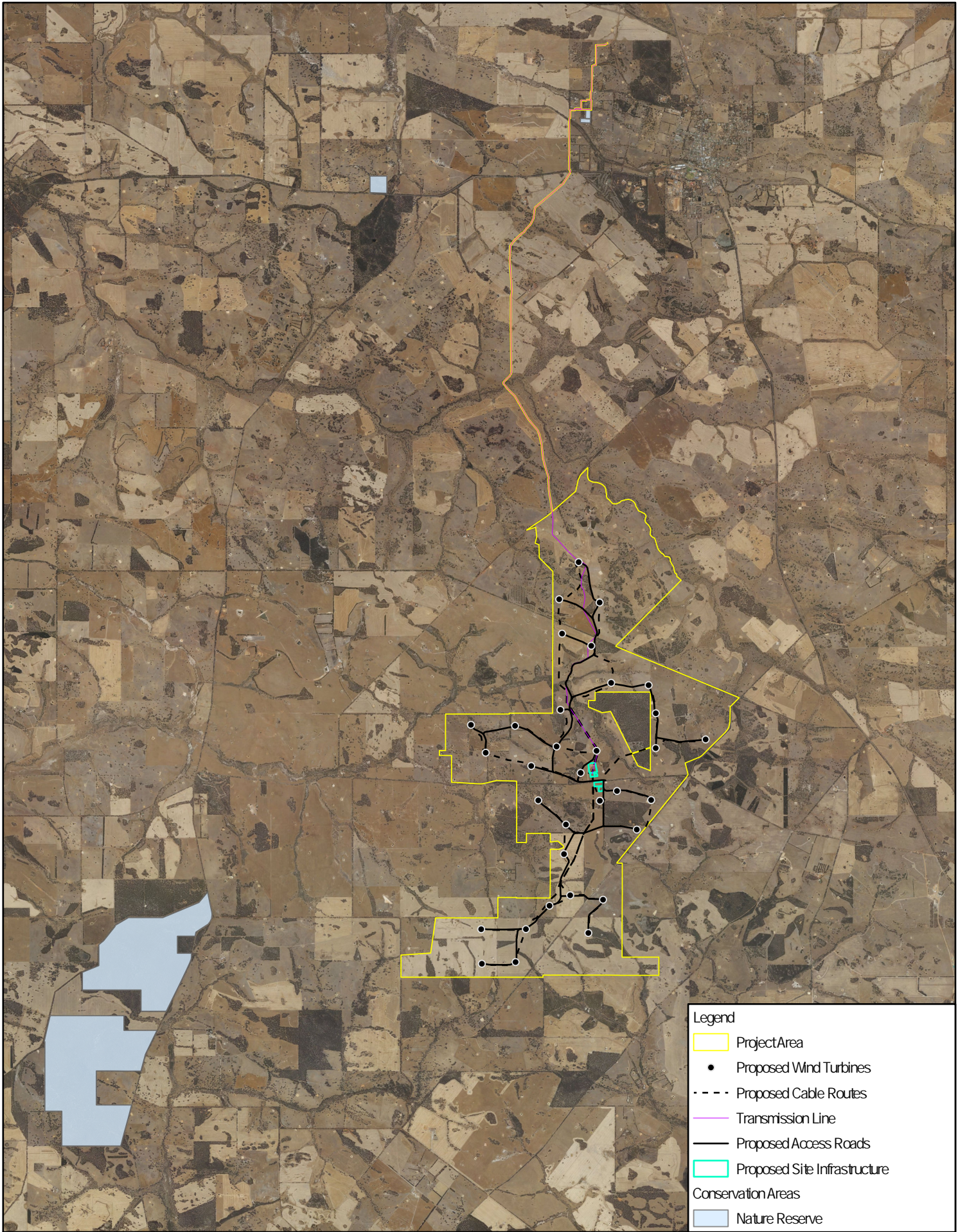
Coordinate System:	GDA2020 MGA Zone 50
Scale:	1:95,000 at A4
Project Number:	675.073200.00001
Date Drawn:	27/10/2025
Drawn by:	JH
Reviewed by:	WK

Service Layer Credits:
Landgate / SLIP

KOJONUP WIND FARM ENVIRONMENTAL ASSESSMENT REPORT

SITE LOCATION

FIGURE 1



- Legend**
- Project Area
 - Proposed Wind Turbines
 - Proposed Cable Routes
 - Transmission Line
 - Proposed Access Roads
 - Proposed Site Infrastructure
 - Conservation Areas
 - Nature Reserve



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

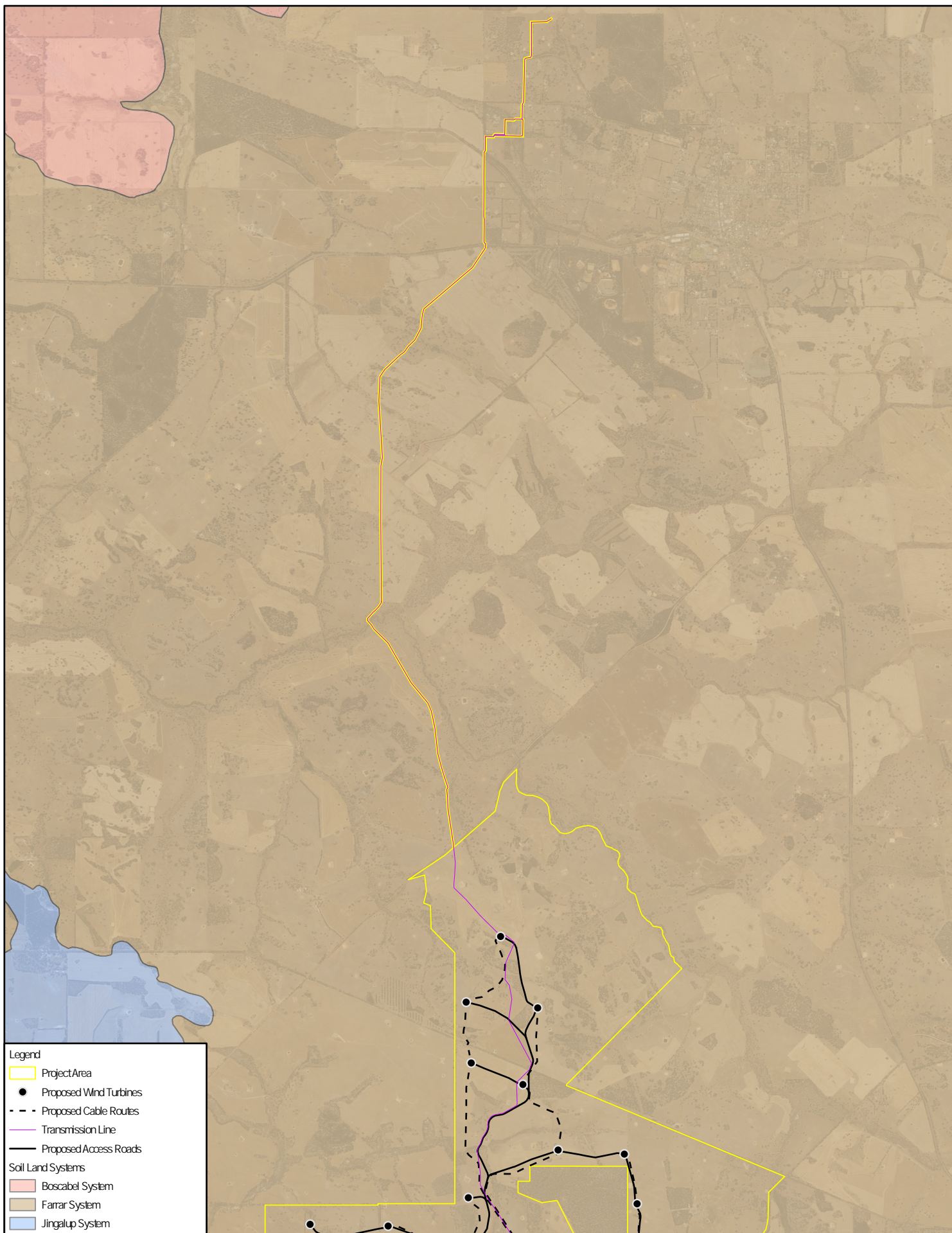
	0 2 4 Km
Coordinate System:	GDA2020 MGA Zone 50
Scale:	1:115,000 at A4
Project Number:	675.073200.00001
Date Drawn:	27/10/2025
Drawn by:	JH
Reviewed by:	WK

Service Layer Credits:
Landgate / SLIP

**KOJONUP WIND FARM
ENVIRONMENTAL ASSESSMENT REPORT**

**CONSERVATION AND ENVIRONMENTALLY
SENSITIVE AREAS**

FIGURE 2



- Legend**
- Project Area
 - Proposed Wind Turbines
 - Proposed Cable Routes
 - Transmission Line
 - Proposed Access Roads
- Soil Land Systems**
- Boscabel System
 - Farrar System
 - Jingalup System



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

Scale: 1:65,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH

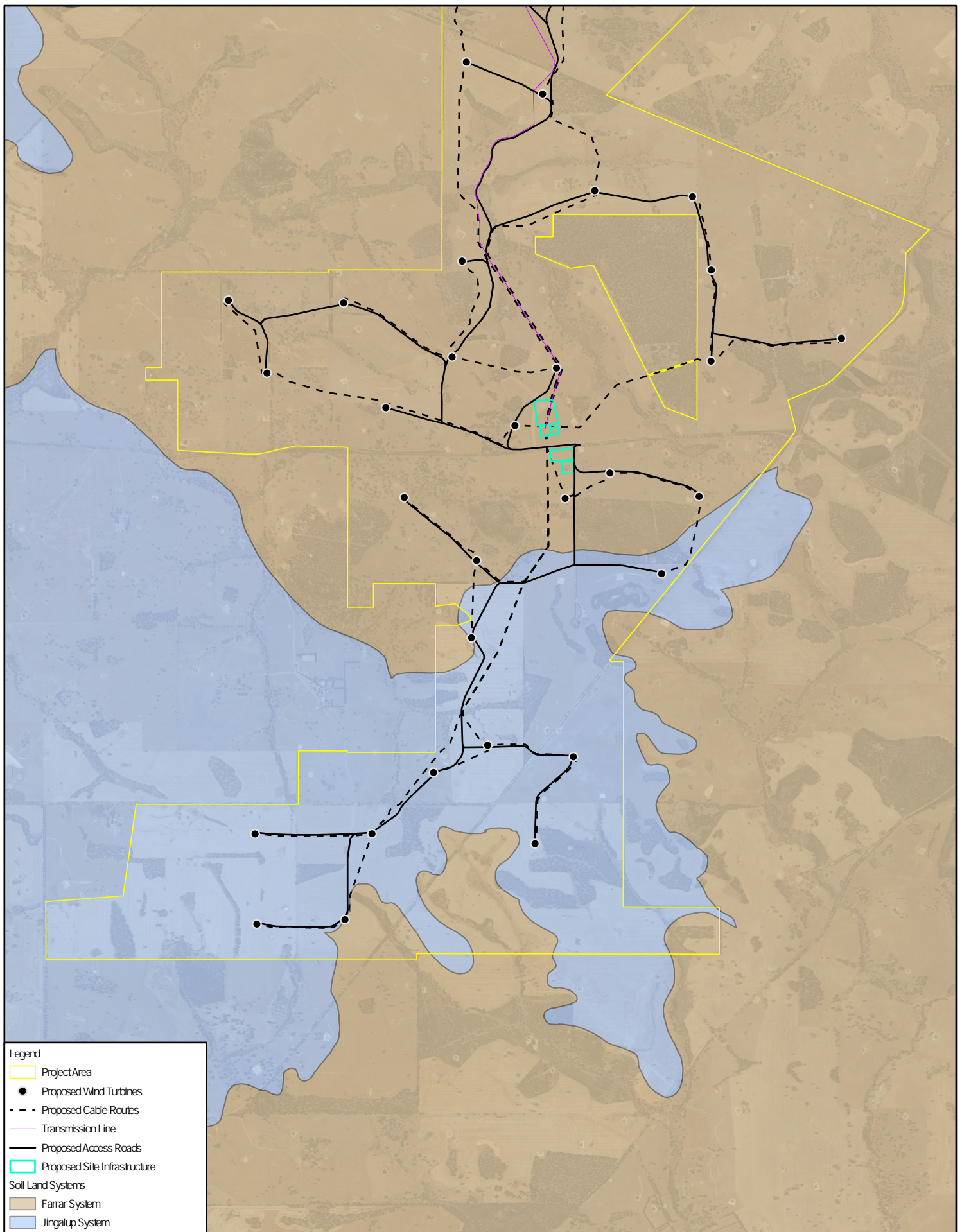
Reviewed by: WK

Service Layer Credits:
Landgate / SLIP

**KOJONUP WIND FARM
ENVIRONMENTAL ASSESSMENT REPORT**

SOIL LANDSCAPE SYSTEMS

FIGURE 3a



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

KOJONUP WIND FARM ENVIRONMENTAL ASSESSMENT REPORT

SOIL LANDSCAPE SYSTEMS

FIGURE 3b



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

N
 0 1 2 Km
 Coordinate System: GDA2020 MGA Zone 50
 Scale: 1:95,000 at A4
 Project Number: 675.073200.00001
 Date Drawn: 27/10/2025
 Drawn by: JH
 Reviewed by: WK

Service Layer Credits:
Landgate / SLIP

KOJONUP WIND FARM ENVIRONMENTAL ASSESSMENT REPORT

HYDROLOGY

FIGURE 4

VEGETATION TYPES

Figure 5A

LEGEND

- Project Area
 - Transmission Line
- Vegetation Types**
- Ah2
 - E5
 - CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



0 125 250 Meters

Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



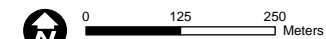
VEGETATION TYPES

Figure 5B

LEGEND

- Project Area
 - Transmission Line
- Vegetation Types**
- Ah2
 - E5
 - CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



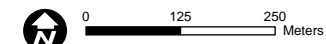
VEGETATION TYPES

Figure 5C

LEGEND

- Project Area
 - Transmission Line
- Vegetation Types**
- E2
 - E4
 - E5
 - CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



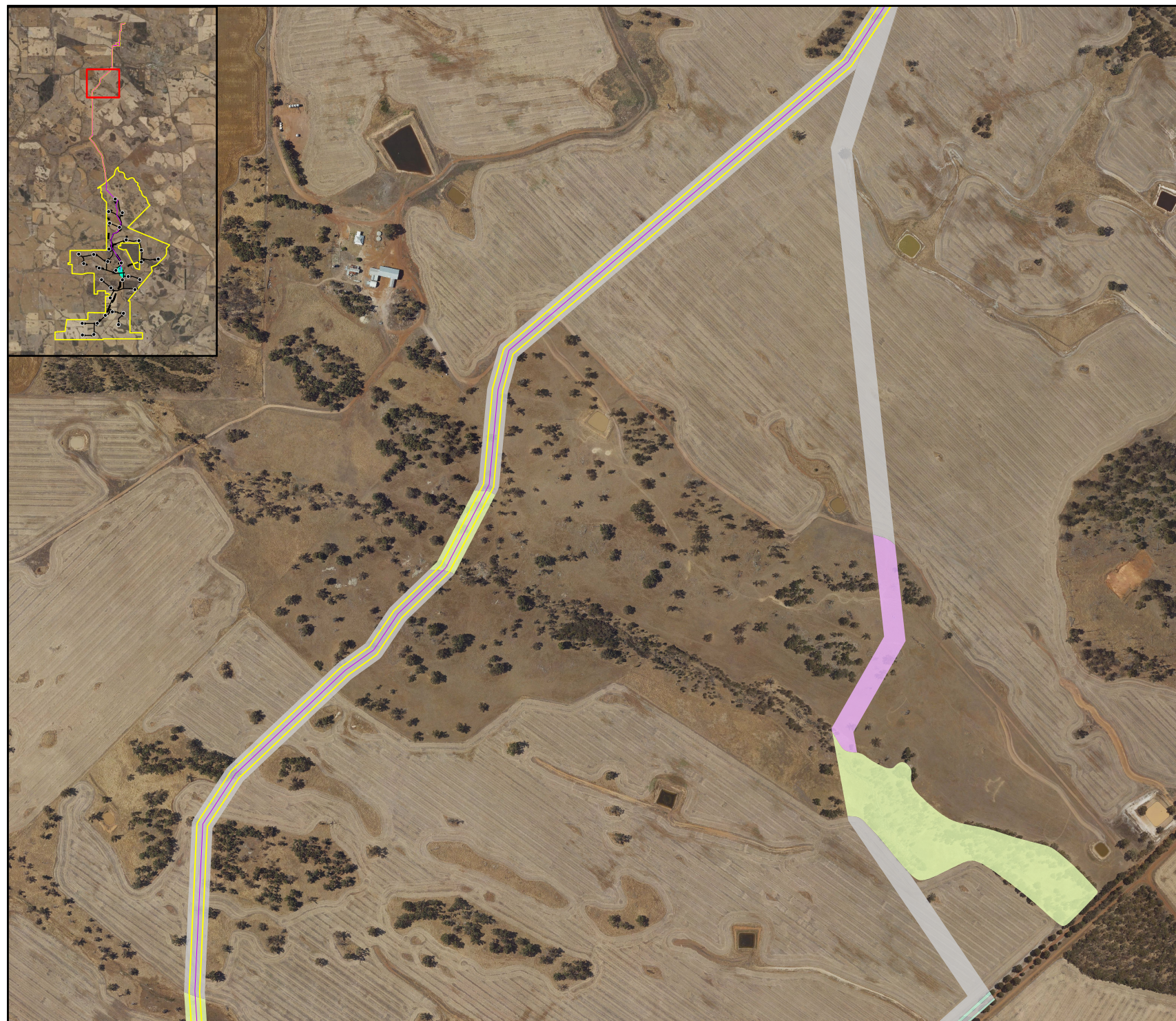
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025






Drawn by: JH



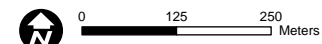
VEGETATION TYPES

Figure 5D

LEGEND

-  Project Area
 -  Transmission Line
- Vegetation Types**
-  E4
 -  E5
 -  CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



VEGETATION TYPES

Figure 5E

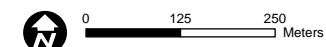
LEGEND

- Project Area
- Transmission Line

Vegetation Types

- E1
- E5
- CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



VEGETATION TYPES

Figure 5F

LEGEND

- Project Area
- Transmission Line

Vegetation Types

- Ah1
- Ah3
- E1
- E2
- E3
- E4
- E5
- E6
- CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



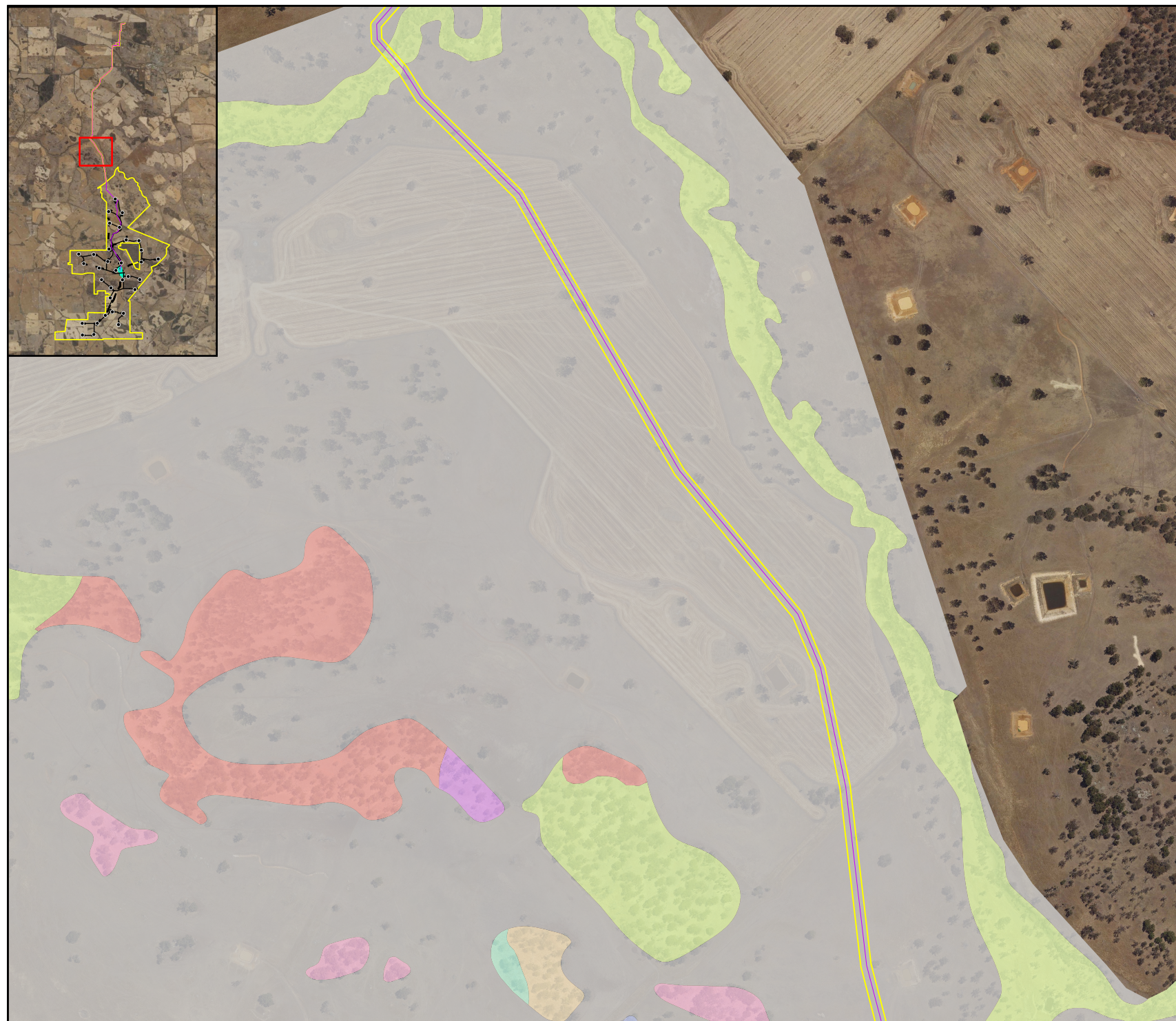
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



VEGETATION TYPES

Figure 5G

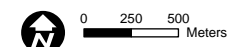
LEGEND

- Project Area
- Proposed Wind Turbines
- Transmission Line
- Proposed Cable Routes
- Proposed Access Roads
- Proposed Site Infrastructure

Vegetation Types

- Ah1
- Ah2
- Ah3
- E1
- E2
- E3
- E4
- E5
- E6
- PL
- CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



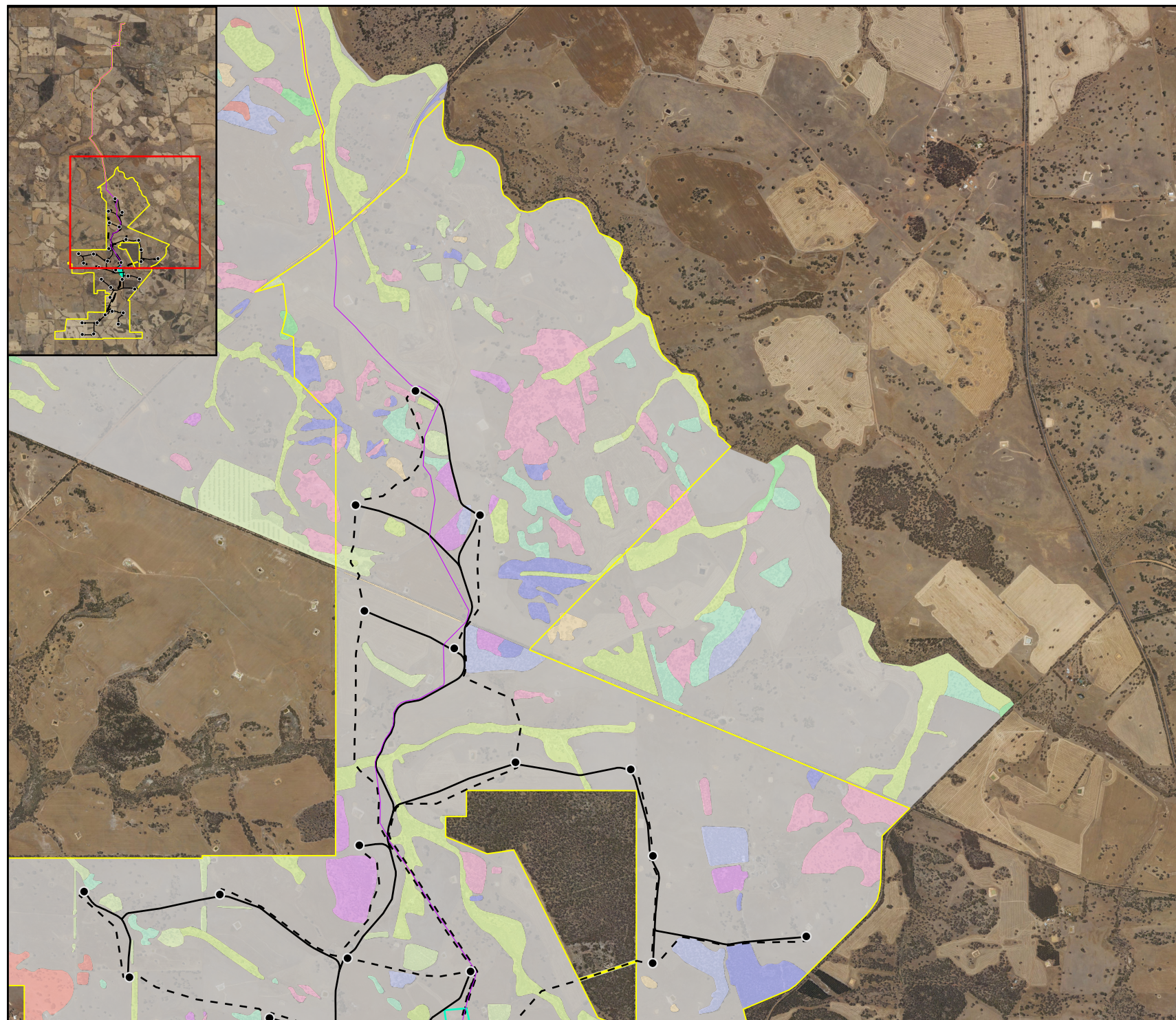
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



VEGETATION TYPES


Figure 5H


LEGEND

 Project Area


Priority Flora


 P4- *Xanthorrhoea brevistylis*

 Proposed Wind Turbines


 Transmission Line

 Proposed Cable Routes


 Proposed Access Roads

 Proposed Site Infrastructure

Vegetation Types

 Ah1


 Ah2


 Ah3

 E1


 E2

 E3

 E4

 E5

 E6

 PL

 CL

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH





VEGETATION CONDITION

Figure 6A

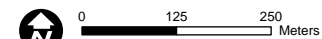
LEGEND

-  Project Area
-  Transmission Line

Vegetation Condition

-  Degraded
-  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



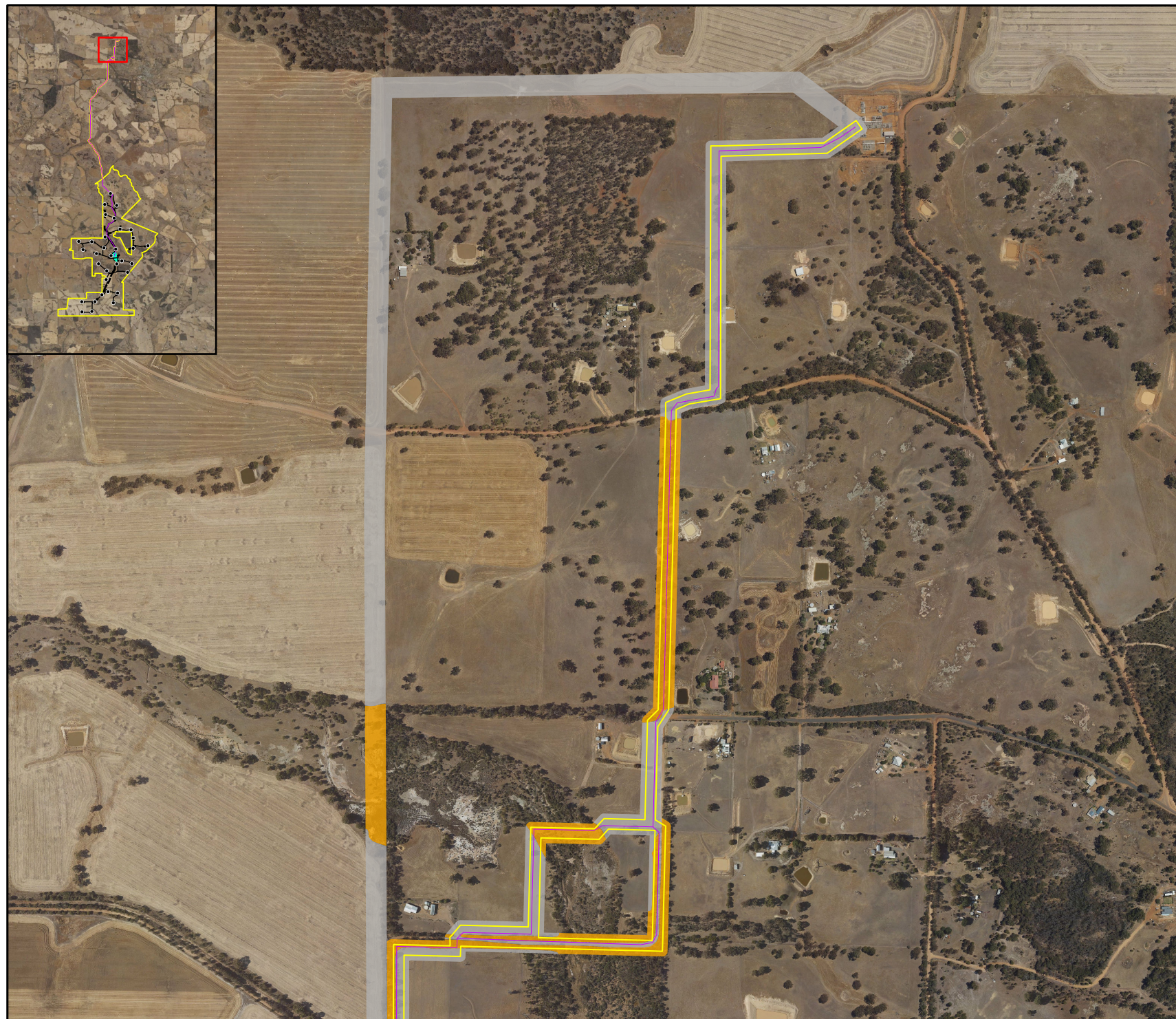
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025





Drawn by: JH



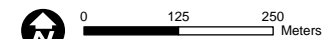
VEGETATION CONDITION

Figure 6B

LEGEND

-  Project Area
-  Transmission Line
- Vegetation Condition**
 -  Degraded
 -  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




VEGETATION CONDITION

Figure 6C

LEGEND

 Project Area

 Transmission Line

Vegetation Condition

 Degraded

 Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH





VEGETATION CONDITION

Figure 6D

LEGEND

-  Project Area
-  Transmission Line

Vegetation Condition

-  Degraded
-  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



0 125 250 Meters

Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH





VEGETATION CONDITION

Figure 6E

LEGEND

-  Project Area
-  Transmission Line

Vegetation Condition

-  Degraded
-  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025






Drawn by: JH



VEGETATION CONDITION

Figure 6F

LEGEND

-  Project Area
-  Transmission Line
- Vegetation Condition**
-  Good
-  Degraded
-  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025







Drawn by: JH







VEGETATION CONDITION

Figure 6G

LEGEND

-  Project Area
-  Proposed Wind Turbines
-  Transmission Line
-  Proposed Access Roads
-  Proposed Cable Routes
-  Proposed Site Infrastructure

Vegetation Condition

-  Very Good
-  Good
-  Degraded
-  Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



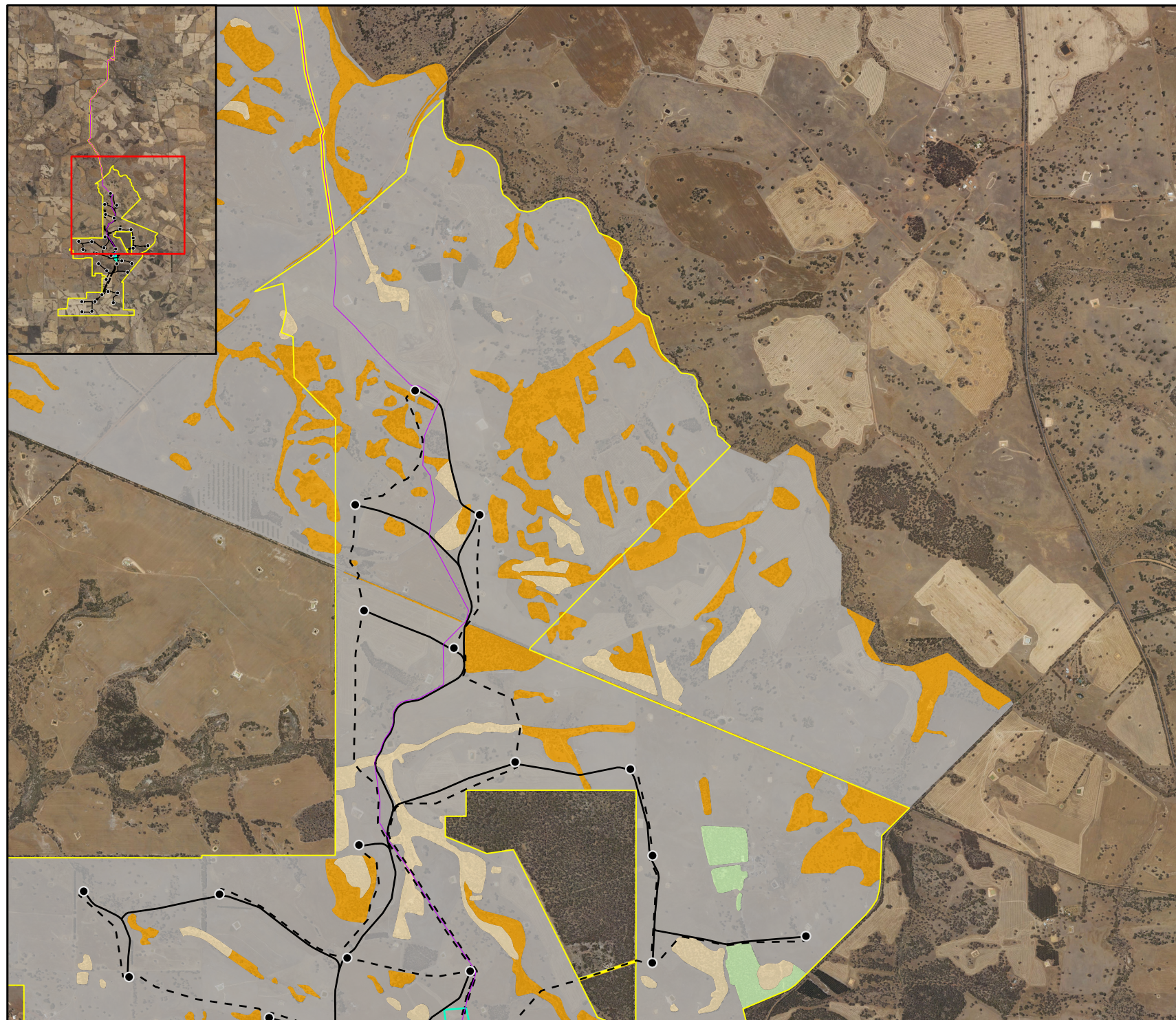
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



VEGETATION CONDITION

Figure 6H

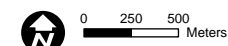
LEGEND

- Project Area
- Proposed Wind Turbines
- Transmission Line
- Proposed Access Roads
- Proposed Cable Routes
- Proposed Site Infrastructure

Vegetation Condition

- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7A

LEGEND

- Project Area
- Transmission Line

Fauna Habitat

- Creek
- Eucalypt woodland
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



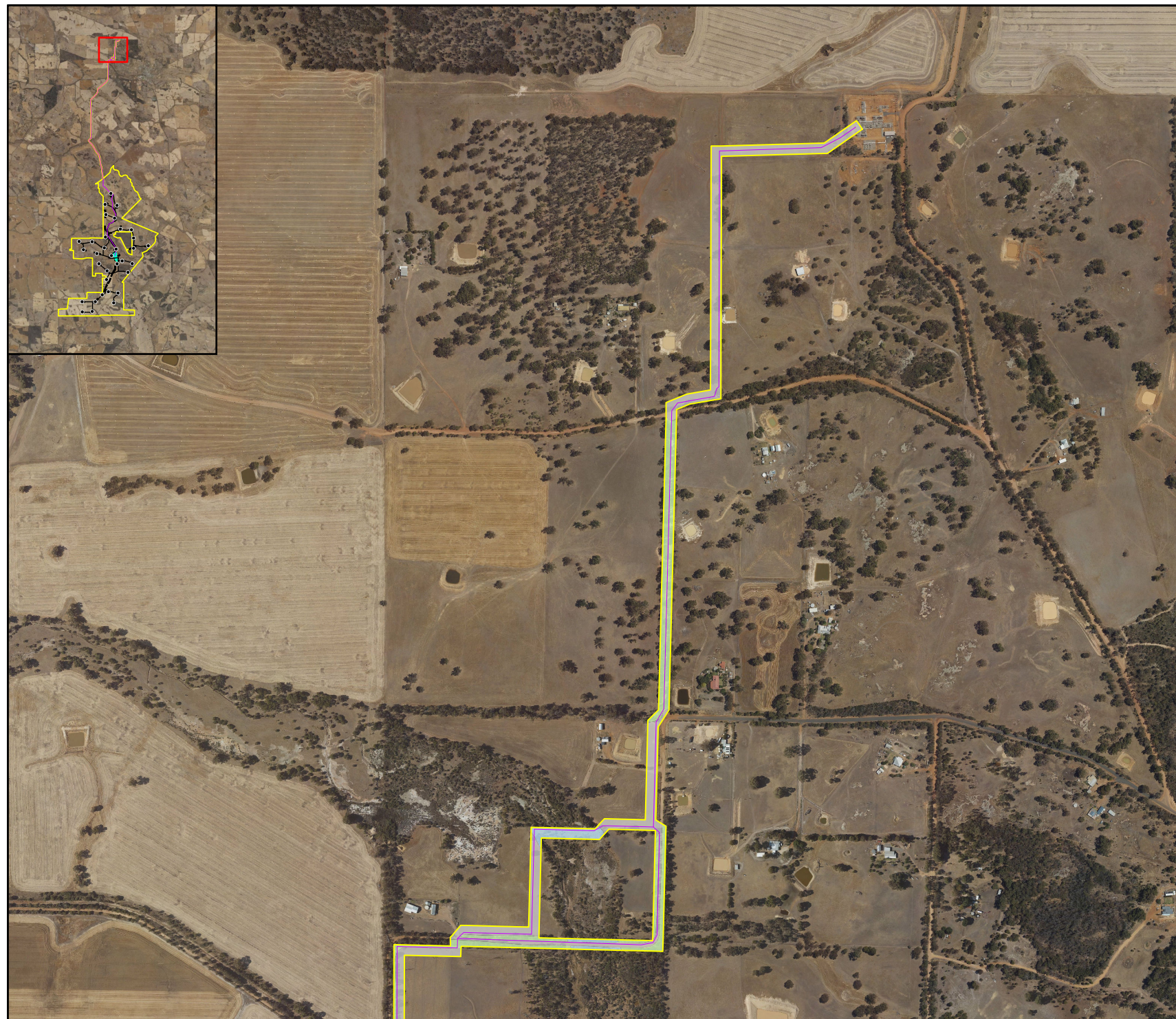
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7B

LEGEND

- Project Area
 - Transmission Line
- Fauna Habitat**
- Creek
 - Eucalypt woodland
 - Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7C

LEGEND

- Project Area
- Transmission Line

Fauna Habitat

- Creek
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH






FAUNA HABITAT

Figure 7D

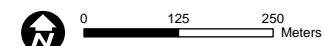
LEGEND

-  Project Area
-  Transmission Line

Fauna Habitat

-  Creek
-  Eucalypt woodland
-  Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7E

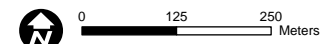
LEGEND

- Project Area
- Transmission Line

Fauna Habitat

- Creek
- Eucalypt woodland
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7F

LEGEND

- Project Area
- Transmission Line

Fauna Habitat

- Creek
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7G

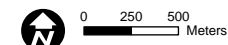
LEGEND

- Project Area
- Proposed Wind Turbines
- Proposed Cable Routes
- Transmission Line
- Proposed Access Roads
- Proposed Site Infrastructure

Fauna Habitat

- Creek
- Eucalypt woodland
- Granite woodland
- Pine plantation
- Planted
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



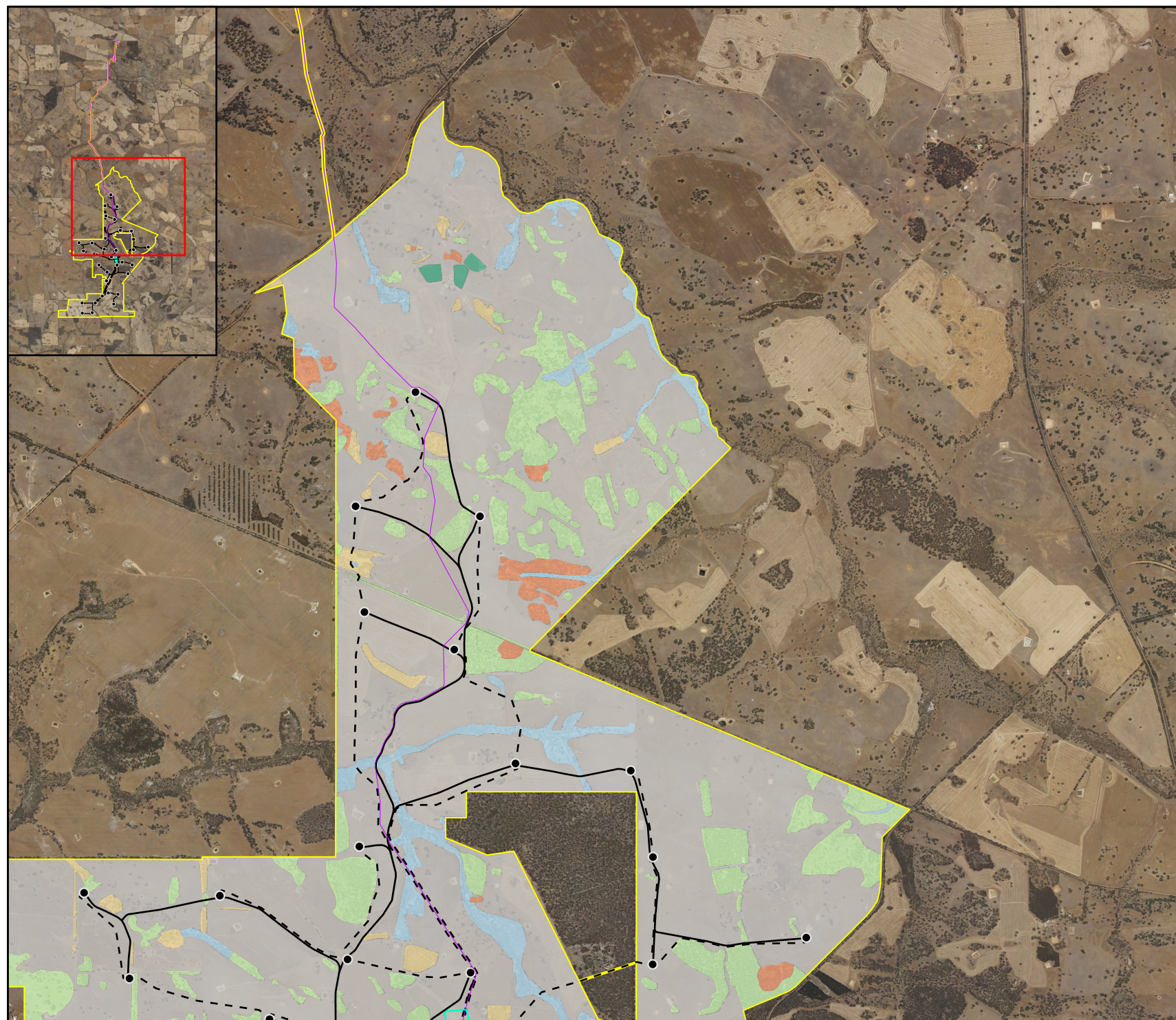
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



FAUNA HABITAT

Figure 7H

LEGEND

- Project Area
- Proposed Wind Turbines
- Proposed Cable Routes
- Transmission Line
- Proposed Access Roads
- Proposed Site Infrastructure

Fauna Habitat

- Creek
- Eucalypt woodland
- Granite woodland
- Pine plantation
- Planted
- Cleared

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES




Figure 8A

LEGEND




 Project Area

 Transmission Line

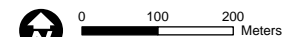
Potential Black Cockatoo Breeding Trees

-  Potential cockatoo hollow
-  Small hollows only, none suitable for cockatoos
-  No visible hollows

Black Cockatoo Foraging Habitat

-  Pasture - may contain isolated foraging trees
-  Woodlands with Marri
-  Woodlands with Marri and Sheoak

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES




Figure 8B

LEGEND




 Project Area

 Transmission Line

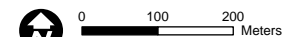
Potential Black Cockatoo Breeding Trees

-  Potential cockatoo hollow
-  Small hollows only, none suitable for cockatoos
-  No visible hollows

Black Cockatoo Foraging Habitat

-  Pasture - may contain isolated foraging trees
-  Woodlands with Marri
-  Woodlands with Marri and Sheoak

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES

Figure 8C



LEGEND

-  Project Area
-  Transmission Line

Potential Black Cockatoo Breeding Trees

-  No visible hollows

Black Cockatoo Foraging Habitat

-  Pasture - may contain isolated foraging trees
-  Woodlands with Marri

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES

Figure 8D




LEGEND

-  Project Area
-  Transmission Line

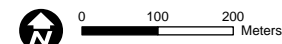
Potential Black Cockatoo Breeding Trees

-  No visible hollows

Black Cockatoo Foraging Habitat

-  Pasture - may contain isolated foraging trees
-  Woodlands unlikely to be foraging habitat
-  Woodlands with Marri

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES

Figure 8E

LEGEND

- Project Area
- Transmission Line

Potential Black Cockatoo Breeding Trees

- No visible hollows

Black Cockatoo Foraging Habitat

- Pasture - may contain isolated foraging trees
- Woodlands with Marri
- Woodlands with Marri and Jarrah

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH




BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES


Figure 8F

LEGEND


 Project Area


 Transmission Line

Potential Black Cockatoo Breeding Trees

 No visible hollows

Black Cockatoo Foraging Habitat

 Pasture - may contain isolated foraging trees

 Woodlands with Marri

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



0 100 200 Meters

Coordinate System: GDA2020 MGA Zone 50

Scale: 1:10,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES

Figure 8G

LEGEND

- Project Area
- Proposed Wind Turbines
- Proposed Access Roads
- Transmission Line
- Proposed Cable Routes
- Proposed Site Infrastructure
- Potential Black Cockatoo Breeding Trees**
 - Potential cockatoo hollow
 - Small hollows only, none suitable for cockatoos
 - No visible hollows
- Black Cockatoo Foraging Habitat**
 - Pasture - may contain isolated foraging trees
 - Pine plantation
 - Woodlands unlikely to be foraging habitat
 - Woodlands with Jarrah
 - Woodlands with Marri
 - Woodlands with Marri and Jarrah
 - Woodlands with Marri and Sheoak
 - Woodlands with Sheoak

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



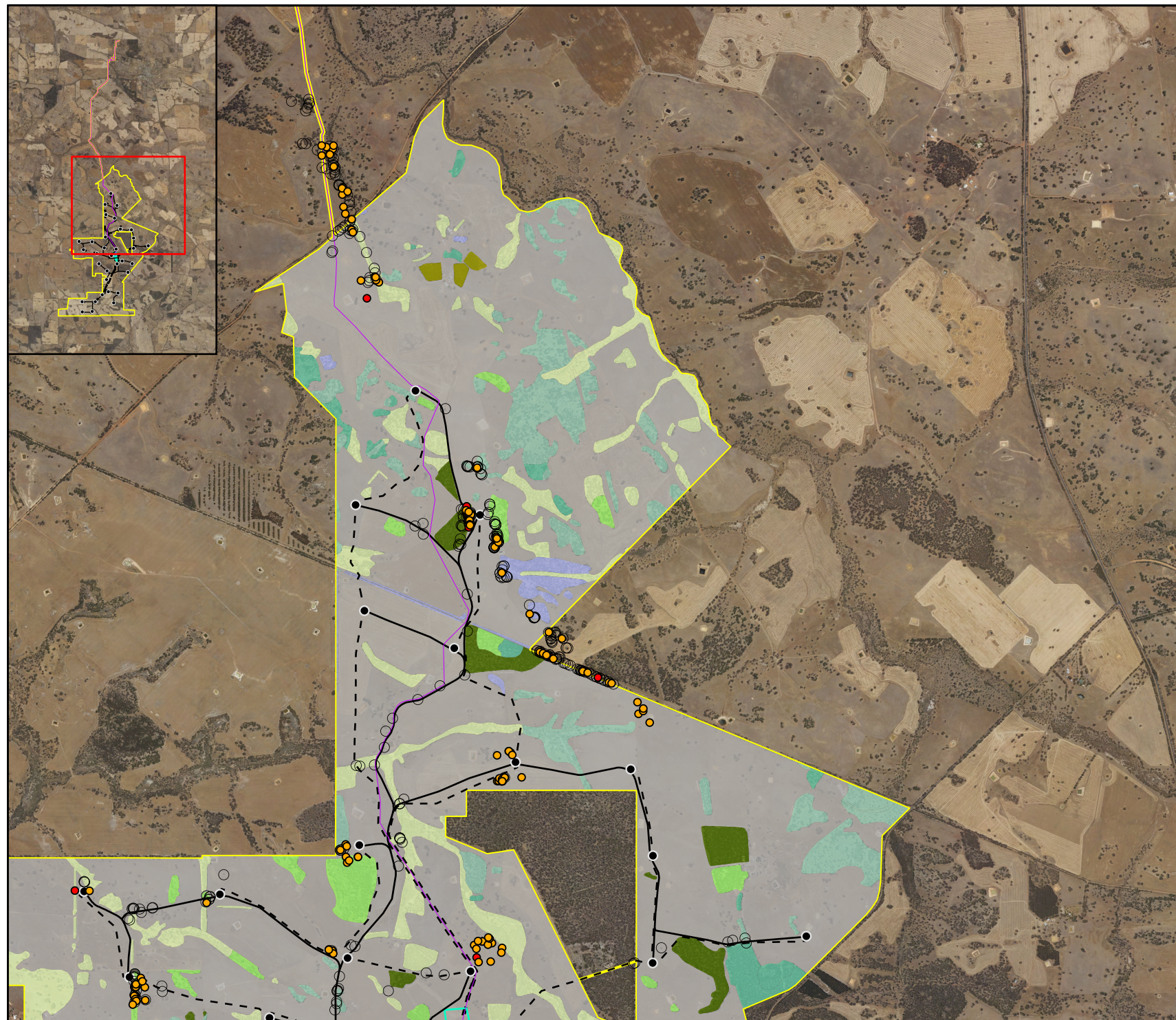
Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH



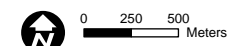
BLACK COCKATOO FORAGING HABITAT AND
POTENTIAL NESTING TREES

Figure 8H

LEGEND

- Project Area
- Proposed Wind Turbines
- Proposed Access Roads
- Transmission Line
- Proposed Cable Routes
- Proposed Site Infrastructure
- Potential Black Cockatoo Breeding Trees**
 - Potential cockatoo hollow
 - Small hollows only, none suitable for cockatoos
 - No visible hollows
- Black Cockatoo Foraging Habitat**
 - Pasture - may contain isolated foraging trees
 - Pine plantation
 - Woodlands unlikely to be foraging habitat
 - Woodlands with Jarrah
 - Woodlands with Jarrah and Sheoak
 - Woodlands with Marri
 - Woodlands with Marri and Jarrah
 - Woodlands with Marri and Sheoak
 - Woodlands with Marri, Jarrah and Sheoak
 - Woodlands with Marri, Jarrah and understory vegetation
 - Woodlands with Sheoak

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.



Coordinate System: GDA2020 MGA Zone 50

Scale: 1:40,000 at A4

Project Number: 675.073200.00001

Date Drawn: 27/10/2025

Drawn by: JH





Appendix A PMST Search Results

Environmental Assessment and Management Plan

Kojonup Wind Farm

Kojonup Wind Farm Pty Ltd

SLR Project No.: 675.073200.00001

4 November 2025





Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 12-Aug-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	16
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	5
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	5
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	6
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

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

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

Community Name	Threatened Category	Presence Text	Buffer Status
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area	In buffer area only
Eucalypt Woodlands of the Western Australian Wheatbelt	Critically Endangered	Community may occurIn feature area within area	
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Community may occurIn buffer area only within area	

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
Myrmecobius fasciatus Numbat [294]	Endangered	Species or species habitat may occur within area	In feature area
Phascogale calura Red-tailed Phascogale, Red-tailed Wambenger, Kenngoor [316]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
Adenanthos pungens subsp. effusus Sprawling Spiky Adenanthos [10742]	Endangered	Species or species habitat may occur within area	In feature area
Adenanthos pungens subsp. pungens Spiky Adenanthos [19429]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Caladenia dorrienii Cossack Spider-orchid [6596]	Endangered	Species or species habitat likely to occur within area	In feature area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area

Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [50986]	WA	In buffer area only
Commonwealth Land - [50994]	WA	In buffer area only
Commonwealth Land - [50991]	WA	In buffer area only
Commonwealth Land - [50992]	WA	In buffer area only
Commonwealth Land - [52138]	WA	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Jingalup	Nature Reserve	WA	In buffer area only
NTWA Bushland covenant (0108)	Conservation Covenant	WA	In buffer area only
South Jingalup	Nature Reserve	WA	In buffer area only
Unnamed WA13102	Nature Reserve	WA	In buffer area only
Unnamed WA26158	Nature Reserve	WA	In buffer area only

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Road Widening Kojonup South SLK 254.9 to SLK 259.8	2017/7934	Controlled Action	Post-Approval	In buffer area only
Transmission Line Project	2011/6066	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Albany Highway Upgrade (248.4 - 250.8 SLK) WA	2013/6766	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Appendix B Flora, Vegetation and Fauna Assessment of the Kojonup Windfarm Survey Area (Mattiske, 2025)

Environmental Assessment and Management Plan

Kojonup Wind Farm

Kojonup Wind Farm Pty Ltd

SLR Project No.: 675.073200.00001

4 November 2025



FLORA, VEGETATION AND FAUNA ASSESSMENT OF THE KOJONUP WIND FARM SURVEY AREA

**Prepared for
Kojonup Wind Farm Pty Ltd**

**Prepared by
Mattiske Consulting Pty Ltd**

October 2025

MHE2501/78/25



Mattiske Consulting Pty Ltd



Disclaimer and Limitation

This report has been prepared on behalf of and for the exclusive use of Kojonup Wind Farm Pty Ltd, and is subject to and issued in accordance with the agreement between Kojonup Wind Farm Pty Ltd and Mattiske Consulting Pty Ltd. Mattiske Consulting Pty Ltd accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this report by any third party.

This report is based on the scope of services defined by Kojonup Wind Farm Pty Ltd, budgetary and time constraints imposed by Kojonup Wind Farm Pty Ltd, the information supplied by Kojonup Wind Farm Pty Ltd (and its agents), and the method consistent with the preceding.

Copying of this report or parts of this report is not permitted without the authorisation of Kojonup Wind Farm Pty Ltd or Mattiske Consulting Pty Ltd.

Report	Version	Prepared By	Reviewed By	Submitted to Client	
				Date	Copies
Internal Review	V1	K. Smith & E. Mattiske	E. Mattiske	-	-
Draft Report released for Client Review	V2	K. Smith & E. Mattiske	E. Mattiske	14/07/2025	Email
Final Report	V3	E. Mattiske	E. Mattiske	15/10/2025	Email

TABLE OF CONTENTS

	Page
1. SUMMARY	1
2. INTRODUCTION	4
2.1 Climate	4
2.2 Regional Vegetation	5
2.3 Western Australia's Flora – A Legislative Perspective	5
2.4 Land Systems	6
2.5 Regional Vegetation	8
2.6 Threatened and Priority Flora	10
2.7 Threatened and Priority Ecological Communities	10
2.8 Clearing of Native Vegetation	11
2.9 Declared (Plant) Pest Organisms	12
2.10 Local and Regional Significance	12
3. OBJECTIVES	13
4. METHODS	14
4.1 Desktop Assessment	14
4.2 Field Survey	14
4.3 Assessment of Potential TECs and PECs	15
5. DESKTOP RESULTS	16
5.1 Potential Threatened and Priority Flora	16
5.2 Potential Threatened and Priority Ecological Communities	16
5.3 Field Survey	16
5.4 Survey Limitations and Constraints	19
6. FIELD RESULTS	20
6.1 Flora	20
6.2 Threatened and Priority Flora	20
6.3 Introduced (Exotic) Plant Species	20
6.4 Vegetation	20
6.5 Threatened and Priority Ecological Communities	24
6.6 Vegetation Condition	26
6.7 Tree Assessments	26
7. DISCUSSION	30
8. ACKNOWLEDGEMENTS	32
9. LIST OF PERSONNEL	32
10. REFERENCES	32

TABLES

- 1: Summary of Land Systems as defined by Department of Primary Industries and Regional Development 2025b (Western Australia)
- 2: Summary of Pre-European Systems as defined by Beard *et al.* (2013) through the Department of Primary Industries and Regional Development 2025b (Western Australia)
- 3: Potential Survey Limitations for Survey Area
- 4: Summary of Representation of Vegetation on Kojonup Wind Farm
- 5: Summary of Representation of Vegetation Condition on Kojonup Wind Farm

FIGURES

- 1: Kojonup Wind Farm - Locality
- 2a: Rainfall data for Kojonup and temperature data for Katanning (Bureau of Meteorology 2025)
- 2b: Rainfall trend data for Kojonup since 1885 (Bureau of Meteorology 2025)
- 3: Kojonup Wind Farm - Land Systems
- 4: Kojonup Wind Farm – Pre-European Vegetation
- 5a: Kojonup Wind Farm - Survey Effort – Transmission Corridor
- 5b: Kojonup Wind Farm - Survey Effort
- 6a: Kojonup Wind Farm - Vegetation Mapping – Transmission Corridor
- 6b: Kojonup Wind Farm – Vegetation Mapping
- 7: Threatened and Priority Ecological Communities
- 8a: Kojonup Wind Farm - Vegetation Condition – Transmission Corridor
- 8b: Kojonup Wind Farm – Vegetation Condition
- 9: Kojonup Wind Farm – Tree Locations

APPENDICES

- A1: Definition of Threatened and Priority Flora Species
- A2: Definitions of Threatened Flora Species (*EPBC Act 1999*)
- A3: Definition of Threatened Ecological Communities
- A4: Definition of Threatened Ecological Communities (*EPBC Act 1999*)
- A5: Definition of Priority Ecological Communities
- A6: Categories and Control of Declared (Plant) Pests in Western Australia
- A7: Definition of Structural Forms of Australian Vegetation
- A8: Definition of Vegetation Condition Scale
- B: Description of threatened and priority flora species with the potential to occur within the Kojonup Wind Farm survey area (Department of Biodiversity, Conservation and Attractions 2024)
- C: Summary of Species recorded in the Kojonup Wind Farm, Western Australia
- D: Vascular Plant Species in Vegetation Mapping Types recorded in Kojonup Wind Farm
- E: Photographic records of Kojonup Wind Farm Survey Area

1. SUMMARY

Mattiske Consulting Pty Ltd was commissioned by the Kojonup Wind Farm Pty Ltd to undertake a review of the flora, vegetation and fauna values on the proposed Kojonup Wind Farm, Figure 1. The proposed development occurs primarily within cleared agricultural areas. The survey effort concentrated on desktop reviews, an assessment of the main remnants, paddock and roadside trees that may need pruning or clearing and roadside vegetation that may be disturbed in localised areas by vehicle movement and the installation of the wind farm facilities.

Survey effort was spread over multiple trips in February, July, November and December 2023 and January, July, September and October 2024 with a total of 23 field days. Most of the remnant vegetation assessments were undertaken by senior and experienced botanists from Mattiske Consulting and Dr Mattiske. The tree assessments were undertaken by Dr Mattiske, Sarah Rankin (Kojonup Wind Farm Pty Ltd) and Jen Willcox (Western Wildlife). The assessments of the trees assisted in the avoidance of most direct and indirect impacts during the design phases of the wind farm layout and associated infrastructure and access routes. Only a few limited areas supported native vegetation, and these were avoided in the proposed development.

A total of 179 vascular plant taxa from 119 plant genera and 45 plant families were recorded within the Kojonup Wind Farm survey area during 2023 and 2024. Most taxa were recorded within the Myrtaceae (21 taxa), Fabaceae (20 taxa), Poaceae (19 taxa), Proteaceae (15 taxa) and Asteraceae (12 taxa) families. Twenty-one introduced (weed) species were recorded in 2023 and 2024. None of the introduced species are declared pests (DPIRD 2025) or Weeds of National Significance (DCCEEW 2025e)

No threatened flora species pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)* and as listed by the Department of Biodiversity, Conservation and Attractions were recorded within the Kojonup Wind Farm survey area. No plant taxa listed as Threatened pursuant to Schedule 1 of the *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the survey within the proposed Kojonup Wind Farm survey area.

One Priority 4 species (*Xanthorrhoea brevistylis* P4) was recorded in the woodlands of *Eucalyptus wandoo* with patches of *Allocasuarina huegeliana* over low subshrubs and introduced grasses on sandy soils and near shallow granites on mid and upper slopes. This species was restricted in occurrence near the proposed facilities on the edges of a paddock and at the time of the development it should be feasible to avoid the plants.

Nine vegetation communities were defined and mapped within the Kojonup Wind Farm survey area. The native plant communities were restricted in occurrence due to the degree of land clearing and historical agricultural activities in the area. The design of the project layout avoided the more intact areas of native vegetation. More intact native vegetation is intended to be avoided. The wind turbines are to be established in the cleared paddocks which are mainly degraded or completely degraded.

The threatened ecological community "*Eucalypt Woodlands of the Western Australian Wheatbelt*" as defined by the Department of Climate Change, Energy, the Environment and Water, 2025c and 2025d) under the *Environment Protection and Biodiversity Conservation Act 1999* was not located in the Kojonup Wind Farm survey area. The priority ecological community "Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs" as delineated by the Department of Biodiversity, Conservation and Attractions (2025b) was located outside the Kojonup Wind Farm survey area. The areas of remnant bushland are being avoided in the proposed development on the project area. The few roadside verges that include some crossings of infrastructure support some native trees but all fall below the criteria as they are less than 5m wide, they lack native plant cover and every effort was made to place alignments in the gaps between the trees, or the trees occurred on exposed or shallow granite outcrops and the condition of the vegetation was degraded to completely degraded.

The tree species include mainly *Eucalyptus wandoo*, *Eucalyptus rudis*, *Eucalyptus marginata* and *Corymbia calophylla*. Several areas of *Eucalyptus astringens* were recorded, however these stands are outside any direct or indirect impact areas.

As the proposal has minimal direct or indirect impact on the remnant areas of native vegetation, the impacts are not considered to be significant with the proposed layout of the wind turbines and the associated cables which primarily are within the degraded and completely degraded areas.

Although a range of potential flora and fauna values were sourced from a desktop assessment in the vicinity of the Kojonup Wind Farm survey area; in view of the degree of degradation, and as the area of native vegetation are outside the development footprints, there should not be any significant issues in relation to the native flora and vegetation values.

Should the development of the Kojonup Wind Farm go ahead the following recommendations are made as a means of minimizing the impacts of infrastructure activities on the flora, vegetation and fauna values in the area:

- Limit ground disturbance and clearing of vegetation to designated areas and access routes, avoiding habitat trees (larger trees and trees with hollows) wherever possible;
- Maintain existing drainage systems, ensuring tracks and other infrastructure areas do not disrupt or divert historic water flow patterns;
- Remove and stockpile topsoil, log debris and leaf litter where possible for use in future rehabilitation programs. If possible, stockpiled topsoil should be directly replaced on disturbed areas;
- Minimise soil disturbance during clearing and practice standard vehicle hygiene to ensure introduced (exotic) species do not become established within the Kojonup Wind Farm survey area; and
- Minimize all threatening processes to native vegetation.

In summary, there should be no impediments to the development of the wind farm facilities providing the remnant vegetation areas (including less disturbed road verges) are not disturbed.

2. INTRODUCTION

Mattiske Consulting Pty Ltd was commissioned by Kojonup Wind Farm Pty Ltd to undertake a flora and vegetation survey of the proposed Kojonup Wind Farm, Figure 1.

The proposed Kojonup Wind Farm survey area is located slightly west and south- west of the township of Kojonup with a northern connection into the supply substation located north of Kojonup.

2.1 Climate

The Kojonup Wind Farm survey area lies within the Southern Jarrah Forest Subregion on the border of the Avon Wheatbelt subregion. Beard (1990) described the climate of the Southern Jarrah Forest as warm mediterranean with winter precipitation between 600 and 1200mm and 5 - 6 dry months per year. The climate of the Avon Wheatbelt is described as dry, warm mediterranean, with winter precipitation of 300 – 650mm and 7 – 8 dry months per year (Beard 1990). The rainfall in Kojonup in recent years has been declining from 732.74mm in 2021 to 532.2mm in 2022 to 396.8mm in 2023 to 424.4mm in 2024, Figure 2a. This trend has been recorded in a range of sites in the southwest of Western Australia and the Wheatbelt including at Kojonup as illustrated in Figure 2b. Note several years the levels may reflect a slightly lower recording due to missing data for several months. Such fluctuations have been recorded previously at Kojonup.

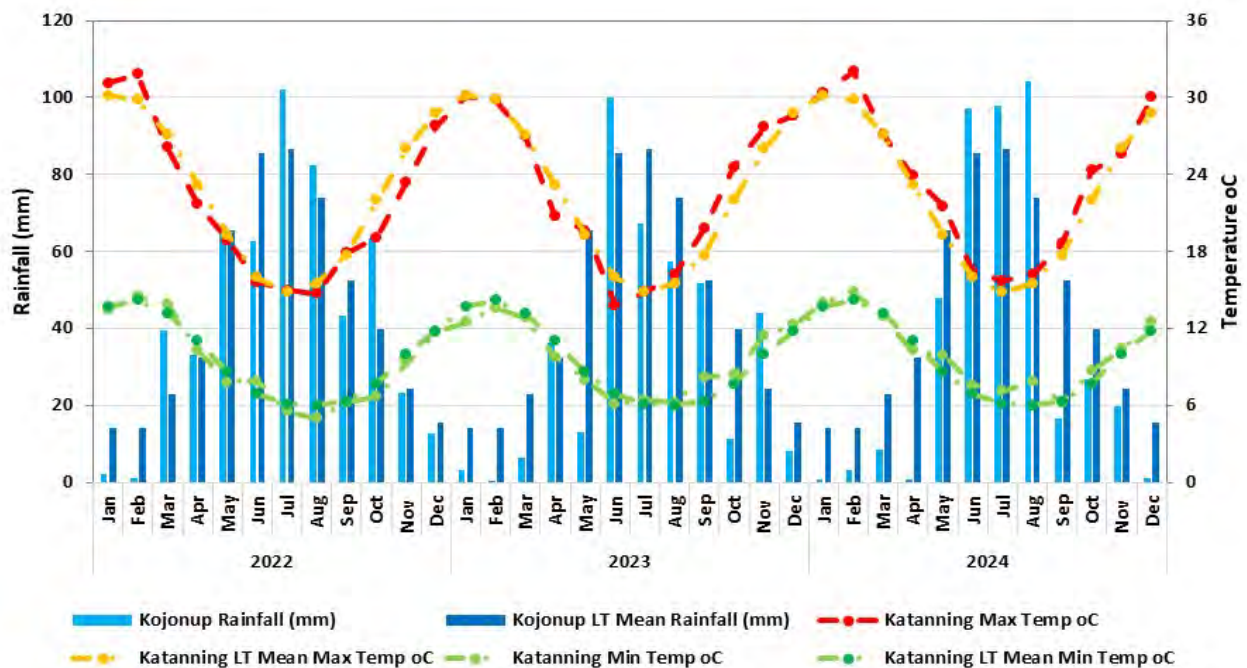


Figure 2a: Rainfall data for Kojonup and temperature data for Katanning (Bureau of Meteorology 2025)

Long term average rainfall and temperature data, together with monthly rainfall and average maximum and minimum temperature data for the period January 2022 to December 2024 are shown.

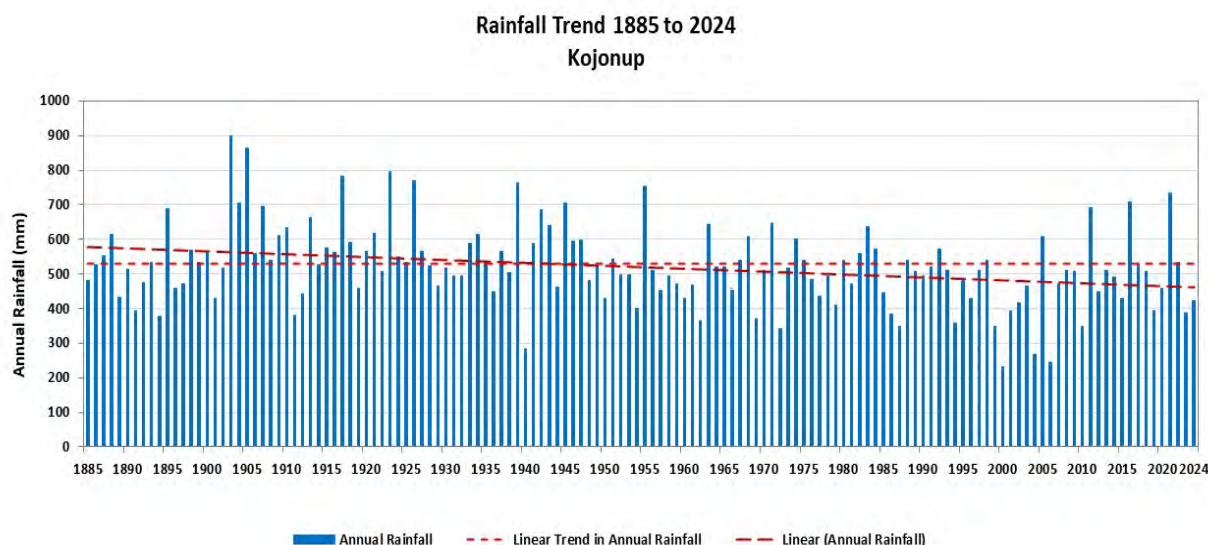


Figure 2b: Rainfall trend data for Kojonup since 1885 (Bureau of Meteorology 2025)

2.2 Regional Vegetation

The Kojonup Wind Farm survey area is located within the Southern Jarrah Forest subregion near the western border of the Avon Wheatbelt region. The Southern Jarrah Forest subregion is characterised by jarrah forest on duricrusted plateaus and loam soils of valleys, with marri-wandoo woodlands on laterite-free soils (Beard 1990). Typical vegetation of the Avon Wheatbelt region includes scrub-heath on sandplains, *Acacia-Casuarina* thickets on ironstone gravels, woodlands of *Eucalyptus loxophleba*, *Eucalyptus salmonophloia* and *Eucalyptus wandoo* on varying soil types (Beard 1990). The proximity of Kojonup Wind Farm to the western border of the Avon Wheatbelt region indicates that characteristics of both regions are likely to be present in the survey area.

2.3 Western Australia's Flora – A Legislative Perspective

Western Australia has a unique and diverse flora and is recognised as one of the world's 25 biodiversity hotspots (Myers *et al.* 2000). In this context, Western Australia possesses a high degree of species richness and endemism. This is particularly pronounced in the south-west region of the state. There are currently over 12,000 plant species known to occur within Western Australia (WA Herbarium 1998-), and scientific knowledge of many of these species is limited.

This report addresses the environmental factors related to the flora and vegetation as summarized in the Statement of environmental principles, factors, objectives and aims of EIA, EPA (2023).

The legislative protection of flora within Western Australia is principally governed by three Acts. These are:

The *Biodiversity Conservation Act 2016*;

The *Environmental Protection Act 1986*; and

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The unique flora of Western Australia is potentially under threat due to historical clearing practices associated with agricultural, mining and human habitation activities. Because of the historical clearing practices, some flora species have become threatened or have the potential to become threatened as

their habitat is impacted by human activity. In addition, some areas of the State have been affected by past clearing practices such that entire ecological communities are under threat. The following sections describe these threatened and priority flora and ecological communities, and outline the legislative protection afforded to them.

At the State level, the *Biodiversity Conservation Act 2016* provides for taxa of native flora (and fauna) to be specially protected because they are subject to identifiable threats. Protection of these taxa has been identified as being warranted because they may become extinct, are threatened, or are otherwise in need of special protection. Ecological communities that are deemed to be threatened are afforded protection under the *Environmental Protection Act 1986*. Listings of threatened species and communities are reviewed annually by the Western Australian Threatened Species Scientific Committee (TSSC), which is a body appointed by the Minister for Environment, Climate Action and supported by the Department of Biodiversity, Conservation and Attractions. The TSSC reviews threatened and specially protected flora (and fauna) listings on an annual basis. Under Schedule of the *Biodiversity Conservation Act 2016*, the Minister for Environment, Climate Action may declare a class or description of flora to be threatened flora throughout the State, by notice published in the *Government Gazette* (Department of Biodiversity, Conservation and Attractions 2025a).

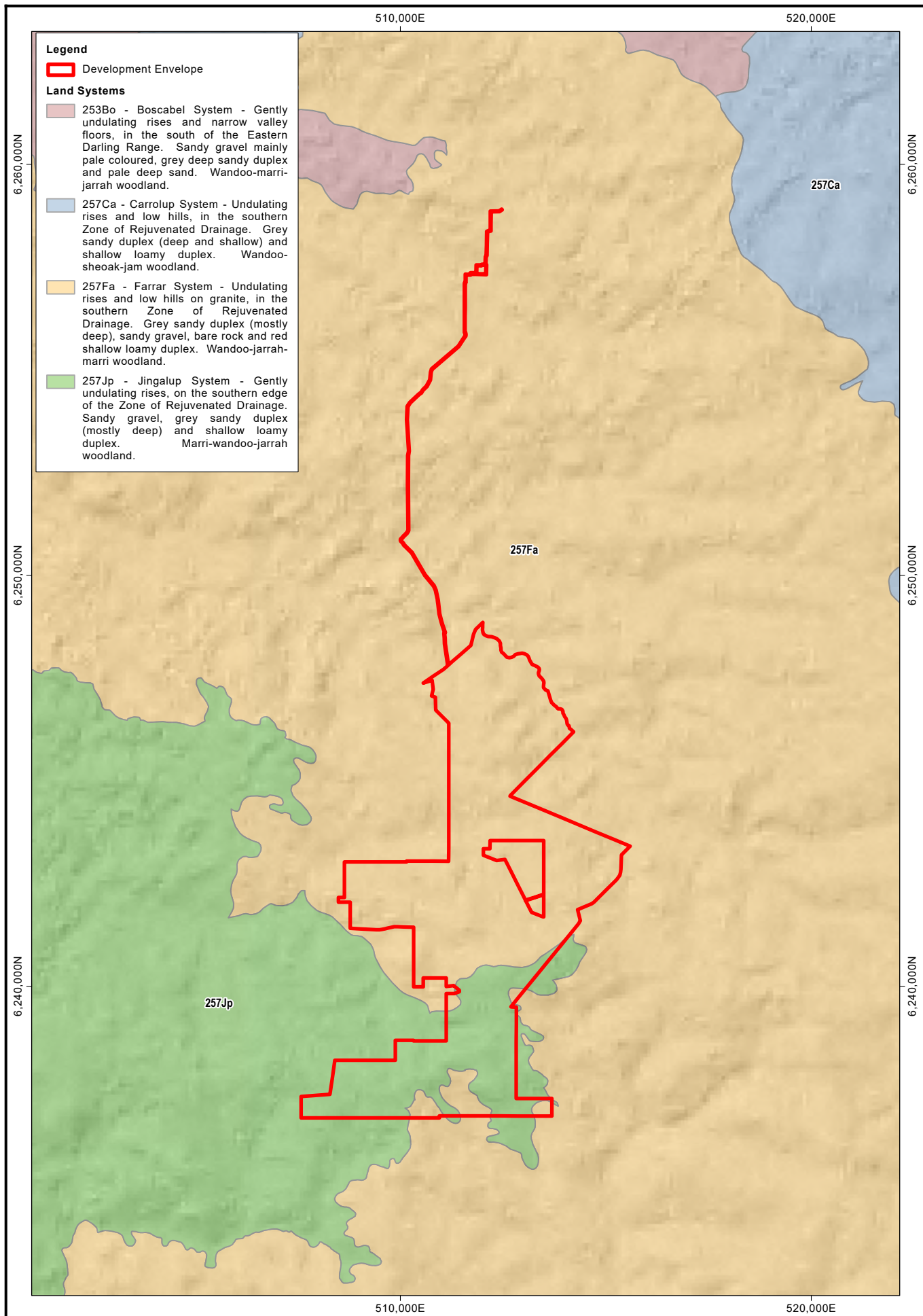
At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, a nomination process exists, to list a threatened species or ecological community. Additions or deletions to the lists of Threatened species and communities are made by the Minister for the Climate Change, Energy, the Environment and Water, on advice from the Federal Threatened Species Scientific Committee. *Environment Protection and Biodiversity Conservation Act 1999* lists of Threatened flora and ecological communities are published on the Department of Climate Change, Energy, the Environment and Water (2025a, 2025b).

2.4 Land Systems

The survey area lies within two main land systems from the Department of Primary Industries and Regional Development (2025b) (Western Australia), (see Figure 3 and Table 1). The overlap of the development envelope and the land systems remain below 2.2% of these regional land systems (Table 1). These figures do not account for degree or clearing of native vegetation in the agricultural areas.

Table 1: Summary of Land Systems as defined by Department of Primary Industries and Regional Development 2025b (Western Australia)

Land	Land System	Description	Area within Survey Area (ha)	Total Mapped (ha)	% Representation in Survey Area
257Fa	Farrar System	Undulating rises and low hills on granite, in the southern Zone of Rejuvenated Drainage. Grey sandy duplex (mostly deep), sandy gravel, bare rock and red shallow loamy duplex. Wandoo-jarrah-marri woodland.	2821.119	174523.813	1.62%
257JpDt	Jingalup System	Gently undulating rises, on the southern edge of the Zone of Rejuvenated Drainage. Sandy gravel, grey sandy duplex (mostly deep) and shallow loamy duplex. Marri-wandoo-jarrah woodland.	996.712	45865.419	2.17%



0 1 2km
Scale: 1:125,000
GDA 1994 MGA Zone 50



Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640

Kojonup Wind Farm Land Systems

Figure:

3

CAD Ref: a1868_F059_02

Date: October 2025

Rev: A

A4

Author: L. Mattiske

Ref:

Drawn: CAD Resources ~ www.cadresources.com.au

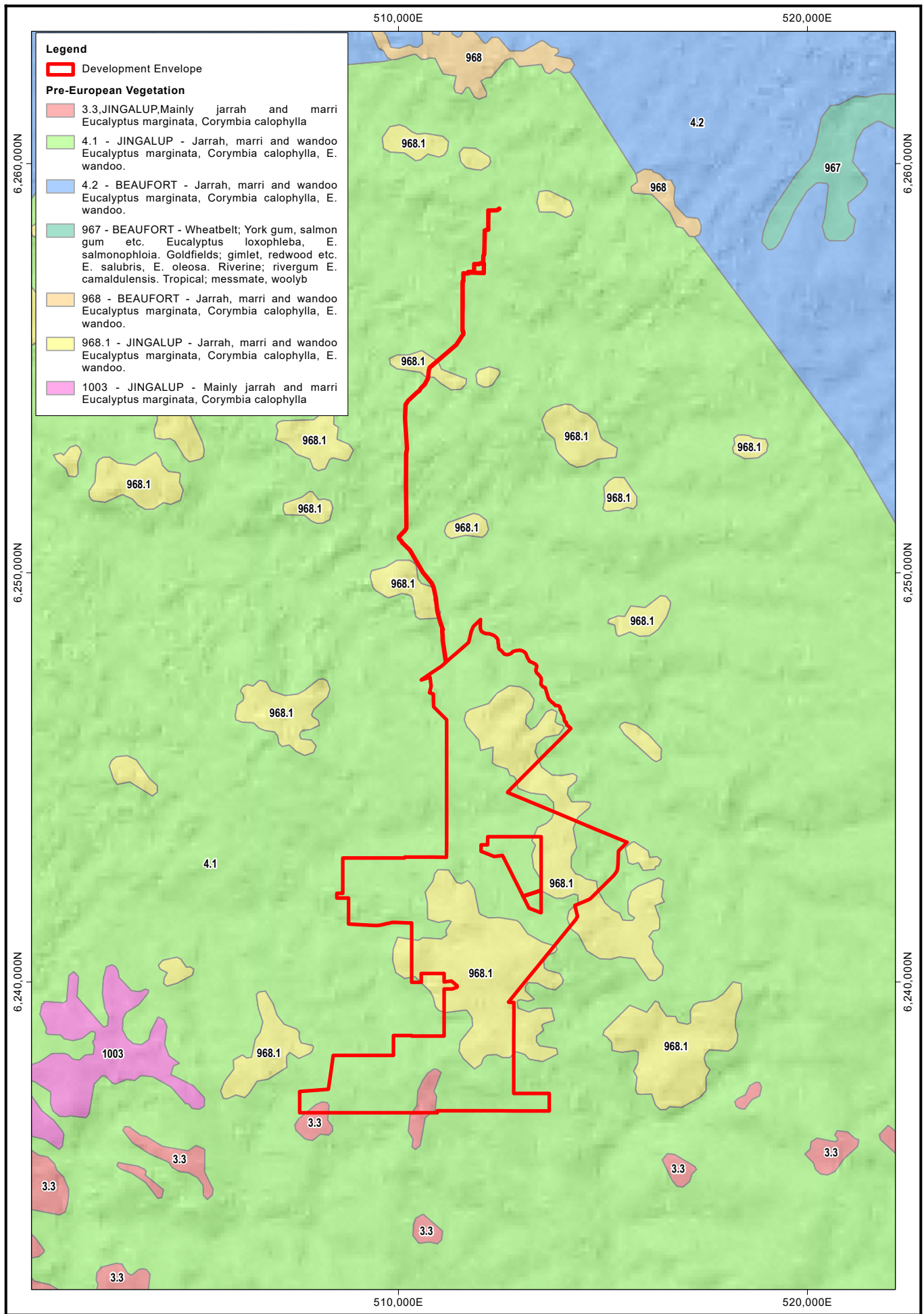
2.5 Regional Vegetation

The survey area lies within the Avon Botanical District in the South-West Province. Typical vegetation of the Avon Botanical District includes *Eucalyptus* woodlands comprising *E. loxophleba*, *E. salmonophloia* and *E. wandoo* on loams, scrub-health on sandplains, *Acacia-Casuarina* thickets on ironstone and halophytes on saline soils (Beard 1990). Beecham (2001) describes the Avon Wheatbelt 2 (AW2 – Rejuvenated Drainage) subregion vegetation as woodlands of Wandoo (*Eucalyptus wandoo*), York gum (*E. loxophleba*) and Salmon gum (*E. salmonophloia*) with Jam (*Acacia acuminata*) and Casuarina (*Allocasuarina* spp.).

In recent Pre-European vegetation mapping undertaken by Beard *et al.* (2013) the regional mapping indicated that the survey area falls within the Jingalup system (Codes 3.3, 4.1 and 968.1) Figure 4 and Table 2.

Table 2: Summary of Pre-European Systems as defined by Beard *et al.* (2013) through the Department of Primary Industries and Regional Development 2025b (Western Australia)

Vegetation System Code	Pre-European System	Description	Area within Survey Area (ha)	Total Mapped (ha)	% Representation in Survey Area
3.3	Jingalup	Open forest of mainly jarrah and marri (<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i>)	53.224	50085.071	0.106%
4.1	Jingalup	Woodland of jarrah, marri and wandoo (<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Eucalyptus wandoo</i>)	2490.673	166953.492	1.492%
968.1	Jingalup	Woodland of jarrah, marri and wandoo (<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Eucalyptus wandoo</i>)	1272.935	7729.553	16.468%



Imagery:

<div style="text-align: center;"> <p>0 1 2km</p> <p>Scale: 1:125,000</p> <p>GDA 1994 MGA Zone 50</p> </div>	<p>Mattske Consulting Pty Ltd</p> <p><small>28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640</small></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">CAD Ref: a1868_F059_03</td> <td style="width: 50%;">Author: L. Mattiske</td> </tr> <tr> <td>Date: October 2025</td> <td>Rev: A A4</td> </tr> <tr> <td colspan="2">Drawn: CAD Resources ~ www.cadresources.com.au</td> </tr> </table>	CAD Ref: a1868_F059_03	Author: L. Mattiske	Date: October 2025	Rev: A A4	Drawn: CAD Resources ~ www.cadresources.com.au	
CAD Ref: a1868_F059_03	Author: L. Mattiske							
Date: October 2025	Rev: A A4							
Drawn: CAD Resources ~ www.cadresources.com.au								

Kojonup Wind Farm Pre-European Vegetation

Figure:

2.6 Threatened and Priority Flora

Flora within Western Australia that is under threat may be classed as either threatened flora or priority flora. Where flora has been gazetted as threatened flora under *Biodiversity Conservation Act 2016*, it is an offence “to take” such flora without the written consent of the Minister. The *Biodiversity Conservation Act 2016* states that “to take” flora includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means.

Priority flora constitute species which are under threat, but for which there is insufficient information available concerning their distribution and/or populations to make a proper evaluation of their conservation status. Such species are considered to potentially be under threat, but do not have legislative protection afforded under the *Biodiversity Conservation Act 2016*. The Department of Biodiversity Conservation and Attractions categorises priority flora according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such species, with P1 listed species being the most threatened, and P5 the least. Priority flora species are regularly reviewed and may have their priority status changed when more information on the species becomes available. Appendix A1 sets out definitions of both threatened and priority flora.

At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, threatened species can be listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable, or conservation dependent, by the commonwealth minister for Climate Change, Energy, the Environment and Water. Refer to Appendix A2 for a description of each of these categories of threatened species. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened species without approval from the commonwealth minister for Climate Change, Energy, the Environment and Water, unless those actions are not prohibited under the Act.

2.7 Threatened and Priority Ecological Communities

An ecological community is defined as a naturally occurring biological assemblage that occurs in a particular type of habitat composed of specific abiotic and biotic factors. At the State level, ecological communities may be considered as threatened once they have been identified as such by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. A threatened ecological community is defined, under the *Environmental Protection Act 1986*, as an ecological community listed, designated or declared under a written law or a law of the Commonwealth as threatened, endangered or vulnerable. There are four State categories of threatened ecological communities, or TECs: presumed destroyed (PD); critically endangered (CR); endangered (EN); and vulnerable (VU) (Department of Biodiversity, Conservation and Attractions 2025c). A description of each of these categories of TECs is presented in Appendix A3.

At the Commonwealth level, some Western Australian TECs are listed as threatened, under the *Environment Protection and Biodiversity Conservation Act 1999*. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened ecological community without approval from the commonwealth minister for Climate Change, Energy, the Environment and Water, unless those actions are not prohibited under the Act. A description of each of these categories of TECs is presented in Appendix A4.

Ecological communities identified as threatened, but not listed as threatened ecological communities, can be classified as priority ecological communities (PECs). These communities are under threat, but there is insufficient information available concerning their distribution to make a proper evaluation of their conservation status. The Department of Biodiversity, Conservation and Attractions categorises priority ecological communities according to their conservation priority, using five categories, P1 to P5, to

denote the conservation priority status of such ecological communities, with P1 communities being the most threatened and P5 the least. Appendix A5 sets out definitions of priority ecological communities.

2.8 Clearing of Native Vegetation

Under the *Environmental Protection Act 1986*, the clearing of native vegetation requires a permit to do so, from the Department of Environment Regulation or the Department of Mines and Petroleum, unless that clearing is exempted under specific provisions listed in Schedule 6 of the Act, or are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Under the *Environmental Protection Act 1986*, “native vegetation” means indigenous aquatic or terrestrial vegetation and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation. Under the *Environmental Protection Act 1986*, Section 51A, “clearing” means the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems of, or the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes any of the aforementioned consequences or results.

Under the *Environmental Protection Act 1986*, ten principles for clearing native vegetation are set out in Schedule 5, under which native vegetation should not be cleared. These principles state that native vegetation should not be cleared, if:

- it comprises a high level of biological diversity;
- it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;
- it includes, or is necessary for the continued existence of, threatened flora;
- it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community;
- it is significant as a remnant of native vegetation in an area that has been extensively cleared;
- it is growing in, or in association with, an environment associated with a watercourse or wetland;
- the clearing of the vegetation is likely to cause appreciable land degradation;
- the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area;
- the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or
- the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 5, sets out prescribed clearing actions that do not require a clearing permit, as defined in Section 51C of the *Environmental Protection Act 1986*. However, exemptions under these Regulations do not apply in Environmentally Sensitive Areas (ESA's).

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 6 – “environmentally sensitive areas” include “the area covered by vegetation within 50 m of threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the threatened flora is located”. Similarly, “the area covered by a threatened ecological community” is listed as an environmentally sensitive area under Regulation 6.

2.9 Declared (Plant) Pest Organisms

The *Biosecurity and Agriculture Management Act 2007* (BAM Act), Section 22, makes provision for a plant taxon to be listed as a declared pest organism in respect to parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (Section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under section 26 (1) of the *Biosecurity and Agriculture Management Act 2007*, a person who finds a declared plant pest must report, in accordance with subsection (2), the presence or suspected presence of the declared pest to the Director General or an inspector of the Department of Primary Industry and Regional Development.

Under the *Biosecurity and Agriculture Management Regulations 2013*, declared plant pests are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Appendix A6). According to section 30 (3) of the BAM Act, the owner or occupier of land, or a person who is conducting an activity on the land, must take the prescribed control measures to control the declared pest if it is present on the land.

The current listing of declared pest organisms and their control category is available on the Western Australian Organism List (WAOL), at the Biosecurity and Agriculture Management website of the Department of Primary Industry and Regional Development (DPIRD 2025a).

2.10 Local and Regional Significance

Flora or vegetation may be locally or regionally significant in addition to statutory listings by the State or Federal Government.

Flora species, subspecies, varieties, hybrids and ecotypes may be significant other than as threatened flora or priority flora, for a variety of reasons, including:

- a keystone role in a particular habitat for threatened species, or supporting large populations representing a significant proportion of the local regional population of a species;
- relic status
- anomalous features that indicate a potential new discovery;
- being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- the presence of restricted subspecies, varieties, or naturally occurring hybrids;
- local endemism/a restricted distribution; and
- being poorly reserved (Environmental Protection Authority 2004).

Vegetation may be significant because the extent is below a threshold level and a range of other reasons, including:

- scarcity;
- unusual species;
- novel combinations of species;
- a role as a refuge;
- a role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species;
- being representative of the range of a unit (particularly, a good local and/or regional example of a unit in "prime" habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- a restricted distribution (Environmental Protection Authority 2004).

Vegetation communities are locally significant if they contain threatened or priority flora or contain a range extension of a particular taxon outside of the normal distribution. They may also be locally significant if they are very restricted to one or two locations or occur as small, isolated communities. In addition, vegetation communities that exhibit unusually high structural and species diversity are also locally significant.

Vegetation communities are regionally significant where they are limited to specific landform types, are uncommon or restricted plant community types within the regional context, or support populations of threatened Flora.

Determining the significance of flora and vegetation may be applied at various scales, for example, a vegetation community may be nationally significant and governed by statutory protection as well as being locally and regionally significant.

3. OBJECTIVES

The general aim of this report was to map and undertake a flora, fauna and vegetation assessment of the Kojonup Wind Farm. Specifically, the objectives include:

- Search the literature and databases to assess the potential flora and fauna values that may occur within the survey area;
- Search the remnant vegetation and streamzone areas within the Kojonup Wind Farm survey area for threatened and priority flora and record any opportunistic fauna sightings during the field study;
- Collect and identify the vascular plant species present in the Kojonup Wind Farm Wind Farm survey area;
- Review the conservation status of the vascular plant species and vegetation by reference to current literature and current listings by the Department of Biodiversity, Conservation and Attractions (2025a, 2025b, 2025c, 2025d, 2025e), plant collections held at the Western Australian State Herbarium (WA Herbarium 1998-), and listed by the Department of Climate Change, Energy, the Environment and Water (2025a, 2025b, 2025c, 2025d, 2025e) under the *Environment Protection and Biodiversity Conservation Act 1999*;
- Define and map the native vegetation communities and their condition;
- Define any management issues related to flora and vegetation values;
- Provide recommendations on the local and regional significance of the flora and vegetation values; and
- Prepare a report summarising the findings.

4. METHODS

4.1 Desktop Assessment

A desktop assessment and review were conducted to establish the presence of any threatened or priority flora and community that may potentially occur within the survey area, using NatureMap, Herbarium records and the Dandjoo biodiversity data (Department of Biodiversity, Conservation and Attractions 2025a, 2025c, 2025d) and the *EPBC Act Protected Matters Search Tool* (Department of Climate Change, Energy, the Environment and Water 2025c) and the Western Australian Herbarium (WA Herbarium 1998-).

In addition to the literature review, searches of the following databases were undertaken to aid in the compilation of a list of significant flora within the survey area:

- DBCA Threatened/ Priority Flora spatial data (DBCA, 2025a);
- DBCA Threatened/ Priority Ecological Communities spatial data (DBCA, 2025b);
- DBCA NatureMap and Dandjoo datasets (DBCA 2025d); and
- EPBC Protected Matters search tool (DCCEEW, 2025c).

4.2 Field Survey

Survey effort was spread over multiple trips in February, July, November and December 2023 and January, July, September and October 2024 with a total of 23 field days. The detailed field studies on the native remnants were undertaken in January 2023 and Early December 2024. Most of the remnant vegetation assessments were undertaken by senior and experienced botanists from Mattiske Consulting. Dr Mattiske with Sarah Rankin and Jen Willcox (Western Wildlife) completed the assessments of trees that assisted in avoidance of many direct and indirect impacts during the design phases of the wind farm layout and associated infrastructure and access routes.

All botanists held valid collection licences to collect flora for scientific purposes, issued under the *Biodiversity Conservation Act 2016*. Aerial photographs of the survey area were supplied by Dr Sarah Rankin from Kojonup Wind Farm Pty Ltd. The field survey was conducted according to standards set out in Guidance Statements (Environmental Protection Authority 2004 and 2023).

The flora and vegetation were described and sampled systematically at each survey site, and additional opportunistic collecting was undertaken wherever previously unrecorded plants were observed. At each site the following floristic and environmental parameters were noted: GPS location, topography, percentage litter cover, soil type and colour, percentage of bare ground, outcropping rocks and their type, gravel type and size, time since fire and the percentage cover and average height of each vegetation stratum. For each vascular plant species, the average height and percent cover (both live and dead material) were recorded.

All plant specimens collected during the field surveys were dried and fumigated in accordance with the requirements of the Western Australian Herbarium. The plant species were identified through comparisons with pressed specimens housed at the Western Australian Herbarium. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the State Herbarium, Western Australia (WAH 1998-).

4.3 Assessment of Potential TECs and PECs

The survey methodology consisted of assessing the presence and extent of the Eucalypt Woodlands TEC. Key TEC Factors were checked initially, and if a site failed to meet these criteria, no further checks were done, and the site was ranked as "Not Likely a TEC". However, if the site did meet these criteria, then the Contra-indicators and Condition Thresholds were checked Department of Climate Change, Energy, the Environment and Water (2025d).

Key TEC Factors:

- Crown cover of the tree canopy (>10 %, <10 %)
- Key species of the tree canopy are listed Key Eucalypt Species
- Cover of introduced and native understorey species
- Growth forms of native understorey species

Contra-indicators:

- Dominant mallee growth form of Eucalyptus species in tree canopy
- Dominant presence of non-Eucalyptus species in the tree canopy
- Presence of shrublands or herblands where the tree canopy is very sparse
- Dominance of Eucalyptus species that are restricted to granite outcrops

Condition Thresholds:

- Keighery (1994) Condition
- Introduced species understorey cover (<10 %, 10-30 %, 31-50 %, 51-70 %, >70 %)
- Mature tree (DBH >30 cm) presence
- Mature tree density (<5 trees per 0.5 ha, 5+ trees per 0.5 ha)
- Roadside patch width (native understorey) (<5 m, 5+ m)

5. DESKTOP RESULTS

5.1 Potential Threatened and Priority Flora

A total of 14 threatened flora has been listed as occurring, or potentially occurring, in the vicinity of the Kojonup Wind Farm survey area (DBCA 2025a, 2025b, DCCEEW 2025a, 2025c). Of the 14 potential threatened species, only two may be possible, *Eleocharis keigheryi* which occurs in freshwater creeks and claypans and *Gastrolobium lehmannii* which occurs on red clays and laterite on low hilltops of breakaways. If one considers their preferred habitats their potential decreases.

A total of 8 priority flora has been listed as occurring, or potentially occurring, in the vicinity of the Kojonup Wind Farm survey area (DBCA 2025a, 2025b). Six of these may occur, however in view of the restricted extent of native remnant vegetation and the avoidance of the native vegetation these potentials can again be reduced.

A summary of these species listings at state and federal levels can be found in Appendix B.

5.2 Potential Threatened and Priority Ecological Communities

Three listed Threatened Ecological Communities were delineated through the PMST (DCCEEW 2025cx) as potentially occurring in the area.

- Clay Pans of the Swan Coastal Plain (Critically Endangered) – potential in Buffer only
- Eucalypt Woodlands of the Western Australian Wheatbelt – potential within survey area
- Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia – potential in Buffer only

The Clay Pans occur well to the west of the survey area on completely different landforms and soils and not in the survey area.

The Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province are associated with different landforms and soils that are not in the survey area.

The Eucalypt Woodlands of the Western Australian Wheatbelt are in the vicinity of the survey area.

A review of Priority Ecological Communities as defined by DBCA (2025b) highlighted the possibility of the following community, namely:

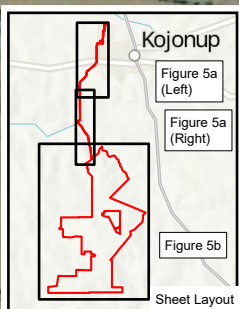
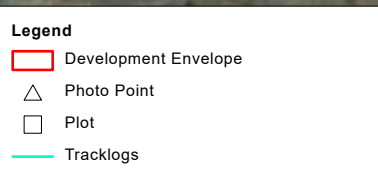
- Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs – potential within survey area

The Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs are in the vicinity of the survey area.

5.3 Field Survey

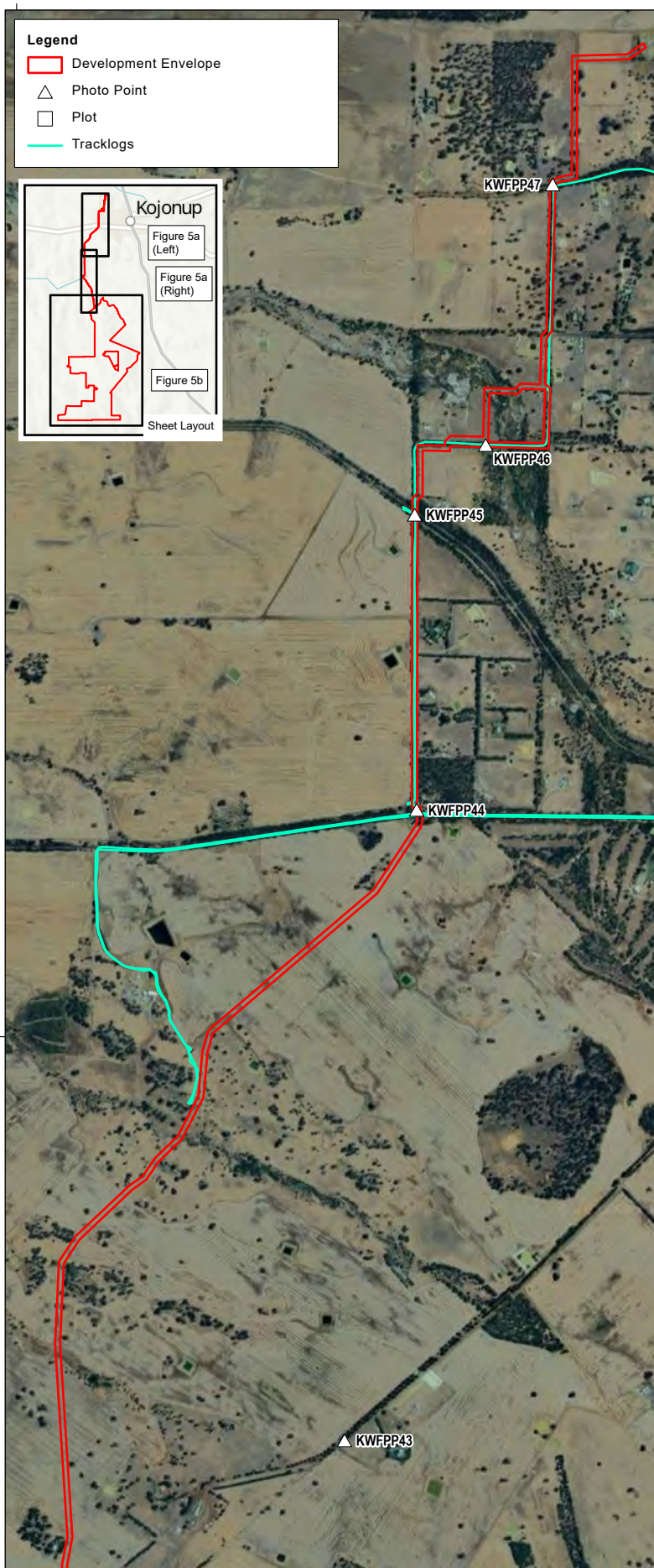
A total of detailed survey sites in the few remaining remnant areas along with assessments of relevés in the disturbed areas were used to assess the flora and vegetation of the Kojonup Wind Farm survey area. The survey efforts in 2023 and 2024 are summarized on Figures 3a and 3b.

510,000E



6,255,000N

510,000E



510,000E

6,252,000N

6,250,000N

6,255,000N

6,248,000N

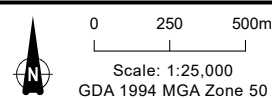
510,000E



6,252,000N

6,250,000N

6,248,000N



CAD Ref: a1868_F059_07

Date: October 2025

Rev: A

A4

Author: L. Matisse

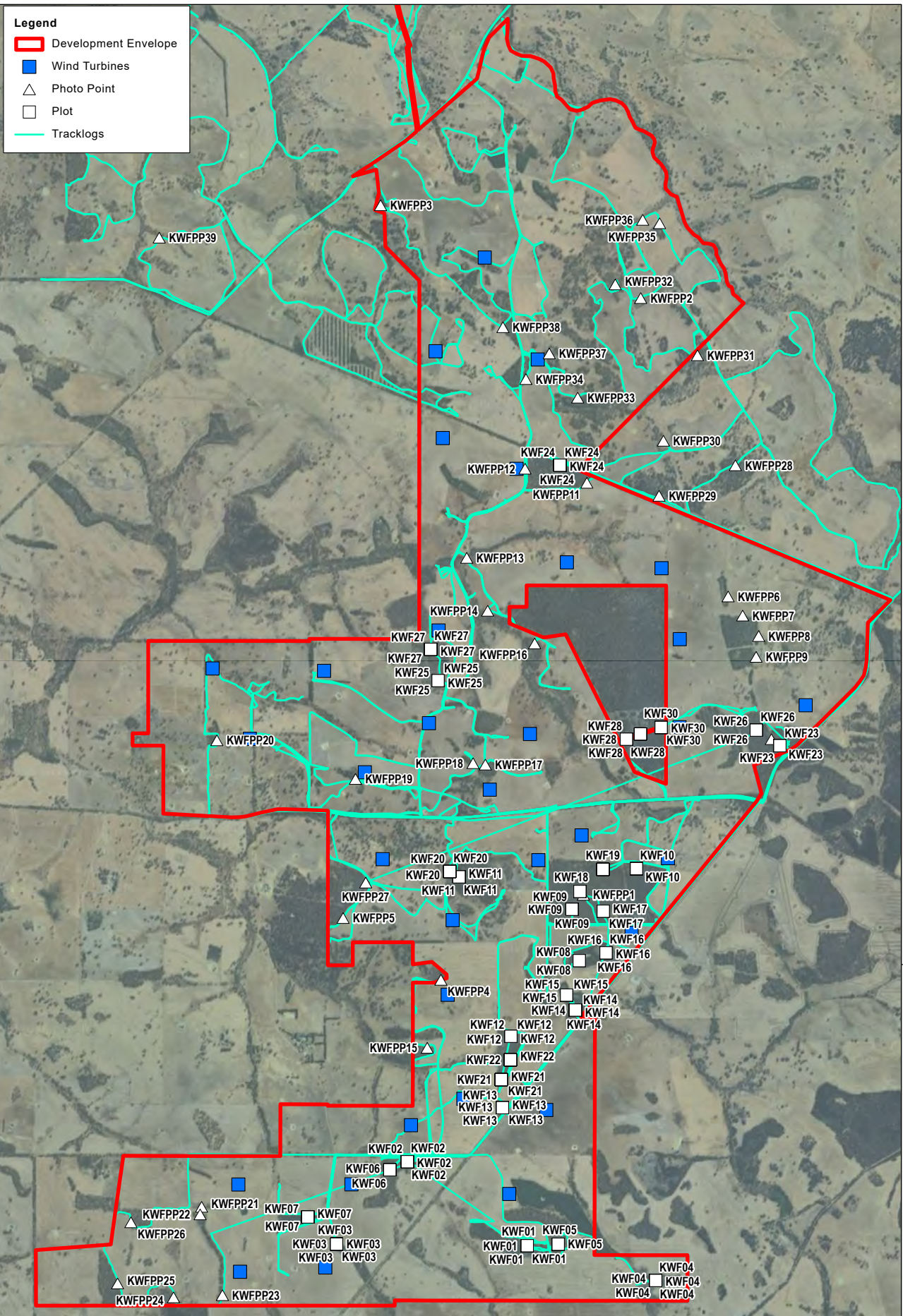
Ref:

Drawn: CAD Resources ~ www.cadresources.com.au

Kojonup Wind Farm Survey Effort Transmission Corridor

Figure:

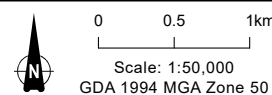
5a



- Legend**
- Development Envelope
 - Wind Turbines
 - △ Photo Point
 - Plot
 - Tracklogs

6,240,000N

6,240,000N



Kojonup Wind Farm Survey Effort

Figure:

5b

CAD Ref: a1868_F059_06			Author: L. Mattiske	Ref:
Date: October 2025	Rev: A	A4	Drawn: CAD Resources ~ www.cadresources.com.au	

5.4 Survey Limitations and Constraints

An assessment of the survey against a range of factors which may have had an impact on the outcomes of the present survey was made (Table 3). Based on this assessment, the present survey has not been subject to constraints which would affect the thoroughness of the survey, and the conclusions which have been formed.

Table 3: Potential Survey Limitations for Survey Area

Potential Survey Limitation	Impact on Survey
Sources of information and availability of contextual information (i.e. pre-existing background versus new material).	Not a constraint: The study was undertaken in the Southwest Forest Region and west of the Avon Wheatbelt Region (Beard 1990). In addition, the databases held at the State and National level were used to assess the potential flora and fauna values.
Scope (i.e. what life forms, etc., were sampled).	Not a constraint: Rainfall in 2023 and 2024 were lower than the longer-term average (Bureau of Meteorology 2025). In view of the lack of proposed disturbance on the native vegetation areas, this was not seen as a constraint on the assessment of the flora and vegetation values on the Kojonup Wind Farm survey area.
Proportion of flora collected and identified (based on sampling, timing and intensity).	Not a constraint: Proportion of flora covered is lower than in many projects as the areas of native remnant vegetation are being avoided. 17.3% of the recorded species were annuals. The turbines and associated access and infrastructure facilities have been located in the more disturbed areas, and the efforts have been undertaken to avoid as many trees as possible and also the remnants of native vegetation.
Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed).	Not a constraint: The information collected during the survey was sufficient to assess the vegetation and potential fauna and flora issues that may be present during the time of the survey.
Mapping reliability.	Not a constraint: Aerial photography of a suitable scale was used to map the project area. Sites were chosen in areas of remnant vegetation and where the options for access routes and infrastructure facilities and the turbines were going to be located. As the latter were largely in cleared and highly modified agricultural areas, the mapping was restricted by the lack of native species. The majority of the disturbance occurs on current access tracks within the properties and also in paddocks with a few remnant trees over introduced grasses and crop species.
Timing, weather, season, cycle.	Not a constraint: It is generally accepted that flora and vegetation surveys are conducted in spring following autumn rains in the Avon Wheatbelt (Environmental Protection Authority 2004). Surveys were undertaken over multiple years and in different seasons and in view of the lack of proposed disturbance to the remnant areas of native vegetation and the dominance of cleared or cropped areas this was not considered a constraint.
Disturbances (fire flood, accidental human intervention, etc.).	Not a constraint: Human-induced disturbances associated with mainly historical agricultural activities dominate the project areas.
Intensity (in retrospect, was the intensity adequate).	Not a constraint: The survey intensity was considered to have been thorough throughout the survey area. Sites were chosen in remnant vegetation and in areas that should be either avoided or potentially utilised for the project facilities.
Resources (i.e. were their adequate resources to complete the survey to the required standard).	Not a constraint: The available resources were adequate to complete the survey.
Access problems (i.e. ability to access survey area).	Not a constraint: Existing roads and tracks enabled adequate access to survey representative vegetation and remnant areas within the survey area. Where access was not available by car, it was easily traversed by foot.
Experience levels.	Not a constraint: All survey personnel had the appropriate training in sampling and identifying the flora of the region. Experienced botanists were consulted where plants could not be identified in the field and discussions were held with experienced zoologists.

6. FIELD RESULTS

6.1 Flora

A total of 179 vascular plant taxa from 119 plant genera and 45 plant families were recorded within the Kojonup Wind Farm survey area during 2023 and 2024. The main taxa were recorded within the Myrtaceae (21 taxa), Fabaceae (20 taxa), Poaceae (19 taxa), Proteaceae (15 taxa) and Asteraceae (12 taxa) families. The species recorded in Kojonup Wind Farm are summarized in Appendix C. 17.3% of the taxa recorded were annual species.

6.2 Threatened and Priority Flora

No threatened flora species pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)* and as listed by the Department of Biodiversity, Conservation and Attractions were recorded within the Kojonup Wind Farm survey area. No plant taxa listed as Threatened pursuant to Schedule 1 of the *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the survey within the proposed Kojonup Wind Farm survey area.

One Priority 4 species (*Xanthorrhoea brevistylis* P4) was recorded in the woodlands of *Eucalyptus wandoo* with patches of *Allocasuarina huegeliana* over low subshrubs and introduced grasses on sandy soils and near shallow granites on mid and upper slopes, see Figures 6a and 6b. This species was restricted in occurrence near the proposed facilities on the edges of a paddock and at the time of the development it should be feasible to avoid the plants.

6.3 Introduced (Exotic) Plant Species

A total of 21 introduced (exotic) taxa were recorded within the Kojonup Wind Farm survey area (Appendix C). All others are listed as Permitted - s11 for the whole of state (Western Australian Department of Primary Industries and Regional Development 2025a) and none of the species are Weeds of National Significance (WONS), DCCEEW (2025e).

6.4 Vegetation

Nine vegetation communities were defined and mapped within the Kojonup Wind Farm survey area, Figure 4. The native plant communities were restricted in occurrence due to the degree of land clearing and historical agricultural activities in the area. The design of the project layout avoided the more intact areas of native vegetation. The areas of intact and less disturbed native vegetation are intended to be avoided. The wind turbines are to be established in the cleared paddocks which are mainly degraded or completely degraded.

Nine vegetation communities are summarized below (Figures 6a and 6b):

- Ah1: Open woodland of *Allocasuarina huegeliana* with *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy-loams to clay loams on slopes and ridges.
- Ah2: Open woodland of *Allocasuarina huegeliana* with *Corymbia calophylla* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy-loams on slopes and ridges.

-
- Ah3: Open woodland of *Allocasuarina huegeliana* with *Eucalyptus rudis* over low undergrowth of grasses and herbs on fringes of creeklines on lower slopes with patches of granite near or on surface.
- E1: Open woodland of *Corymbia calophylla* with some patches of *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs sandy-loams on slopes and ridges
- E2: Open woodland of *Eucalyptus marginata* and *Corymbia calophylla* over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges
- E3: Open woodland of *Eucalyptus marginata* and *Corymbia calophylla* with some *Eucalyptus wandoo* patches over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges
- E4: Open woodland of *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges
- E5: Open woodland of *Eucalyptus rudis* with patches of *Corymbia calophylla* and *Eucalyptus wandoo* over grasses and herbs on lower moist sandy-loam clays on the slopes and with Paperbarks (*Melaleuca raphiophylla* and *Melaleuca cuticularis*) on the wetter lower slopes in gullies and creeklines
- E6: Open woodland of *Eucalyptus astringens* with patches of *Eucalyptus wandoo* over low undergrowth of grasses and herbs on slopes and ridges.
- Cl: Cleared
- PL: Plantation

The spatial extent of each mapping unit is summarized in Table 4. As such this is an over-estimate of the values as only several areas remain relatively undisturbed by agricultural activities. The latter is evident from the degree of clearing as reflected in the Cleared and Plantation categories in Table 4 and from the aerial images on Figures 6a and 6b.

510,000E

Legend

Development Envelope

Vegetation

Ah1 - Open woodland of *Allocasuarina huegeliana* with *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy-loams on slopes and ridges

Ah3 - Open woodland of *Allocasuarina huegeliana* with *Eucalyptus rudis* over low undergrowth of grasses and herbs on fringes of creeklines and on lower slopes with patches of granite near or on surface

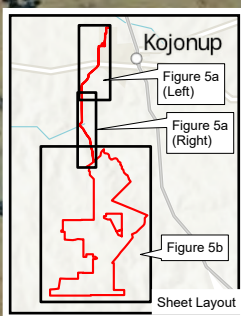
E1 - Open woodland of *Corymbia calophylla* with some patches of *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs sandy-loams on slopes and ridges

E4 - Open woodland of *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges

E5 - Open woodland of *Eucalyptus rudis* with *Corymbia calophylla* and *Eucalyptus wandoo* over grasses and herb on lower moist sandy-loam clays on the slopes and with *Melaleuca* species on the wetter lower slopes in gullies and creeklines

PL - Plantation

CL - Cleared with occasional paddock trees



6,255,000N

510,000E

510,000E

6,252,000N

6,250,000N

6,255,000N

6,248,000N

510,000E

6,252,000N

6,250,000N

6,248,000N



0 250 500m
Scale: 1:25,000
GDA 1994 MGA Zone 50



28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640

CAD Ref: a1868_F059_09

Date: October 2025

Rev: A

A4

Author: L. Mattiske

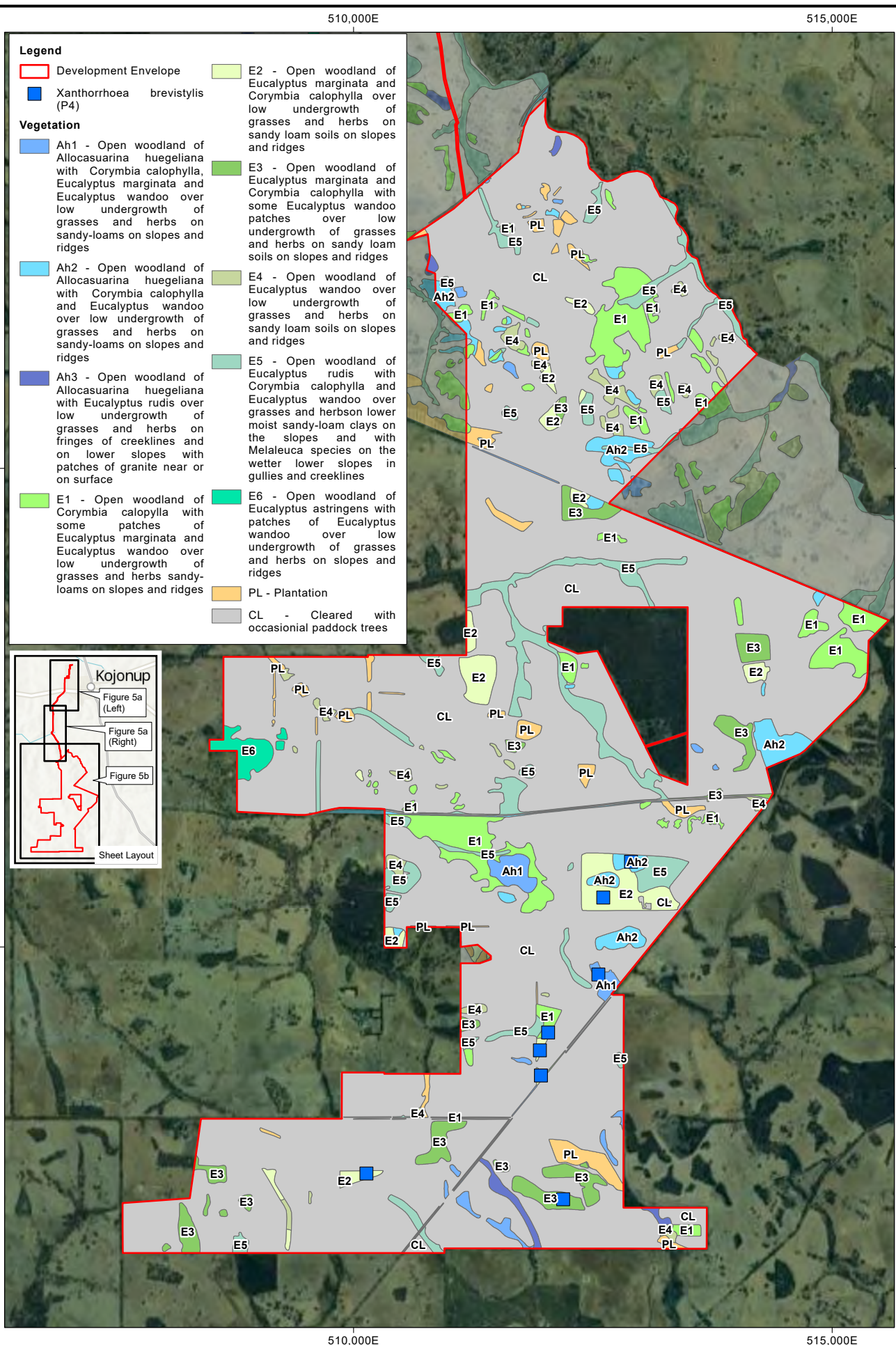
Ref:

Drawn: CAD Resources ~ www.cadresources.com.au

Kojonup Wind Farm Vegetation Mapping Transmission Corridor

Figure:

6a



Imagery: © OpenStreetMap (and) contributors, CC-BY-SA, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS © OpenStreetMap contributors, and the GIS User Community, Esri, CGIAR

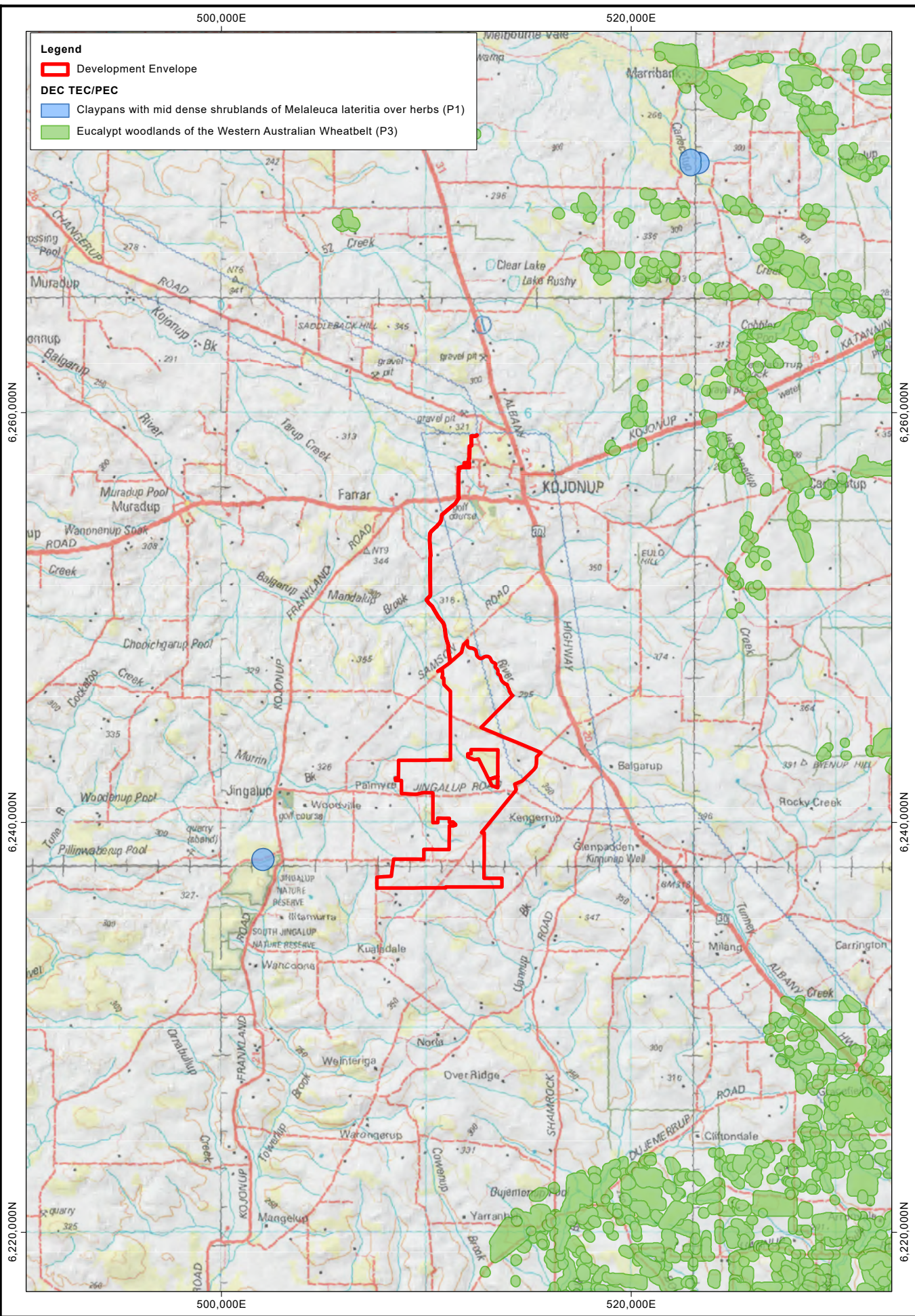
Table 4 : Summary of Representation of Vegetation on Kojonup Wind Farm

Vegetation Mapping Unit	Total Surveyed (ha)	Area (ha)	% of Survey Area
Ah1	48.05	41.45	1.09
Ah2	97.50	78.05	2.05
Ah3	87.99	13.00	0.34
E1	238.06	175.65	4.61
E2	95.64	83.73	2.20
E3	109.46	89.67	2.35
E4	81.99	45.17	1.18
E5	356.25	177.62	4.66
E6	39.65	19.67	4.61
PL	105.98	68.95	1.81
CL	4643.26	3021.05	79.21
Total	5903.83	3814.02	

6.5 Threatened and Priority Ecological Communities

The threatened ecological community "*Eucalypt Woodlands of the Western Australian Wheatbelt*" as defined by the Department of Climate Change, Energy, the Environment and Water 2025d) under the *Environment Protection and Biodiversity Conservation Act 1999* was not located in the Kojonup Wind Farm survey area, Figure 7. The priority ecological community "Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs" as delineated by the Department of Biodiversity, Conservation and Attractions (2025b) was located outside the Kojonup Wind Farm survey area, Figure 7.


The survey area occurs within the Jarrah Forest IBRA Region and the Avon Wheatbelt region occurs to the east of the survey area. Whilst some values of Eucalypt woodlands may extend westwards into the Jarrah Forest IBRA region it should be recognized that the areas of remnant bushland are being avoided in the proposed development on the project area. The few roadside verges that include some crossings of infrastructure support some native trees but all fall below the TEC criteria as they are less than 5m wide, they lack native plant cover and every effort was made to place alignments in the gaps between the trees, or the trees occurred on exposed or shallow granite outcrops and the condition of the vegetation was degraded to completely degraded.





0 2.5 5km

Scale: 1:250,000
GDA 1994 MGA Zone 50



Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640

CAD Ref: a1868_F059_04	Author: L. Mattiske	Ref:
Date: October 2025	Rev: A	A4
Drawn: CAD Resources ~ www.cadresources.com.au		

Kojonup Wind Farm Threatened Ecological Communities

Figure:

6.6 Vegetation Condition

The plant communities were very disturbed and had been largely grazed or cleared (Figure 8a and 8b and Table 5). Consequently, the majority (92.26%) of the survey area are completely degraded or degraded except for a few ridges in the eastern section of Kojonup Wind Farm survey area.

The survey effort was undertaken on the few remnant areas and during the field studies every effort was made to assist in the avoidance of these areas. The latter is particularly evident in the results illustrated in Figures 8a and 8b where the facilities have been designed to avoid most areas of remnant vegetation and paddock trees.

Table 5: Summary of Representation of Vegetation Condition on Kojonup Wind Farm

Vegetation Mapping Unit	Total Surveyed Area (ha)	Area (ha)	% of Survey Area
Excellent	65.85	65.85	1.73
Very Good	58.19	58.19	1.52
Good	229.43	171.55	4.49
Degraded	620.96	308.00	8.07
Completely Degraded	4929.37	3213.23	84.19
Total	5903.79	3816.82	

6.7 Tree Assessments

During the initial field work associated with planning the alignments and turbines by Mattiske Consulting, 151 trees were recorded with diameters at breast height greater than 30cm for *Eucalyptus wandoo* and diameters at breast height of greater than 50cm for *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus rudis*, Appendix D, Figure 9.

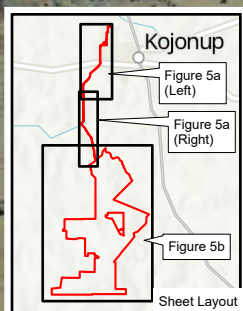
At the time of the assessment of the trees, an assessment was made of the potential fauna utilisation of the trees. The latter is discussed more fully by Jen Willcox in the Western Wildlife report (2025) for this project.

The potential for fauna usage is expanded in the Western Wildlife report (2025). Additional trees were recorded by Jen Willcox during additional fauna trips (see Western Wildlife report 2025) in the wider project area., Appendix D.

As indicated in results in Appendix D, 113 trees have the potential to be directly or indirectly impacted within the maximum boundary. It is expected that this total will be reduced markedly during the finalization of the operations facilities and also as the cable installations will be much narrower than the boundary as updated. Many of the trees may only need a pruning rather than removal.

Selected photographs are included in Appendix E to illustrate the degree of clearing and the few intact areas of native vegetation.

510,000E



6,255,000N

510,000E

510,000E

6,252,000N

6,250,000N

6,255,000N

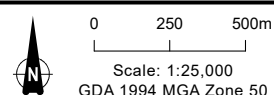
6,248,000N

510,000E

6,252,000N

6,250,000N

6,248,000N



CAD Ref: a1868_F059_11

Author: L. Mattiske

Ref:

Date: October 2025

Rev: A

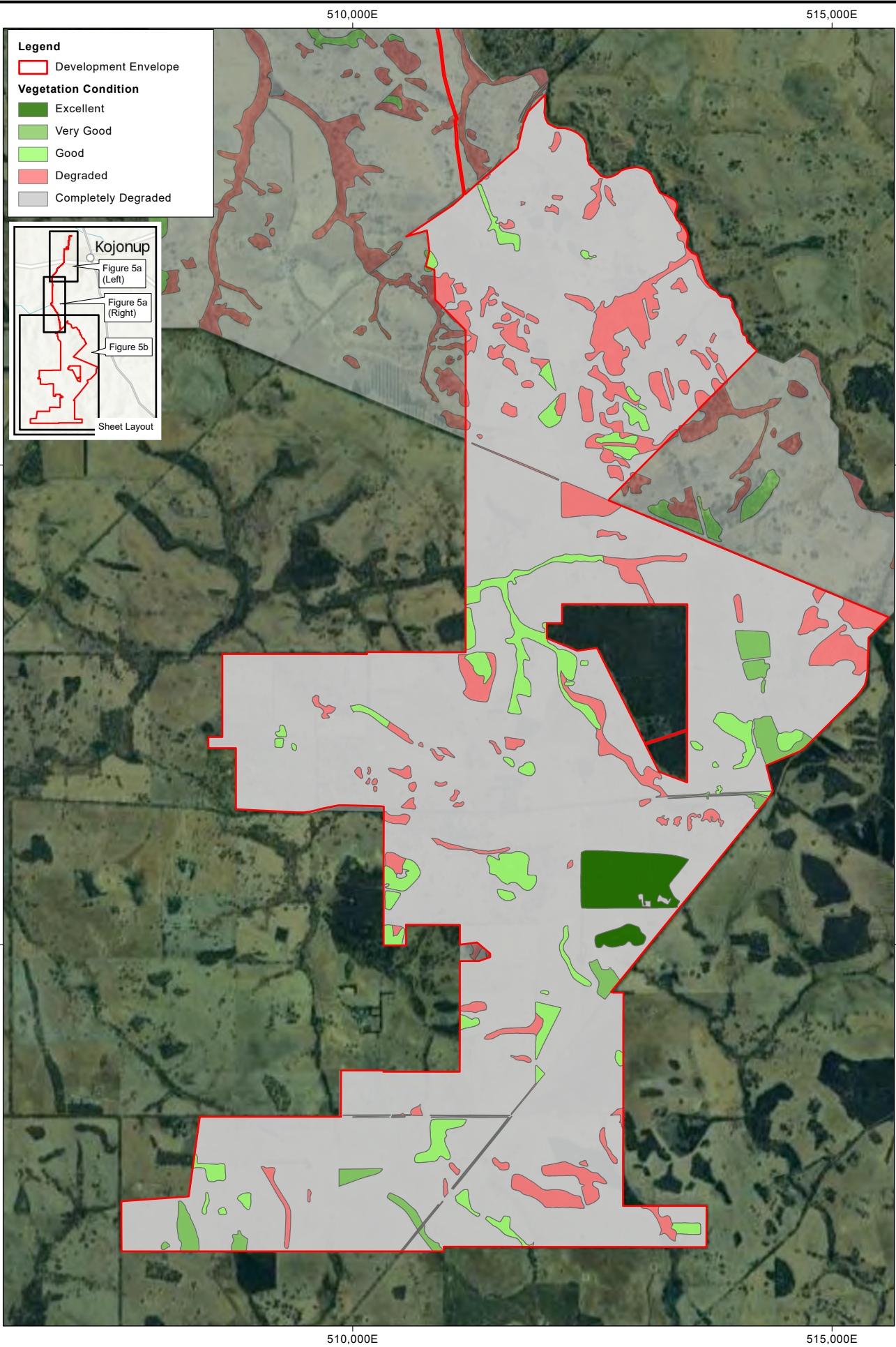
A4

Drawn: CAD Resources ~ www.cadresources.com.au

Kojonup Wind Farm Vegetation Condition Transmission Corridor

Figure:

8a



6,245,000N

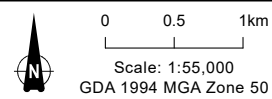
6,245,000N

6,240,000N

6,240,000N

510,000E

515,000E



Kojonup Wind Farm Vegetation Condition Wind Farm

Figure:

8b

CAD Ref: a1868_F059_10

Author: L. Mattiske

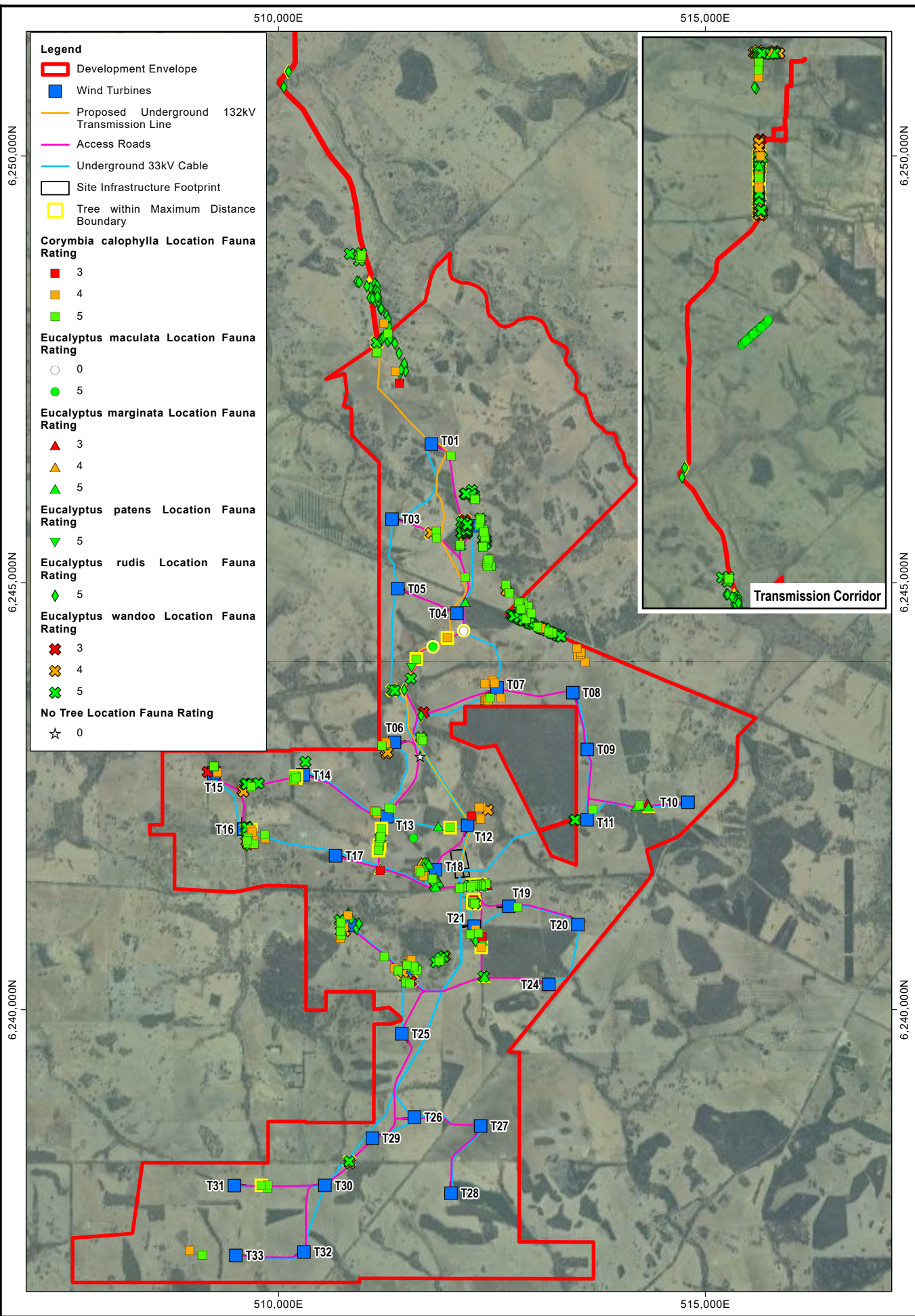
Ref:

Date: October 2025

Rev: A

A4

Drawn: CAD Resources ~ www.cadresources.com.au



0 0.6 1.1km

Scale: 1:60,000
GDA 1994 MGA Zone 50

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640

CAD Ref: a1868_F059_05		Author: L. Mattiske	Ref:
Date: November 2025	Rev: A	A4	Drawn: CAD Resources ~ www.cadresources.com.au

Kojonup Wind Farm Tree Locations

Figure:

7. DISCUSSION

Mattiske Consulting Pty Ltd was commissioned by the Kojonup Wind Farm Pty Ltd to undertake a review of the flora, vegetation and fauna values on the proposed Kojonup Wind Farm. The proposed development occurs primarily within cleared agricultural areas. The survey effort concentrated on desktop reviews, an assessment of the main remnants, paddock and roadside trees that may need pruning or clearing and roadside vegetation that may be disturbed in localised areas by vehicle movement and the installation of the wind farm facilities.

Survey effort was spread over multiple trips in February, July, November and December 2023 and January, July, September and October 2024 with a total of 23 field days. As the survey effort mainly included remnant trees in sheep paddocks and crop paddocks the seasonal conditions were less relevant. The few areas of remnant native vegetation which were less disturbed and that will not be directly impacted were assessed in detail despite being outside the proposed operational areas. The remnant vegetation assessments were undertaken by senior and experienced botanists from Mattiske Consulting. Dr Mattiske with Sarah Rankin (Kojonup Wind Farm Pty Ltd) and Jen Willcox (Western Wildlife) completed the assessments of trees that assisted in avoidance of many direct and indirect impacts during the design phases of the wind farm layout and associated infrastructure and access routes. As with many wind farm developments in agricultural areas it was feasible through early assessments to minimize the disturbances of the installation operations to degraded or completely degraded communities.

A total of 179 vascular plant taxa from 119 plant genera and 45 plant families were recorded within the Kojonup Wind Farm survey area during 2023 and 2024. The main taxa recorded were within the Myrtaceae (21 taxa), Fabaceae (20 taxa), Poaceae (19 taxa), Proteaceae (15 taxa) and Asteraceae (12 taxa) families. Of the 179 taxa, 17.3% were annual species and as such reflects the coverage of the flora.

Twenty-one introduced (weed) species were recorded in 2023 and 2024. None of the introduced species are declared pests (DPIRD 2025a) or Weeds of National Significance (DCCEEW 2025e).

No threatened flora species pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act (1950)* and as listed by the Department of Biodiversity, Conservation and Attractions were recorded within the Kojonup Wind Farm survey area. No plant taxa listed as Threatened pursuant to Schedule 1 of the *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the survey within the proposed Kojonup Wind Farm survey area.

One Priority 4 species (*Xanthorrhoea brevistylis* P4) was recorded in the woodlands of *Eucalyptus wandoo* with patches of *Allocasuarina huegeliana* over low subshrubs and introduced grasses on sandy soils and near shallow granites on mid and upper slopes. This species was restricted in occurrence near the proposed facilities on the edges of a paddock and at the time of the development it should be feasible to avoid the plants.

Nine vegetation communities were defined and mapped within the Kojonup Wind Farm survey area. The native plant communities were restricted in occurrence due to the degree of land clearing and historical agricultural activities in the area. The detailed analysis of the communities was restricted by the lack of understorey native species in most areas. The latter absence of many native understorey species reflected the historical agricultural activities in the area. The design of the project layout avoided the more intact areas of native vegetation. Every effort was made to avoid the areas of intact native vegetation. The wind turbines are to be established in the cleared paddocks which are mainly degraded or completely degraded.

The threatened ecological community "*Eucalypt Woodlands of the Western Australian Wheatbelt*" as defined by the Department of Climate Change, Energy, the Environment and Water 2004b) under the *Environment Protection and Biodiversity Conservation Act 1999* was not located in the Kojonup Wind Farm survey area.

The priority ecological community "Claypans with mid dense shrublands of *Melaleuca lateritia* over herbs" as delineated by the Department of Biodiversity, Conservation and Attractions (2025b) was located outside the Kojonup Wind Farm survey area.

The tree species include mainly *Eucalyptus wandoo*, *Eucalyptus rudis*, *Eucalyptus marginata* and *Corymbia calophylla*. Several areas of *Eucalyptus astringens* were recorded, however these stands are outside any direct or indirect impact areas. Although 151 trees were assessed by Matiske Consulting and a further 611 trees by Western Wildlife through diameter at breast height measurements and potential fauna activity only some of the trees are located near access routes, turbines and cable alignments. This planning has enabled a marked reduction in the potential trees that will need either pruning or removal.

As the proposal has minimal direct or indirect impact on the remnant areas of native vegetation, the impacts are not considered to be significant with the proposed layout of the wind turbines and the associated cables which primarily are within the degraded and completely degraded areas.

Should the development of the Kojonup Wind Farm go ahead the following recommendations are made as a means of minimizing the impacts of infrastructure activities on the flora, vegetation and fauna values in the area:

- Limit ground disturbance and clearing to designated areas and access routes, avoiding habitat trees (larger trees and trees with hollows) wherever possible;
- Maintain existing drainage systems, ensuring tracks and other infrastructure areas do not disrupt or divert historic water flow patterns;
- Remove and stockpile topsoil, log debris and leaf litter where possible for use in future rehabilitation programs. If possible, stockpiled topsoil should be directly replaced on disturbed areas;
- Minimise soil disturbance during clearing and practice standard vehicle hygiene to ensure introduced (exotic) species do not become established within the Kojonup Wind Farm survey area; and
- Minimize all threatening processes to native vegetation.

In summary, every effort was made to avoid any flora and vegetation values that may restrict the development. The main flora and vegetation values near the proposed operational areas may be minimized further during the final design and development stages. The key issues remain the isolated paddock and roadside trees that may need removal or minor pruning and the avoidance of the Priority 4 species in the southern areas on cable and track alignments.

8. ACKNOWLEDGEMENTS

The authors would like to thank Dr Sarah Rankin from Kojonup Wind Farm Pty Ltd and for their assistance with this project.

9. LIST OF PERSONNEL

The following Mattiske Consulting Pty Ltd personnel were involved in this project:

Name	Position	Project Involvement
Dr E M Mattiske	Managing Director & Principal Ecologist	Planning, Data Interpretation, Field Studies, Management & Reporting FB62000019-2
Mr Z Sims	Senior Botanist	Field work, Plant Identifications Flora Permit FB62000025-5
Ms L Cockram	Senior Botanist	Field work, Plant Identifications Flora Permit FB62000266-4
Ms L Ducki	Experienced Botanist	Fieldwork FB62000394-2
Ms M Pollock	Botanist	Fieldwork FB62000524

10. REFERENCES

- Beard, J.S. (1980) *A New Phytogeographic Map of Western Australia*. Western Australian Herbarium Notes Number 3: 37-58.
- Beard, J.S. (1990) *Plant Life of Western Australia*. Kangaroo Press, Kenthurst NSW.
- Beard, J.S., Beeston, G.R., Harvey, J.M., Hopkins, A.J.M., Shepherd, D.P. (2013) *The Vegetation of Western Australia at the 1:3,000,000 scale*. Explanatory memoir, maps, Second Edition.
- Beecham, B. (2001) *Avon Wheatbelt 2 (AW2 – Rejuvenated Drainage subregion)*. In: *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002*. Western Australian Government Department of Environment and Conservation, Perth, Western Australia.
- Biodiversity Conservation Act 2016*
- Biosecurity and Agriculture Management Act 2007*
- Biosecurity and Agriculture Management Regulations 2013*
- Bureau of Meteorology (2025) *Climate statistics for Australian sites*. <http://www.bom.gov.au/climate/averages/tables/ca_wa_names.shtml>
- Department of Biodiversity, Conservation and Attractions (2025a), *Wildlife conservation (threatened and priority flora) listings March and April 2025*, Minister for the Environment under section 2 of the BC Act. Available from: <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants>
- Department of Biodiversity, Conservation and Attractions (2025b), *Threatened and Priority Ecological Communities for Western Australia*. Available from: <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/wa-s-threatened-ecological-communities>.
- Department of Biodiversity, Conservation and Attractions (2025c), *Threatened flora, fauna and ecological communities database searches*. Available from: <https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/database-search-request-information-sheet.pdf>.
- Department of Biodiversity, Conservation and Attractions (2025d), Dandjoo biodiversity data platform. Available from: <https://bio/wa/gov.au/dandjoo>.

- Department of Biodiversity, Conservation and Attractions (2025e) *Florabase, the Western Australian Flora*. <<http://florabase.dpaw.wa.gov.au/>>
- Department of Climate Change, Energy, the Environment and Water (2025a) *Environment Protection and Biodiversity Conservation Act 1999 List of Threatened Flora*. <<http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora>>
- Department of Climate Change, Energy, the Environment and Water (2025b) *EPBC Act List of Threatened Ecological Communities*. <<http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl>>
- Department of Climate Change, Energy, the Environment and Water (2025c) *EPBC Act: Protected matters search tool*, Commonwealth of Australia. <<http://www.environment.gov.au/epbc/pmst/>>
- Department of Climate Change, Energy, the Environment and Water (2025d) *Draft Conservation Advice for eucalypt Woodlands of the Western Australian Wheatbelt*.
- Department of Climate Change, Energy, the Environment and Water (2025e), *Weeds of National Significance*. www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html.
- Department of Primary Industries and Regional Development (2025a) *Western Australian Organism List*. <<https://www.agric.wa.gov.au/organisms>>
- Department of Primary Industries and Regional Development (2025b) *Land System database*. Accessed from Department Primary Industries and Regional Development
- Environmental Protection Authority (2004) *Guidance for the Assessment of Environmental Factors. Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*. Environmental Protection Authority, Perth, 2004.
- Environment Protection and Biodiversity Conservation Act 1999* Cth
- Environmental Protection Act 1986* WA
- Environmental Protection Clearing of Native Vegetation Regulations 2004*
- Environmental Protection Environmentally Sensitive Areas Notice 2005*
- Environmental Protection Authority (2016a), *Environmental Factor Guideline: Flora and Vegetation*, Environmental Protection Authority, Western Australia.
- Environmental Protection Authority (2016b), *Technical Guidance – Flora and vegetation surveys for environmental impact assessment*, Environmental Protection Authority, Western Australia.
- Environmental Protection Authority (2023), *Statement of environmental principles, factors, objectives and aims of EIA (environmental impact assessment)*, Environmental Protection Authority, Western Australia.
- Myers, N., Mittermeier R.A., Mittermeier, C.G., da Fonseca, G.A.B., and Kent, J. (2000) *Biodiversity hotspots for conservation priorities*. Nature 403, 853-858.
- Thackway, R. & Cresswell, I.D. (1995), *An interim biogeographical regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program*, version 4.0, Australian Nature Conservation Agency, Canberra.
- Trudgen, M.E. (1988) *A Report on the Flora and Vegetation of the Port Kennedy Area*. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.
- Western Australian Herbarium (1998-), *FloraBase - the Western Australian Flora*, Department of Parks and Wildlife. Available from: <https://florabase.dpaw.wa.gov.au>. May 2023.
- Western Wildlife (2025). Kojonup Wind Farm: Vertebrate fauna, bird and bat survey 2023 - 2024. Unpublished report to Kojonup Wind Farm Pty Ltd.

APPENDIX A5: DEFINITION OF PRIORITY ECOLOGICAL COMMUNITIES
(Department of Biodiversity, Conservation and Attractions 2025b)

Category Code	Category
P1	<p>Poorly-known ecological communities</p> <p>Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.</p>
P2	<p>Poorly-known ecological communities</p> <p>Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.</p>
P3	<p>Poorly known ecological communities</p> <p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:</p> <p>(ii) Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.</p>
P4	<p>Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.</p>
P5	<p>Conservation Dependent ecological communities</p> <p>Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>

APPENDIX A6: CATEGORIES AND CONTROL OF DECLARED (PLANT) PESTS IN WESTERN AUSTRALIA (Department of Primary Industries and Regional Development 2025) (*Biosecurity and Agriculture Management Regulations 2013*)

Control Category	Control Measures
<p>C1 (Exclusion)</p> <p>‘(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented’</p> <p>Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.</p>	<p>In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p>C2 (Eradication)</p> <p>‘(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible’</p> <p>Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.</p>	<p>In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p>C3 (Management)</p> <p>‘(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to —</p> <p>(i) alleviate the harmful impact of the declared pest in the area; or</p> <p>(ii) reduce the number or distribution of the declared pest in the area; or</p> <p>(iii) prevent or contain the spread of the declared pest in the area.’</p> <p>Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.</p>	<p>In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to —</p> <p>(a) alleviate the harmful impact of the declared pest in the area for which it is declared; or</p> <p>(b) reduce the number or distribution of the declared pest in the area for which it is declared; or</p> <p>(c) prevent or contain the spread of the declared pest in the area for which it is declared.</p>

APPENDIX A7: DEFINITION OF STRUCTURAL FORMS OF AUSTRALIAN VEGETATION (Beard 1990)

Structural Forms of Australian Vegetation			
Growth Form of Tallest Stratum	Foliage Cover of Tallest Stratum		
	30 – 70%	10 – 30%	less than 10%
Tall Trees [greater than 30 m]	Tall Forest	Tall Woodland	Open Tall Forest
Medium Trees [10 – 30 m]	Forest	Woodland	Open Woodland
Low Trees [less than 10 m]	Low Forest	Low Woodland	Open Low Woodland
Tall Shrubs [greater than 2 m]	Thicket	Scrub	Open Scrub
Low Shrubs [less than 2 m]	Heath	Low Shrubland	Open Low Shrubland
Grassland [less than 1 m]	Closed Bunch Grassland	Open Bunch Grassland	Hummock Grassland

APPENDIX A8: DEFINITION OF VEGETATION CONDITION SCALE (Trudgen 1988)

Condition Rating	Description
Pristine (1)	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Excellent (2)	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Very Good (3)	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Good (4)	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded (5)	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded (6)	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

APPENDIX B: DESCRIPTION OF THREATENED AND PRIORITY FLORA SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE KOJONUP WIND FARM SURVEY AREA (^Department of Biodiversity, Conservation and Attractions 2025a, 2025e, #Department of Climate Change, the Environment and Water 2025a)

Species	Common Name	State Conservation Code ^	Federal Conservation Code #	Family	Description	Flowers	Habitat	Known from No. Specimens at State Herbarium	Likelihood of occurrence
<i>Adenanthos pungens</i> subsp. <i>effusus</i>	Sprawling Spiky Adenanthos	Threatened	Endangered	Proteaceae	prostrate shrub to 50 cm, forming large mats to 3 m wide	pink, Aug to Nov	white siliceous sand	30	Highly Unlikely, occurs north and southeast of Kojonup, soils not suitable on survey area
<i>Adenanthos pungens</i> subsp. <i>pungens</i>	Spiky Adenanthos	Threatened	Vulnerable	Proteaceae	erect shrub to 3 m	pink/red, Aug to Nov	white/grey or pink sand, rocky soils, gypsum on sand dunes, hillsides	32	Highly Unlikely, occurs south and east of Kojonup, soils not suitable on survey area
<i>Banksia oligantha</i>	Wagin Banksia	Threatened	Endangered	Proteaceae	non-lignotuberous shrub to 3 m	red & cream/orange-brown, Oct to Nov	yellow or yellow-brown sand	16	Highly Unlikely, occurs north of Kojonup with outlier in cultivation at Kings Park Perth, soils not suitable on survey area
<i>Caladenia dorrienii</i>	Cossack Spider Orchid	Threatened	Endangered	Orchidaceae	Tuberous, perennial, herb 0.1 to 0.2m high	White-cream-yellow, Sep to Nov	Clayey loam Moist sites adjacent to rivers and seasonal creeks	15	Unlikely, occurs southwest of Kojonup and extends northwards on eastern fringes of southwest forests
<i>Commersonia erythrogyna</i>	Trigwell's Rulingia	Threatened	Endangered	Fabaceae	erect, domed shrub to 1.5m	orange, yellow, red & purple, Sep to Oct	red clay and laterite, on low hilltops and breakaways	5	Highly Unlikely, occurs northwest of Kojonup with outlier in glasshouse at UWA near Perth

APPENDIX B: DESCRIPTION OF THREATENED AND PRIORITY FLORA SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE KOJONUP WIND FARM SURVEY AREA (^Department of Biodiversity, Conservation and Attractions 2025a, 2025e, #Department of Climate Change, the Environment and Water 2025a)

Species	Common Name	State Conservation Code ^	Federal Conservation Code #	Family	Description	Flowers	Habitat	Known from No. Specimens at State Herbarium	Likelihood of occurrence
<i>Conostylis drummondii</i>	Drummond's Conostylis	Threatened	Endangered	Haemodoraceae	Rhizomatous, tufted perennial, grass line or herb, 0.1 to 0.3m high.	Yellow Oct-Nov	White, grey or yellow sand, gravel	20	Highly Unlikely, occurs north of Kojonup
<i>Darwinia oxylepis</i>	Gillam's Bell	Threatened	Endangered	Myrtaceae	upright, dense shrub to 1.5 m	red, Aug to Nov	stony, peaty sand in rocky gullies.	31	Highly Unlikely, recorded north of Perth, but mainly in Stirling Ranges to south of Kojonup
<i>Diuris micrantha</i>	Dwarf Bee-orchid	Threatened	Vulnerable	Orchidaceae	tuberous, perennial, herb to 60 cm	yellow & brown, Sep to Oct	brown loamy clay in winter-wet swamps, in shallow water	10	Highly Unlikely, occurs on Swan Coastal Plain or north of Kojonup
<i>Drakaea micrantha</i>	Dwarf Hammer-orchid	Threatened	Vulnerable	Orchidaceae	Tuberous perennial herb 0.15m to 0.3m	Red and yellow, Sep to Oct	White grey sands	50	Highly Unlikely, occurs on Swan Coastal Plain or well south of Kojonup near Denmark and Albany
<i>Eleocharis keigheryi</i>		Threatened	Vulnerable	Cyperaceae	Rhizomatous, clumped perennial, grass-like or herb (sedge) to 0.4m high	Green, Aug to Nov	Clay, sandy-loam. Emergent in freshwater, creeks and claypans	59	Possible, however reduced likelihood as mainly north and northwest of Kojonup and a specialised emergent in freshwater, creeks and claypans
<i>Gastrolobium lehmannii</i>	Cranbrook Pea	Threatened	Vulnerable	Fabaceae	erect, domed shrub to 1.5 m	orange-yellow-red-purple, Sep to Oct	red clay, laterite on low hilltop of breakaway	20	Possible, recorded near Kojonup and also to south of Kojonup

APPENDIX B: DESCRIPTION OF THREATENED AND PRIORITY FLORA SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE KOJONUP WIND FARM SURVEY AREA (^Department of Biodiversity, Conservation and Attractions 2025a, 2025e, #Department of Climate Change, the Environment and Water 2025a)

Species	Common Name	State Conservation Code ^	Federal Conservation Code #	Family	Description	Flowers	Habitat	Known from No. Specimens at State Herbarium	Likelihood of occurrence
<i>Hemigenia ramosissima</i>	Branched Hemigenia	Threatened	Critically Endangered	Lamiaceae	slender shrub to 50 cm	blue-purple, Nov to Dec or Jan	lateritic soils, clay on granite outcrops	8	Unlikely, occurs north of Kojonup
<i>Roycea pycnophylloides</i>	Saltmat	Threatened	Endangered	Chenopodiaceae	Perennial herb, forms densely branched mats to 1m high	White, Sep	Sandy soils, clays and saline flats	60	Highly Unlikely as occurs on sandy soils, clays and saline flats and occurs north-east and north of Kojonup
<i>Verticordia fimbrialepis</i> subsp. <i>fimbrialepis</i>	Shy Featherflower	Threatened	Endangered	Myrtaceae	shrub to 70 cm	pink-white, Oct to Dec or Jan	gravelly sandy or clayey soils on flats, road verges	39	Unlikely, occurs north of Kojonup from Wheatbelt into northern Jarrah forest
<i>Banksia subpinnatifida</i> var. <i>imberbis</i>		Priority 2	-	Proteaceae	erect or straggling, non-lignotuberous shrub to 1.5m	yellow, Sep to Oct	lateritic soils	17	Unlikely, mainly to west on eastern fringes of main south-west forests with a few outliers in Wheatbelt
<i>Melaleuca ordinifolia</i>		Priority 2	-	Myrtaceae	compact, spreading shrub to 1.5 m	white-cream, Aug to Oct.	sandy loam or clay	24	Possible, recorded near Kojonup, but mainly occurs south east and south of Kojonup
<i>Acacia ataxiphylla</i> subsp. <i>ataxiphylla</i>		Priority 3	-	Fabaceae	prostrate, sprawling shrub to 50 cm	yellow, Nov to Dec or Jan	gravelly clay loam, white/grey sand on flats, roadsides	11	Possible, recorded near survey area with main populations near Albany and north-west of Kojonup

APPENDIX B: DESCRIPTION OF THREATENED AND PRIORITY FLORA SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE KOJONUP WIND FARM SURVEY AREA (^Department of Biodiversity, Conservation and Attractions 2025a, 2025e, #Department of Climate Change, the Environment and Water 2025a)

Species	Common Name	State Conservation Code ^	Federal Conservation Code #	Family	Description	Flowers	Habitat	Known from No. Specimens at State Herbarium	Likelihood of occurrence
<i>Calectasia obtusa</i>		Priority 3	-	Dasypogonaceae	erect, low herb to 40 cm	blue, Aug to Sep	sand, clay loam, gravel and laterite soils	23	Possible but mainly east of Kojonup and south-east along southern coastal areas
<i>Melaleuca micromera</i>		Priority 3	-	Myrtaceae	shrub to 4 m	yellow, Sep & Oct	gravelly sandy loam or clay	16	Unlikely, mainly south east of survey area with a few outliers
<i>Caladenia integra</i>	Mantis Orchid, Smooth-lipped Spider Orchid	Priority 4	-	Orchidaceae	tuberous, perennial, herb to 50 cm	green, red	clayey loam on granite outcrops, rocky slopes	54	Possible near granite outcrops and on clayey-loams
<i>Caladenia x triangularis</i>	Shy Spider Orchid	Priority 4	-	Orchidaceae	tuberous, perennial herb	yellow	loam, low lying areas	8	Possible, mainly south west and south of survey area
<i>Schoenus natans</i>	Floating Bog-rush	Priority 4	-	Cyperaceae	aquatic annual herb (sedge) to 30 cm	brown, Oct	winter-wet depressions often associated with clayey soils	66	Possible, but restricted to winter-wet depressions that reduces likelihood

APPENDIX C: VASCULAR PLANT SPECIES RECORDED ON THE KOJONUP WIND FARM SURVEY AREA

Note: * denotes introduced species;

P1-P4 denote Priority Flora Species (Department of Biodiversity, Conservation and Attractions 2025e)

FAMILY	SPECIES
AMARANTHACEAE	<i>Ptilotus manglesii</i>
APIACEAE	<i>Daucus glochidatus</i> <i>Xanthosia candida</i> <i>Xanthosia huegelii</i>
ARALIACEAE	<i>Trachymene pilosa</i>
ASPARAGACEAE	<i>Chamaescilla corymbosa</i> <i>Chamaexeros serra</i> <i>Dichopogon capillipes</i> <i>Laxmannia squarrosa</i> <i>Lomandra hermaphrodita</i> <i>Lomandra sericea</i> <i>Lomandra</i> sp. <i>Sowerbaea laxiflora</i> <i>Thysanotus</i> sp. <i>Thysanotus</i> sp. (climbing)
ASTERACEAE	<i>Gnephosis drummondii</i> <i>Helichrysum leucopsideum</i> * <i>Hypochaeris glabra</i> <i>Lagenophora huegelii</i> <i>Podolepis gracilis</i> <i>Pterochaeta paniculata</i> <i>Siemssenian capillaris</i> <i>Siloxerus filifolius</i> * <i>Sonchus oleraceus</i> <i>Trichocline spathulata</i> * <i>Ursinia anthemoides</i> <i>Asteraceae</i> sp.
BORYACEAE	<i>Borya</i> sp.
CAMPANULACEAE	<i>Wahlenbergia</i> sp.
CASUARINACEAE	<i>Allocasuarina huegeliana</i> <i>Allocasuarina humilis</i> <i>Allocasuarina microstachya</i> <i>Casuarina obesa</i>
CELASTRACEAE	<i>Stackhousia pubescens</i>
CENTROLEPIDACEAE	<i>Centrolepis aristata</i>
COLCHICACEAE	<i>Burchardia monantha</i>
CYPERACEAE	<i>Cyathochaeta avenacea</i> <i>Lepidosperma</i> sp. <i>Mesomelaena stygia</i> <i>Morelotia octandra</i> <i>Netrostylis</i> sp. Jarrah Forest (R. Davis 7391) <i>Schoenus minulatus</i> <i>Schoenus</i> sp.
DILLENACEAE	<i>Hibbertia commutata</i> <i>Hibbertia gracilipes</i>

APPENDIX C: VASCULAR PLANT SPECIES RECORDED ON THE KOJONUP WIND FARM SURVEY AREA

Note: * denotes introduced species;

P1-P4 denote Priority Flora Species (Department of Biodiversity, Conservation and Attractions 2025e)

FAMILY	SPECIES
DROSERACEAE	<i>Drosera</i> sp. (climbing)
ELAEOCARPACEAE	<i>Tetratheca virgata</i>
ERICACEAE	<i>Andersonia parvifolia</i> <i>Leucopogon capitellatus</i> <i>Leucopogon sprengelioides</i> <i>Leucopogon tamariscinus</i> <i>Styphelia pallida</i> <i>Styphelia tenuiflora</i> Ericaceae sp.
FABACEAE	<i>Acacia drummondii</i> <i>Acacia nervosa</i> <i>Bossiaea eriocarpa</i> <i>Bossiaea ornata</i> <i>Daviesia lancifolia</i> <i>Daviesia preissii</i> <i>Dillwynia laxiflora</i> <i>Gastrolobium calycinum</i> <i>Gastrolobium dorrienii</i> <i>Gastrolobium praemorsum</i> <i>Gastrolobium spinosum</i> <i>Gompholobium knightianum</i> <i>Gompholobium marginatum</i> <i>Gompholobium preissii</i> <i>Hovea chorizemifolia</i> <i>Jacksonia condensata</i> <i>Kennedia prostrata</i> <i>Pultenaea ericifolia</i> <i>Sphaerolobium</i> sp. * <i>Trifolium campestre</i>
GOODENIACEAE	<i>Dampiera alata</i> <i>Goodenia caerulea</i> <i>Lechenaultia biloba</i> <i>Lechenaultia</i> sp. <i>Scaevola calliptera</i>
HAEMODORACEAE	<i>Conostylis aculeata</i> <i>Conostylis setigera</i> <i>Haemodorum</i> sp.
HEMEROCALLIDACEAE	<i>Dianella revoluta</i> <i>Stypandra glauca</i> <i>Tricoryne humilis</i> <i>Tricoryne tenella</i> <i>Tricoryne</i> sp.
IRIDACEAE	<i>Patersonia occidentalis</i> * <i>Romulea rosea</i>
LAMIACEAE	<i>Hemigenia incana</i>
LAURACEAE	<i>Cassytha</i> sp.
LINACEAE	<i>Linum marginale</i>

APPENDIX C: VASCULAR PLANT SPECIES RECORDED ON THE KOJONUP WIND FARM SURVEY AREA

Note: * denotes introduced species;

P1-P4 denote Priority Flora Species (Department of Biodiversity, Conservation and Attractions 2025e)

FAMILY	SPECIES
LOGANIACEAE	<i>Logania micrantha</i> <i>Phyllangium</i> sp.
MALVACEAE	<i>Thomasia foliosa</i>
MYRTACEAE	<i>Babingtonia camphorosmae</i> <i>Beaufortia schaueri</i> <i>Calothamnus sanguineus</i> <i>Corymbia calophylla</i> <i>Eucalyptus astringens</i> subsp. <i>astringens</i> PL <i>Eucalyptus maculata</i> <i>Eucalyptus marginata</i> <i>Eucalyptus patens</i> <i>Eucalyptus rudis</i> <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> <i>Hypocalymma angustifolium</i> <i>Kunzea micrantha</i> <i>Kunzea recurva</i> <i>Kunzea</i> sp. <i>Leptospermopsis erubescens</i> <i>Melaleuca cuticularis</i> <i>Melaleuca preissiana</i> <i>Melaleuca raphiophylla</i> <i>Melaleuca</i> sp. <i>Verticordia habrantha</i>
ORCHIDACEAE	<i>Caladenia</i> sp. * <i>Disa bracteata</i> <i>Pterostylis</i> sp. <i>Thelymitra</i> sp.
OXALIDACEAE	<i>Oxalis exilis</i> <i>Oxalis</i> sp.
PHYLLANTHACEAE	<i>Lysiandra calycina</i>
PITTOSPORACEAE	<i>Billardiera fusiformis</i> <i>Billardiera variifolia</i>
PLANTAGINACEAE	* <i>Plantago bellardii</i>
POACEAE	* <i>Aira caryophyllea</i> <i>Amphipogon debilis</i> <i>Austrostipa elegantissima</i> <i>Austrostipa mollis</i> <i>Austrostipa</i> sp. * <i>Avena</i> sp. * <i>Briza maxima</i> * <i>Briza minor</i> * <i>Bromus diandrus</i> * <i>Ehrharta calycina</i> * <i>Ehrharta longiflora</i> * <i>Hordeum leporinum</i> * <i>Lolium rigidum</i> <i>Neurachne alopecuroidea</i> * <i>Polypogon monspeliensis</i> <i>Rytidosperma acerosum</i> <i>Rytidosperma caespitosum</i>

APPENDIX C: VASCULAR PLANT SPECIES RECORDED ON THE KOJONUP WIND FARM SURVEY AREA

Note: * denotes introduced species;

P1-P4 denote Priority Flora Species (Department of Biodiversity, Conservation and Attractions 2025e)

FAMILY	SPECIES
POACEAE (continued)	<i>Rytidosperma</i> sp. * <i>Vulpia myuros</i> forma <i>megalura</i>
POLYGALACEAE	<i>Comesperma</i> sp.
POLYGONACEAE	* <i>Rumex acetosella</i>
PRIMULACEAE	* <i>Lysimachia arvensis</i>
PROTEACEAE	<i>Banksia armata</i> var. <i>armata</i> <i>Banksia bipinnatifida</i> <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i> <i>Banksia fraseri</i> var. <i>fraseri</i> <i>Banksia grandis</i> <i>Banksia sessilis</i> <i>Grevillea pulchella</i> <i>Grevillea wilsonii</i> <i>Hakea brownii</i> <i>Hakea lissocarpa</i> <i>Hakea trifurcata</i> <i>Hakea undulata</i> <i>Persoonia striata</i> <i>Petrophila squamata</i> sp. Northern (J. Monks 40) <i>Petrophile divaricata</i>
PTERIDACEAE	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>
RESTIONACEAE	<i>Desmocladius asper</i> <i>Desmocladius fasciculatus</i>
RHAMNACEAE	<i>Cryptandra myriantha</i> <i>Stenanthemum emarginatum</i> <i>Trymalium ledifolium</i>
RUBIACEAE	<i>Opercularia vaginata</i>
RUTACEAE	<i>Boronia fastigiata</i>
STYLIDIACEAE	<i>Stylidium affine</i> <i>Stylidium amoenum</i> <i>Stylidium dichotomum</i> <i>Stylidium piliferum</i> <i>Stylidium repens</i> <i>Stylidium</i> sp.
THYMELAEACEAE	<i>Pimelea brevifolia</i> subsp. <i>brevifolia</i> <i>Pimelea</i> sp.
XANTHORRHOEACEAE	P4 <i>Xanthorrhoea brevistylis</i>

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	510829	6238220	1	Eucalyptus wandoo	60	H	5	No Hollows	Within Max Disturbance Boundary
GDA94	510836	6238200	2	Eucalyptus wandoo	113	VS	4	Hollows Regent Parrot Nesting, 1J and 1M to east too small and stump	
GDA94	509869	6237906	3	Corymbia calophylla	160	H	5	No Hollows	
GDA94	509878	6237944	4	Corymbia calophylla	94	H	5	No Hollows, in paddock	
GDA94	509800	6237940	5	Corymbia calophylla	60	H	5	No Hollows	Within Max Disturbance Boundary
GDA94	508960	6237174	6	Corymbia calophylla	100	H	4	Hollows	
GDA94	509110	6237124	7	Corymbia calophylla	81	H	5	No Hollows	
GDA94	512408	6240383	8	Eucalyptus marginata	72	H	4	Hollows	Within Max Disturbance Boundary
GDA94	512415	6240385	9	Eucalyptus marginata	52	H	5	No Hollows	
GDA94	512403	6240391	10	Eucalyptus wandoo	35	H	5	No Hollows	
GDA94	512376	6240728	11	Corymbia calophylla	139	H	4	No Hollows west side	Within Max Disturbance Boundary
GDA94	512278	6241255	12	Corymbia calophylla	71	H	5	No Hollows, in paddock	Within Max Disturbance Boundary
GDA94	512281	6241258	13	Corymbia calophylla	76	H	4	Hollows, in paddock	Within Max Disturbance Boundary
GDA94	512277	6241267	14	Corymbia calophylla	59	H	5	No Hollows	Within Max Disturbance Boundary
GDA94	512290	6241248	15	Corymbia calophylla	79	H	5	No Hollows, looking east	Within Max Disturbance Boundary
GDA94	512301	6241241	16	Corymbia calophylla	75	H	5	No Hollows, looking east	Within Max Disturbance Boundary
GDA94	512305	6241242	17	Eucalyptus wandoo	74	H	5	No Hollows, looking east	Within Max Disturbance Boundary
GDA94	512806	6241197	18	Corymbia calophylla	140	H	5	No Hollows	
GDA94	512392	6241448	19	Eucalyptus wandoo	78	H	5	No Hollows, SE of Road, Paddock, in row	
GDA94	512395	6241448	20	Eucalyptus marginata	76	H	3	Hollows, in row, SE side	Within Max Disturbance Boundary
GDA94	512398	6241448	21	Eucalyptus marginata	112	H	5	No Hollows, in row, SE side	
GDA94	512397	6241466	22	Corymbia calophylla	50	H	5	No Hollows, in row, SE side	

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512429	6241470	23	Eucalyptus wandoo	62	H	5	No Hollows, next row, north side	
GDA94	512426	6241469	24	Eucalyptus wandoo	48	H	5	No Hollows, next row, north side	
GDA94	512436	6241472	25	Corymbia calophylla	67	H	5	No Hollows, next row, north side	
GDA94	512448	6241458	26	Eucalyptus marginata	181	H	3	Hollows on south side	
GDA94	512366	6241467	27	Corymbia calophylla	61	H	5	No Hollows, on north side	Within Max Disturbance Boundary
GDA94	512357	6241466	28	Corymbia calophylla	115	H	5	No Hollows, on north side	Within Max Disturbance Boundary
GDA94	512367	6241449	29	Eucalyptus wandoo	79	SS	5	No Hollows on South Side	
GDA94	512373	6241450	30	Corymbia calophylla	73	SS	5	Near access track to farm	
GDA94	512334	6241462	31	Corymbia calophylla	81	SS	5	Cable crossing north side	Within Max Disturbance Boundary
GDA94	512324	6241460	32	Corymbia calophylla	60	SS	5	Cable crossing north side	
GDA94	512308	6241445	33	Corymbia calophylla	80	H	5	South side	
GDA94	512300	6241458	34	Corymbia calophylla	100	H	5	Road Crossing	
GDA94	512289	6241289	35	Corymbia calophylla	148	VS	3	North	Within Max Disturbance Boundary
GDA94	512282	6241443	36	Corymbia calophylla	91	H	5	South side	
GDA94	512276	6241456	37	Corymbia calophylla	81	SS	5	North	Within Max Disturbance Boundary
GDA94	512279	6241458	38	Corymbia calophylla	70	SS	5	North	Within Max Disturbance Boundary
GDA94	512266	6241439	39	Eucalyptus marginata	105	DO	5	South side	
GDA94	512256	6241438	40	Corymbia calophylla	56	S	5	South side	
GDA94	512257	6241451	41	Eucalyptus wandoo	45	H	5	Photo East and then west	
GDA94	512242	6241451	42	Eucalyptus wandoo	40	SS	5	Photo East	
GDA94	512236	6241450	43	Eucalyptus wandoo	34	SS	5	Photo west	
GDA94	512151	6241428	44	Corymbia calophylla	71	SS	5	South side	
GDA94	512122	6241423	45	Corymbia calophylla	51	VS	5	South	
GDA94	512121	6241438	46	Eucalyptus marginata	64	VS	5	North	
GDA94	511241	6240622	47	Corymbia calophylla	132	SS	5		
GDA94	511939	6240616	48	Eucalyptus wandoo	49	S	5		
GDA94	511952	6240622	49	Eucalyptus wandoo	69	SS	4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511901	6240605	50	Eucalyptus wandoo	50	S	5		
GDA94	511898	6240573	51	Corymbia calophylla	110	SS	5		
GDA94	511884	6240568	52	Corymbia calophylla	54	S	5		
GDA94	511847	6240553	53	Eucalyptus wandoo	39	H	5		
GDA94	509845	6242004	54	Corymbia calophylla	103	SS	4		
GDA94	509841	6242046	55	Corymbia calophylla	98	VVS	5		
GDA94	509580	6242566	56	Eucalyptus wandoo	81	SS	4	Near planted trees and fence juncture	
GDA94	509593	6242554	57	Eucalyptus wandoo	56	S	4		
GDA94	509670	6242638	58	Eucalyptus wandoo	60	VS	4		
GDA94	509612	6242639	59	Eucalyptus wandoo	40	SS	5		
GDA94	509619	6242644	60	Eucalyptus wandoo	53	SS	5		
GDA94	509623	6242643	61	Eucalyptus wandoo	37	S	5		
GDA94	509627	6242641	62	Eucalyptus wandoo	39	SS	5		
GDA94	509683	6242612	63	Corymbia calophylla	92	SS	5		
GDA94	509767	6242646	64	Eucalyptus wandoo	87	SS	5		
GDA94	509771	6242649	65	Eucalyptus wandoo	66	S	5		
GDA94	511196	6241655	66	Eucalyptus marginata	83	SS	5		Within Max Disturbance Boundary
GDA94	511195	6241626	67	Corymbia calophylla	102	SS	3		
GDA94	512162	6245713	68	Eucalyptus wandoo	79	S	5		
GDA94	512144	6245712	69	Eucalyptus wandoo	67	SS	5	west side	
GDA94	512158	6245667	70	Eucalyptus wandoo	93	SS	4	east of road through bush	
GDA94	512160	6245647	71	Eucalyptus wandoo	56	SS	4	east of road through bush	
GDA94	512142	6245588	72	Eucalyptus wandoo	57	SS	5	west side	
GDA94	512151	6245587	73	Eucalyptus wandoo	31	SS	5	east side	
GDA94	512153	6245578	74	Eucalyptus wandoo	57	DO	4	east side	
GDA94	512137	6245485	75	Eucalyptus marginata	89	VS	4		
GDA94	512128	6245444	76	Corymbia calophylla	107	H	5		
GDA94	512140	6245441	77	Eucalyptus marginata	66	SS	5		
GDA94	512123	6245429	78	Eucalyptus marginata	48	SS	5		
GDA94	511850	6245604	79	Corymbia calophylla	138	SS	5		
GDA94	511788	6245584	80	Eucalyptus wandoo	68	SS	4		Within Max Disturbance Boundary
GDA94	511852	6245521	81	Corymbia calophylla	178	H	5		
GDA94	512190	6245060	82	Corymbia calophylla	108	H	5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512191	6244775	83	Eucalyptus marginata	69	H	5		
GDA94	512170	6244438	84	Eucalyptus maculata	0	H	0	planted and clearing	Within Max Disturbance Boundary
GDA94	511981	6244355	85	Corymbia calophylla	145	H	4		Within Max Disturbance Boundary
GDA94	511810	6244249	86	Eucalyptus maculata	90	H	5	pruning needed	Within Max Disturbance Boundary
GDA94	511615	6244105	87	Corymbia calophylla	116	SS	5		Within Max Disturbance Boundary
GDA94	511583	6242009	88	Eucalyptus maculata	90	S	5	planted	
GDA94	511563	6244006	89	Eucalyptus patens	80	SS	5		
GDA94	511552	6243882	90	Eucalyptus wandoo	80	SS	5		
GDA94	511476	6243746	91	Eucalyptus rudis	107	H	5	Near Melaleuca cuticularis	Within Max Disturbance Boundary
GDA94	511336	6243742	92	Eucalyptus wandoo	80	H	5	Gap across creek	Within Max Disturbance Boundary
GDA94	511364	6243737	93	Eucalyptus wandoo	38	SS	5	South Creek	
GDA94	511669	6243449	94	Eucalyptus rudis	81	S	5	Western	Within Max Disturbance Boundary
GDA94	511671	6243447	95	Eucalyptus rudis	88	S	5	Eastern	Within Max Disturbance Boundary
GDA94	511702	6243483	96	Eucalyptus wandoo	88	S	3	East of creek	
GDA94	511674	6243176	97	Corymbia calophylla	82	SS	5		
GDA94	511672	6243184	98	Corymbia calophylla	58	SS	5		
GDA94	511670	6243184	99	Corymbia calophylla	58	SS	5		
GDA94	511671	6243186	100	Eucalyptus wandoo	78	S	5		
GDA94	511689	6243151	101	Corymbia calophylla	137	SS	5		
GDA94	511661	6242968	102	No Trees	0		0	Creek crossing no trees	
GDA94	511874	6242147	103	Eucalyptus marginata	121	SS	5		
GDA94	512012	6242132	104	Corymbia calophylla	88	SS	5		Within Max Disturbance Boundary
GDA94	511185	6241926	105	Corymbia calophylla	86	S	5	East	Within Max Disturbance Boundary

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511185	6241910	106	Corymbia calophylla	75	SS	5	East	Within Max Disturbance Boundary
GDA94	511172	6241862	107	Corymbia calophylla	105	SS	5	West	Within Max Disturbance Boundary
GDA94	511194	6242012	108	Eucalyptus wandoo	54	S	5		
GDA94	511188	6242010	109	Corymbia calophylla	62	S	5		
GDA94	511189	6242006	110	Corymbia calophylla	65	VS	5		
GDA94	511200	6242026	111	Corymbia calophylla	64	SS	5		
GDA94	511207	6242121	112	Corymbia calophylla	97	VVS	5		Within Max Disturbance Boundary
GDA94	510205	6242712	113	Corymbia calophylla	112	SS	5		
GDA94	510208	6242732	114	Corymbia calophylla	74	SS	5		Within Max Disturbance Boundary
GDA94	510214	6242733	115	Corymbia calophylla	84	DO	5		Within Max Disturbance Boundary
GDA94	510185	6242740	116	Corymbia calophylla	61	SS	5		
GDA94	513466	6242218	117	Eucalyptus wandoo	42	S	5		
GDA94	513477	6242224	118	Eucalyptus wandoo	40	SS	5		
GDA94	513683	6242340	119	Corymbia calophylla	118	SS	5		
GDA94	514194	6242385	120	Eucalyptus marginata	114	SS	5		
GDA94	514231	6242398	121	Corymbia calophylla	124	SS	5		
GDA94	514326	6242414	122	Eucalyptus marginata	140	SS	3		
GDA94	514336	6242377	123	Eucalyptus marginata	110	D	5		Within Max Disturbance Boundary
GDA94	511881	6241490	124	Eucalyptus marginata	104	SS	5		
GDA94	511877	6241497	125	Eucalyptus marginata	66	SS	5		
GDA94	511841	6241441	126	Eucalyptus marginata	148	SS	5		
GDA94	511834	6241454	127	Eucalyptus wandoo	60	SS	5		
GDA94	511148	6247687	128	Corymbia calophylla	109	SS	4		
GDA94	511154	6247699	129	Corymbia calophylla	125	SS	5		
GDA94	511153	6247815	130	Eucalyptus wandoo	51	SS	5	2 stems	Within Max Disturbance Boundary
GDA94	510922	6248526	131	Eucalyptus rudis	79	S	5	2 stems	
GDA94	510948	6248524	132	Eucalyptus rudis	79	VS	5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Mattiske Consulting									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	510838	6248850	133	Eucalyptus wandoo	0	D	5		
GDA94	510947	6248776	134	Eucalyptus wandoo	0	SS	5		
GDA94	510958	6248799	135	Corymbia calophylla	109	SS	5		
GDA94	510971	6248826	136	Corymbia calophylla	91	SS	5	Wandoo on edge of photo	
GDA94	510976	6248838	137	Corymbia calophylla	73	SS	5		
GDA94	510970	6248865	138	Eucalyptus wandoo	47	SS	5	2 stems	
GDA94	510064	6250805	139	Eucalyptus rudis	62	VS	5		
GDA94	510119	6250985	140	Eucalyptus rudis	70	SS	5		Within Max Disturbance Boundary
Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511569	6257277	141	Eucalyptus wandoo	35		3		
GDA94	511561	6259022	142	Eucalyptus wandoo	60		3		
GDA94	511574	6259026	143	Unknown	60		3		
GDA94	511587	6259065	144	Unknown	70		3		
GDA94	511580	6255950	145	Eucalyptus wandoo	70		3		
GDA94	511582	6259070	146	Unknown	75		3		
GDA94	511588	6259041	147	Unknown	85		3		
GDA94	512388	6240854	148	Corymbia calophylla	95		3		
GDA94	512348	6242406	149	Eucalyptus rudis	95		3		
GDA94	511591	6257341	150	Eucalyptus wandoo	95		3		
GDA94	511591	6257340	151	Eucalyptus wandoo	110		3		
GDA94	511608	6255885	152	Eucalyptus wandoo	110		3		
GDA94	511400	6240457	153	Corymbia calophylla	130		3		
GDA94	512262	6242266	154	Corymbia calophylla	145		3		
GDA94	511606	6255870	155	Eucalyptus wandoo	145		3		
GDA94	509172	6242780	156	Eucalyptus wandoo	210		3	Very large wandoo. Multiple hollows of various sizes. No chewmarks observed.	
GDA94	512413	6245491	157	Eucalyptus wandoo	55		3		
GDA94	512827	6244580	158	Eucalyptus wandoo	60		3		
GDA94	512202	6245573	159	Eucalyptus wandoo	65		3		
GDA94	512195	6245629	160	Eucalyptus wandoo	75		3		
GDA94	511418	6247335	161	Corymbia calophylla	90		3		
GDA94	513195	6244419	162	Eucalyptus wandoo	95		3		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511864	6259048	163	Eucalyptus wandoo	30		4		
GDA94	509633	6241973	164	Eucalyptus wandoo	35		4		
GDA94	509629	6242040	165	Eucalyptus wandoo	40		4		
GDA94	509643	6242039	166	Eucalyptus wandoo	40		4		
GDA94	511477	6259023	167	Eucalyptus wandoo	40		4		
GDA94	511478	6259023	168	Eucalyptus wandoo	40		4		
GDA94	511569	6257140	169	Eucalyptus wandoo	40		4		
GDA94	511577	6257310	170	Eucalyptus wandoo	40		4		
GDA94	511534	6259028	171	Eucalyptus wandoo	45		4		
GDA94	511887	6259050	172	Eucalyptus wandoo	45		4		
GDA94	511903	6259022	173	Eucalyptus wandoo	45		4		
GDA94	511514	6258294	174	Eucalyptus rudis	50		4		
GDA94	512306	6242388	175	Eucalyptus rudis	50		4		
GDA94	509632	6242033	176	Eucalyptus wandoo	50		4		
GDA94	509640	6242038	177	Eucalyptus wandoo	50		4		
GDA94	509642	6242060	178	Eucalyptus wandoo	50		4		
GDA94	511509	6240523	179	Eucalyptus wandoo	50		4		
GDA94	511631	6256998	180	Eucalyptus wandoo	50		4		
GDA94	511801	6259007	181	Eucalyptus wandoo	50		4		
GDA94	511970	6259011	182	Eucalyptus wandoo	50		4		
GDA94	511126	6242327	183	Corymbia calophylla	55		4		
GDA94	511836	6241544	184	Eucalyptus marginata	55		4		
GDA94	512306	6242389	185	Eucalyptus rudis	55		4		
GDA94	512306	6242389	186	Eucalyptus rudis	55		4		
GDA94	511580	6256755	187	Eucalyptus wandoo	55		4		
GDA94	511925	6259018	188	Eucalyptus wandoo	55		4		
GDA94	511969	6259015	189	Eucalyptus wandoo	55		4		
GDA94	511970	6259013	190	Eucalyptus wandoo	55		4		
GDA94	511134	6242320	191	Corymbia calophylla	60		4		
GDA94	511823	6259047	192	Eucalyptus marginata	60		4		
GDA94	511515	6258339	193	Eucalyptus rudis	60		4		
GDA94	511506	6259023	194	Eucalyptus wandoo	60		4		
GDA94	511614	6255925	195	Eucalyptus wandoo	60		4		
GDA94	511635	6255923	196	Eucalyptus wandoo	60		4		
GDA94	510731	6241009	197	Corymbia calophylla	65		4		
GDA94	511152	6242318	198	Corymbia calophylla	65		4		
GDA94	511214	6243092	199	Corymbia calophylla	65		4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511579	6256232	200	Eucalyptus wandoo	65		4		
GDA94	511610	6255924	201	Eucalyptus wandoo	65		4		
GDA94	511612	6255968	202	Eucalyptus wandoo	65		4		
GDA94	511613	6255925	203	Eucalyptus wandoo	65		4		
GDA94	511621	6255894	204	Eucalyptus wandoo	65		4		
GDA94	510743	6240874	205	Corymbia calophylla	70		4		
GDA94	511159	6242296	206	Corymbia calophylla	70		4		
GDA94	511255	6243135	207	Corymbia calophylla	70		4		
GDA94	512420	6243622	208	Corymbia calophylla	70		4		
GDA94	511830	6241533	209	Eucalyptus marginata	70		4		
GDA94	511503	6258302	210	Eucalyptus rudis	70		4		
GDA94	509636	6241975	211	Eucalyptus wandoo	70		4		
GDA94	511549	6240576	212	Corymbia calophylla	75		4		
GDA94	511584	6257021	213	Eucalyptus wandoo	75		4		
GDA94	511611	6255923	214	Eucalyptus wandoo	75		4		
GDA94	509642	6241941	215	Corymbia calophylla	80		4		
GDA94	510817	6241102	216	Corymbia calophylla	80		4		
GDA94	511263	6243121	217	Corymbia calophylla	80		4		
GDA94	512432	6243623	218	Corymbia calophylla	80		4		
GDA94	512456	6243619	219	Corymbia calophylla	80		4		
GDA94	509628	6241970	220	Eucalyptus wandoo	80		4		
GDA94	509641	6242059	221	Eucalyptus wandoo	80		4		
GDA94	511348	6243039	222	Unknown	80		4		
GDA94	511570	6258779	223	Corymbia calophylla	85		4		
GDA94	512380	6242376	224	Corymbia calophylla	85		4		
GDA94	512478	6243649	225	Corymbia calophylla	85		4		
GDA94	511257	6243039	226	Eucalyptus wandoo	85		4		
GDA94	511266	6242995	227	Eucalyptus wandoo	85		4		
GDA94	511281	6243011	228	Eucalyptus wandoo	85		4		
GDA94	511592	6256098	229	Eucalyptus wandoo	85		4		
GDA94	510739	6240871	230	Corymbia calophylla	90		4		
GDA94	511350	6243039	231	Unknown	90		4		
GDA94	511559	6240579	232	Corymbia calophylla	90		4		
GDA94	511572	6258787	233	Corymbia calophylla	90		4		
GDA94	511600	6257026	234	Corymbia calophylla	90		4		
GDA94	511647	6241636	235	Corymbia calophylla	90		4		
GDA94	512311	6240935	236	Corymbia calophylla	90		4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511515	6258338	237	Eucalyptus rudis	90		4		
GDA94	511548	6259013	238	Eucalyptus wandoo	90		4		
GDA94	510768	6240964	239	Corymbia calophylla	95		4		
GDA94	511567	6258828	240	Corymbia calophylla	95		4		
GDA94	511736	6259039	241	Unknown	100		4		
GDA94	511505	6240520	242	Corymbia calophylla	100		4		
GDA94	512437	6243643	243	Corymbia calophylla	100		4		
GDA94	512457	6243635	244	Corymbia calophylla	100		4		
GDA94	512462	6243621	245	Corymbia calophylla	100		4		
GDA94	510781	6240920	246	Eucalyptus wandoo	100		4		
GDA94	511570	6257279	247	Eucalyptus wandoo	100		4		
GDA94	511582	6257012	248	Eucalyptus wandoo	100		4		
GDA94	511584	6256974	249	Eucalyptus wandoo	100		4		
GDA94	510727	6240836	250	Corymbia calophylla	105		4		
GDA94	512349	6242364	251	Corymbia calophylla	105		4		
GDA94	512361	6242411	252	Eucalyptus rudis	105		4		
GDA94	511563	6258551	253	Corymbia calophylla	110		4		
GDA94	511301	6247862	254	Eucalyptus rudis	110		4		
GDA94	510185	6242686	255	Corymbia calophylla	110		4		
GDA94	511125	6242325	256	Corymbia calophylla	110		4		
GDA94	512478	6243649	257	Corymbia calophylla	110		4		
GDA94	512509	6243852	258	Corymbia calophylla	110		4		
GDA94	511708	6241697	259	Eucalyptus marginata	110		4		
GDA94	511712	6241696	260	Eucalyptus marginata	110		4		
GDA94	512458	6242339	261	Eucalyptus wandoo	110		4		
GDA94	511566	6258742	262	Corymbia calophylla	115		4		
GDA94	512523	6243841	263	Corymbia calophylla	115		4		
GDA94	511564	6258547	264	Corymbia calophylla	120		4		
GDA94	512459	6243621	265	Corymbia calophylla	120		4		
GDA94	510769	6240964	266	Corymbia calophylla	125		4		
GDA94	512524	6243840	267	Corymbia calophylla	125		4		
GDA94	511687	6241721	268	Eucalyptus marginata	125		4		
GDA94	509638	6241946	269	Eucalyptus rudis	125		4		
GDA94	511482	6258337	270	Eucalyptus rudis	125		4		
GDA94	511562	6255894	271	Eucalyptus wandoo	125		4		
GDA94	511570	6257280	272	Eucalyptus wandoo	125		4		
GDA94	511606	6257020	273	Unknown	125		4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	509284	6242778	274	Corymbia calophylla	130		4		
GDA94	511361	6240482	275	Corymbia calophylla	130		4		
GDA94	511403	6240458	276	Corymbia calophylla	130		4		
GDA94	511676	6241726	277	Eucalyptus marginata	130		4		
GDA94	511749	6241737	278	Eucalyptus marginata	130		4		
GDA94	511509	6259024	279	Eucalyptus wandoo	130		4		
GDA94	511555	6259065	280	Eucalyptus wandoo	130		4		
GDA94	509710	6242036	281	Corymbia calophylla	135		4		
GDA94	512510	6243852	282	Corymbia calophylla	135		4		
GDA94	511572	6257175	283	Eucalyptus wandoo	135		4		
GDA94	509713	6241937	284	Corymbia calophylla	140		4		
GDA94	511648	6241638	285	Corymbia calophylla	140		4		
GDA94	512536	6243823	286	Corymbia calophylla	140		4		
GDA94	512277	6242230	287	Eucalyptus rudis	145		4		
GDA94	512352	6242419	288	Eucalyptus rudis	150		4		
GDA94	512452	6242303	289	Eucalyptus rudis	165		4		
GDA94	511699	6241565	290	Corymbia calophylla	170		4		
GDA94	509644	6241931	291	Eucalyptus wandoo	180		4		
GDA94	511512	6240313	292	Corymbia calophylla	185		4		
GDA94	511809	6241531	293	Corymbia calophylla	185		4		
GDA94	512370	6242234	294	Corymbia calophylla	185		4		
GDA94	512419	6243820	295	Corymbia calophylla	185		4		
GDA94	511700	6241672	296	Eucalyptus marginata	185		4		
GDA94	512243	6242361	297	Eucalyptus rudis	185		4		
GDA94	512273	6242392	298	Eucalyptus rudis	185		4		
GDA94	512608	6243651	299	Corymbia calophylla	195		4		
GDA94	512260	6242332	300	Eucalyptus rudis	195		4		
GDA94	509617	6241903	301	Eucalyptus rudis	210		4		
GDA94	509691	6242082	302	Corymbia calophylla	215		4		
GDA94	512199	6245622	303	Eucalyptus wandoo	35		4		
GDA94	512212	6245655	304	Eucalyptus wandoo	40		4		
GDA94	513072	6244470	305	Eucalyptus wandoo	45		4		
GDA94	512181	6245705	306	Eucalyptus wandoo	45		4		
GDA94	512670	6244907	307	Eucalyptus wandoo	45		4		
GDA94	511301	6247943	308	Eucalyptus rudis	50		4		
GDA94	511127	6248481	309	Eucalyptus rudis	50		4		
GDA94	512266	6246032	310	Eucalyptus wandoo	50		4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512413	6245498	311	Eucalyptus wandoo	50		4		
GDA94	511233	6248189	312	Eucalyptus rudis	55		4		
GDA94	512401	6245422	313	Corymbia calophylla	55		4		
GDA94	512748	6244614	314	Eucalyptus wandoo	55		4		
GDA94	512456	6245226	315	Corymbia calophylla	55		4		
GDA94	512218	6245671	316	Eucalyptus wandoo	55		4		
GDA94	512207	6245627	317	Eucalyptus wandoo	55		4		
GDA94	511156	6248483	318	Eucalyptus rudis	60		4		
GDA94	512817	6244767	319	Corymbia calophylla	60		4		
GDA94	512455	6245224	320	Corymbia calophylla	60		4		
GDA94	512429	6245459	321	Eucalyptus wandoo	60		4		
GDA94	512810	6244585	322	Eucalyptus wandoo	60		4		
GDA94	511229	6248133	323	Eucalyptus rudis	65		4		
GDA94	511133	6248441	324	Eucalyptus rudis	70		4		
GDA94	512773	6244605	325	Eucalyptus wandoo	70		4		
GDA94	512208	6245597	326	Eucalyptus wandoo	70		4		
GDA94	512417	6245488	327	Eucalyptus wandoo	70		4		
GDA94	511510	6247458	328	Eucalyptus rudis	75		4		
GDA94	511310	6247843	329	Eucalyptus rudis	75		4		
GDA94	512211	6245590	330	Eucalyptus wandoo	75		4		
GDA94	511227	6248181	331	Eucalyptus rudis	80		4		
GDA94	511107	6248498	332	Eucalyptus rudis	80		4		
GDA94	511161	6248509	333	Eucalyptus rudis	80		4		
GDA94	511477	6247502	334	Eucalyptus rudis	80		4		
GDA94	513280	6244381	335	Eucalyptus wandoo	80		4		
GDA94	512799	6244591	336	Eucalyptus wandoo	80		4		
GDA94	511489	6247475	337	Eucalyptus rudis	85		4		
GDA94	511163	6248348	338	Eucalyptus rudis	90		4		
GDA94	513085	6244467	339	Eucalyptus wandoo	90		4		
GDA94	512852	6244563	340	Eucalyptus wandoo	90		4		
GDA94	511485	6247497	341	Eucalyptus rudis	95		4		
GDA94	513593	6244072	342	Corymbia calophylla	95		4		
GDA94	513300	6244374	343	Eucalyptus wandoo	95		4		
GDA94	512201	6245692	344	Eucalyptus wandoo	95		4		
GDA94	511270	6248156	345	Eucalyptus rudis	100		4		
GDA94	513507	6244139	346	Corymbia calophylla	105		4		
GDA94	513079	6244467	347	Corymbia calophylla	105		4		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	513116	6244456	348	Eucalyptus wandoo	110		4		
GDA94	512918	6244718	349	Corymbia calophylla	120		4		
GDA94	511238	6248038	350	Corymbia calophylla	130		4		
GDA94	511071	6248433	351	Eucalyptus rudis	130		4		
GDA94	513543	6244161	352	Corymbia calophylla	140		4		
GDA94	513544	6244180	353	Corymbia calophylla	150		4		
GDA94	513499	6244229	354	Corymbia calophylla	150		4		
GDA94	511372	6247472	355	Corymbia calophylla	170		4		
GDA94	511252	6247985	356	Eucalyptus rudis	215		4		
GDA94	511585	6255949	357	Eucalyptus wandoo	30		5		
GDA94	511802	6259006	358	Eucalyptus wandoo	30		5		
GDA94	509627	6242082	359	Eucalyptus wandoo	35		5		
GDA94	511549	6259021	360	Eucalyptus wandoo	35		5		
GDA94	511558	6259026	361	Eucalyptus wandoo	35		5		
GDA94	511610	6255967	362	Eucalyptus wandoo	35		5		
GDA94	511622	6259014	363	Eucalyptus wandoo	35		5		
GDA94	509633	6242139	364	Eucalyptus wandoo	40		5		
GDA94	509633	6242140	365	Eucalyptus wandoo	40		5		
GDA94	511720	6259015	366	Eucalyptus wandoo	45		5		
GDA94	511733	6259015	367	Eucalyptus wandoo	45		5		
GDA94	511754	6259015	368	Eucalyptus wandoo	45		5		
GDA94	511812	6259003	369	Eucalyptus wandoo	45		5		
GDA94	511326	6242351	370	Corymbia calophylla	50		5		
GDA94	511598	6240468	371	Corymbia calophylla	50		5		
GDA94	511233	6253382	372	Eucalyptus maculata	50		5		
GDA94	511234	6253367	373	Eucalyptus maculata	50		5		
GDA94	511254	6253403	374	Eucalyptus maculata	50		5		
GDA94	511383	6253517	375	Eucalyptus maculata	50		5		
GDA94	511653	6253738	376	Eucalyptus maculata	50		5		
GDA94	511709	6253805	377	Eucalyptus maculata	50		5		
GDA94	511869	6259017	378	Eucalyptus marginata	50		5		
GDA94	511514	6258338	379	Eucalyptus rudis	50		5		
GDA94	511635	6256997	380	Eucalyptus wandoo	50		5		
GDA94	511685	6259012	381	Eucalyptus wandoo	50		5		
GDA94	511700	6259013	382	Eucalyptus wandoo	50		5		
GDA94	511730	6259010	383	Eucalyptus wandoo	50		5		
GDA94	511871	6259016	384	Eucalyptus wandoo	50		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511405	6240457	385	Corymbia calophylla	55		5		
GDA94	511341	6253461	386	Eucalyptus maculata	55		5		
GDA94	511389	6253502	387	Eucalyptus maculata	55		5		
GDA94	511428	6253558	388	Eucalyptus maculata	55		5		
GDA94	511443	6253570	389	Eucalyptus maculata	55		5		
GDA94	511489	6253594	390	Eucalyptus maculata	55		5		
GDA94	511504	6253622	391	Eucalyptus maculata	55		5		
GDA94	511597	6253705	392	Eucalyptus maculata	55		5		
GDA94	511611	6253719	393	Eucalyptus maculata	55		5		
GDA94	511723	6253818	394	Eucalyptus maculata	55		5		
GDA94	511703	6259015	395	Eucalyptus wandoo	55		5		
GDA94	511213	6243091	396	Corymbia calophylla	60		5		
GDA94	511495	6240322	397	Corymbia calophylla	60		5		
GDA94	511663	6241613	398	Corymbia calophylla	60		5		
GDA94	511252	6253383	399	Eucalyptus maculata	60		5		
GDA94	511296	6253423	400	Eucalyptus maculata	60		5		
GDA94	511296	6253439	401	Eucalyptus maculata	60		5		
GDA94	511328	6253449	402	Eucalyptus maculata	60		5		
GDA94	511472	6253596	403	Eucalyptus maculata	60		5		
GDA94	511505	6253603	404	Eucalyptus maculata	60		5		
GDA94	511547	6253662	405	Eucalyptus maculata	60		5		
GDA94	511563	6253658	406	Eucalyptus maculata	60		5		
GDA94	511627	6253735	407	Eucalyptus maculata	60		5		
GDA94	511638	6253744	408	Eucalyptus maculata	60		5		
GDA94	511698	6253777	409	Eucalyptus maculata	60		5		
GDA94	511741	6253814	410	Eucalyptus maculata	60		5	Planted	
GDA94	511241	6243103	411	Eucalyptus marginata	60		5		
GDA94	510721	6241046	412	Eucalyptus wandoo	60		5		
GDA94	510733	6240916	413	Eucalyptus wandoo	60		5		
GDA94	511602	6259023	414	Eucalyptus wandoo	60		5		
GDA94	511634	6259016	415	Eucalyptus wandoo	60		5		
GDA94	511803	6259006	416	Eucalyptus wandoo	60		5		
GDA94	509644	6241944	417	Corymbia calophylla	65		5		
GDA94	511147	6242318	418	Corymbia calophylla	65		5		
GDA94	511213	6243091	419	Corymbia calophylla	65		5		
GDA94	511281	6253409	420	Eucalyptus maculata	65		5		
GDA94	511354	6253492	421	Eucalyptus maculata	65		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511474	6253578	422	Eucalyptus maculata	65		5		
GDA94	511532	6253628	423	Eucalyptus maculata	65		5		
GDA94	511533	6253648	424	Eucalyptus maculata	65		5		
GDA94	511549	6253643	425	Eucalyptus maculata	65		5		
GDA94	511638	6253726	426	Eucalyptus maculata	65		5		
GDA94	511682	6253764	427	Eucalyptus maculata	65		5		
GDA94	511715	6241736	428	Eucalyptus marginata	65		5		
GDA94	511839	6241535	429	Eucalyptus marginata	65		5		
GDA94	510317	6242902	430	Eucalyptus wandoo	65		5		
GDA94	509247	6242845	431	Corymbia calophylla	70		5		
GDA94	511496	6240322	432	Corymbia calophylla	70		5		
GDA94	511564	6240502	433	Corymbia calophylla	70		5		
GDA94	511570	6258836	434	Corymbia calophylla	70		5		
GDA94	511583	6240496	435	Corymbia calophylla	70		5		
GDA94	511806	6241531	436	Corymbia calophylla	70		5		
GDA94	511332	6253472	437	Eucalyptus maculata	70		5		
GDA94	511354	6253471	438	Eucalyptus maculata	70		5		
GDA94	511487	6253610	439	Eucalyptus maculata	70		5		
GDA94	511518	6253618	440	Eucalyptus maculata	70		5		
GDA94	511587	6253698	441	Eucalyptus maculata	70		5		
GDA94	511611	6253699	442	Eucalyptus maculata	70		5		
GDA94	511727	6253803	443	Eucalyptus maculata	70		5		
GDA94	511746	6253839	444	Eucalyptus maculata	70		5		
GDA94	511218	6243092	445	Eucalyptus marginata	70		5		
GDA94	511742	6241725	446	Eucalyptus marginata	70		5		
GDA94	511760	6241705	447	Eucalyptus marginata	70		5		
GDA94	512294	6240878	448	Eucalyptus rudis	70		5		
GDA94	509643	6242062	449	Eucalyptus wandoo	70		5		
GDA94	511611	6255968	450	Eucalyptus wandoo	70		5		
GDA94	511564	6258693	451	Corymbia calophylla	75		5		
GDA94	512250	6240882	452	Corymbia calophylla	75		5		
GDA94	511312	6253437	453	Eucalyptus maculata	75		5		
GDA94	511456	6253567	454	Eucalyptus maculata	75		5		
GDA94	512283	6240864	455	Eucalyptus rudis	75		5		
GDA94	509243	6242850	456	Corymbia calophylla	80		5		
GDA94	510180	6242692	457	Corymbia calophylla	80		5		
GDA94	510737	6240869	458	Corymbia calophylla	80		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511629	6240462	459	Corymbia calophylla	80		5		
GDA94	511762	6241700	460	Eucalyptus marginata	80		5		
GDA94	511847	6241543	461	Eucalyptus marginata	80		5		
GDA94	511296	6242361	462	Corymbia calophylla	85		5		
GDA94	511563	6240502	463	Corymbia calophylla	85		5		
GDA94	511590	6240505	464	Corymbia calophylla	85		5		
GDA94	511701	6241669	465	Eucalyptus marginata	85		5		
GDA94	511517	6258339	466	Eucalyptus rudis	85		5		
GDA94	509632	6242135	467	Eucalyptus wandoo	85		5		
GDA94	511880	6259013	468	Eucalyptus wandoo	85		5		
GDA94	509645	6242012	469	Corymbia calophylla	90		5		
GDA94	511493	6240320	470	Corymbia calophylla	90		5		
GDA94	511587	6240500	471	Corymbia calophylla	90		5		
GDA94	510721	6241047	472	Eucalyptus wandoo	90		5		
GDA94	510731	6241013	473	Corymbia calophylla	95		5		
GDA94	512346	6240893	474	Corymbia calophylla	95		5		
GDA94	511702	6241670	475	Eucalyptus marginata	95		5		
GDA94	511836	6241539	476	Eucalyptus marginata	95		5		
GDA94	512389	6240808	477	Eucalyptus marginata	95		5		
GDA94	510820	6241123	478	Eucalyptus rudis	95		5		
GDA94	510729	6240912	479	Corymbia calophylla	100		5		
GDA94	510815	6241114	480	Eucalyptus rudis	100		5		
GDA94	510916	6240950	481	Eucalyptus rudis	100		5		
GDA94	512282	6240842	482	Eucalyptus rudis	100		5		
GDA94	510946	6241003	483	Eucalyptus rudis	105		5		
GDA94	512311	6240805	484	Eucalyptus rudis	105		5		
GDA94	512477	6243649	485	Corymbia calophylla	110		5		
GDA94	510855	6241063	486	Eucalyptus rudis	110		5		
GDA94	510945	6241004	487	Eucalyptus rudis	115		5		
GDA94	509244	6242846	488	Corymbia calophylla	120		5		
GDA94	511542	6240304	489	Corymbia calophylla	120		5		
GDA94	509634	6241977	490	Corymbia calophylla	125		5		
GDA94	509715	6241940	491	Corymbia calophylla	130		5		
GDA94	509633	6241922	492	Eucalyptus rudis	135		5		
GDA94	509635	6241978	493	Corymbia calophylla	165		5		
GDA94	511506	6240521	494	Corymbia calophylla	165		5		
GDA94	511486	6258354	495	Eucalyptus rudis	175		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	513245	6244397	496	Eucalyptus wandoo	30		5		
GDA94	513210	6244413	497	Eucalyptus wandoo	30		5		
GDA94	513140	6244444	498	Eucalyptus wandoo	30		5		
GDA94	513101	6244459	499	Eucalyptus wandoo	30		5		
GDA94	512931	6244531	500	Eucalyptus wandoo	30		5		
GDA94	512727	6244625	501	Eucalyptus wandoo	30		5		
GDA94	512200	6245667	502	Eucalyptus wandoo	30		5		
GDA94	512267	6246039	503	Eucalyptus wandoo	30		5		
GDA94	512429	6245461	504	Eucalyptus wandoo	30		5		
GDA94	512422	6245480	505	Eucalyptus wandoo	30		5		
GDA94	512401	6245503	506	Eucalyptus wandoo	30		5		
GDA94	513276	6244384	507	Eucalyptus wandoo	35		5		
GDA94	513268	6244387	508	Eucalyptus wandoo	35		5		
GDA94	513072	6244470	509	Eucalyptus wandoo	35		5		
GDA94	512750	6244621	510	Eucalyptus wandoo	35		5		
GDA94	512808	6244586	511	Eucalyptus wandoo	35		5		
GDA94	512823	6244593	512	Eucalyptus wandoo	35		5		
GDA94	512832	6244742	513	Eucalyptus wandoo	35		5		
GDA94	512877	6244564	514	Eucalyptus wandoo	35		5		
GDA94	512878	6244564	515	Eucalyptus wandoo	35		5		
GDA94	512848	6244573	516	Eucalyptus wandoo	35		5		
GDA94	512198	6245681	517	Eucalyptus wandoo	35		5		
GDA94	512195	6245677	518	Eucalyptus wandoo	35		5		
GDA94	512206	6245610	519	Eucalyptus wandoo	35		5		
GDA94	512204	6245602	520	Eucalyptus wandoo	35		5		
GDA94	512208	6245597	521	Eucalyptus wandoo	35		5		
GDA94	512292	6246025	522	Eucalyptus wandoo	35		5		
GDA94	512267	6246039	523	Eucalyptus wandoo	35		5		
GDA94	512191	6246039	524	Eucalyptus wandoo	35		5		
GDA94	512423	6245478	525	Eucalyptus wandoo	35		5		
GDA94	512412	6245489	526	Eucalyptus wandoo	35		5		
GDA94	512425	6245502	527	Eucalyptus wandoo	35		5		
GDA94	512423	6245514	528	Eucalyptus wandoo	35		5		
GDA94	512779	6244603	529	Eucalyptus wandoo	40		5		
GDA94	512199	6245685	530	Eucalyptus wandoo	40		5		
GDA94	512195	6245662	531	Eucalyptus wandoo	40		5		
GDA94	512295	6245986	532	Eucalyptus wandoo	40		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512271	6246040	533	Eucalyptus wandoo	40		5		
GDA94	512197	6246043	534	Eucalyptus wandoo	40		5		
GDA94	512187	6246046	535	Eucalyptus wandoo	40		5		
GDA94	512215	6245688	536	Eucalyptus wandoo	45		5		
GDA94	513237	6244400	537	Eucalyptus wandoo	45		5		
GDA94	513210	6244413	538	Eucalyptus wandoo	45		5		
GDA94	513085	6244467	539	Eucalyptus wandoo	45		5		
GDA94	513064	6244473	540	Eucalyptus wandoo	45		5		
GDA94	513060	6244474	541	Eucalyptus wandoo	45		5		
GDA94	512982	6244511	542	Eucalyptus wandoo	45		5		
GDA94	512963	6244519	543	Eucalyptus wandoo	45		5		
GDA94	512808	6244587	544	Eucalyptus wandoo	45		5		
GDA94	512827	6244580	545	Eucalyptus wandoo	45		5		
GDA94	512180	6245707	546	Eucalyptus wandoo	45		5		
GDA94	512184	6245655	547	Eucalyptus wandoo	45		5		
GDA94	512204	6245613	548	Eucalyptus wandoo	45		5		
GDA94	512267	6246038	549	Eucalyptus wandoo	45		5		
GDA94	512187	6246046	550	Eucalyptus wandoo	45		5		
GDA94	512429	6245459	551	Eucalyptus wandoo	45		5		
GDA94	512429	6245461	552	Eucalyptus wandoo	45		5		
GDA94	512430	6245463	553	Eucalyptus wandoo	45		5		
GDA94	512416	6245503	554	Eucalyptus wandoo	45		5		
GDA94	511206	6248202	555	Eucalyptus rudis	50		5		
GDA94	511202	6248205	556	Eucalyptus rudis	50		5		
GDA94	511171	6248325	557	Eucalyptus rudis	50		5		
GDA94	511131	6248427	558	Eucalyptus rudis	50		5		
GDA94	511127	6248478	559	Eucalyptus rudis	50		5		
GDA94	511130	6248505	560	Eucalyptus rudis	50		5		
GDA94	511156	6248480	561	Eucalyptus rudis	50		5		
GDA94	511141	6248291	562	Eucalyptus rudis	50		5		
GDA94	513036	6244484	563	Corymbia calophylla	50		5		
GDA94	512870	6244764	564	Corymbia calophylla	50		5		
GDA94	512862	6244767	565	Corymbia calophylla	50		5		
GDA94	512871	6244744	566	Corymbia calophylla	50		5		
GDA94	512927	6244719	567	Corymbia calophylla	50		5		
GDA94	512903	6244574	568	Corymbia calophylla	50		5		
GDA94	512711	6244883	569	Corymbia calophylla	50		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512702	6244878	570	Corymbia calophylla	50		5		
GDA94	512472	6245276	571	Corymbia calophylla	50		5		
GDA94	512395	6245421	572	Corymbia calophylla	50		5		
GDA94	512399	6245423	573	Corymbia calophylla	50		5		
GDA94	512410	6245593	574	Corymbia calophylla	50		5		
GDA94	512409	6245594	575	Corymbia calophylla	50		5		
GDA94	512400	6245600	576	Corymbia calophylla	50		5		
GDA94	512401	6245618	577	Corymbia calophylla	50		5		
GDA94	512363	6245751	578	Corymbia calophylla	50		5		
GDA94	511198	6247852	579	Eucalyptus rudis	50		5		
GDA94	511306	6247851	580	Eucalyptus rudis	50		5		
GDA94	511481	6247531	581	Eucalyptus rudis	50		5		
GDA94	512410	6245595	582	Eucalyptus marginata	50		5		
GDA94	512402	6245601	583	Eucalyptus marginata	50		5		
GDA94	513183	6244423	584	Eucalyptus wandoo	50		5		
GDA94	513072	6244470	585	Eucalyptus wandoo	50		5		
GDA94	512944	6244528	586	Eucalyptus wandoo	50		5		
GDA94	512747	6244617	587	Eucalyptus wandoo	50		5		
GDA94	512748	6244613	588	Eucalyptus wandoo	50		5		
GDA94	512758	6244608	589	Eucalyptus wandoo	50		5		
GDA94	512823	6244592	590	Eucalyptus wandoo	50		5		
GDA94	512894	6244578	591	Eucalyptus wandoo	50		5		
GDA94	512267	6246082	592	Eucalyptus wandoo	50		5		
GDA94	512211	6246039	593	Eucalyptus wandoo	50		5		
GDA94	512840	6244699	594	Corymbia calophylla	55		5		
GDA94	512296	6245985	595	Corymbia calophylla	55		5		
GDA94	512702	6244878	596	Corymbia calophylla	55		5		
GDA94	512498	6245191	597	Corymbia calophylla	55		5		
GDA94	512494	6245192	598	Corymbia calophylla	55		5		
GDA94	512472	6245190	599	Corymbia calophylla	55		5		
GDA94	512446	6245195	600	Corymbia calophylla	55		5		
GDA94	512441	6245223	601	Corymbia calophylla	55		5		
GDA94	512400	6245422	602	Corymbia calophylla	55		5		
GDA94	512399	6245421	603	Corymbia calophylla	55		5		
GDA94	512418	6245518	604	Corymbia calophylla	55		5		
GDA94	511284	6247920	605	Corymbia calophylla	55		5		
GDA94	513065	6244473	606	Eucalyptus marginata	55		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512200	6245665	607	Eucalyptus wandoo	55		5		
GDA94	512267	6246036	608	Eucalyptus wandoo	55		5		
GDA94	512427	6245459	609	Eucalyptus wandoo	55		5		
GDA94	511488	6247480	610	Eucalyptus rudis	60		5		
GDA94	511269	6248129	611	Eucalyptus rudis	60		5		
GDA94	511203	6248211	612	Eucalyptus rudis	60		5		
GDA94	511143	6248429	613	Eucalyptus rudis	60		5		
GDA94	512951	6244647	614	Eucalyptus marginata	60		5		
GDA94	512871	6244743	615	Corymbia calophylla	60		5		
GDA94	512833	6244720	616	Corymbia calophylla	60		5		
GDA94	512832	6244714	617	Corymbia calophylla	60		5		
GDA94	512963	6244645	618	Corymbia calophylla	60		5		
GDA94	512668	6244976	619	Corymbia calophylla	60		5		
GDA94	512490	6245196	620	Corymbia calophylla	60		5		
GDA94	512457	6245187	621	Corymbia calophylla	60		5		
GDA94	512442	6245223	622	Corymbia calophylla	60		5		
GDA94	512460	6245247	623	Corymbia calophylla	60		5		
GDA94	512471	6245277	624	Corymbia calophylla	60		5		
GDA94	512409	6245595	625	Corymbia calophylla	60		5		
GDA94	511213	6247862	626	Eucalyptus rudis	60		5		
GDA94	511252	6247893	627	Eucalyptus rudis	60		5	Split Trunk	
GDA94	511289	6247860	628	Eucalyptus rudis	60		5		
GDA94	513188	6244422	629	Eucalyptus wandoo	60		5		
GDA94	512892	6244562	630	Eucalyptus wandoo	60		5		
GDA94	512218	6245670	631	Eucalyptus wandoo	60		5		
GDA94	512207	6245666	632	Eucalyptus wandoo	60		5		
GDA94	512212	6245655	633	Eucalyptus wandoo	60		5		
GDA94	512197	6246043	634	Eucalyptus wandoo	60		5		
GDA94	512399	6245500	635	Eucalyptus wandoo	60		5		
GDA94	512363	6245751	636	Eucalyptus wandoo	60		5		
GDA94	512877	6244563	637	Eucalyptus wandoo	65		5		
GDA94	513210	6244412	638	Corymbia calophylla	65		5		
GDA94	512838	6244697	639	Corymbia calophylla	65		5		
GDA94	512706	6244877	640	Corymbia calophylla	65		5		
GDA94	512395	6245417	641	Corymbia calophylla	65		5		
GDA94	512418	6245528	642	Corymbia calophylla	65		5		
GDA94	512353	6245688	643	Corymbia calophylla	65		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or
Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	512365	6245735	644	Corymbia calophylla	65		5		
GDA94	511233	6247879	645	Eucalyptus rudis	65		5		
GDA94	513126	6244454	646	Eucalyptus wandoo	65		5		
GDA94	512220	6245669	647	Eucalyptus wandoo	65		5		
GDA94	511436	6247471	648	Eucalyptus rudis	70		5		
GDA94	511290	6247933	649	Eucalyptus rudis	70		5	Spit Trunk	
GDA94	511175	6248283	650	Eucalyptus rudis	70		5	Split Trunk	
GDA94	512951	6244646	651	Eucalyptus marginata	70		5		
GDA94	512815	6244765	652	Corymbia calophylla	70		5		
GDA94	512708	6244881	653	Corymbia calophylla	70		5		
GDA94	512458	6245273	654	Corymbia calophylla	70		5		
GDA94	512397	6245415	655	Corymbia calophylla	70		5		
GDA94	512400	6245422	656	Corymbia calophylla	70		5		
GDA94	512409	6245595	657	Corymbia calophylla	70		5		
GDA94	511285	6247834	658	Eucalyptus rudis	70		5		
GDA94	511415	6247687	659	Eucalyptus rudis	70		5		
GDA94	511475	6247566	660	Eucalyptus rudis	70		5		
GDA94	511169	6248302	661	Eucalyptus rudis	75		5		
GDA94	512395	6245420	662	Corymbia calophylla	75		5		
GDA94	513314	6244368	663	Eucalyptus wandoo	75		5		
GDA94	513049	6244478	664	Eucalyptus wandoo	75		5		
GDA94	512871	6244558	665	Eucalyptus wandoo	75		5		
GDA94	511173	6248343	666	Eucalyptus rudis	80		5		
GDA94	511157	6248383	667	Eucalyptus rudis	80		5		
GDA94	511073	6248341	668	Eucalyptus rudis	80		5		
GDA94	511106	6248331	669	Eucalyptus rudis	80		5		
GDA94	512215	6245681	670	Eucalyptus wandoo	80		5		
GDA94	511426	6247457	671	Eucalyptus rudis	85		5		
GDA94	511440	6247495	672	Eucalyptus rudis	85		5		
GDA94	511159	6248362	673	Eucalyptus rudis	90		5		
GDA94	511161	6248410	674	Eucalyptus rudis	90		5		
GDA94	513164	6244430	675	Corymbia calophylla	90		5		
GDA94	512303	6245977	676	Corymbia calophylla	90		5		
GDA94	512022	6246486	677	Corymbia calophylla	90		5		
GDA94	511309	6247866	678	Eucalyptus rudis	90		5		
GDA94	511161	6248355	679	Eucalyptus rudis	95		5		
GDA94	512347	6245672	680	Eucalyptus marginata	95		5		

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511282	6248054	681	Eucalyptus rudis	100		5		
GDA94	512842	6244688	682	Corymbia calophylla	100		5		
GDA94	511037	6248476	683	Eucalyptus rudis	105		5		
GDA94	511285	6248082	684	Eucalyptus rudis	120		5		
GDA94	511364	6247810	685	Eucalyptus rudis	120		5		
GDA94	511296	6248001	686	Eucalyptus rudis	140		5		
GDA94	511578	6257051	687	Eucalyptus wandoo	45		3		Within Max Disturbance Boundary
GDA94	511555	6240334	688	Eucalyptus wandoo	50		3		Within Max Disturbance Boundary
GDA94	511568	6256797	689	Eucalyptus wandoo	65		3		Within Max Disturbance Boundary
GDA94	511570	6255949	690	Eucalyptus wandoo	70		3		Within Max Disturbance Boundary
GDA94	511564	6256078	691	Eucalyptus wandoo	80		3		Within Max Disturbance Boundary
GDA94	511570	6256575	692	Unknown	95		3		Within Max Disturbance Boundary
GDA94	511565	6255948	693	Eucalyptus wandoo	115		3		Within Max Disturbance Boundary
GDA94	512185	6245735	694	Eucalyptus wandoo	115		3		Within Max Disturbance Boundary
GDA94	511567	6256439	695	Corymbia calophylla	40		4		Within Max Disturbance Boundary
GDA94	511565	6256476	696	Eucalyptus wandoo	40		4		Within Max Disturbance Boundary
GDA94	511572	6256783	697	Eucalyptus wandoo	40		4		Within Max Disturbance Boundary
GDA94	511574	6257060	698	Eucalyptus wandoo	40		4		Within Max Disturbance Boundary
GDA94	511569	6256598	699	Unknown	40		4		Within Max Disturbance Boundary

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511578	6257138	700	Eucalyptus wandoo	45		4		Within Max Disturbance Boundary
GDA94	511571	6256863	701	Eucalyptus wandoo	50		4		Within Max Disturbance Boundary
GDA94	511575	6257013	702	Eucalyptus wandoo	50		4		Within Max Disturbance Boundary
GDA94	511576	6257041	703	Eucalyptus wandoo	50		4		Within Max Disturbance Boundary
GDA94	511576	6257012	704	Eucalyptus wandoo	50		4		Within Max Disturbance Boundary
GDA94	511576	6256938	705	Eucalyptus wandoo	55		4		Within Max Disturbance Boundary
GDA94	511579	6256812	706	Eucalyptus wandoo	55		4		Within Max Disturbance Boundary
GDA94	511579	6256812	707	Eucalyptus wandoo	60		4		Within Max Disturbance Boundary
GDA94	511575	6257011	708	Eucalyptus wandoo	65		4		Within Max Disturbance Boundary
GDA94	511569	6256595	709	Unknown	65		4		Within Max Disturbance Boundary
GDA94	511573	6256618	710	Eucalyptus wandoo	70		4		Within Max Disturbance Boundary
GDA94	511577	6256545	711	Unknown	75		4		Within Max Disturbance Boundary
GDA94	511565	6256076	712	Eucalyptus wandoo	80		4		Within Max Disturbance Boundary
GDA94	511569	6256162	713	Eucalyptus wandoo	80		4		Within Max Disturbance Boundary
GDA94	511576	6256942	714	Eucalyptus wandoo	80		4		Within Max Disturbance Boundary
GDA94	511572	6256720	715	Unknown	85		4		Within Max Disturbance Boundary

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511559	6256135	716	Eucalyptus wandoo	90		4		Within Max Disturbance Boundary
GDA94	511568	6256643	717	Corymbia calophylla	95		4		Within Max Disturbance Boundary
GDA94	511567	6256484	718	Eucalyptus wandoo	95		4		Within Max Disturbance Boundary
GDA94	511574	6255897	719	Eucalyptus wandoo	95		4		Within Max Disturbance Boundary
GDA94	511582	6257160	720	Eucalyptus wandoo	95		4		Within Max Disturbance Boundary
GDA94	511573	6255895	721	Eucalyptus wandoo	100		4		Within Max Disturbance Boundary
GDA94	511577	6256254	722	Eucalyptus wandoo	100		4		Within Max Disturbance Boundary
GDA94	511568	6256637	723	Corymbia calophylla	110		4		Within Max Disturbance Boundary
GDA94	511571	6256196	724	Eucalyptus wandoo	110		4		Within Max Disturbance Boundary
GDA94	511575	6256256	725	Eucalyptus wandoo	110		4		Within Max Disturbance Boundary
GDA94	511566	6256399	726	Corymbia calophylla	120		4		Within Max Disturbance Boundary
GDA94	511466	6240435	727	Eucalyptus wandoo	120		4		Within Max Disturbance Boundary
GDA94	511570	6256201	728	Eucalyptus wandoo	130		4		Within Max Disturbance Boundary
GDA94	511564	6256069	729	Unknown	135		4		Within Max Disturbance Boundary
GDA94	511577	6255953	730	Eucalyptus wandoo	135		4		Within Max Disturbance Boundary
GDA94	511569	6256123	731	Eucalyptus wandoo	140		4		Within Max Disturbance Boundary

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511575	6255894	732	Eucalyptus wandoo	155		4		Within Max Disturbance Boundary
GDA94	511568	6256122	733	Eucalyptus wandoo	160		4		Within Max Disturbance Boundary
GDA94	511569	6256252	734	Eucalyptus wandoo	180		4		Within Max Disturbance Boundary
GDA94	509679	6242108	735	Corymbia calophylla	185		4		Within Max Disturbance Boundary
GDA94	511070	6248510	736	Eucalyptus rudis	100		4		Within Max Disturbance Boundary
GDA94	511573	6256721	737	Unknown	35		5		Within Max Disturbance Boundary
GDA94	509631	6242116	738	Eucalyptus wandoo	35		5		Within Max Disturbance Boundary
GDA94	509627	6242117	739	Eucalyptus wandoo	40		5		Within Max Disturbance Boundary
GDA94	509631	6242125	740	Eucalyptus wandoo	40		5		Within Max Disturbance Boundary
GDA94	511567	6256333	741	Eucalyptus wandoo	40		5		Within Max Disturbance Boundary
GDA94	511579	6256753	742	Eucalyptus wandoo	40		5		Within Max Disturbance Boundary
GDA94	511567	6256303	743	Eucalyptus wandoo	45		5		Within Max Disturbance Boundary
GDA94	511580	6256932	744	Eucalyptus wandoo	45		5		Within Max Disturbance Boundary
GDA94	511570	6257005	745	Eucalyptus wandoo	50		5		Within Max Disturbance Boundary
GDA94	511579	6256809	746	Eucalyptus wandoo	50		5		Within Max Disturbance Boundary
GDA94	511573	6256846	747	Eucalyptus marginata	55		5		Within Max Disturbance Boundary

APPENDIX D: SUMMARY OF TREE ASSESSMENTS ON THE KOJONUP WIND FARM

DBH - Diameter at Breast Height (cm)

COND - Condition; H - Healthy, SS - Slightly Stressed, S - Stressed, VS - Very Stressed, VVS Very Very Stressed, D - Dead, DO - Old Death or

Fauna - Rating based on Usage by Fauna species (see Western Wildlife)

Source - Western Wildlife (2025)									
<i>Datum</i>	<i>Easting</i>	<i>Northing</i>	<i>Tree No</i>	<i>Species</i>	<i>DBH</i>	<i>COND</i>	<i>Fauna Rating</i>	<i>Fauna</i>	<i>Comments</i>
GDA94	511570	6256795	748	Eucalyptus wandoo	55		5		Within Max Disturbance Boundary
GDA94	511578	6256666	749	Eucalyptus wandoo	55		5		Within Max Disturbance Boundary
GDA94	509630	6242109	750	Eucalyptus wandoo	60		5		Within Max Disturbance Boundary
GDA94	511577	6256750	751	Eucalyptus wandoo	65		5		Within Max Disturbance Boundary
GDA94	511568	6256599	752	Corymbia calophylla	70		5		Within Max Disturbance Boundary
GDA94	511578	6256668	753	Eucalyptus wandoo	70		5		Within Max Disturbance Boundary
GDA94	511573	6256003	754	Unknown	85		5		Within Max Disturbance Boundary
GDA94	511576	6256603	755	Eucalyptus wandoo	90		5		Within Max Disturbance Boundary
GDA94	511578	6256814	756	Eucalyptus wandoo	90		5		Within Max Disturbance Boundary
GDA94	511574	6256179	757	Eucalyptus wandoo	95		5		Within Max Disturbance Boundary
GDA94	511570	6256287	758	Eucalyptus wandoo	100		5		Within Max Disturbance Boundary
GDA94	511576	6256290	759	Eucalyptus wandoo	115		5		Within Max Disturbance Boundary
GDA94	510204	6242713	760	Corymbia calophylla	120		5		Within Max Disturbance Boundary
GDA94	511567	6256644	761	Eucalyptus marginata	125		5		Within Max Disturbance Boundary
GDA94	511077	6248461	762	Eucalyptus rudis	100		5		Within Max Disturbance Boundary

APPENDIX E: PHOTOGRAPHIC RECORD OF KOJONUP WIND FARM SURVEY AREA

Photograph 1 : KWF04 in southern section; E1 - Open woodland of *Corymbia calophylla* with some patches of *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs sandy-loams on slopes and ridges



Photograph 2 : KWF17 in southern section; E2 - Open woodland of *Eucalyptus marginata* and *Corymbia calophylla* over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges



Photograph 3 : KWF05 in southern section; E3 - Open woodland of *Eucalyptus marginata* and *Corymbia calophylla* with some *Eucalyptus wandoo* patches over low undergrowth of grasses and herbs on sandy loam soils on slopes and ridges

APPENDIX E: PHOTOGRAPHIC RECORD OF KOJONUP WIND FARM SURVEY AREA


Photograph 4 : E5 – Creek Crossing with Open woodland of *Eucalyptus rudis* with patches of *Corymbia calophylla* and *Eucalyptus wandoo* over grasses and herbs on lower moist sandy-loam clays on the slopes and with Paperbarks (*Melaleuca raphiophylla* and *Melaleuca cuticularis*) on the wetter lower slopes in gullies and creeklines



Photograph 5 : KWF11 : Ah1 - Open woodland of *Allocasuarina huegeliana* with *Corymbia calophylla*, *Eucalyptus marginata* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy-loams to clay loams on slopes and ridges.

APPENDIX E: PHOTOGRAPHIC RECORD OF KOJONUP WIND FARM SURVEY AREA

Photograph 6 : KWF16 in southern section; Ah2 - Open woodland of *Allocasuarina huegeliana* with *Corymbia calophylla* and *Eucalyptus wandoo* over low undergrowth of grasses and herbs on sandy-loams on slopes and ridges.



Photograph 7 : Example of checking road crossings in areas supporting less trees.

APPENDIX E: PHOTOGRAPHIC RECORD OF KOJONUP WIND FARM SURVEY AREA

Photograph 8 : Example of checking species, tree condition and diameter at breast height in paddocks on potential project areas.



Photograph 9 : Example of checking tree species near current access tracks with view to checking if sufficient room and also whether alternative route needed.



Appendix C Kojonup Windfarm Vertebrate Fauna, Bird and Bat Survey 2023-2024 (Western Wildlife, 2025)

Environmental Assessment and Management Plan

Kojonup Wind Farm

Kojonup Wind Farm Pty Ltd

SLR Project No.: 675.073200.00001

4 November 2025





Kojonup Wind Farm

Vertebrate Fauna, Bird and Bat Survey 2023 - 2024



Prepared for: Kojonup Wind Farm Pty Ltd

Prepared by: Western Wildlife
570 Clare Rd
Hovea WA 6071
Ph: 0427 510 934



October 2025

Executive Summary

Introduction

Kojonup Wind Farm Pty Ltd propose to develop a 205 megawatt (MW) wind farm, the Kojonup Wind Farm Project (the Project). The Project is located in the Great Southern Region of Western Australia, approximately 10 km south-west of Kojonup, within the Shire of Kojonup Local Government Area (Figure 1). The Project involves the construction of 33 turbines in farmland and an underground transmission line north from the Project to an existing substation.

Western Wildlife was commissioned to undertake a basic fauna survey and bird and bat utilisation study of the study area. The purpose of the fauna survey was to gather baseline fauna data to inform environmental impact assessment as part of Project approvals.

Methods

The fauna survey was undertaken in accordance with the *Technical Guidance: terrestrial vertebrate fauna surveys for environmental impact assessment* (EPA 2020), *Referral Guidelines for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo* (DAWE 2022), *Survey Guidelines for Australia's Threatened Birds* (DEWHA 2010) and *Onshore Wind Farms – interim guidance on bird and bat management* (DAWE 2021).

The field surveys were undertaken on the 20 – 24th November 2023, 10 – 15th August 2024 and 3rd – 8th November 2024, with methods comprising:

- Habitat assessment at 102 sites.
- Bird utilisation survey: two morning and two afternoon 20-minute bird surveys, recording bird abundance and flight heights. Surveys at 29 - 33 impact sites and 3 - 8 reference sites on each field survey.
- Bat utilisation survey: deployment of Anabat bat detectors for 3 - 4 nights at 4 - 6 sites on each field survey.
- Cockatoo habitat survey, identifying foraging habitat and habitat trees over a portion of the study area.
- Keeping opportunistic records of fauna.

Species of conservation significance were classified as: **Threatened** if listed as Extinct in the Wild, Critically Endangered, Endangered or Vulnerable under *The Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or *Biodiversity Conservation Act 2016* (BC Act); **Migratory** if listed as Migratory under the EPBC Act and/or BC Act, excluding those species also listed as threatened; **Specially Protected** if listed as Other Specially Protected Species or Conservation Dependent Fauna under the BC Act and **Priority** if listed as Priority by DBCA.

A risk assessment of bats and selected bird species was undertaken by using six factors to determine the likelihood of a mortality (flight height, flight behaviour, status in the study area, habitat preference, migration and known wind farm mortalities) and four factors to determine the consequences of those mortalities on the population of the species (geographic resilience, demographic resilience, population size and conservation status). Once the overall risk levels for the likelihood and consequence of mortality specific to the Project had been assigned for a species, the results were then placed into a risk matrix to determine the level of risk (Negligible, Minor, Moderate, High or Very High).

Results and Discussion

Fauna Habitats

Six fauna habitats were identified in the study area:

- Eucalypt woodland
- Creek
- Granite outcrops
- Pine plantation
- Planted
- Cleared (noting that this includes farm dams and isolated paddock trees)

Of these habitats, the granite outcrops are limited in extent in the study area and the wider region. Creeks are likely to provide ecological linkage and in a largely cleared landscape, all remaining native vegetation is likely to play some role in ecological linkage. Even isolated patches can act as 'stepping stones' to allow movement of fauna through the landscape.

Faunal Assemblage

The predicted vertebrate faunal assemblage includes up to twelve frogs, 46 reptiles, 147 native birds, four introduced birds, 28 native mammals and five introduced mammals. The observed assemblage to date includes two frogs, four reptiles, 76 native birds, one introduced bird, eight native mammals and two introduced mammals. The faunal assemblage is likely to be somewhat depauperate due to the extent of habitat loss in the region, habitat fragmentation and the impacts of wood-cutting, grazing, weeds and feral predators on remaining habitat.

Conservation Significant Fauna

A total of 22 vertebrate fauna of conservation significance may occur in the study area: seven Threatened, two Migratory, three Specially Protected/Conservation Dependant and ten Priority species.

Threatened Species

Seven Threatened species potentially occur in the study area:

- Numbat (*Myrmecobius fasciatus*) – EPBC Act (Endangered), BC Act (Endangered)
- Carnaby’s Cockatoo (*Zanda latirostris*) – EPBC Act (Endangered), BC Act (Endangered)
- Baudin’s Cockatoo (*Zanda baudinii*) – EPBC Act (Endangered), BC Act (Endangered)
- Forest Red-tailed Black-cockatoo (*Calyptrorhynchus banksii naso*) – EPBC Act (Vulnerable), BC Act (Vulnerable)
- Red-tailed Phascogale (*Phascogale calura*) – EPBC Act (Vulnerable), BC Act (Vulnerable)
- Chuditch (*Dasyurus geoffroii*) – EPBC Act (Vulnerable), BC Act (Vulnerable)
- Malleefowl (*Leipoa ocellata*) – EPBC Act (Vulnerable), BC Act (Vulnerable)

Of these, Carnaby’s Cockatoo and the Forest Red-tailed Black-cockatoo were recorded in the study area and Baudin’s Cockatoo potentially occurs. The study area provides habitat critical for the survival of black-cockatoos: potential breeding habitat in eucalypt woodland and creek habitats and foraging habitat in eucalypt woodlands (all cockatoo species) and pine plantation (Carnaby’s Cockatoo only). No ‘known nesting trees’ were identified in the study area, but ‘potential’ and ‘suitable’ nesting trees were present. Carnaby’s Cockatoo are known to breed within 7km of the study area, the Forest Red-tailed Black-cockatoo breeds within 25km and Baudin’s Cockatoo is known to breed in the vicinity of Kojonup.

The Red-tailed Phascogale is likely to occur in the study area, inhabiting granite woodlands, eucalypt woodlands and creek habitats, potentially occurring even fairly small habitat patches. The Chuditch potentially occurs as a dispersing visitor but is unlikely to be resident. Similarly, the Malleefowl may possibly disperse through the study area on occasion, but no breeding habitat is present. Although the Numbat possibly occurs as there are records in the region, it is probably locally extinct.

Migratory species

Two Migratory species potentially occur in the study area:

- Common Sandpiper (*Actitis hypoleucos*) – EPBC Act (Migratory), BC Act (Migratory)
- Fork-tailed Swift (*Apus pacificus*) – EPBC Act (Migratory), BC Act (Migratory)

Although the Common Sandpiper may occur on occasion, the farm dams and creeks of the study area are not likely to regularly support nationally or internationally significant numbers. The Fork-tailed Swift is a Migratory species that is thought to be almost entirely aerial when visiting Australia.

Specially Protected species

Three Specially Protected species potentially occur in the study area:

- Peregrine Falcon (*Falco peregrinus*) – BC Act (Other Specially Protected)
- Muir's Corella (*Cacatua pastinator pastinator*) – BC Act (Conservation Dependent)
- Brush-tailed Phascogale (*Phascogale tapoatafa*) – BC Act (Conservation Dependent)

Of these species, the Peregrine Falcon and Muir's Corella were recorded in the study area. The Peregrine Falcon is likely to forage in open habitats including cleared farmland. This species is widespread, and its population is considered secure. The study area is on the north-eastern edge of the current range of Muir's Corella, and this species is likely to be a breeding resident in low numbers. The Brush-tailed Phascogale potentially occurs in larger areas of eucalypt woodland with hollow-bearing trees and understory, but it is probable that much of the habitat present is too fragmented and degraded to support this species. It is considered likely to be locally extinct in the wheatbelt and confined to more intact Jarrah forests to the west.

Priority species

Ten Priority species potentially occur in the study area:

- Barking Owl, south-west population (*Ninox connivens connivens*) – Priority 3
- Masked Owl, south-west population (*Tyto novaehollandiae novaehollandiae*) – Priority 3
- Central Long-eared Bat (*Nyctophilus major tor*) – Priority 3
- Western False Pipistrelle (*Falsistrellus mackenziei*) – Priority 4
- Inland Western Rosella (*Platycercus icterotis xanthogenys*) – Priority 4
- Western Brush Wallaby (*Notamacropus irma*) – Priority 4
- Tammar Wallaby (*Notamacropus eugenii derbianus*) – Priority 4
- Quenda (*Isodon fusciventer*) – Priority 4
- Water-rat (*Hydromys chrysogaster*) – Priority 4
- Western Mouse (*Pseudomys occidentalis*) – Priority 4

Of these, only the Inland Western Rosella was recorded in the study area, and this species is likely to be a breeding resident of eucalypt and granite woodlands. The Barking Owl and Masked Owl possibly occur, but their status in the region is difficult to ascertain as they are very rarely recorded. If present, they are likely to inhabit eucalypt woodlands, foraging in woodlands and farmlands and possibly breeding in large eucalypt hollows. The Central Long-eared Bat possibly occurs, but the study area is on the very western edge of the known range of this species. Similarly, the study area is on the very eastern edge of the known range of the Western False Pipistrelle, and this species prefers old-growth forest which is absent from the study area. The Quenda, Western Mouse, Western Brush Wallaby and Tammar Wallaby possibly occur in larger patches of eucalypt woodland with understory, but it is probable that these species are locally extinct. The Water-rat possibly occurs along the creeks and in dams in the study area, although most of this habitat is marginal as the dams are sparsely vegetated and the creeks are not permanent.

Bird Utilisation of the Study Area and Risk Assessment

Overall, 73 bird species were recorded on bird surveys, 94.8% of the 77 bird species recorded thus far across the study area. Of the birds recorded flying at impact sites, 204 birds (5% of flights) of 12 species were recorded flying within the RSA, while at reference sites, 16 birds (<2% of flights) of 5 species were recorded flying within the RSA. No birds were recorded flying above the RSA (>200m) at any site.

No birds were assessed as being at *Very High* risk or *High* risk, and five species were assessed as being at *Moderate* risk (Baudin's Cockatoo, Carnaby's Cockatoo, Forest Red-tailed Black-cockatoo, Wedge-tailed Eagle and Purple-crowned Lorikeet). The remaining species were assessed as being at *Minor* or *Negligible* risk, primarily due to an unlikely intersection with the RSA height due to rarity in the region and/or flight behaviour, and a large and widespread population reducing the likelihood of population impacts. Migratory shorebirds and waterbirds are at low risk due to the lack of suitable wetland habitats in or near to the study area.

Bat Utilisation of the Study Area and Risk Assessment

There are ten species (or subspecies) of bat that potentially occur in the vicinity of the study area. A total of five species were confirmed as occurring in the study area, with at least a sixth species recorded but unable to be identified to species level. All of the data were obtained from near ground level. Thus far there are no data on the use of the RSA by bats in the study area, but recently collected data at this height has yet to be analysed.

No Threatened bats occur in the region and no bats were assessed as being of *Very High* or *High* risk. Two species were assessed as being at *Moderate* risk: Gould's Wattled Bat (*Chalinolobus gouldii*) and the White-striped Freetail Bat (*Austronomus australis*). The remainder were assessed as being at *Minor* or *Negligible* risk.

Potential Impacts on Fauna

The key potential impacts on terrestrial vertebrate fauna are likely to be:

- habitat loss
- an increase in habitat fragmentation
- accidental mortalities
- collisions with turbines or other infrastructure
- barotrauma
- barrier effects and displacement

The nature and extent of these impacts, as they pertain to the Project, are discussed at a high level.

Table of Contents

Executive Summary	i
1. Introduction	1
1.1 Regional Context	1
1.1.1 IBRA Bioregion	1
1.1.2 Parks and Reserves	3
1.1.3 Wetlands	3
1.1.4 Threatened or Priority Ecological Communities	3
1.1.5 Land Systems.....	3
1.2 Study Area	3
1.3 Climate and Weather	7
2. Methods.....	8
2.1 Overview	8
2.2 Guidance Documents.....	8
2.3 Personnel	8
2.4 Taxonomy and Nomenclature	8
2.5 Literature Review	9
2.6 Field Survey	9
2.6.1 Licensing.....	9
2.6.2 Timing	10
2.6.3 Habitat Assessment and Mapping	10
2.6.4 Bird Utilisation Survey.....	12
2.6.5 Bat Utilisation Survey.....	12
2.6.6 Cockatoo Habitat Survey.....	15
2.6.7 Opportunistic Records	16
2.7 Assessment of Conservation Significance	16
2.7.1 Legislative Protection for Fauna.....	16
2.7.2 Levels of Conservation Significance in this report	18
2.8 Likelihood of Occurrence	19
2.9 Bird and Bat Risk Assessment	20
3. Survey Limitations.....	23
4. Fauna Habitat.....	25
4.1 Habitats of the Study Area	25
4.1.1 Eucalypt Woodland	28
4.1.2 Granite Woodland.....	30
4.1.3 Creek	31
4.1.4 Pine Plantation	33
4.1.5 Planted	34
4.1.6 Cleared Land	34
4.2 Habitat Trees	36
4.3 Important Habitats	38
5. Faunal Assemblage of the Study Area.....	39
5.1 Vertebrate Fauna Assemblage	39
5.1.1 Amphibians	39
5.1.2 Reptiles	40
5.1.3 Birds	40
5.1.4 Mammals	41

5.2	Vertebrate Fauna of Conservation Significance	42
5.2.1	Threatened Fauna	48
5.2.2	Migratory Fauna.....	59
5.2.3	Specially Protected Fauna	60
5.2.4	Priority Fauna	63
6.	Bird Utilisation of the Study Area	67
6.1	Species Richness and Abundance	67
6.2	Flight Heights.....	69
6.3	Risk Assessment – Birds	70
7.	Bat Utilisation of the Study Area	77
7.1	Species Richness	77
7.2	Risk Assessment - Bats	77
8.	Potential Impacts to Fauna	78
8.1	Habitat Loss	78
8.2	Habitat Fragmentation.....	79
8.3	Accidental Mortalities.....	79
8.4	Collisions with Turbines or Other Infrastructure.....	80
8.5	Barotrauma	81
8.6	Barrier Effects and Displacement	81
9.	Conclusions	81
10.	References	84
	Appendices.....	88
Appendix 1.	Daily weather observations during survey periods.	88
Appendix 2.	Sampling Locations.....	89
Appendix 3.	Habitat Assessments.	94
Appendix 4.	Vertebrate fauna potentially occurring in the Study Area.	128
Appendix 5.	EPBC Protected Matters Search Tool results.	137
Appendix 6.	Foraging Quality Scoring Tool	138
Appendix 7.	Bat Call Analysis	140
Appendix 8.	Flight heights of birds recorded in surveys.	148
Appendix 8a.	Flight heights of all birds recorded in impact site surveys.....	148
Appendix 8b.	Flight heights of all birds recorded in reference site surveys.....	150
Appendix 9.	Bird and Bat Risk Assessment	153

Tables, Figures and Plates

Table 1.	Fauna survey personnel.	8
Table 2.	Databases used in the preparation of this report.	9
Table 3.	Criteria for assessing likelihood of occurrence.....	19
Table 4.	Likelihood factors.	21
Table 5.	Consequence factors.....	22
Table 6.	Risk Matrix.....	23
Table 7.	Fauna survey limitations.	24
Table 8.	Fauna habitats in the study area.....	25
Table 9.	Summary of vertebrate fauna predicted to occur in the study area.....	39
Table 10.	Summary of conservation significant vertebrate fauna.	43
Table 11.	Foraging habitat for black-cockatoos in the study area.	54
Table 12.	Summary of bird survey statistics.	68

Table 13. Summary of all birds recorded flying in the RSA (50 – 200m).....	69
Table 14. Risk rating for assessed bird species.	72
Table 15. Risk rating for all bat species potentially present.	77
Figure 1. Kojonup Wind Farm: Location.	2
Figure 2. Kojonup Wind Farm: Wetlands.	4
Figure 3. Kojonup Wind Farm: Land systems.	5
Figure 4. Kojonup Wind Farm: Study area.	6
Figure 5. Monthly Climate Statistics for Kojonup.	7
Figure 6. Kojonup Wind Farm: Habitat assessment sites.....	11
Figure 7. Kojonup Wind Farm: Bird sampling sites.	13
Figure 8. Kojonup Wind Farm: Bat sampling sites.	14
Figure 9. Kojonup Wind Farm: Fauna habitats.	26
Figure 10. Kojonup Wind Farm: Habitat trees.	37
Figure 11. Kojonup Wind Farm: Conservation significant fauna recorded on this survey.....	46
Figure 12. Kojonup Wind Farm: DBCA Threatened fauna records.....	47
Figure 13. Kojonup Wind Farm: DBCA cockatoo breeding and roosting records.	51
Figure 14. Kojonup Wind Farm: Cockatoo foraging habitat.....	52
Figure 15. Kojonup Wind Farm: DBCA Migratory and Specially Protected fauna records.....	61
Figure 16. Kojonup Wind Farm: DBCA Priority fauna records.	64
Figure 17. Kojonup Wind Farm: Carnaby's Cockatoo records and flights.....	74
Figure 18. Kojonup Wind Farm: Forest Red-tailed Black-cockatoo records and flights.....	75
Figure 19. Kojonup Wind Farm: Wedge-tailed Eagle records.	76
Plate 1. Eucalypt woodland with understory.....	28
Plate 2. Eucalypt woodland with understory.....	29
Plate 3. Eucalypt woodland without understory.	29
Plate 4. Eucalypt woodland on laterite rise without understory.....	30
Plate 5. Granite outcrop with Sheoak woodland.....	30
Plate 6. Exfoliating rock on granite outcrop.	31
Plate 7. Granite woodland.	31
Plate 8. Creek.....	32
Plate 9. Creek.....	32
Plate 10. Creek.....	33
Plate 11. Pine Plantation.....	33
Plate 12. Planted vegetation.....	34
Plate 13. Cleared land.....	35
Plate 14. Farm dam on cleared land.	35
Plate 15. Examples of potential nesting trees in the study area.....	36
Plate 16. Bobtail (<i>Tiliqua rugosa</i>).....	40
Plate 17. Evidence of Carnaby's Cockatoo foraging on <i>Banksia sessilis</i> in the study area.....	50
Plate 18. Forest Red-tailed Cockatoos foraging on Jarrah in the study area.	56
Plate 19. Wedge-tailed Eagle nests in the study area.....	71

1. Introduction

Kojonup Wind Farm Pty Ltd propose to develop a 205megawatt(MW) wind farm, the Kojonup Wind Farm Project (the Project). The Project is located in the Great Southern Region of Western Australia, approximately 10km south-west of Kojonup, within the Shire of Kojonup Local Government Area (Figure 1). The Project involves the construction of 33 turbines in farmland and an underground transmission line north from the Project to an existing substation.

Western Wildlife was commissioned to undertake a basic fauna survey and bird and bat utilisation study of the study area. The purpose of the fauna survey was to gather baseline fauna data to inform environmental impact assessment as part of Project approvals. The key objectives of the fauna survey were to:

- Identify and describe the fauna habitats present.
- List the vertebrate fauna that were recorded and/or have the potential to occur.
- Identify species of conservation significance, or habitats of particular importance for fauna, that may occur.
- Conduct a bird and bat utilisation survey.
- Conduct a survey for potential cockatoo habitat trees.
- Conduct a risk assessment of bats and selected bird species that potentially occur in the study area.
- Identify potential impacts to fauna.

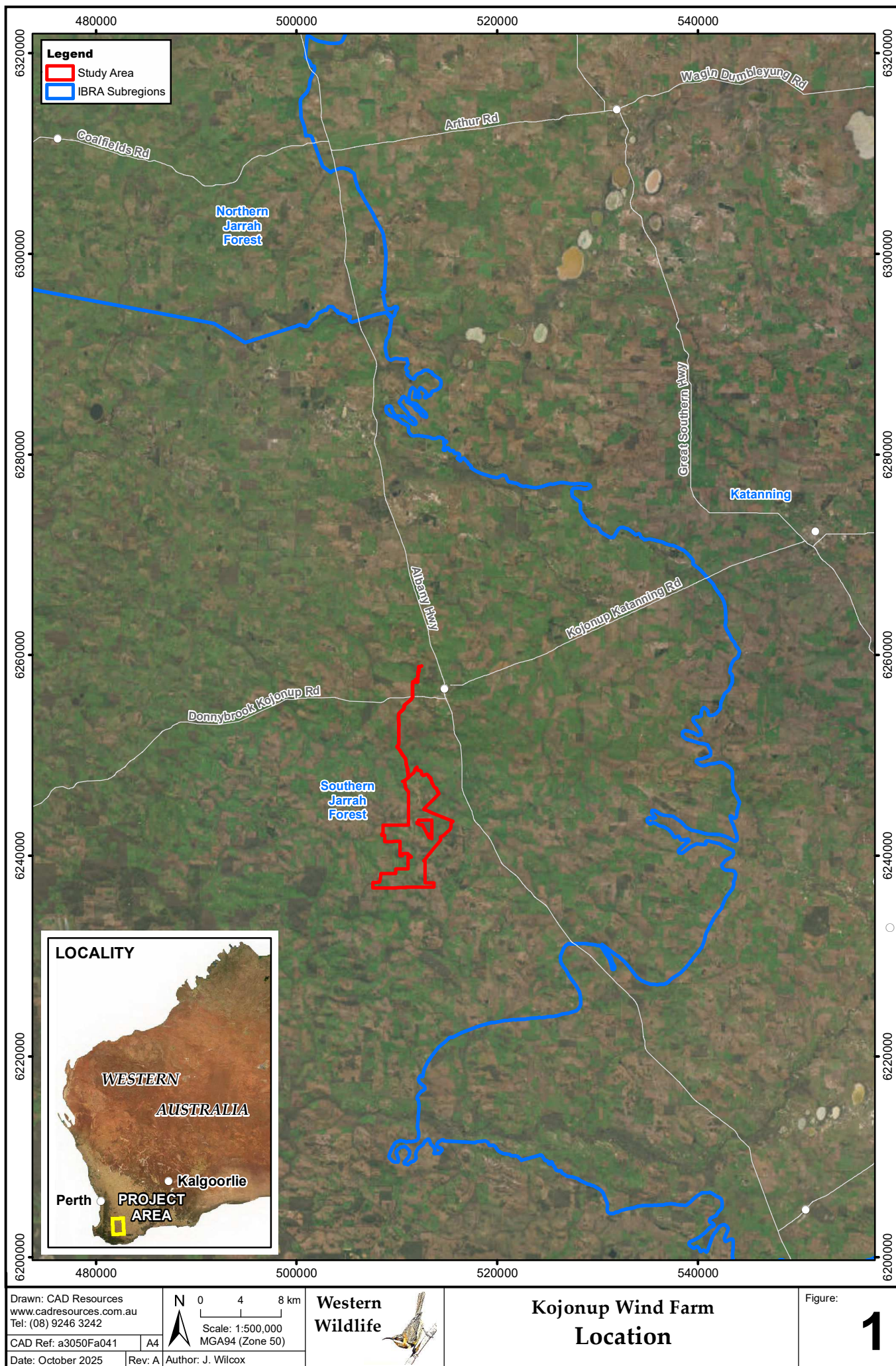
This report includes the findings of the field survey conducted in November 2023, August 2024 and November 2024.

1.1 Regional Context

1.1.1 IBRA Bioregion

The Interim Biogeographic Regionalisation for Australia (IBRA) classifies the land surface of Australia into 89 Bioregions and 419 subregions, each defined by a set of environmental influences that impact the occurrence of flora and fauna and their interaction with the physical environment (DCCEEW 2020).

The study area is in the Southern Jarrah Forest subregion of the Jarrah Forest Bioregion according to IBRA (DCCEEW 2020) (Figure 1). The Jarrah Forest Bioregion occurs on the duricrusted plateau of the Yilgarn Craton and supports Jarrah-Marri forest on laterite gravels in the west and Wandoo-Marri woodlands on clayey soils in the east. The Southern Jarrah Forest subregion is characterized by dissected drainage in the west and poor drainage with wetlands of various sizes in the east, where the plateau levels out. In the south-east there are extensive areas of swamps supporting paperbarks and Swamp Yate (Hearn *et al.*, 2002).



The subregion is home to rare frogs and birds and critical weight range mammals. Refugia identified in the subregion include peaty wetlands in the Blackwood Valley (supports rare frogs), Two People Bay Nature Reserve (supports rare ground-dwelling birds: Noisy Scrub Bird, Western Whipbird and Western Bristlebird), Porongurup Range (supports relict invertebrate taxa) and the Lake Muir-Unicup wetland complex (supports relict aquatic invertebrates) (Hearn *et al.* 2002).

The main land uses in this subregion are grazing, dryland agriculture, forestry and conservation (Hearn *et al.* 2002).

1.1.2 Parks and Reserves

There are no reserves in or directly adjacent to the study area (Figure 2). The nearest reserves are Jingalup Nature Reserve (5km west) and Jingalup South Nature Reserve (6km south-west).

1.1.3 Wetlands

Wetlands in the region are shown on Figure 2. There are no lakes in the study area and there are no Nationally Important Wetlands in the vicinity of the study area, the nearest are the Byenup Lagoon System and Lake Muir, 45km southwest.

1.1.4 Threatened or Priority Ecological Communities

The study areas potentially include the Critically Endangered Threatened Ecological Community (TEC) *Eucalypt Woodlands of the Western Australian Wheatbelt*. These ecological communities are defined primarily by their vegetation, so their significance is not further discussed in this report, except in terms of their value to fauna.

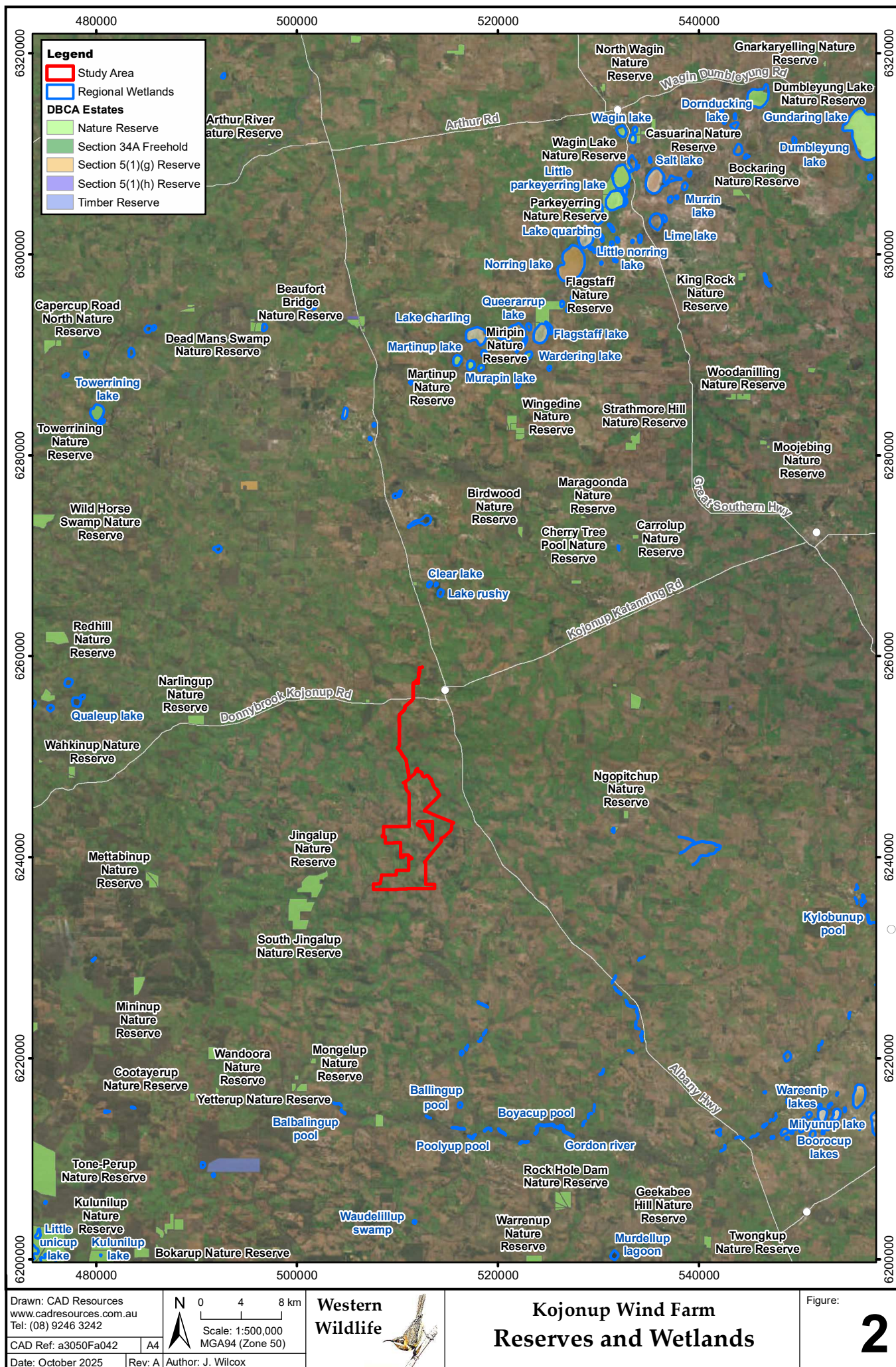
1.1.5 Land Systems

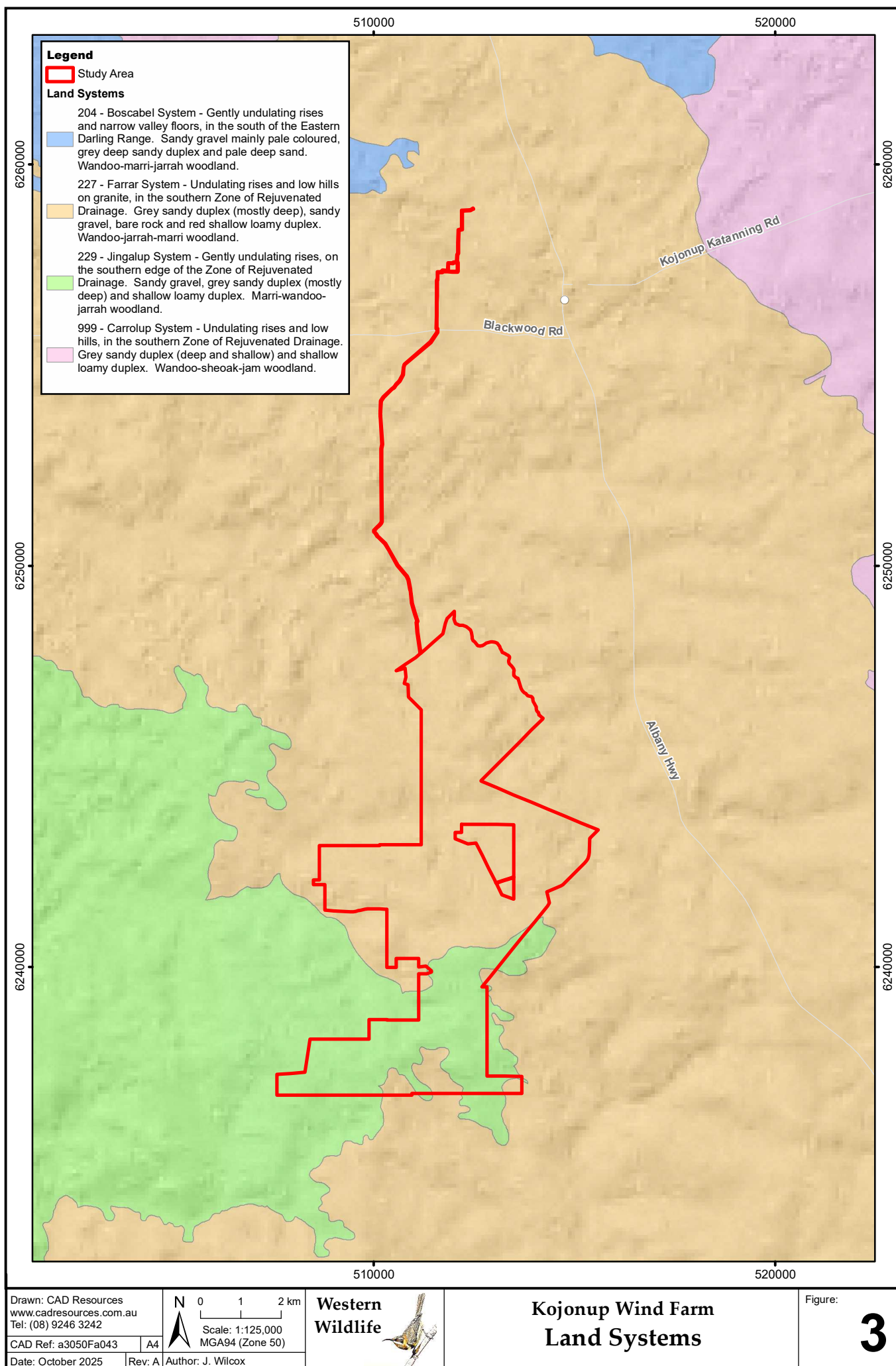
Land systems are broad descriptions of landform, geology and soils. The study area intersects two land systems (Figure 3), which are characterised as follows:

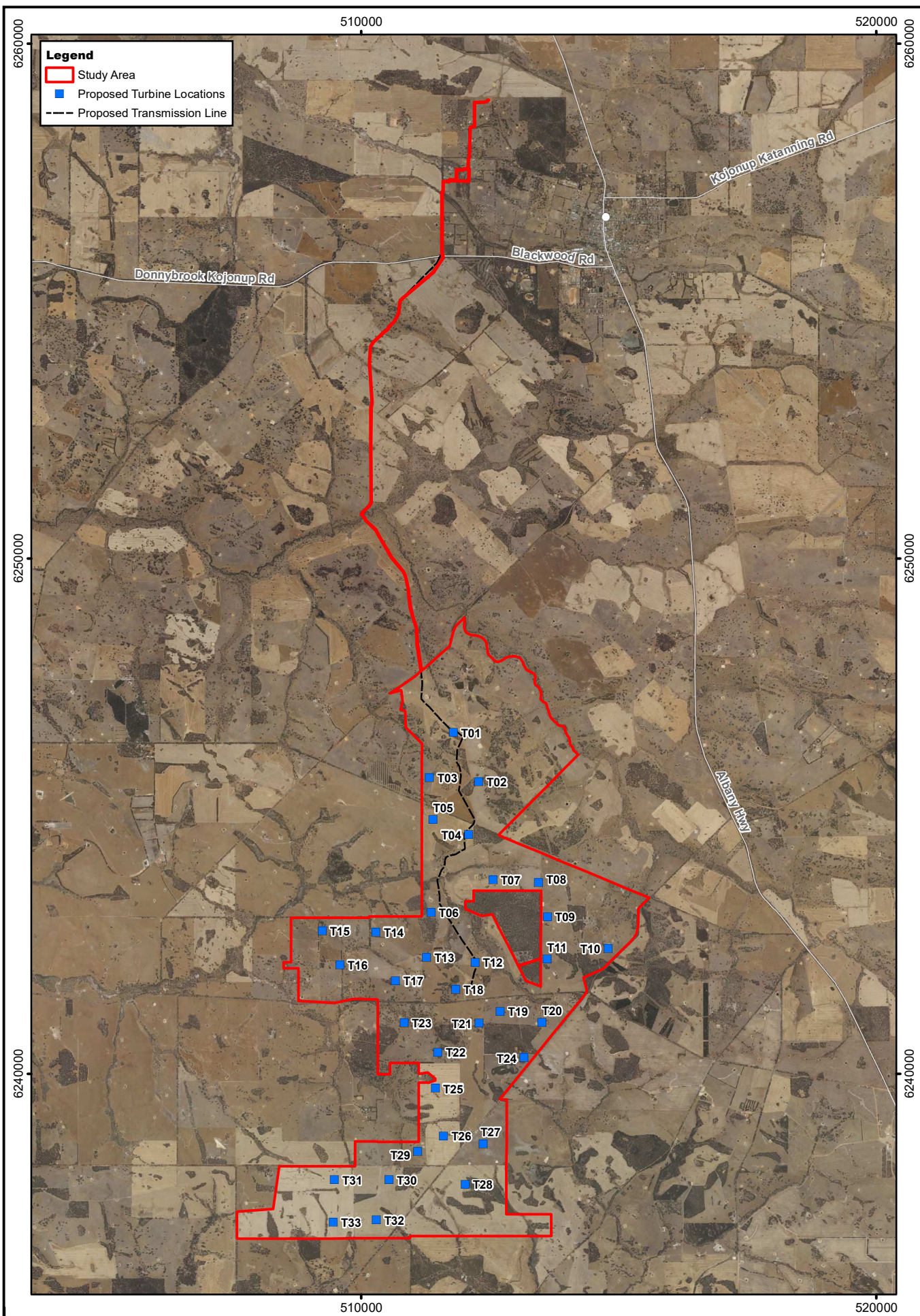
- **Farrar System:** Undulating rises and low hills on granite, in the southern Zone of Rejuvenated Drainage. Grey sandy duplex (mostly deep), sandy gravel, bare rock and red shallow loamy duplex. Supports Wandoo-Jarra-Marri woodland.
- **Jingalup System:** Gently undulating rises, on the southern edge of the Zone of Rejuvenated Drainage. Sandy gravel, grey sandy duplex (mostly deep) and shallow loamy duplex. Marri-Wandoo-Jarra woodland.

1.2 Study Area

The study area is 3,816.8ha and consists of farmland and remnant native vegetation spread across several properties (Figure 4). The proposed transmission line runs north to a substation in the vicinity of Kojonup.







1.3 Climate and Weather

The nearest weather station is Kojonup, site number 004032, and the mean monthly maximum and minimum temperatures and rainfall for this weather station are presented in Figure 5.

The long-term average annual rainfall for Kojonup is 525.4mm, based on data between 1885 and 2025 (Bureau of Meteorology 2025). The annual rainfall was about average in 2022 (532.2mm), but lower than average in 2023 (398.8mm) and 2024 (424.4mm). Weather during the survey was characterised by cool nights and warm days. The daily temperatures and rainfall during the field survey (as recorded at Katanning, site number 010916), are presented in Appendix 1.

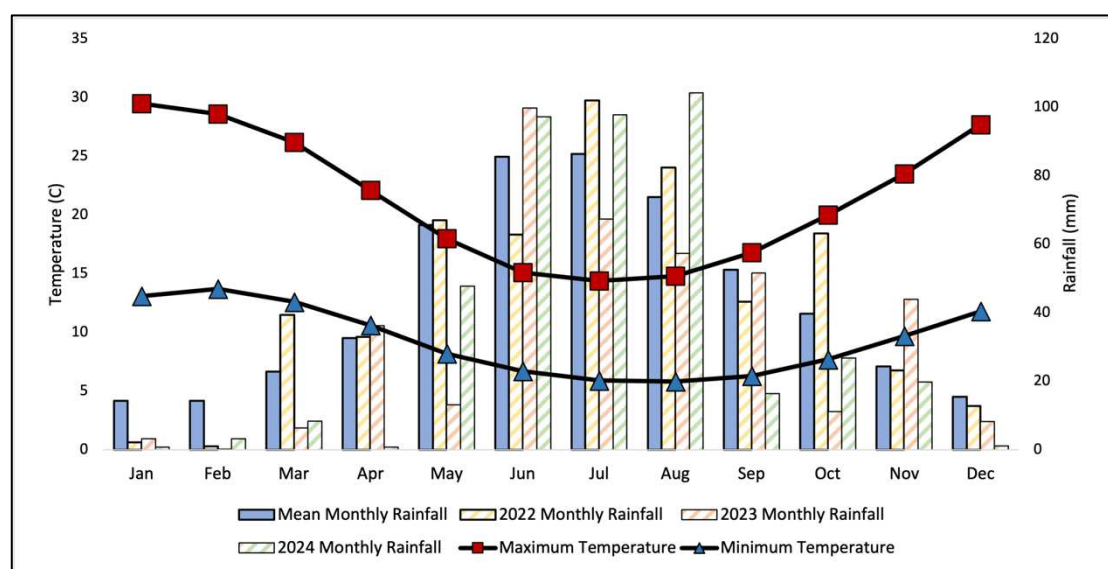


Figure 5. Monthly Climate Statistics for Kojonup.

2. Methods

2.1 Overview

The fauna survey consisted of three main components: a basic vertebrate fauna survey, a preliminary bird and bat utilisation survey and a preliminary cockatoo habitat survey. The methods are further described in the sections below.

2.2 Guidance Documents

The fauna survey was conducted with reference to the following documents:

- Technical guidance: terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)
- Referral Guidelines for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo (DAWE 2022)
- Survey Guidelines for Australia's Threatened Birds (DEWHA 2010)
- Onshore Wind Farms – interim guidance on bird and bat management (DAWE 2021)

2.3 Personnel

Three zoologists undertook the fieldwork, with bat call analysis provided by Specialised Zoological (2024). Details of the survey team and their experience are shown in Table 1. This report was prepared by Ms Jenny Wilcox.

Table 1. Fauna survey personnel.

Name	Role	Qualification	Experience
Ms Jenny Wilcox	Supervising Vertebrate Zoologist (plan and lead fieldwork, analyse data, prepare report)	BSc.Biol/Env.Sci., Hons.	>20 years
Mr Mike Brown	Vertebrate zoologist (fieldwork)	BSc.Env.Sci.	16 years
Mr Brenden Metcalf	Vertebrate zoologist (fieldwork)	BSc.Env.Sci., Hons.	>20 years
Dr Kyle Armstrong	Bat call analysis	PhD. Zool.	>20 years

2.4 Taxonomy and Nomenclature

Taxonomy and nomenclature for fauna species used in this report follow the Western Australian Museum checklists. In the text, common names are used where appropriate, and all scientific names are given in species lists. Where a species lacks a common name, they are referred to by their scientific name.

2.5 Literature Review

Lists of fauna expected to occur in the study area were produced using information from several sources. These included publications that provide information on general patterns of distribution of frogs (Tyler *et al.* 2000), reptiles (Storr *et al.* 1983, 1990, 1999 and 2002, Wilson and Swan 2017), birds (Barrett *et al.* 2003; Johnstone and Storr 1998; Johnstone and Storr 2004) and mammals (Churchill 2007, Menkhurst and Knight 2011; Van Dyck and Strahan 2008).

The databases in Table 2 were searched for fauna records in and around the study area. In all cases the extent of the database search was larger than the extent of the study area in order to pick up records of species in the wider area that may also occur in the study area.

Some species may occur on database results that are not likely to be present in the study area, usually due either to lack of suitable habitat or the study area being outside the known range of the species (i.e., erroneous records or records of vagrants). Some records may be historical, with the species known to be locally or regionally extinct. These species are generally not included in lists of expected fauna unless some discussion is thought to be necessary.

Table 2. Databases used in the preparation of this report.

Database	Type of records held	Area searched
DBCA's Threatened and Priority Fauna Database (DBCA 2023)	Information and records on Threatened and Priority species in Western Australia. Includes records collated from Birds Australia, the Fauna Survey Returns Database and the Western Australian Museum Database.	Study area with a 40km buffer
Dandjoo (DBCA 2024)	Records of fauna, excluding Threatened and Priority Fauna from several sources including industry and research.	Study area with a 40km buffer
Atlas of Living Australia (ALA) Database (ALA 2024)	<ul style="list-style-type: none"> Birds Australia Atlas Database - records of bird observations in Australia, 1998-2009. Birddata - records of bird observations in Australia, 2010-current. WA Museum Specimen Databases for reptiles frogs, birds and mammals - records of specimens held in the Western Australian Museum. Includes historical records. 	Study area with a 40km buffer
Index of Biological Surveys for Assessment (IBSA) Database	Reports and spatial data from fauna surveys undertaken for environmental impact assessment in Western Australia.	Surveys in the same IBRA Bioregion, within 50km of the study area.
EPBC Act Protected Matters Search Tool	Information and modelled distributions for matters protected under the EPBC Act, including threatened species and ecological communities, migratory species and marine species.	Study area with a 5km buffer

2.6 Field Survey

2.6.1 Licensing

As the study was entirely observational, no DBCA licensing was required.

2.6.2 Timing

The fieldwork was undertaken on the following dates:

- 20th – 25th November 2023
- 10th – 15th August 2024
- 3rd – 8th November 2024

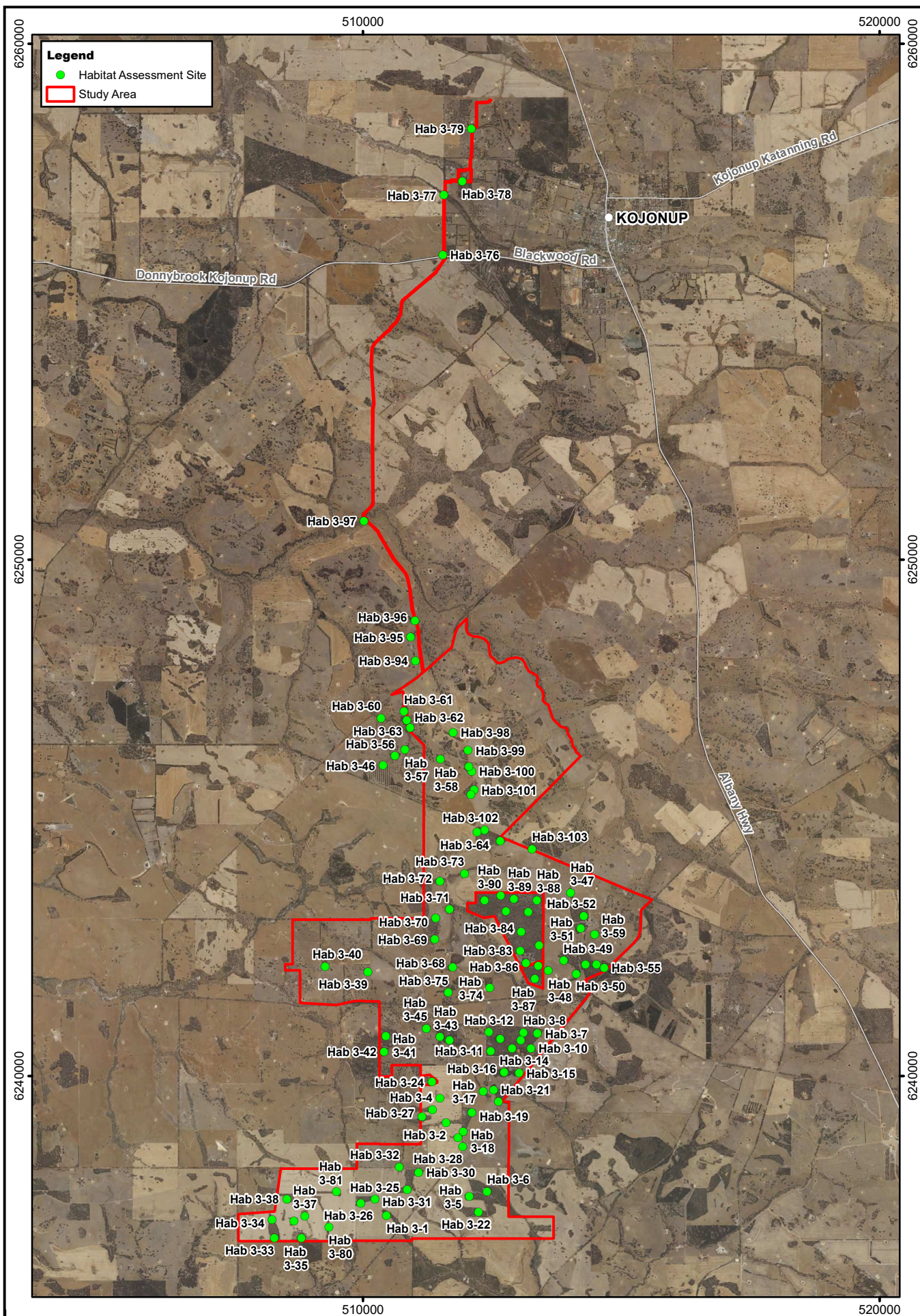
Although timing is not critical for a basic fauna survey, where the emphasis is on habitat characterisation, the spring surveys were scheduled within the July – December survey period for Carnaby's Cockatoo and August – January survey period for Baudin's Cockatoo in the Jarrah Forest, as recommended in DAWE (2022). Although the survey occurred outside the peak season for the Forest Red-tailed Black-cockatoo, the survey guidelines state that surveys for this species can be done any time of the year (DAWE 2022). Spring is also a time of peak activity for the general bird assemblage.

2.6.3 Habitat Assessment and Mapping

Habitat assessments were undertaken at 102 points across the study area (Figure 6, Appendices 2 and 3). At each habitat assessment point the following were recorded:

- Site designation and GPS co-ordinates
- Representative photographs
- Habitat name
- Landform
- Vegetation (brief description of structure and dominant species, if known)
- Evidence of fire
- Disturbance (e.g., weeds, grazing, firewood collection)
- Soil colour and type
- Rock type and presence of any outcropping
- Important habitat elements, including, but not limited to the presence of:
 - Leaf litter accumulations
 - Woody debris and logs
 - Tree hollows or crevices
 - Soils suitable for burrowing
 - Long-unburnt vegetation
 - Caves or rock crevices
 - Dense shelter vegetation
 - Important plant species for conservation significant fauna
- Presence of wetlands
- Any fauna

The fauna habitats of the study area were identified and mapped using the habitat assessments and observations made in the field during the fauna survey, interpretation of vegetation mapping (Mattiske Consulting 2024), aerial photography and land system mapping.



Drawn: CAD Resources
 www.cadresources.com.au
 Tel: (08) 9246 3242

CAD Ref: a3050Fa045

Date: October 2025

A4

Rev: A

Author: J. Wilcox



0 0.75 1.5 km
 Scale: 1:100,000
 MGA94 (Zone 50)

Western
 Wildlife



Kojonup Wind Farm Habitat assessment sites

Figure:

6

2.6.4 Bird Utilisation Survey

Bird survey sites were at proposed turbine locations ('impact sites') and in the surrounding area ('reference sites') (Appendix 2, Figure 7). Three turbine locations were deleted from the proposed layout after the first survey, and data from these sites were included as reference data only (sites A34 – A36). The number of survey sites varied between surveys as site conditions rendered some sites inaccessible at times. There were 33 impact sites in November 2023 (K01 – K33), 29 in August 2024 and 32 in November 2024. Reference sites were added in August 2024, with eight sites sampled (C01 – C08) in both August and November 2024. Reference sites were chosen using aerial photography and contours, to choose sites that had similar characteristics as the impact sites, including visibility, proximity to vegetation and height in the landscape.

Each site was surveyed on four occasions, two in the morning and two in the afternoon (except when vehicle movement bans prohibited site access). Each bird survey was undertaken for 20 minutes by a single observer. All birds seen or heard within 200m of the observer were recorded, and the flight height was recorded as one of the following categories:

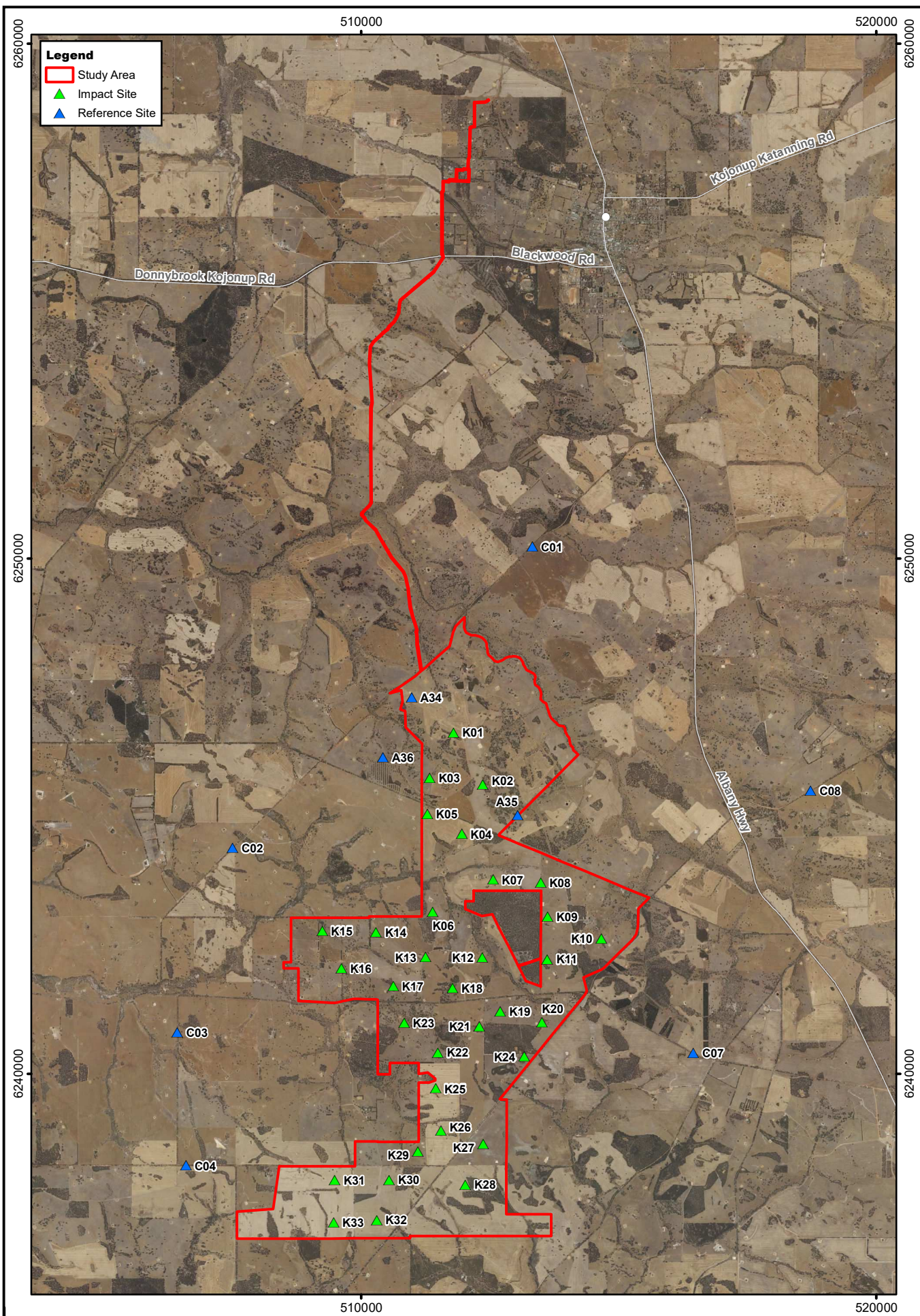
- Below rotor swept area (RSA) (0 – 50m)
- At RSA (50 – 200m)
- Above RSA (>200m)
- Not observed flying

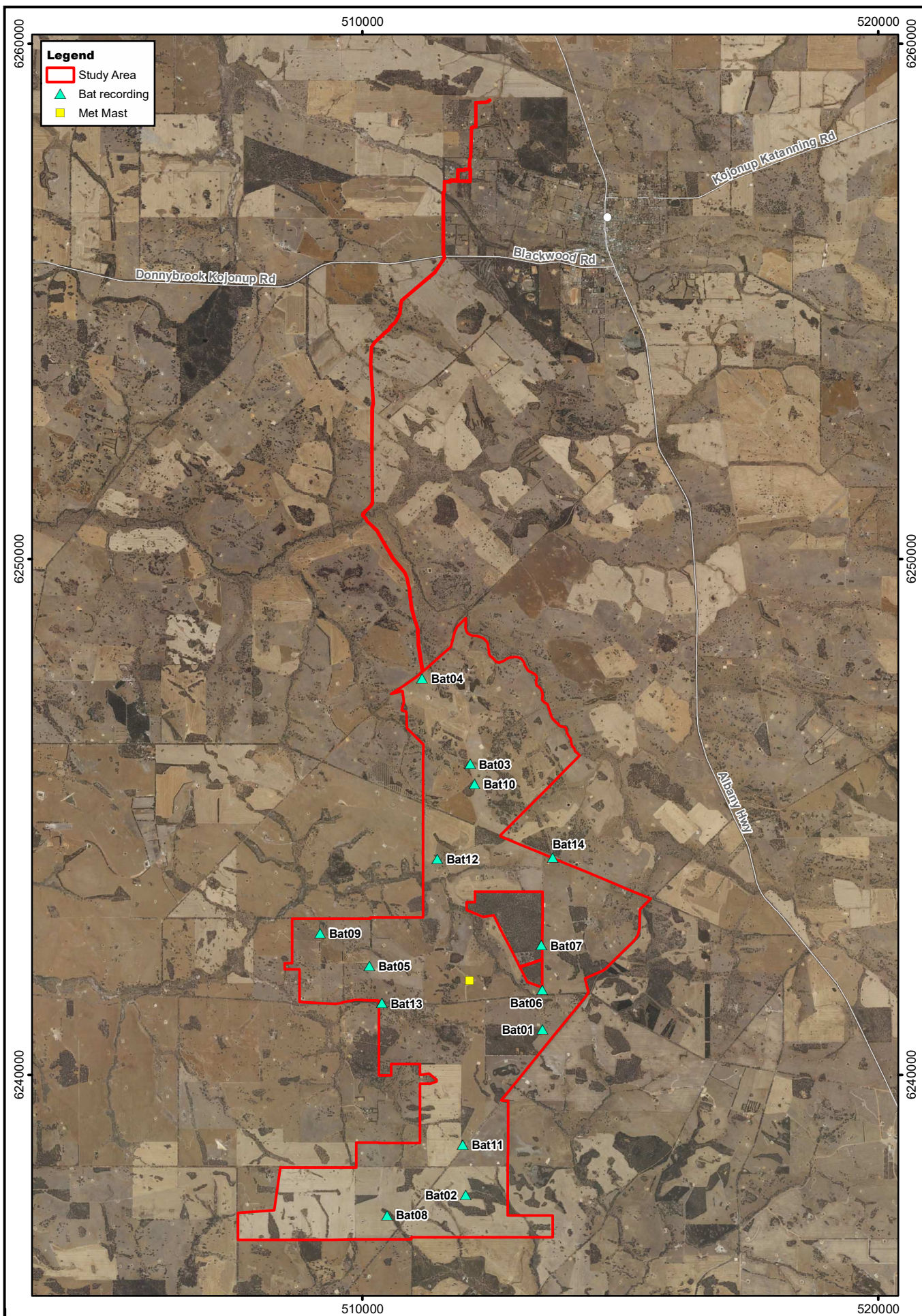
Birds recorded as 'not observed flying' were either perched for the duration of the survey, heard only or moving entirely within vegetation and therefore deemed not to be crossing open habitat. Birds observed outside of the survey area were recorded as opportunistic observations.

As black-cockatoos were considered a key group of species, flight paths were recorded both during bird surveys and opportunistically whenever these species were encountered. Flight paths were recorded manually onto paper maps in the field and later translated into a spatial dataset. For each flight path, the date, time, number of birds, flight height (as per the above categories) and direction was recorded.

2.6.5 Bat Utilisation Survey

The purpose of the bat survey was to identify the bat assemblage present in the study area, supplementing the data available in the literature review. Bat calls were recorded using Anabat Swift or Anabat Ranger call detectors set to record between dusk and dawn. Detectors were deployed 3 – 4 nights at each sampling site to give a total of 22 nights of recordings across six sites in November 2024, and 16 nights recordings across four sites each in August and November 2024 (Appendix 2, Figure 8). The calls were then analysed by Specialised Zoological (2024, 2025), and the bat calls identified to species level where possible (Appendix 7). All bat detectors were placed a metre above ground level. One pair of bat detectors was placed with one at 50m and one at the base of a metrological mast, but these data have yet to be analysed.





2.6.6 Cockatoo Habitat Survey

The habitats of the study area were assessed for the potential to support one or more of the following Threatened black-cockatoo species:

- Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*)
- Carnaby's Cockatoo (*Zanda latirostris*)
- Baudin's Cockatoo (*Zanda baudinii*)

The study area was examined for the presence of vegetation types or plant species known to constitute cockatoo foraging habitat and any evidence of foraging such as chewed fruits or flowers. Overall foraging habitat quality was determined using the scoring tool in DAWE (2022). Any evidence of roosting, such as aggregations of scats and feathers, or potential roost sites were recorded with a GPS location.

In the referral guidelines, breeding habitat for cockatoos is defined as habitat that contains known, suitable or potential nesting trees (DAWE 2022). Potential nesting trees are those that have a suitable diameter at breast height (DBH) to develop a nest hollow (usually a minimum of 30 – 50cm), but do not currently have hollows. A suitable nest tree has a suitable nesting hollow present, and a known nesting tree is one where breeding or evidence of breeding has been recorded (DAWE 2022).

Known, suitable or potential nesting trees were recorded for part of the study area, and this work is on-going. Trees were recorded by measuring the DBH for all Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) trees that had a DBH \geq 50cm and for all Wandoo (*Eucalyptus wandoo*) trees that had a DBH \geq 30cm. Each tree was examined from the ground for the presence of existing hollows. All trees that met the DBH criterion were recorded with a GPS location, the tree species (if known) and whether live or dead. The tree hollows were classified into the following categories:

- Category 1 = Tree occupied by breeding cockatoos ('known nesting tree' according to DAWE 2022).
- Category 2 = Tree contains hollow/s potentially suitable for cockatoos and shows evidence of use by cockatoos (e.g., chew marks) ('known nesting tree' according to DAWE 2022).
- Category 3 = Tree contains hollow/s potentially suitable for cockatoos ('suitable nesting tree' according to DAWE 2022).
- Category 4 = Tree contains hollow/s suitable for other fauna, but none potentially suitable for cockatoos ('potential nesting tree' according to DAWE 2022).
- Category 5 = No visible hollows ('potential nesting tree' according to DAWE 2022).

As hollows were viewed from the ground, no determination could be made of hollow depth, thus the approach of defining all hollows as 'potential'. Any evidence of Feral Bees (*Apis mellifera*) or hollow use by other fauna was also recorded.

Cockatoo foraging habitat was mapped into the following categories:

- Pasture - may contain isolated foraging trees
- Pine plantation
- Woodlands unlikely to be foraging habitat
- Woodlands with Jarrah
- Woodlands with Jarrah and Sheoak
- Woodlands with Marri
- Woodlands with Marri and Jarrah
- Woodlands with Marri and Sheoak
- Woodlands with Marri, Jarrah and Sheoak
- Woodlands with Marri, Jarrah and understory vegetation
- Woodlands with Sheoak

2.6.7 Opportunistic Records

At all times, observations of fauna were noted when they contributed to the accumulation of information on the fauna of the site. These included casual observations of reptiles, mammals and birds seen while travelling between sites or while undertaking other activities. Opportunistic observations were recorded to a general location for common species, and conservation significant species were recorded with a GPS location.

2.7 Assessment of Conservation Significance

2.7.1 Legislative Protection for Fauna

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Commonwealth Government's primary piece of environmental legislation. Listed under Part 3 of the EPBC Act are 'Matters of National Environmental Significance' (MNES); these include threatened species, threatened ecological communities and migratory species. Threatened fauna species are assessed against categories based on International Union for Conservation of Nature (IUCN) criteria.

The migratory species listed under the EPBC Act are those recognised under international agreements. These agreements are the China-Australia Migratory Bird Agreement (CAMBA), the Japan-Australia Migratory Bird Agreement (JAMBA), the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA), or species listed under the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) for which Australia is a range state.

Matters of National Environmental Significance (MNES) include the following categories:

- **Extinct in the wild (EW):** Taxa known to survive only in captivity.
- **Critically Endangered (Cr):** Taxa facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered (En):** Taxa facing a very high risk of extinction in the wild in the near future.
- **Vulnerable (Vu):** Taxa facing a very high risk of extinction in the wild in the medium-term future.
- **Migratory (Mi):** Taxa listed under international agreements to which Australia is a party.

Reports on the conservation status of most vertebrate fauna species have been produced by the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) in the form of Action Plans. An Action Plan is a review of the conservation status of a taxonomic group against IUCN categories. Action Plans have been prepared for amphibians (Tyler 1998), reptiles (Cogger *et al.* 1993), lizards and snakes (Chapple *et al.* 2019), birds (Garnett and Barker 2021) and mammals (Woinarski *et al.* 2014). These publications also use categories similar to those used by the EPBC Act. The information presented in some of the earlier Action Plans may be out of date due to changes since publication.

The *Biodiversity Conservation Act 2016* (BC Act) is State legislation that aims to conserve and protect biodiversity and biodiversity components in Western Australia, including threatened fauna. It is administered by the Department of Biodiversity, Conservation and Attractions (DBCA). In addition to threatened fauna, the BC Act has scope to protect threatened ecological communities and important habitats.

Fauna species are listed under the BC Act as threatened species using IUCN categories, or as specially protected species, as described below.

Threatened Species:

- **Extinct in the wild (EW):** Taxa known to survive only in captivity.
- **Critically Endangered (Cr):** Taxa facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered (En):** Taxa facing a very high risk of extinction in the wild in the near future.
- **Vulnerable (Vu):** Taxa facing a very high risk of extinction in the wild in the medium-term future.

Specially Protected Species:

- **Migratory (Mi):** A subset of the migratory fauna that are known to visit Western Australia that are protected under the international agreements or treaties, excluding species that are listed as Threatened species.
- **Conservation dependent fauna (CD):** Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened
- **Other specially protected species (OS):** fauna in need of special protection to ensure their conservation.

Priority species are not listed under State or Commonwealth Acts. In Western Australia, DBCA maintains a list of Priority Fauna made up of species that are possibly Threatened but do not meet adequacy of survey requirements or are otherwise data deficient. There are four levels of Priority as defined by DBCA, as listed below.

- **Priority 1:** Poorly known species (on threatened lands)
- **Priority 2:** Poorly known species in few locations (some on conservation lands)
- **Priority 3:** Poorly known species in several locations (some on conservation lands)
- **Priority 4:** Rare, near threatened and other species in need of monitoring

2.7.2 Levels of Conservation Significance in this report

Five levels of conservation significance are used within this report to indicate the level of significance of fauna species, according to the following criteria:

- **Threatened (T):** Taxa listed as Extinct in the Wild, Critically Endangered, Endangered or Vulnerable under the EPBC Act and/or BC Act. These species are grouped as they are all species considered to be at risk of extinction, are often rare and are likely to be subject to on-going threatening processes.
- **Migratory (Mi):** Taxa listed as Migratory under the EPBC Act and/or BC Act, excluding those species also listed as threatened. These species are grouped as they are not necessarily rare, but may be dependent on specific habitats for a portion of their life-cycle. For these species, loss of important foraging, breeding or stop-over sites may have a disproportionately large impact on populations.
- **Specially Protected (OS or CD):** Taxa listed as Other Specially Protected Species or Conservation Dependent Fauna under the BC Act. These species are not necessarily rare, but may be dependent on on-going conservation to ensure their protection.
- **Priority (P):** Taxa listed as Priority by DBCA. These species are grouped as they are either conservation dependent or data deficient and in need of further survey.

2.8 Likelihood of Occurrence

Fauna of conservation significance were assessed and ranked for their likelihood of occurrence in the study area, according to the criteria in Table 3.

Table 3. Criteria for assessing likelihood of occurrence.

Likelihood	Criteria
Unlikely	<ul style="list-style-type: none"> The study area is outside the current known distribution of the species as presented in the literature. No suitable habitat was identified as being present during the field survey. For some species, individuals may occur occasionally as vagrants, especially if suitable habitat is located nearby, but the study area itself would not support the species. May include species generally accepted as being locally extinct.
Possible	<ul style="list-style-type: none"> The study area is within or just outside the current known distribution of the species, as presented in the literature. Any habitat present is either limited in extent or of marginal quality at best. No recent or nearby records of the species on databases. The species is generally known to be less common in the vicinity of the study area (e.g., for inland sites, where the species usually occurs on the coast).
Potential	<ul style="list-style-type: none"> The study area is within the current known distribution of the species, as presented in the literature. Habitat of reasonable quality was identified as being present during the field survey. There are some recent and/or nearby records of the species of databases.
Likely	<ul style="list-style-type: none"> The study area is well within the current known distribution of the species, as presented in the literature. Habitat of good quality was identified as being present during the field survey. Many recent and nearby records of the species on databases.
Known to occur	<ul style="list-style-type: none"> The species was positively identified in the study area during this field survey or recorded as occurring in the study area on previous recent field surveys. Note that for a species 'known to occur', the habitat may still be marginal and therefore the population may be small, or the species may visit the site irregularly.

2.9 Bird and Bat Risk Assessment

The risk of turbine collision was estimated for all species of bat, all conservation significant birds and categories of birds considered at risk of collision. Collision-risk species were considered to potentially include:

- Diurnal birds of prey
- Nocturnal birds of prey
- Waterbirds (only species recorded in the study area were assessed)
- Shorebirds (only species recorded in the study area were assessed)
- Any bird recorded flying at RSA height in this survey

The likelihood and consequence criteria used to determine risk are adapted from Lumsden *et al.* 2019, *Onshore Wind Farms – interim guidance on bird and bat management* (DAWE 2021) and a review of the literature (e.g. Thaxter *et al.* 2017, Perhold *et al.* 2020, Barrios and Rodriguez 2004, Ribeiro *et al.* 2022 and Stewart *et al.* 2007).

The risk was estimated using six factors to determine the likelihood of a mortality (Table 4) and four factors to determine the consequences of those mortalities on the population of the species (Table 5). It is important to note that the data for many species is incomplete. In particular, records of mortalities incurred at other wind farms in Australia are often not available in the public domain, making it difficult to distinguish between species that *may* be at risk due to ecological or behavioural factors, and those that are *known* to be at risk due to mortality incurred at other sites. Similarly, the demographic resilience of populations is generally inferred, as empirical studies have not been undertaken.

Once the overall risk levels for the likelihood and consequence of mortality specific to the Project had been assigned for a species, the results were then placed into a risk matrix to determine the level of risk (Table 6). The risk matrix should be considered a guide rather than a predictive tool, recognising that bird and bat behaviours are varied and complex and that at times the data available to assess likelihood and consequence rankings are incomplete. Where insufficient data were available, the precautionary principle was applied and a higher ranking selected.

Table 4. Likelihood factors.

Likelihood factors	Ranking		
	Low Loss of individuals unlikely	Moderate Some loss of individuals	High Loss of many individuals
Flight height Known or likely frequency of flights within rotor-swept area (RSA)	Species rarely flies within RSA (<50m or >200m above ground).	Species does fly within the RSA (50 – 200m above ground), although the bulk of their flights are below the RSA (<50m).	Species regularly flies within the RSA (50 – 200m above ground).
Flight behaviour Species may exhibit flight behaviour that makes individuals more or less likely to avoid turbines. For bats, species with a higher wing aspect ratio and high wing loading are at greater risk.	Species flies slowly and/or has high manoeuvrability and/or does not soar. Bats with a low wing aspect ratio and low wing loading	Species flies at moderate speed and/or has moderate manoeuvrability and/or occasionally soars. Bats with a moderate wing aspect ratio and moderate wing loading.	Species flies fast and/or has low manoeuvrability and/or regularly soars. Bats with a higher wing aspect ratio and high wing loading.
Status in study area Species that are common in the study area are at greater risk than those that occur occasionally.	Likelihood of occurrence is possible (see Table 3).	Likelihood of occurrence is potential (see Table 3).	Likelihood of occurrence is likely or known to occur (see Table 3).
Habitat preference Species that occur in open habitats where turbines are sited are at greater risk than species that occur in closed habitats.	Species inhabits closed habitats such as woodlands, rarely entering open areas.	Species usually use closed habitats, but sometime use open habitats, regularly traversing open areas between occupied habitat patches.	Species regularly or usually occurs in open habitats.
Migration Migratory species or species that undertake regular daily movements through the wind farm site potentially have an increased risk of mortality.	Species is sedentary, does not undertake seasonal migration or regular movements between roosting and foraging areas.	Species undertakes regular daily movements in some seasons; wind farm site is not within a regular migration path.	Species is known to make regular or seasonal movements through the wind farm site, including movements of migratory shorebirds or waterbirds between wetlands.
Known wind farm mortalities Species known to have been subject to mortalities at other wind farm projects may be at greater risk of mortality.	No or very few losses reported at other wind farm projects.	Some losses reported at other wind farm projects.	Large losses reported at other wind farm projects.

Table 5. Consequence factors.

Consequence factors	Ranking			
	Negligible No population impact likely	Low Potential impact to local population	Moderate Potential impact to regional population	High Potential impact to total population
Geographic population concentration Highly localised or concentrated population (for whole or part of lifecycle), such that siting of wind farm could have significant consequence to regional, national or international population.	Species that are widely dispersed within areas of suitable habitat and the habitat itself is relatively widespread.	Species that are relatively widespread but may exhibit temporary congregatory behaviour in response to seasonal events such as peak flowering.	Species, such as some shorebirds, that may be more widespread or have greater flexibility in the range of suitable habitat availability, but where a high proportion of the population is likely to be concentrated at sites where they do occur.	Species that congregate, e.g. bats with major aggregations at a few caves, birds that have very restricted distributions or may be seasonally concentrated at very few small locations, such as congregatory waterbirds.
Demographic resilience Impact on population relative to demographic capacity to replace fatalities (i.e. generalised combination of dispersal capacity of potential replacements, fecundity and generation time).	Species that form breeding territories and that have a reasonable proportion of the population as non-breeding 'floaters' that can rapidly replace breeding territorial adults if lost; species that may or may not form breeding territories and that are short-lived and have high fecundity; species that have capacity for long-range or widespread juvenile or sub-adult dispersal.	Species that form breeding territories with a moderate capacity to replace lost breeding adults; species that have modest life-spans with moderate fecundity; species with a capacity for moderate dispersal distances of juveniles or sub-adults.	Species that form breeding territories with some capacity to replace lost breeding adults; species that have moderately long life-spans with modest fecundity; species with capacity for modest dispersal distances of juveniles or sub-adults.	Species that form breeding territories where there is limited capacity for a lost breeding adult to be readily replaced; species that do not form breeding territories and that are long-lived and/or have low fecundity; species that may have short-distance juvenile or sub-adult dispersal capacity only.
Population size Estimated size of population of which the species is a part (Western Australian, Australian or global).	Total population is >100,000	Total population is 20,000 – 100,000 individuals.	Total population is 5,000 – 20,000 individuals.	Total population is <5,000 individuals.

Table 5 (cont.)

Consequence factors	Ranking			
	Negligible No population impact likely	Low Potential impact to local population	Moderate Potential impact to regional population	High Potential impact to total population
Listed conservation status Highest level of conservation status under the EPBC Act, BC Act, DBCA Priority list or in current Action Plans.	No conservation listing.	Other Specially Protected Fauna or Conservation Dependent under the BC Act, DBCA Priority listed, Data Deficient or Near Threatened.	Vulnerable species	Endangered or Critically Endangered species.

Table 6. Risk Matrix

		Consequence of mortality			
		Negligible	Low	Moderate	High
Likelihood of mortality	Low	Negligible	Negligible	Minor	Moderate
	Moderate	Negligible	Minor	Moderate	High
	High	Minor	Moderate	High	Very High

3. Survey Limitations

Various factors can limit the effectiveness of a fauna survey. Pursuant to EPA Technical Guidance (EPA 2020), these factors have been identified and their potential to impact on the effectiveness of the surveys has been assessed in Table 7. All fauna surveys have limitations, and not all fauna species present on the site are likely to be sampled during a survey. Fauna may not be recorded because they are rare, they are difficult to trap or observe, or because they are only present on the site for part of the year.

Table 7. Fauna survey limitations.

Potential Limitation	Extent of limitation for the fauna survey
Availability of data and information	Somewhat Limiting. Although the study area is within the south-west, it is in a relatively understudied area compared to the more forested regions to the west and regions with higher levels of mining development. When assessing risk of impact to birds and bats, basic data on individual species are often unavailable or extrapolated from general traits, and data on previous mortalities at wind farms are sparse in the public domain. No data on impacts of wind farms on black-cockatoos could be sourced in the public domain.
Competency/experience of the survey team, including experience in the bioregion surveyed	Not Limiting. Key personnel have over 20 years' experience with fauna surveys in Western Australia and are experienced with bird and bat surveys. All personnel have undertaken previous surveys in the Jarrah Forest Bioregion and the wheatbelt region of Western Australia.
Scope of survey (e.g., faunal groups excluded from the survey)	Minor Limitation. The survey covered all vertebrate faunal groups. Few reptiles or terrestrial mammals were recorded, but this is consistent with basic fauna surveys of this type. Recording flight heights of nocturnal birds was not undertaken and is considered a challenging task. This is consistent with other wind farm bird surveys.
Timing, weather and season	Minor Limitation. The timing of the survey was consistent with that recommended in the Technical Guidelines (EPA 2020) and DAWE (2022). The weather during the survey was warm to hot and suitable for observing birds, although moderate breezes may have decreased flight activity by smaller birds. Hot weather and a vehicle movement ban on one day resulted in reduced surveys on one afternoon in the November 2023 survey. Wet site conditions made some sites inaccessible for the August 2024 survey.
Disturbance that may have affected the results	Not Limiting. Study area is within farmland, but no unusual disturbances were noted.
The proportion of fauna identified, recorded or collected	Not Limiting. The field component of the survey was supported with a literature review and a relatively high proportion of the potentially occurring birds were recorded. Few reptiles or terrestrial mammals were recorded, but this is consistent with basic fauna surveys of this type.
The adequacy of the survey intensity and proportion of survey achieved (e.g., extent to which the area was surveyed)	Not Limiting. The intensity and coverage of the fauna survey was adequate and appropriate for the level of survey. A representative portion of all habitats were visited during the survey. Bird surveys were undertaken at all proposed turbine locations.
Access problems	Not Limiting. All habitats were readily accessible by vehicle and/or on foot and a representative portion of each habitat was able to be surveyed.
Problems with data and analysis, including sampling biases	Not Limiting. No complex analyses were undertaken, and no problems were noted.

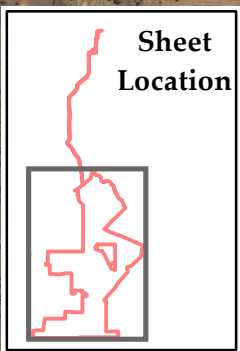
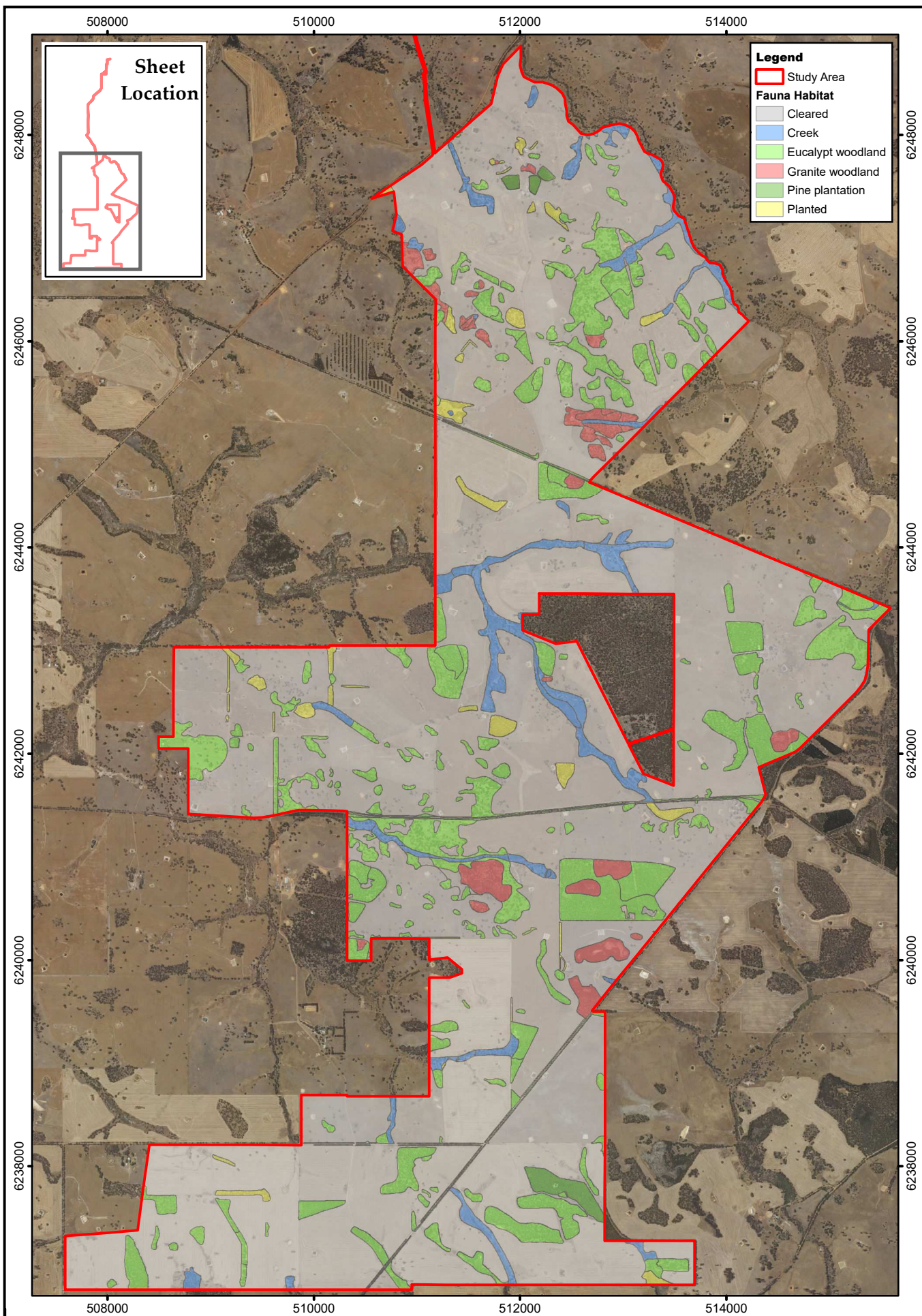
4. Fauna Habitat

4.1 Habitats of the Study Area

Six fauna habitats were identified in the study area (Table 8, Figure 9). Each habitat is described further in the following sections. The majority of the study area (77.9%) is cleared, and the remaining habitats are relatively common in the region. The main disturbances present are those that commonly occur in agricultural regions where the majority of the native vegetation has been cleared. The remaining vegetation occurs in patches of various size and are impacted by loss of understory habitat through livestock trampling, weed invasion, feral predators, feral herbivores, historical ring-barking of trees for timber and timber cutting for firewood.

Table 8. Fauna habitats in the study area.

Habitat	Key Habitat Elements	Area (ha)
Eucalypt woodland	<ul style="list-style-type: none"> Tree hollows provide nesting and shelter habitat for arboreal mammals and reptiles and nesting habitat for birds. Fallen logs provide shelter habitat. Where present, Marri and Jarrah in the canopy and Hakea or Banksia spp. in the understory provide food-plants for Threatened Black-cockatoos. 	552.3 (14.5%)
Granite woodland	<ul style="list-style-type: none"> Dense vegetation surrounding outcrops provide shelter habitat for birds. Ephemeral pools and run-off areas provide breeding habitat for frogs. Where present, Marri and Jarrah in the canopy and She-oak in the understory provide food-plants for Threatened Black-cockatoos. 	78.2 (2.0%)
Creek	<ul style="list-style-type: none"> Creeks may provide ecological linkages. Creeks provide breeding habitat for frogs. Where present, Marri and Jarrah in the canopy provide food-plants for Threatened Black-cockatoos. 	142.4 (3.7%)
Pine plantation	<ul style="list-style-type: none"> Pines provide food-plants for Threatened Carnaby's Cockatoo. 	19.6 (0.5%)
Planted	<ul style="list-style-type: none"> Planted vegetation may provide ecological linkage in the absence of remnant native vegetation. 	50.9 (1.3%)
Cleared (includes isolated paddock trees and farm dams)	<ul style="list-style-type: none"> Isolated paddock trees provide habitat for fauna, including potential tree hollows and foraging habitat for Threatened Black-cockatoos. Cleared areas provide foraging habitat for aerial birds, including birds of prey. Farm dams provide breeding habitat for frogs. Farm dams provide breeding habitat for a small number of common waterbirds. 	2,973.3 (77.9%)
Total:		3,816.8



Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

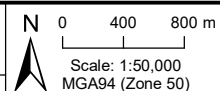
CAD Ref: a3050Fa048

Date: October 2025

A4

Rev: A

Author: J. Wilcox



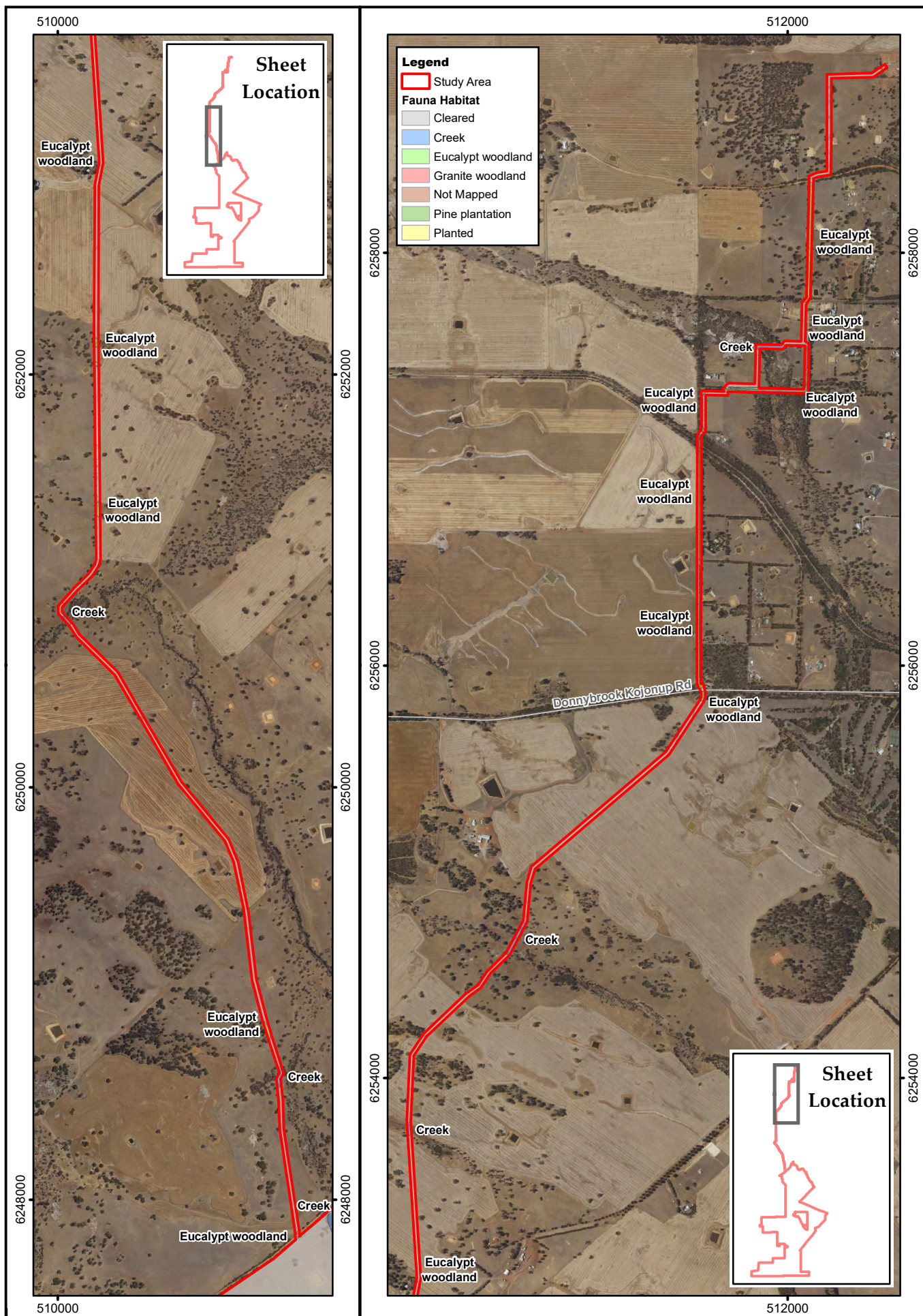
**Western
Wildlife**



**Kojonup Wind Farm
Fauna Habitats**

Figure:

9A



Drawn: CAD Resources
 www.cadresources.com.au
 Tel: (08) 9246 3242

CAD Ref: a3050Fa048_01 A4

Date: October 2025

Rev: A

N 0 200 400 m
 Scale: 1:25,000
 MGA94 (Zone 50)

Author: J. Wilcox

Western
 Wildlife



Kojonup Wind Farm
 Fauna Habitats

Figure:

9B

4.1.1 Eucalypt Woodland

Eucalypt woodland occurs in remnant patches of various sizes, usually on low lateritic hills and rises, as the lower lying areas have been cleared for agriculture. The woodlands comprise mainly Wandoo (*Eucalyptus wandoo*), Jarrah (*Eucalyptus marginata*) and/or Marri (*Corymbia calophylla*) with Powderbark Wandoo (*Eucalyptus accedens*) on laterite rises (Plates 1 – 4). The understory in most patches is limited to native and introduced grasses with sparse low native shrubs, with small stands of *Banksia* and other shrubs in the larger patches. Understory vegetation remains in the two largest woodland patches of about 57ha.

This habitat is generally quite disturbed as the woodland patches are used as shelter for stock, a source of firewood and historically as a source of timber for building. In some areas all of the larger trees have been ring-barked, and although the dead trees still have value as many have hollows, these trees will gradually fall and it will take many years for new trees to bear hollows.

Conservation Significant fauna that may be associated with this habitat include, but are not limited to, the Red-tailed Phascogale (*Phascogale calura*: Vulnerable), Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*: Vulnerable), Carnaby's Cockatoo (*Zanda latirostris*: Endangered), Baudin's Cockatoo (*Zanda baudinii*: Endangered), Muir's Corella (*Cacatua pastinator pastinator*: Conservation Dependent), Inland Western Rosella (*Platycercus icterotis xanthogenys*: Priority 4), Brush-tailed Phascogale (*Phascogale tapoatafa*: Conservation Dependent) and Central Long-eared Bat (*Nyctophilus major tor*).



Plate 1. Eucalypt woodland with understory.



Plate 2. Eucalypt woodland with understory.



Plate 3. Eucalypt woodland without understory.



Plate 4. Eucalypt woodland on laterite rise without understory.

4.1.2 Granite Woodland

Small granite outcrops are surrounded by a dense woodland of Rock Sheoak (*Allocasuarina huegeliana*), with occasional Wandoo (*Eucalyptus wandoo*) over White Myrtle (*Hypocalymma angustifolium*) and sedges (Plates 5 - 7). Granite outcrops provide exfoliating rock and ephemeral pools as habitat for reptiles and frogs. Conservation Significant fauna that may be associated with this habitat include the Forest Red-tailed Black-cockatoo (*Calyptrorhynchus banksii naso*: Vulnerable) and Red-tailed Phascogale (*Phascogale calura*: Vulnerable).



Plate 5. Granite outcrop with Sheoak woodland.



Plate 6. Exfoliating rock on granite outcrop.



Plate 7. Granite woodland.

4.1.3 Creek

Small seasonal creeks occur in the shallow valleys on generally sandy-clay soils (Plates 8 – 10). The riparian zone supports an open woodland of Flooded Gum (*Eucalyptus rudis*), sometimes with Swamp Paperbark (*Melaleuca raphiophylla*) and Marri (*Corymbia calophylla*) on the higher ground, over Knotted Club-rush (*Ficinia nodosa*) and introduced grasses.

This habitat is generally very disturbed as the surrounding vegetation has been cleared for farming and it is accessible by livestock. The habitat is impacted by increasing salinity, weeds, grazing, trampling by livestock and lack of regeneration, resulting in a lack of native understory vegetation and a gradual loss of trees.

No Conservation Significant fauna species are particularly associated with the creek habitat, although some species may use it for dispersal and the Water-rat (*Hydromys chrysogaster*: Priority 4) may occur on occasion.



Plate 8. Creek.



Plate 9. Creek.



Plate 10. Creek.

4.1.4 Pine Plantation

Small parts of the study area are planted to pines (Plate 11). There are more extensive pine plantations adjacent to the study area. A Conservation Significant fauna species likely to be associated with this habitat is Carnaby's Cockatoo (*Zanda latirostris*: Endangered).



Plate 11. Pine Plantation.

4.1.5 Planted

Planted vegetation usually consisted of local or non-local eucalypts planted in rows with no understory (Plate 12). No Conservation Significant fauna species are particularly associated with planted vegetation, but some areas may provide habitat, depending on the species planted.



Plate 12. Planted vegetation.

4.1.6 Cleared Land

A large part of the study area is cleared land, generally used for cropping or pasture (Plate 13). A Conservation Significant fauna species that may be associated with this habitat is the Peregrine Falcon (*Falco peregrinus*: other specially protected fauna).

Farm dams also occur on cleared land and may support small numbers of frogs and waterbirds and provide habitat for drinking and bathing (Plate 14). No Conservation Significant fauna species are particularly associated with farm dams, although they may be used occasionally by the Water Rat (*Hydromy chrysogaster*: Priority 4) and Common Sandpiper (*Actitis hypoleucos*: Migratory).

Isolated paddock trees in cleared areas potentially provide foraging and/or breeding habitat for the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*: Vulnerable), Carnaby's Cockatoo (*Zanda latirostris*: Endangered) and possibly Baudin's Cockatoo (*Zanda baudinii*: Endangered).



Plate 13. Cleared land.



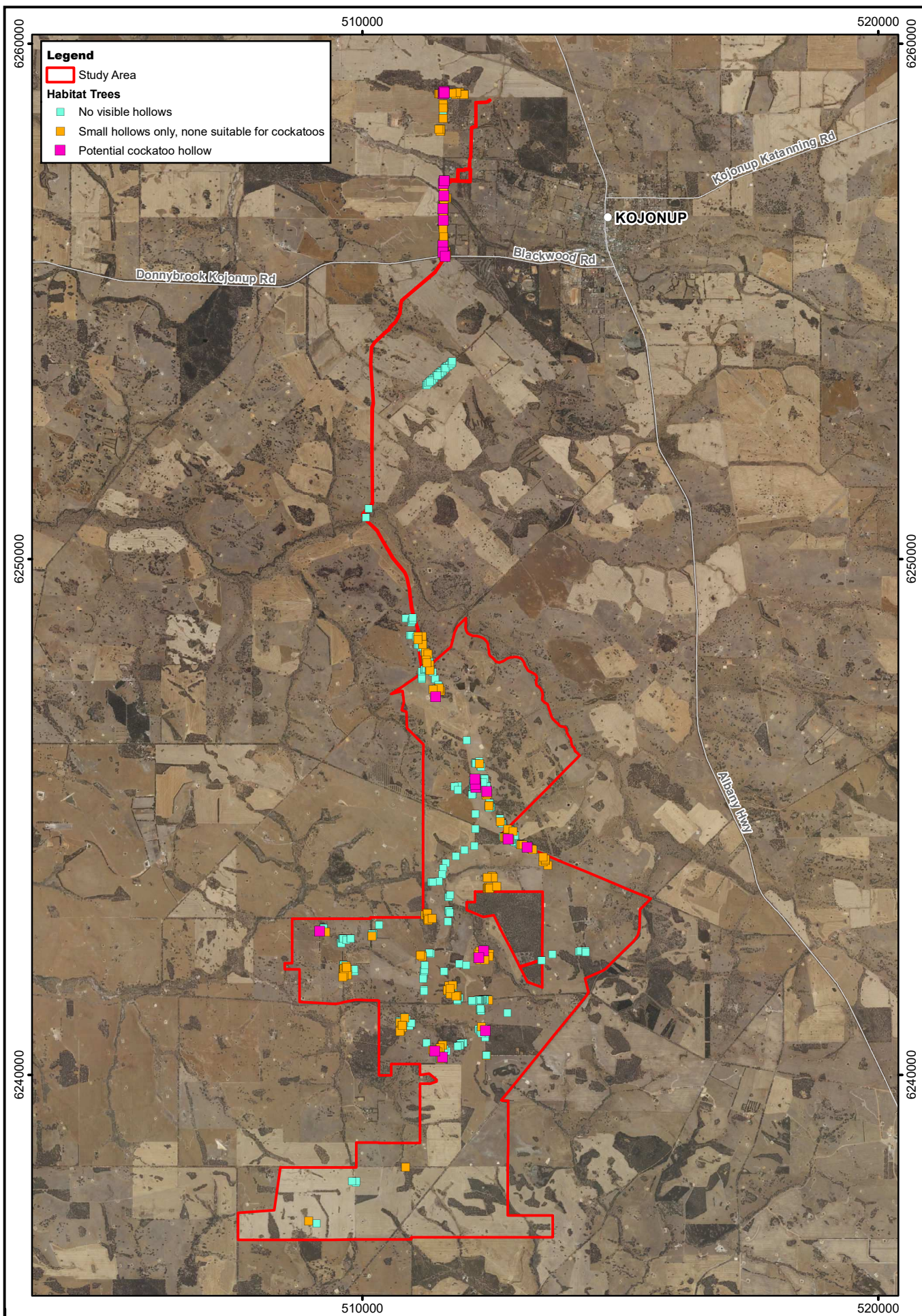
Plate 14. Farm dam on cleared land.

4.2 Habitat Trees

Although all trees potentially provide habitat for fauna, habitat trees in this context refers to potential, suitable or known nesting trees for Threatened black-cockatoos, as defined by (DAWE 2022). Habitat trees are likely to occur mostly in eucalypt woodlands, as well as granite woodlands, creeks and as isolated paddock trees in cleared areas (Plate 15). Habitat trees recorded thus far are shown on Figure 10. Habitat trees have mostly been recorded in the vicinity of the proposed transmission line and other infrastructure, and do not represent all of the habitat trees present in the study area. No known cockatoo breeding trees were recorded, but there were trees containing potentially suitable hollows.



Plate 15. Examples of potential nesting trees in the study area.



4.3 Important Habitats

All habitats have some importance in that they support native fauna, however, habitats may be of particular importance if they:

- support very diverse or unique faunal assemblages
- are restricted or rare in the region (and thus the faunal assemblages are restricted or rare)
- are refugia (e.g. from drought or fire)
- provide ecological linkage
- support conservation significant fauna

None of the habitats in the study area are likely to support a particularly unique faunal assemblage. The vertebrate fauna, although relatively diverse, are typical of the Bioregion.

Granite outcrops within the granite woodlands habitat are small but may act as refugia in the landscape and are relatively rare compared to other habitat types. As areas that were difficult to clear, granite outcrops often remain as habitat islands in an otherwise cleared landscape. The bare rock can provide protection from fire, and exfoliating rock provides moist microhabitats.

Despite being relatively degraded, the creek habitat is likely to function as an ecological linkage, as this may be some of the only remaining vegetation in some areas and occurs in linear corridors. In a largely cleared landscape, all remaining native vegetation is likely to play some role in ecological linkage. Even isolated patches can act as 'stepping stones' to allow movement of fauna through the landscape.

Although widespread in the region, eucalypt woodlands potentially provide important habitat for three Threatened black-cockatoos: Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*: Vulnerable), Carnaby's Cockatoo (*Zanda latirostris*: Endangered) and Baudin's Cockatoo (*Zanda baudinii*: Endangered). Both eucalypt woodlands and granite woodlands potentially provide important habitat for the Red-tailed Phascogale (*Phascogale calura*: Vulnerable).

5. Faunal Assemblage of the Study Area

5.1 Vertebrate Fauna Assemblage

The results of the literature review and field survey were combined to create a list of all the vertebrate fauna potentially occurring at in the study area (Appendix 4). Indicated in the fauna lists are all the species observed in the study area during the fauna survey and those recorded in the region as part of the literature review.

The potentially occurring vertebrate fauna assemblage is summarised in Table 9. The overall faunal assemblage is likely to be somewhat depauperate due to the extent of habitat loss, habitat fragmentation and the impacts of wood-cutting, grazing and feral predators on remaining habitat. In general, larger patches of habitat that retain understory are likely to support more species than small heavily-grazed patches. The faunal assemblage and conservation significant species likely to occur are further discussed in the sections below.

Table 9. Summary of vertebrate fauna predicted to occur in the study area.

Taxon	Total Species Predicted	Total Species Recorded	Conservation significant species			
			Threatened (T)	Migratory (Mi)	Specially Protected (OS,CD)	DBCA Priority (P)
Amphibians	12	2	-	-	-	-
Reptiles	46	4	-	-	-	-
Native Birds	147	76	4	2	2	3
Int. Birds	4	1	-	-	-	-
Native Mammals	28	8	3	-	1	7
Int. Mammals	5	2	-	-	-	-
Totals:	242	94	7	2	3	10

5.1.1 Amphibians

Up to 12 species of frog potentially occur in the study area (Appendix 4). Two frogs were opportunistically observed during the fauna survey. Creeks and ephemeral pools on granite outcrops potentially provide breeding habitat for frogs, as do farm dams in cleared areas. Many frog species burrow and forage in terrestrial environments, so may occur in the eucalypt woodlands and cleared areas, particularly where they are in close proximity to creeks.

5.1.2 Reptiles

Up to 46 species of reptile potentially occur in the study area, of which four were recorded opportunistically during the fauna survey (Appendix 4). Although not likely to represent the total assemblage, it is likely that the overall reptile assemblage is somewhat depauperate in most areas due to the effects of habitat loss, fragmentation and the actions of feral predators.

Eucalypt woodlands that retain understory vegetation, leaf litter, woody debris and logs are likely to be important for providing shelter to reptiles, as are granite outcrops with crevices and exfoliating rock. Larger, more mobile species such as the Bobtail (*Tiliqua rugosa*), Gould's Goanna (*Varanus gouldi*) and Dugite (*Pseudonaja affinis*) may be more resilient as they can move across cleared land between habitat patches and are able to use a variety of habitats including human-modified habitats (Plate 16). Fossorial species, such as Jan's Banded Snake (*Simoselaps bertholdi*), may be somewhat protected from predation due to their habits, as they shelter underground. Arboreal species, such as the Reticulated Velvet Gecko (*Hespeoedura reticulata*) are likely to be restricted to eucalypt woodlands, where trees provide crevices and hollows for shelter.



Plate 16. Bobtail (*Tiliqua rugosa*).

5.1.3 Birds

There are 151 species of bird that potentially occur in the study area (147 native and four introduced), of which 77 species were recorded (Appendix 4). Most of the potentially occurring bird species have wide distributions through the south-west, many occurring in a variety of habitats.

The bird assemblage is likely to be typical of the woodlands of the region. About 49% of Western Australian wheatbelt bird species have declined in abundance and/or distribution (Saunders and Ingram 1995). Passerine birds appear particularly vulnerable, with up to 75% of wheatbelt species experiencing declines (Burbidge and Gole 2005). All remnant native vegetation in the wheatbelt is likely to be important for birds. The larger the area of remnant vegetation, the more bird species it is likely to support, and though areas of over 1,500ha are required to conserve a local avifauna, areas as small as 80ha can be important (Kitchener *et al.* 1982). The largest patch of eucalypt woodland habitat in the study area retains its understorey and is about 57ha, so is likely to support a relatively intact bird assemblage.

The bird assemblage is likely to include a suite of species that are resident in the study area, a second group that makes regular or nomadic movements into and through the study area. Resident species include many of the small insectivores such as fairywrens, whistlers and robins. Resident species are present all year, though their populations may fluctuate in response to rainfall and fire.

Birds that make regular seasonal movements include the Rainbow Bee-eater (*Merops ornatus*), cuckoos and some birds of prey. Honeyeaters and lorikeets also make seasonal or nomadic movements to take advantage of flowering events. Although not present all year, these species are likely to use the study area for foraging, breeding or shelter on a seasonal basis or when conditions are suitable.

5.1.4 Mammals

There are 33 species of mammal that potentially occur in the study area, of which 28 are native and five introduced (Appendix 4). A total of 10 species were recorded on this survey, of which eight were native and two introduced. Sheep (*Ovis aries*) and Cattle (*Bos taurus*) were present as livestock and were not included in totals of species recorded. The mammals recorded were limited to those sighted during the day, observations of secondary signs, and analysis of recorded bat calls, so it is likely that more species would be recorded with other methods.

The native mammal fauna of the study areas is likely to be depauperate when compared to the original mammal assemblage of the region, as there has been local extinction of many critical weight range mammals since European settlement. The habitats in the study area are patchy and fragmented, but even small patches may support some native mammals. Eucalypt woodlands with understory vegetation are more likely to support small ground-dwelling species such as the Little Long-tailed Dunnart (*Sminthopsis dolichura*), however, these species may persist even in degraded habitat if some cover remains, albeit in reduced numbers and species richness.

Five species of insectivorous bat were positively identified from their call (Appendix 7). Other species may be present but could not be unambiguously confirmed from their calls. Bats are likely to forage in woodlands and over water or cleared areas, roosting in tree hollows by day. As bats are very mobile, they can use roost sites in relatively small, isolated eucalypt woodland patches.

The Fox (*Vulpes vulpes*) was recorded in the study area and is likely to be common. The Fox is likely to predate upon native fauna, particularly small mammals and reptiles.

5.2 Vertebrate Fauna of Conservation Significance

A total of 22 vertebrate fauna of conservation significance may occur in the study area: seven Threatened, two Migratory, three Specially Protected/Conservation Dependant and ten Priority species. The likelihood of occurrence of each species is summarised in Table 10 and their ecology and habitat use are discussed in the sections below.

Conservation significant fauna recorded on this survey are shown in Figure 11. Conservation significant fauna recorded within 40km of the study area on DBCA's Threatened and Priority Fauna Database are shown in Figures 11, 13 and 14. Note that some of the points shown have been generalized by DBCA to protect the exact location of protected species, and that the distribution of records reflects survey effort, rather than just distribution of species. Figure 12 shows confirmed breeding and roosting sites for cockatoos (mainly Carnaby's) in the region surrounding the study area.

Nine species recorded on DBCA's Threatened and Priority Fauna Database were omitted from the list in Appendix 4 and the discussion below, although the records are still shown on Figures 13, 15 and 16. The Bilby (*Macrotis lagotis*; Vulnerable), Western Ringtail Possum (*Pseudocheirus occidentalis*; Critically Endangered) and Woylie (*Bettongia penicillata ogilbyi*; Critically Endangered) are locally extinct and only represented by historical record prior to 1935 (DBCA 2023). The Australasian Bittern (*Botaurus poiciloptilus*; Endangered) is represented by a single record from 1982 and inhabits shallow wetlands with dense sedges or rushes, a habitat that is absent from the study area. The Glossy Ibis (*Plegadis falcinellus*; Migratory) is also a bird of vegetated shallow freshwater wetlands that is an uncommon visitor to the region. The Blue-billed Duck (*Oxyura australis*; Priority 4) has been recorded from lakes in the region, but no suitably deep wetland habitat is present in the study area. The Red-necked Stint (*Calidris ruficollis*; Migratory), Red Knot (*Calidris canutus*; Migratory & Endangered) and Hooded Plover (*Thinornis cucullatus*; Priority 4) are shorebirds, the Red Knot represented by a single record from 1885. Although these mobile shorebirds may occur on occasion, the study area lacks habitat to regularly support these species.

Six species listed on the EPBC Act Protected Matters Search Tool (Appendix 5) were omitted from the list in Appendix 4 and the discussion below. The Curlew Sandpiper (*Calidris ferruginea*; Critically Endangered & Migratory), Grey Wagtail (*Motacilla cinerea*; Migratory), Sharp-tailed Sandpiper (*Calidris acuminata*; Vulnerable & Migratory) and Pectoral Sandpiper (*Calidris melanotos*; Migratory) are shorebirds, many of which prefer coastal habitats. These birds are highly mobile and may occur in the region on occasion, but there are no DBCA Threatened and Priority Fauna Database records of these species within 40km and the habitats of the study area are unlikely to regularly support shorebirds. The Southern Whiteface (*Aphelocephala leucopsis*; Vulnerable) and Grey Falcon (*Falco hypoleucos*; Vulnerable) are birds of the arid interior and the study area is outside their current known ranges as presented in the literature.

Table 10. Summary of conservation significant vertebrate fauna.

Key to status: Cr = Critically Endangered, En = Endangered, Vu = Vulnerable, Mi = Migratory, OS = Other Specially Protected, CD = Conservation Dependent, P1 – P4 = Priority 1 – 4.

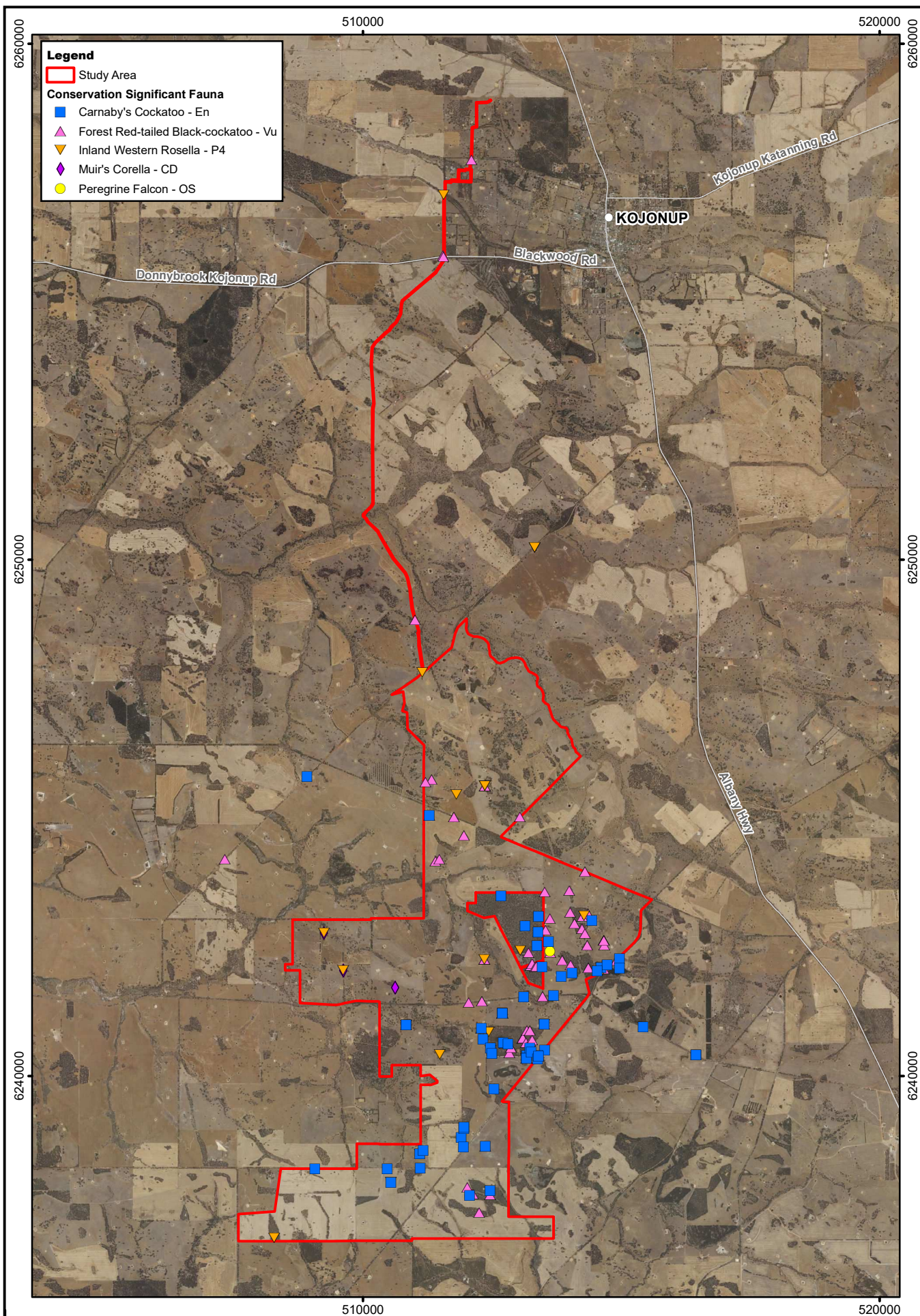
Species	Conservation Status			Likelihood of Occurrence	Summary Explanation
	EPBC Act	BC Act	DBCA Priority		
Threatened Species					
<i>Myrmecobius fasciatus</i> Numbat	En	En	-	Possible	This species possibly occurs on occasion but the majority of the records for this species in the region are historical and the majority of the eucalypt woodland habitat in the study area is unlikely to be suitable due to the complete lack of understory vegetation.
<i>Zanda latirostris</i> Carnaby’s Cockatoo	En	En	-	Known to occur	Recorded in Nov 2023, Aug 2024 and Nov 2024 (sighted and foraging signs). Likely to be a seasonal visitor, this species forages in the study area, may roost in the study area and may breed in large eucalypt hollows.
<i>Zanda baudinii</i> Baudin’s Black-Cockatoo	En	En	-	Potential	Potentially a seasonal visitor, this species may forage and/or roost in eucalypt woodlands in the study area and may possibly breed in large eucalypt hollows. The study area is on the eastern edge of the current distribution of the species.
<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	Vu	Vu	-	Known to occur	Recorded in Nov 2023, Aug 2024 and Nov 2024 (sighted and foraging signs) Likely to be a seasonal visitor, this species forages in the study area, may roost in the study area and may breed in large tree hollows.
<i>Dasyurus geoffroii</i> Chuditch	Vu	Vu	-	Potential	This species is very mobile and potentially disperses through the study area on occasion, but it is not likely to be resident.
<i>Leipoa ocellata</i> Malleefowl	Vu	Vu	-	Possible	This species may forage in the study area or use the vegetation as a corridor for movement, but disturbance to understory vegetation means it is unlikely that this species breeds in the study area.

Table 10. (cont.)

Species	Conservation Status			Likelihood of Occurrence	Summary Explanation
	EPBC Act	BC Act	DBCA Priority		
<i>Phascogale calura</i> Red-tailed Phascogale	Vu	CD	-	Likely	The study area is within the core range of this species, there are several records in the surrounding area and there is potentially suitable habitat available in eucalypt woodlands.
Migratory Species					
<i>Actitis hypoleucos</i> Common Sandpiper	Mi	Mi	-	Possible	Single birds may occur on farm dams on occasion, but the study area is unlikely to provide important habitat or regularly support significant numbers.
<i>Apus pacificus</i> Fork-tailed Swift	Mi	Mi	-	Potential	May overfly study area but unlikely to use any habitat in the study area.
Specially Protected Fauna					
<i>Falco peregrinus</i> Peregrine Falcon	-	OS	-	Recorded	Recorded in Aug 2024 (sighted). Likely to forage over pasture and may breed in tall trees in or near the study area.
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	-	CD	-	Potential	There are several recent records within 5km of the study area and although much of the habitat is too fragmented to support this species, it potentially occurs in the larger patches with understory.
<i>Cacatua pastinator pastinator</i> Muir's Corella	-	CD	-	Recorded	Recorded in Aug 2024 and Nov 2024 (sighted). The study area is on the north-eastern edge of this species range. Likely to occur in small numbers and may be a breeding resident.
DBCA Priority Fauna					
<i>Ninox connivens connivens</i> Barking Owl	-	-	P3	Possible	There are very few records of this species in the region, however, it possibly occurs as a foraging visitor and may breed in large hollows.
<i>Tyto novaehollandiae novaehollandiae</i> Masked Owl	-	-	P3	Possible	There are very few records of this species in the region, however, it possibly occurs as a foraging visitor and may breed in large hollows.

Table 10. (cont.)

Species	Conservation Status			Likelihood of Occurrence	Summary Explanation
	EPBC Act	BC Act	DBCA Priority		
<i>Nyctophilus major tor</i> Central Long-eared Bat	-	-	P3	Possible	There are few records of this species in the region and it is on the western edge of its known range, however, it possibly occurs, roosting and/or breeding in tree hollows.
<i>Falsistrellus mackenziei</i> Western False Pipistrelle	-	-	P4	Possible	Although known from the south-west, there are no nearby records of this species and it prefers old growth forest habitats.
<i>Platycercus icterotis xanthogenys</i> Inland Western Rosella	-	-	P4	Known to occur	Recorded in Nov 2023, Aug 2024 and Nov 2024 (sighted). The eucalypt and granite woodlands of the study area are suitable for this species, and it is likely to be a breeding resident.
<i>Isodon fusciventer</i> Quenda	-	-	P4	Possible	Recent records in the region so possibly occurs in the study area, where dense vegetation, including weedy vegetation in creeklines, may provide habitat.
<i>Notamacropus eugenii derbianus</i> Tammar Wallaby	-	-	P4	Possible	Mostly represented by historical records in the region, may be locally extinct but possibly occurs in the vicinity of larger woodland patches.
<i>Notamacropus irma</i> Western Brush Wallaby	-	-	P4	Possible	Mostly represented by historical records in the region, may be locally extinct but possibly occurs in the vicinity of larger woodland patches.
<i>Hydromys chrysogaster</i> Water Rat	-	-	P4	Possible	There are few records of this species in the region and the habitats of the study area are only marginally suitable due to the lack of permanent waters, however, this species may occur on larger farm dams or use seasonal creeks when wet.
<i>Pseudomys occidentalis</i> Western Mouse	-	-	P4	Possible	There are a few records of this species in the region, all to the south east, and although it possibly occurs, the patches of the vegetation in the study area may be too small to support this species.



Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

CAD Ref: a3050Fa050

Date: October 2025

A4



0 0.75 1.5 km
Scale: 1:100,000
MGA94 (Zone 50)

Rev: A

Author: J. Wilcox

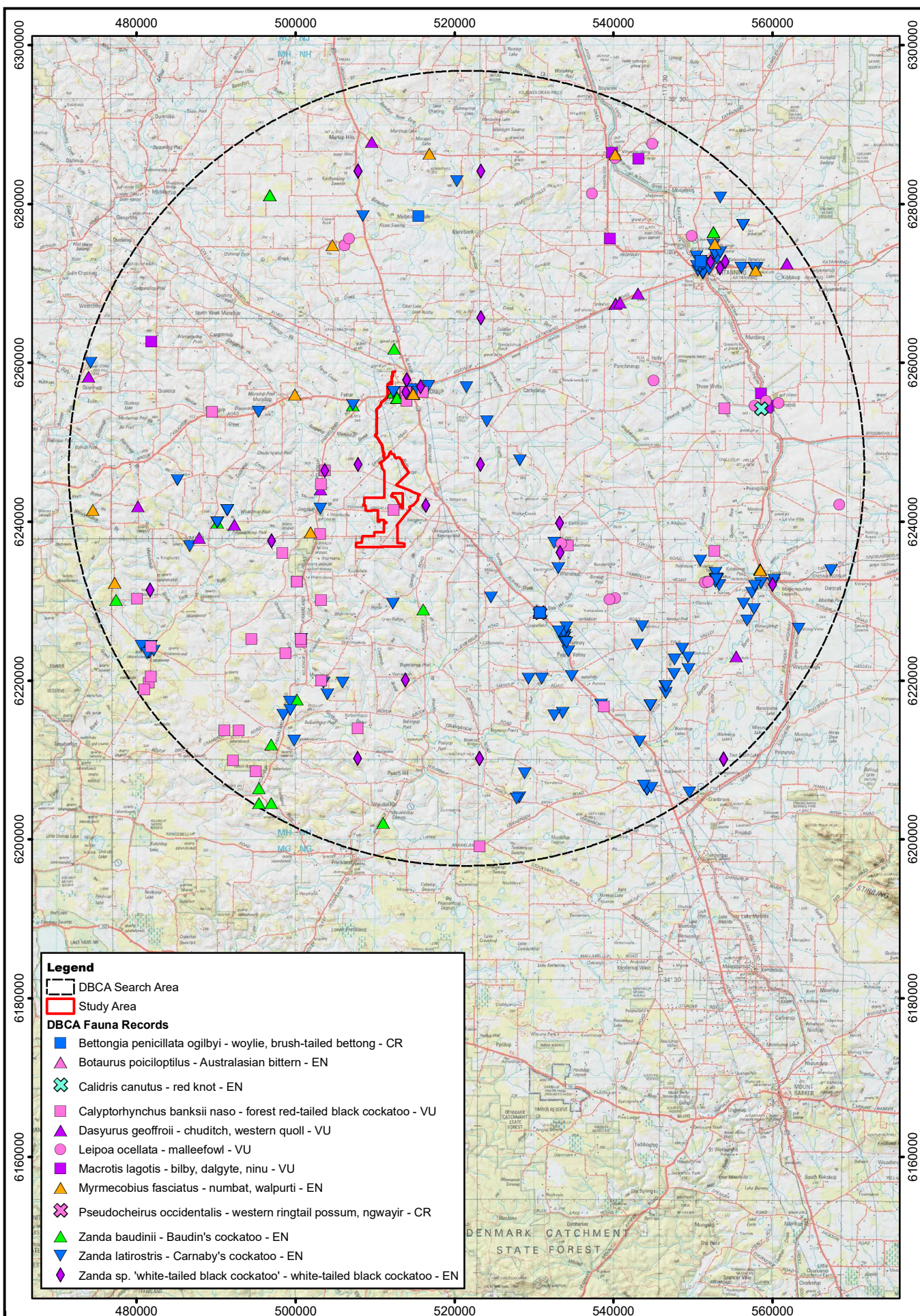
**Western
Wildlife**



**Kojonup Wind Farm
Conservation significant fauna
recorded on this survey**

Figure:

11



Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

CAD Ref: a3050Fa051

Date: October 2025

A4

Rev: A

Author: J. Wilcox

N 0 5 10 km
Scale: 1:650,000
MGA94 (Zone 50)

Western
Wildlife



Kojonup Wind Farm
DBCA Threatened fauna records

Figure:

12

5.2.1 Threatened Fauna

Threatened species are those that are considered in danger of extinction as their populations have declined and/or are still declining, and their total population size is small and/or fragmented or geographically restricted. Sites that support these species may be important for their long-term conservation, particularly if the site supports a resident or breeding population.

There are seven Threatened species that potentially occur in the study area (Table 10).

Numbat – *Myrmecobius fasciatus*

The Numbat is listed as Endangered under the BC Act and EPBC Act.

The Numbat is a diurnal marsupial that once ranged over much of southern semi-arid Australia but is now restricted to populations in the south-west of Western Australia (Woinarski *et al.* 2014). The population size is estimated at under 1000 individuals, and in decline (Woinarski *et al.* 2014).

Numbats almost entirely on termites and shelter in hollow logs, burrows and tree hollows, using a variety of habitats. The young are born in summer. In about July they are left in the burrow and juveniles emerge in September, becoming independent by October (Woinarski *et al.* 2014). Threats to the Numbat are predation by the Fox, Cat and raptors, habitat loss and fragmentation and inappropriate fire regimes that result in the loss of hollow logs as well as direct mortalities and increased predation rates (Woinarski *et al.* 2014).

There are 19 records of the Numbat in the vicinity of the study area on DBCA's Threatened and Priority Database (Figure 12, DBCA 2023). Most of the records are historical, with the most recent record being a dead individual from 2012 from a site about 30km west of the study area. There is also a 2005 sighting from Mardup (11km west of the study area) and two 1993 sightings from Katanning (45km northeast of the study area). Regionally, the Numbat is known to currently persist in the forest at Perup, east of Manjimup (Woinarski *et al.* 2014). It is possible that the Numbat disperses through the study area on occasion, but it's unlikely that the study area regularly supports the species. The Eucalypt Woodland understory is mostly absent, the woodland patches are not well connected and this species is likely to be more vulnerable to predation by foxes in this context.

Carnaby's Cockatoo – *Zanda latirostris*

Carnaby's Cockatoo is listed as Endangered under the BC Act and EPBC Act.

Carnaby's Cockatoo is endemic to the southwest of Western Australia, occurring mostly in the wheatbelt but also on the Swan Coastal Plain and wetter southwest (Johnstone and Storr 1998). The population size is estimated to be 40,000 birds (or possibly between 10,000 – 60,000) (Garnett *et al.* 2011), and there have been no recent estimates of population size (Garnett and Baker 2021).

Typically, Carnaby's Cockatoo breeds in the wheatbelt region of Western Australia, nesting in large hollows in smooth-barked eucalypts such as the Salmon Gum (*Eucalyptus salmonophloia*) and Wandoo (*Eucalyptus wandoo*). However, it has started breeding in areas further west and south than its traditional breeding range, including areas in the Darling Range and on the Swan Coastal Plain (Johnstone *et al.* 2005, Johnstone *et al.* 2011). Some of the Carnaby's Cockatoo population is resident (particularly in wetter areas) and some of the population moves west and south towards the coast after breeding (Johnstone and Storr 1998). Eggs are laid from early July to mid-October (Johnstone and Storr 1998).

A study of GPS-tagged Carnaby's Cockatoos at Coomallo Creek (200km north of Perth) and Borden (350km southeast of Perth) found that breeding birds foraged over two main periods of the day: 6 – 9AM and 3 – 6 PM, separated by a period of day roosting (Riley *et al.* 2023). Each day, birds travelled on average 5.98km from the breeding site, (up to a maximum of 13.55km) in order to forage at Borden, and 6.4km per day (up to a maximum of 11.11km) to forage at Coomallo Creek. Birds at Borden were noted to show clear movement paths along roads when transiting daily between patches of habitat (Shephard and Warren 2018). Similarly, birds tracked in the Pinjar Pine Plantation showed that birds avoided built-up urban areas and cleared land, preferring to move along vegetated areas, including road verges, parks and remnant patches (Shephard and Warren 2018). When travelling over cleared areas, birds flew faster and transited more quickly (Shephard and Warren 2018).

For non-breeding birds, average daily movement from a night roost site when foraging was 16km but ranged from 3 - 31.5km. Flocks appear to partition resources, foraging and roosting in non-overlapping areas. (Shephard and Warren 2018). Larger movements of just over 50km in a day were observed when flocks changed roost sites, and linear migration flights of birds towards breeding sites in the south and east were recorded in October (Shephard and Warren 2018).

Carnaby's Cockatoos forage on the seeds of a range of plant species, but are particularly attracted to proteaceous heaths, *Banksia* and *Eucalyptus* woodlands and pine plantations (Johnstone and Storr 1998). On the Swan Coastal Plain, important food plants include *Banksia attenuata*, *B. menziesii*, *B. grandis*, *B. ilicifolia*, *B. sessilis*, *B. prionotes*, Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) (Shah 2006). In breeding areas, it is important to have sufficient foraging resources in close proximity to nest hollows (DAWE 2022). Carnaby's Black-Cockatoo generally roosts in tall native or introduced eucalypts or pines in riparian habitats or near permanent water (Burnham *et al.* 2010, DAWE 2022).

Carnaby's Cockatoo was recorded during the fauna survey, with several sightings and evidence of foraging on Pine, *Hakea* spp. and *Banksia* spp. (Figure 11, Plate 17). The largest group sighted in the study area was of 10 birds, with a flock of 40 recorded outside the study area in pine plantations to the east. There are also many records of this species in the vicinity of the study area on DBCA's Threatened and Priority Database, the largest count being a flock of 1000 at Katanning in 2013 (DBCA 2023). Habitats that have nest hollows that support breeding, supported breeding in the past and/or may support breeding in the future, with nearby foraging and water resources are considered to be 'habitats critical to the survival' of Carnaby's Cockatoo (DPAW 2013). There are several known breeding sites for this species in the region, the nearest about 7km south of the study area (Figure 13). Roosting of 'white-tailed black-cockatoos' is known to occur in Kojonup, with a maximum count of 48 birds at this roost in 2017 (Figure 13).



Plate 17. Evidence of Carnaby's Cockatoo foraging on *Banksia sessilis* in the study area.

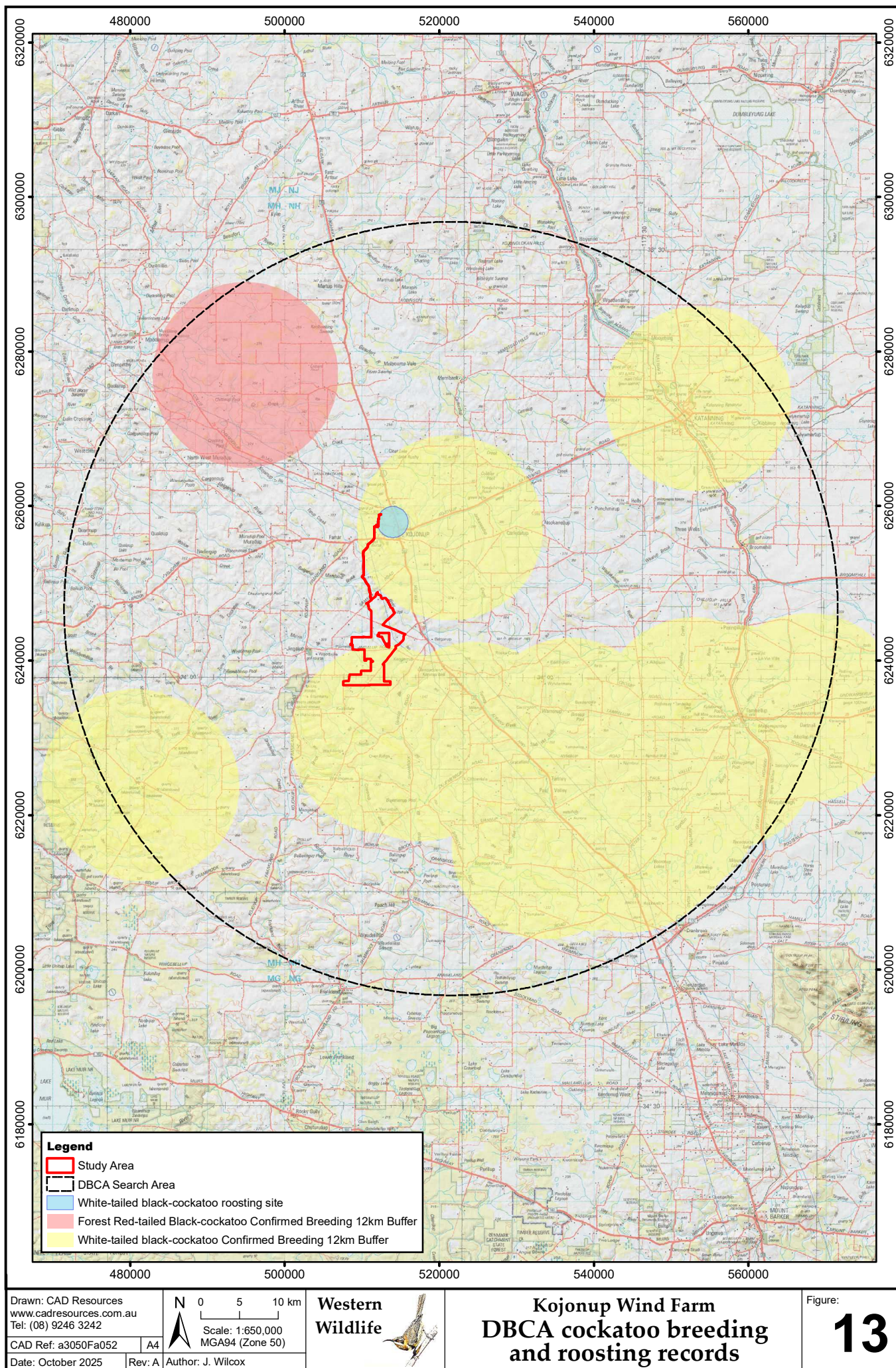
Carnaby's Cockatoo has been confirmed as a foraging visitor in the study area, with the eucalypt woodland, creek and pine plantation habitats providing potential foraging resources. Marri is likely to be an important food-plant, particularly where it occurs in the lower parts of the landscape where it is better watered and the soils more fertile. Jarrah is also used by this species and proteaceous foraging species occur where the eucalypt woodland retains at least some understory vegetation. The extent of foraging habitat is shown in Figure 14 and Table 11 indicates the area of each foraging habitat type in the study area. The foraging habitat is high-quality according to the DAWE foraging quality scoring tool (Appendix 6).

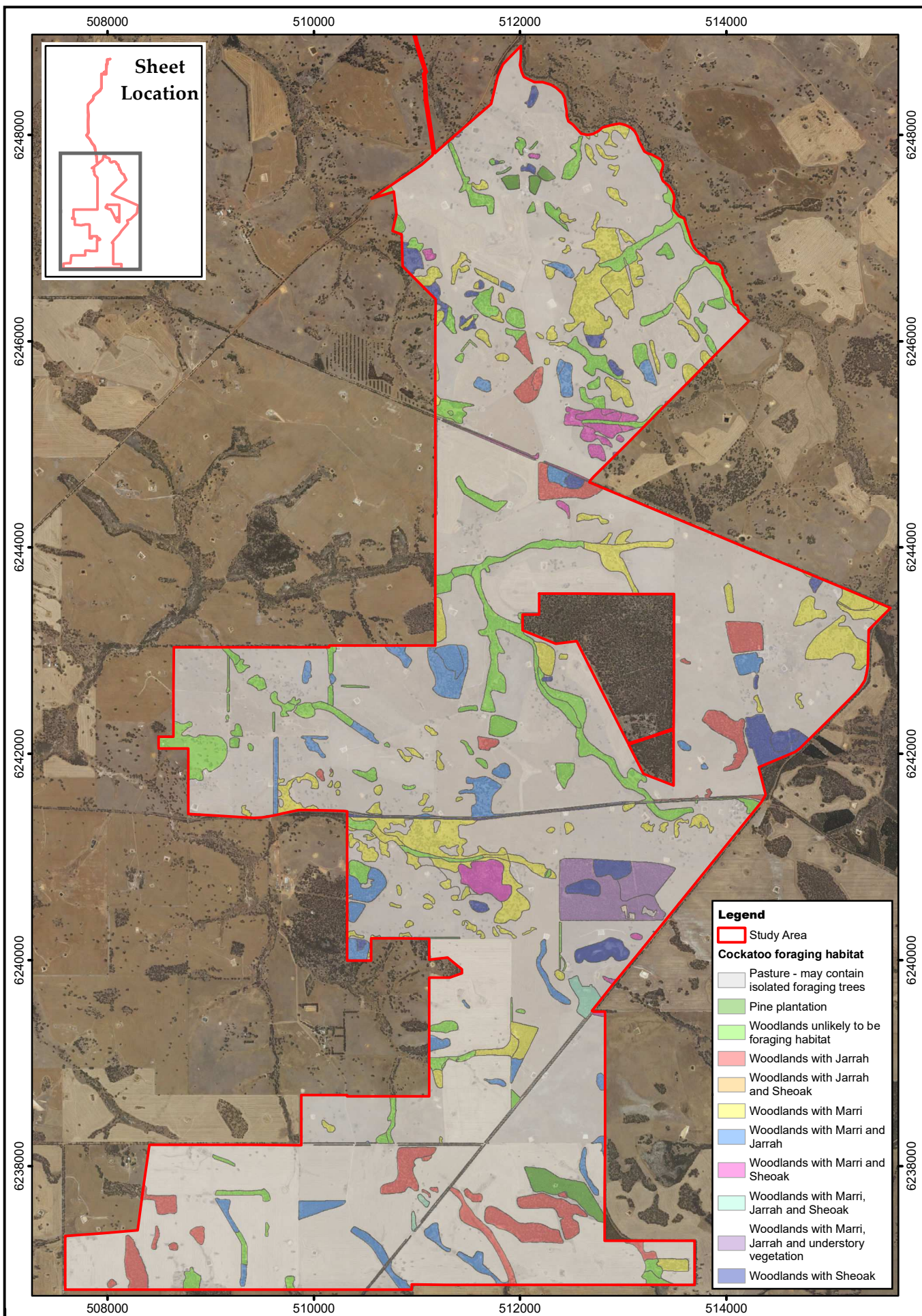
Potential breeding habitat occurs mostly in the in the eucalypt woodland habitat, but also in the granite woodland, some of the creek habitat and in isolated trees in cleared areas. No breeding was recorded in the study area, but 'potential' and 'suitable' nesting trees were recorded, noting that these trees have been assessed over part of the study area only (Figure 10).

Baudin's Cockatoo – *Zanda baudinii*

Baudin's Cockatoo is listed as Endangered under the BC Act and EPBC Act.

Baudin's Cockatoo is endemic to the southwest of Western Australia and is more common in the deep south-west (Johnstone and Storr 1998). The population size was estimated to be 5,000 – 8,000 birds in 2017, down from 10,000 - 15,000 birds in 1995 – 2004, and the current population estimate is 3,250 (Garnett and Baker 2021). Baudin's Cockatoo has declined primarily due to persecution by orchardists and loss of habitat due to wildfires and vegetation clearance in their range (Johnstone and Storr 1998).





Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

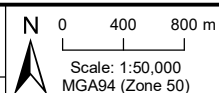
CAD Ref: a3050Fa053

A4

Date: October 2025

Rev: A

Author: J. Wilcox



**Western
Wildlife**



Kojonup Wind Farm Cockatoo foraging habitat

Figure:

14A

Table 11. Foraging habitat for black-cockatoos in the study area.

Foraging Habitat Type	Potential use for foraging by cockatoos			Total Area (ha)
	Carnaby's Cockatoo	Baudin's Cockatoo	Forest Red-tailed Black-cockatoo	
Pasture - may contain isolated foraging trees	Yes	Yes	Yes	2,972.8
Pine plantation	Yes	-	-	19.6
Woodlands unlikely to be foraging habitat	-	-	-	218.7
Woodlands with Jarrah	Yes	Yes	Yes	105.6
Woodlands with Jarrah and Sheoak	Yes	Yes	Yes	0.5
Woodlands with Marri	Yes	Yes	Yes	226.1
Woodlands with Marri and Jarrah	Yes	Yes	Yes	109.6
Woodlands with Marri and Sheoak	Yes	Yes	Yes	43.7
Woodlands with Marri, Jarrah and Sheoak	Yes	Yes	Yes	13.5
Woodlands with Marri, Jarrah and understory vegetation	Yes	Yes	Yes	47.4
Woodlands with Sheoak	-	-	Yes (secondary)	59.4
Total foraging habitat for each cockatoo species:	3,538.7	3,519.1	3,578.6	
Total foraging habitat excluding pasture with isolated foraging trees:	565.9	546.3	605.7	
Total:				3,816.8

Baudin's Cockatoos breed in forests of Karri, Marri and Jarrah in the deep southwest, where the annual rainfall is on average more than 750mm. Breeding occurs in late winter to spring (August to November), using a large hollow in a eucalypt, generally in Karri, Marri or Wandoo (Johnstone and Storr 1998). The hollows used are usually 30 - 40cm in diameter and more than 30cm deep. Breeding occurs as far north as Lowden, with an isolated breeding record further north at Serpentine, and east to Kojonup (Johnstone and Kirkby 2008).

Outside of the breeding season Baudin's Cockatoo can gather into large foraging flocks. Baudin's Cockatoos in urban or peri-urban areas have smaller flock sizes (<50 birds) than in forested areas (200+ birds) and undertake smaller daily movements (3.42 – 6.89km) compared with flocks in the forest (9.44km) (Rycken *et al.* 2021). In the non-breeding season this species ranges more widely, foraging primarily in habitats that contain Marri, and their distribution is probably defined by where Marri trees occur.

Baudin's Cockatoos feed mainly on the seeds of eucalypts, with most of their diet consisting of Marri seeds. They also feed on seeds from other plants (e.g., Jarrah, *Banksia*, *Hakea* or commercial orchard crops such as apples and pears) and take some invertebrate material by stripping bark from trees (Johnstone and Storr 1998, Johnstone *et al.*, 2005). Roosting habitat is generally in the tallest trees in riparian habitats, near permanent water or in sheltered gullies (Johnstone and Kirkby 2008).

There are 28 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Database (Figure 12, DBCA 2023). Baudin's Cockatoo potentially occurs, although the study area is on the eastern edge of the current range of this species and no evidence of foraging was found. It is possible that the current range of this species no longer encompasses the study area, due to the overall population decline. Potential foraging habitat is present in areas of eucalypt woodland or creek with Marri or Jarrah, including woodland areas without understory, and may also forage where there is understory containing *Banksia* and *Hakea*, although Marri is the favoured food-plant. The extent of foraging habitat is shown in Figure 14 and Table 11 indicates the area of each foraging habitat type in the study area. The foraging habitat is high-quality according to the DAWE foraging quality scoring tool (Appendix 6).

Potential breeding habitat is likely to be present in eucalypt woodlands and creeks. A single known breeding site has been recorded in the region in the vicinity of Kojonup (Johnstone and Kirkby 2008), and it is possible that there are others that remain unrecorded. No breeding was recorded in the study area, but 'potential' and 'suitable' nesting trees were recorded, noting that these trees have been assessed over part of the study area only (Figure 10). Although no evidence of roosting was observed, roosting of 'white-tailed black-cockatoos' is known to occur in Kojonup, with a maximum count of 48 birds at this roost in 2017 (Figure 13).

Forest Red-tailed Black-Cockatoo – *Calyptorhynchus banksii naso*

The Forest Red-tailed Black-Cockatoo is listed as Vulnerable under the BC Act and EPBC Act.

The Forest Red-tailed Black-Cockatoo is endemic to the southwest of Western Australia. It is patchily distributed through its range (Johnstone and Storr 1998), with the population size estimated to be 15,000 birds (Johnstone and Kirkby 1999). It occurs in Jarrah, Marri and Karri forests, also ranging onto the Swan Coastal Plain.

On a study of Forest Red-tailed Black-Cockatoos on the Swan Coastal Plain, average daily movement was 11km, but ranged between 4 - 16.5km (Shephard and Warren 2019). The birds show a daily movement pattern consisting of morning foraging, day roosting, afternoon foraging and night roosting, with the longest residence times associated with night roosting and morning foraging sites (Shephard and Warren 2019, Riley *et al.* 2023). Flight speed for the Forest Red-tailed Black-Cockatoos was low (at or below 1m/s), and the birds appeared to move slowly through the landscape while either foraging, day roosting or resting (Shephard and Warren 2018). This species also appears to partition both roosting and foraging resources across the Swan Coastal Plain. Resident flocks had home-range sizes between 8 - 45km², which when applied to a roost site, suggested the home-range of the flock has a maximum radius of 3.8km from the roost.

Home-range size varies between resident urban and peri-urban flocks, with a range of 6.0 – 52.6km² (Rycken *et al.* 2022). Larger home-ranges were associated with the flock moving between multiple smaller foraging sites, often travelling along and making use of vegetation in road verges (Rycken *et al.* 2022). Daily movements averaged 16.4km for the flock with the larger home-range, with several days showing a movement of more than 20km. A flock with a smaller home-range of 6.0km², based in larger areas of remnant vegetation, travelled only 4.9km per day on average.

The average distance that birds moved between key night roost and foraging sites was small at 0.47 – 5.12km (Shephard and Warren 2018). Roost sites on the Swan Coastal Plain were in mature stands of trees ranging from 10 – 20m, dominated by Marri and other tall tree species including Jarrah and Spotted Gum. Water was present at 67% of day roost sites and 40% of night roost sites, although most peri-urban sites that did not have water immediately present had water nearby, usually in troughs. Roost occupancy is seasonal on the Swan Coastal Plain.

Forest Red-tailed Black Cockatoos feed primarily on the seeds of Marri and Jarrah, but also feed on the seeds of Blackbutt (*Eucalyptus patens*), Forest Sheoak (*Allocasuarina fraseriana*), Snottygobble (*Persoonia longifolia*) and Cape Lilac (Johnstone and Storr 1998). It nests in hollows in Karri (*Eucalyptus diversicolor*), Marri, Jarrah, Bullich (*Eucalyptus megacarpa*) and Wandoo (*Eucalyptus wandoo*) (Johnstone and Storr 1998, DAWE 2022). However, they have generally been found to prefer nesting in large veteran or stag Marri trees with a mean DBH of 90cm (Johnstone *et al.* 2013). The Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) breeds through much of the year with peaks in autumn (April-June) and spring (August-October).

The Forest Red-tailed Black-cockatoo was recorded during the fauna survey, with several sightings and evidence of foraging on Jarrah and Marri (Figure 11, Plate 18). The largest flock sighted was five birds. There are many records of this species in the vicinity of the study area on DBCA's Threatened and Priority Database, the largest flock recorded being 30 birds at Jingalup in 2013 (Figure 12, DBCA 2023). Potential foraging habitat is present in areas of eucalypt woodland or creek with Marri or Jarrah, including woodland areas without understory. The extent of foraging habitat is shown in Figure 14 and Table 11 indicates the area of each foraging habitat type in the study area. The foraging habitat is high-quality according to the DAWE foraging quality scoring tool (Appendix 6).



Plate 18. Forest Red-tailed Cockatoos foraging on Jarrah in the study area.

Potential breeding is likely to be present in eucalypt woodlands and creeks. A single known breeding site has been recorded in the region (Figure 13), and it is likely that there are others that remain unrecorded. No breeding was recorded in the study area, but 'potential' and 'suitable' nesting trees were recorded, noting that these trees have been assessed over part of the study area only (Figure 9). Although no evidence of roosting was observed, and there are no known roost sites in the region (Figure 13), this species potentially roosts in or near the study area.

Chuditch – *Dasyurus geoffroii*

The Chuditch is listed as Vulnerable under the BC Act and EPBC Act.

The Chuditch used to occur across much of Australia but is now restricted to the southwest of Western Australia. It is vulnerable to predation by foxes and increases in areas where fox control is undertaken (Burbidge 2004). Although they used to occupy a variety of habitats, the majority of Chuditch now occur in the Jarrah forest with some wheatbelt populations in drier woodlands, heath and mallee shrublands (Van Dyck and Strahan 2008; Orrell and Morris 1994). Critical habitat for the Chuditch includes all habitats currently occupied by Chuditch for foraging, breeding and/or dispersal, habitat within their known range in which an undiscovered population may reside and habitats temporarily unoccupied (e.g. due to fire) but which will support Chuditch in the future (DEC 2012). Important habitat elements include sufficient sites for dens, sufficient prey resources and large areas (DEC 2012).

Chuditch are wide-ranging and occupy large home-ranges of 300 - 400ha for females and more than 1,200ha for males. These home-ranges are overlapping, with a core non-overlapping area described by the den sites, of about 90ha for females and 400ha for males (Serena and Soderquist 1989). Chuditch use a variety of denning sites including hollow logs, burrows, and rocky outcrops, and an individual may use up to 180 den sites within their home-range.

Key threats to the Chuditch include predation by foxes and consumption of toxic feral cat baits, with minor threats including road mortalities, timber harvesting, predation by feral cats and prescribed burning (Woinarski *et al.* 2014).

There are 15 records of the Chuditch in the vicinity of the study area on DBCA's Threatened and Priority Database (Figure 12, DBCA 2023). Although some of these records are historical, more recent records include a dead specimen at Jingalup in 2005 (5km west of the study area) and a day sighting at Jingalup in 1995. This species is very mobile and potentially occurs as dispersing individuals, at least on occasion, and it is unlikely that the study area regularly supports the species. If present, the Chuditch is likely to use eucalypt woodland, creek and granite outcrop habitats in the study area, using hollow logs, rock crevices and possibly tree hollows as daytime shelter.

Malleefowl – *Leipoa ocellata*

The Malleefowl is listed as Vulnerable under the BC Act and EPBC Act.

The Malleefowl is a bird of dense shrublands, mulga woodlands and mallee woodlands. It used to be common in the southern arid and semi-arid areas of Western Australia (Johnstone and Storr 1998). In order to construct their nest mounds, the Malleefowl needs leaf litter on sandy substrates (Garnett and Crowley 2010). The mounds are usually constructed intermittently by a pair of birds between autumn and spring. Between early spring and mid to late summer, 15 - 25 eggs are laid in the mound by the female, while the male continues to tend the mound. The chicks emerge between November and January (sometimes as late as March), and as they receive no parental care, chick mortality can be high (Benshemesh 2007). Malleefowl will often breed in the same general area year after year, and new mounds may be constructed, or old mounds re-used. The adult birds have been found to range over one to many square kilometres, and these home ranges overlap (Benshemesh 2007).

As Malleefowl nest on the ground, the eggs and flightless chicks are vulnerable to predation by feral predators. However, the main threat to Malleefowl is habitat loss and the fragmentation and degradation of remaining habitat, as well as the death of adults on roads (Benshemesh 2007, Garnett *et al.* 2011). Fire can have a significant impact on populations, by killing adult birds, causing local extinctions in fragmented habitats and causing a cessation in breeding activity for many years after a fire (Benshemesh 2007).

There are 18 records of Malleefowl in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 12, DBCA 2023). Although some of the records are historical, there are also more recent records from Woodanilling in 2007 (35km northeast of the study area), near Tambellup in 2006 (38km east), Katanning in 2016 (43km northeast) and Boscabel in 2001 (18km north). Given that there are relatively recent, though sparse, records throughout the region, it is possible that Malleefowl occur in the study area. Any birds present are likely to be foraging or dispersing on an irregular basis, and breeding habitat is unlikely to be present as most vegetated areas lack understory.

Red-tailed Phascogale – *Phascogale calura*

The Red-tailed Phascogale is listed as Vulnerable EPBC Act and Conservation Dependent under the BC Act.

The Red-tailed Phascogale has declined in numbers and in range. It favours Wandoo or York Gum woodlands with Rock Sheoak but also uses other habitats including shrublands (Woinarski *et al.* 2014). The home-range is from 1.5 to 8ha, and this species uses a range of nesting sites including tree hollows, grasstree skirts and stumps (Woinarski *et al.* 2014). Long-unburnt habitats are important for this species, with frequent, intense fires being a key threat to the species. Other key threats include loss and fragmentation of habitat and predation by feral cats (Woinarski *et al.* 2014). The majority of the range of this species overlaps the southern wheatbelt, and as such the population is fragmented, often occurring in isolated reserves (Maxwell *et al.* 1996).

There are 46 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 12, DBCA 2023). Some of these records are from a successful relocation project in Kojonup Nature Reserve and Birdwood Nature Reserve, 17km north of the study area, and the closest records to the study area are a night sighting in Kojonup in 2012 and a dead individual 10km west of Tambellup in 2002. The Red-tailed Phascogale is likely to occur in the study area as the study area is within the core range of the species, the woodlands are potentially suitable habitat and the species is known to persist in relatively small woodland remnants.

5.2.2 Migratory Fauna

Migratory species are not always present at a site, but a particular site may have significance as a seasonal or ephemeral foraging, breeding or shelter area. Impacts to these sites may then impact the population both within the site and further afield. For Migratory shorebirds, a site is deemed internationally important if it regularly supports more than 1% of the flyway population of a species, or a total abundance of at least 20,000 shorebirds, and nationally important if it regularly supports more than 0.1% of the flyway population of a species, at least 2,000 shorebirds or at least 15 shorebird species (Hansen *et al.* 2016, DoEE 2017). The study area is unlikely to provide important habitat for Migratory shorebirds, although individuals may occur on occasion, as the creekline habitat and the farm dams in the cleared areas do not provide the exposed mudflats and shorelines that these species require.

There are two Migratory species that potentially occur in the study area (Table 10).

Common Sandpiper – *Actitis hypoleucos*

The Common Sandpiper is listed as Migratory under the BC Act and EPBC Act.

The Common Sandpiper may be present at any time of the year, but more likely between September and March (Johnstone and Storr 1998). This species occurs in a range of salt and freshwater habitats, including coasts, river pools, drying swamps and floodwaters (Johnstone and Storr 1998), however, it is most common on the coast (Geering *et al.* 2007).

There are nine records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, mostly near Katanning and Broomehill (Figure 15, DBCA 2023). The Common Sandpiper may be a non-breeding visitor to farm dams and creeks in the study area, but only in very low numbers and only very occasionally. The study area is not likely to regularly support a nationally or internationally important proportion of the population (190 or 1,900 birds respectively, Hansen *et al.* 2016).

Fork-tailed Swift – *Apus pacificus*

The Fork-tailed Swift is listed as Migratory under the EPBC Act and BC Act.

The Fork-tailed Swift is a non-breeding visitor to Australia between September and April (Boehm 1962, Johnstone and Storr 1998). The bird is primarily observed foraging for insects in proximity to cyclonic weather (Boehm 1962). Although a migratory species, the Fork-tailed Swift has a large range and a large population that appears to be stable (BirdLife International 2024).

Although there are no records from the surrounding area on DBCA's Threatened and Priority Fauna Database (Figure 15, DBCA 2023), the Fork-tailed Swift has the potential to be an occasional summer visitor in small numbers. It is generally considered to be scarce at inland sites in the south-west (DoE 2015). The Fork-tailed Swift is a largely aerial species when in Australia and therefore only likely to forage above the study area.

5.2.3 Specially Protected Fauna

The populations of Specially Protected species are large enough that they are not considered to be Threatened. However, they require on-going conservation intervention (i.e., Conservation Dependent) or be specially protected in order to prevent them from becoming Threatened.

There are three specially protected vertebrate species that may occur in the study area (Table 10).

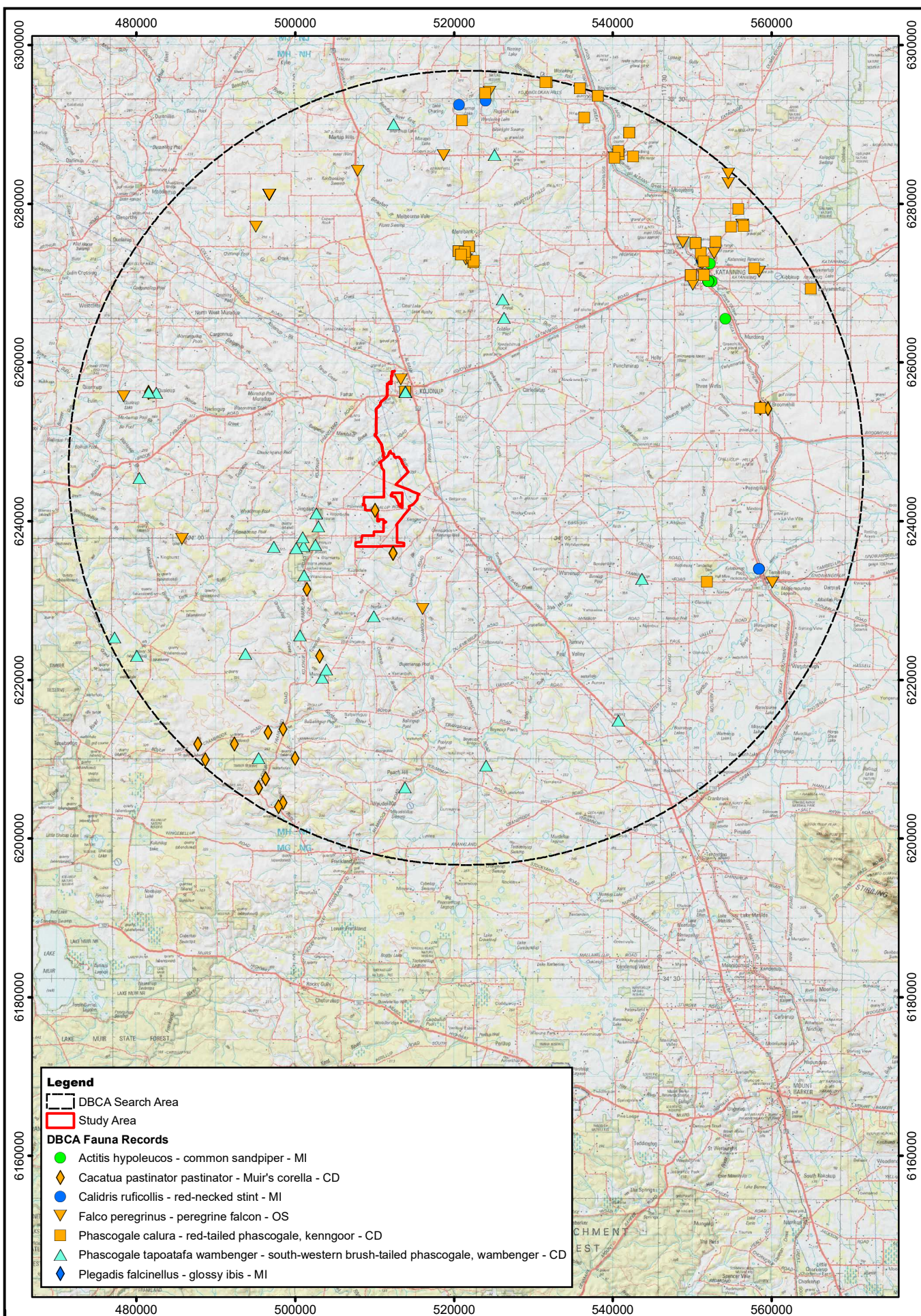
Peregrine Falcon – *Falco peregrinus*

The Peregrine Falcon is listed as Other Specially Protected Fauna under the BC Act.

The Peregrine Falcon is a widespread bird of prey that globally has a very large range and a very large population that appears to be stable (BirdLife International 2024). In Western Australia the population is secure, though this species may experience reductions at a local level due to human disturbance at nesting sites (Debus 1998). The Peregrine Falcon nests mainly on ledges on cliffs or rocky outcrops, and it may also use tall trees (Johnstone and Storr 1998). This species often takes advantage of man-made structures such as abandoned open pits or quarries.

There are 30 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 15), and this species was recorded once on the fauna survey, in August 2024 (Figure 11). The Peregrine Falcon is likely to be a breeding resident of the region and occur regularly in the study area in low numbers.

The Peregrine Falcon is likely to forage in open habitats in the study area, primarily pasture. A pair of birds is likely to occupy a home-range of 20-30km² (BirdLife International 2024), so the study area potentially supports 2 - 3 pairs. The habitats of the study area are unlikely to be important for this species unless a nesting site is present, as cleared agricultural land is common in the region and its population is large and increasing (Birdlife International 2024). Nesting may occur in tall trees of any habitat.



Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

CAD Ref: a3050Fa054

Date: October 2025

A4

Rev: A

Author: J. Wilcox

N 0 5 10 km
Scale: 1:650,000
MGA94 (Zone 50)

Western
Wildlife



Kojonup Wind Farm
**DBCA Migratory and Specially
Protected fauna records**

Figure:

15

Brush-tailed Phascogale – *Phascogale tapoatafa*

The Brush-tailed Phascogale is listed as Conservation Dependent under the BC Act.

The Brush-tailed Phascogale is a nocturnal carnivore that occurs in open forests and woodlands with a sparse understory (Van Dyck and Strahan 2008). It is listed as Near Threatened in the Action Plan for Australian Mammals 2012 due to its continuing population decline due to the actions of habitat loss, degradation and fragmentation (Woinarski *et al.* 2014). Females have been found to have non-overlapping home ranges of about 20 – 40ha, and males have or 100ha home ranges that may overlap with other males or females (Van Dyck and Strahan 2008). Nest sites include tree hollows and stumps, and within a year an individual phascogale may use up to 40 different sites.

There are 30 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, including several records at Jingalup Nature Reserve, 5km west of the study area (Figure 15, DBCA 2023). The Brush-tailed Phascogale potentially occurs in larger areas of eucalypt woodland with hollow-bearing trees and understory, but it is probable that much of the habitat present is too fragmented and degraded to support this species. It is considered likely to be locally extinct in the wheatbelt and confined to the wetter Jarrah forest regions (Woinarski *et al.*, 2014).

Muir's Corella – *Cacatua pastinator pastinator*

Muir's Corella is listed as Conservation Dependent under the BC Act.

Muir's Corella is endemic to south-west Western Australia, currently occurring between Boyup Brook, Rocky Gully and Frankland, although it used to occur as far north as the Swan River. Its population is currently estimated at 20,000 individuals, up from 400 in the 1940s and likely still increasing (Garnet and Baker 2021). Its initial population decline was due to widespread persecution as a pest of grain crops, and as they have increased in abundance they have once again caused disturbance and damage issues (DPAW 2015).

Muir's Corella prefers partly cleared eucalypt forests and is locally common in farmlands (Johnstone and Storr 1998). They nest in a large hollow in Jarrah or Marri, foraging nearby the nest tree (Johnstone and Storr 1998). Eggs are laid from September to November. In summer, this species can form large flocks in summer foraging areas (DPAW 2015).

There are 25 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 15, DBCA 2023) and this species was recorded in the study area (Figure 11). The study area is on the north-eastern edge of the current range of Muir's Corella. As these birds were present both the August and November 2023 surveys, it is likely that they are breeding in the study area or nearby.

5.2.4 Priority Fauna

Priority 1, 2 or 3 species need further survey effort, as insufficient data exist to adequately determine their status. Many Priority 1, 2 and 3 species are known from only a few records in a limited number of locations, thus determining their status in the study area may be problematic. Priority 4 species are considered to require regular monitoring, as although they are adequately known, they are either rare, near threatened or recently removed from the threatened list.

There are ten Priority fauna species that potentially occur in the study area (Table 10).

Barking Owl – *Ninox connivens connivens*

The southwest subpopulation of the Barking Owl is listed as Priority 3 by DBCA.

The southwest subpopulation of the Barking Owl inhabits the southwest corner of Western Australia. The range of this subspecies also extends across the southeast of Australia. It occurs in dry sclerophyll woodlands, particularly in association with watercourses and forest edge (Garnett *et al.* 2010). It nests in large eucalypt hollows in mature trees. The southwest subpopulation is extremely rare, with only five reported sightings between 2011 and 2020, and no records from targeted searches undertaken in 1999/2000 and 2015/2016 (Garnett and Baker 2021, Liddelow *et al.* 2002, Fulton 2017).

There is a single historical record of this species from Katanning on DBCA's Threatened and Priority Fauna Database (Figure 16, DBCA 2023). The status of the species in the local area is uncertain due to the paucity of records, however, this species possibly occurs in the study area. If present, it may nest in large hollows in eucalypt woodland habitat.

Masked Owl – *Tyto novaehollandiae novaehollandiae*

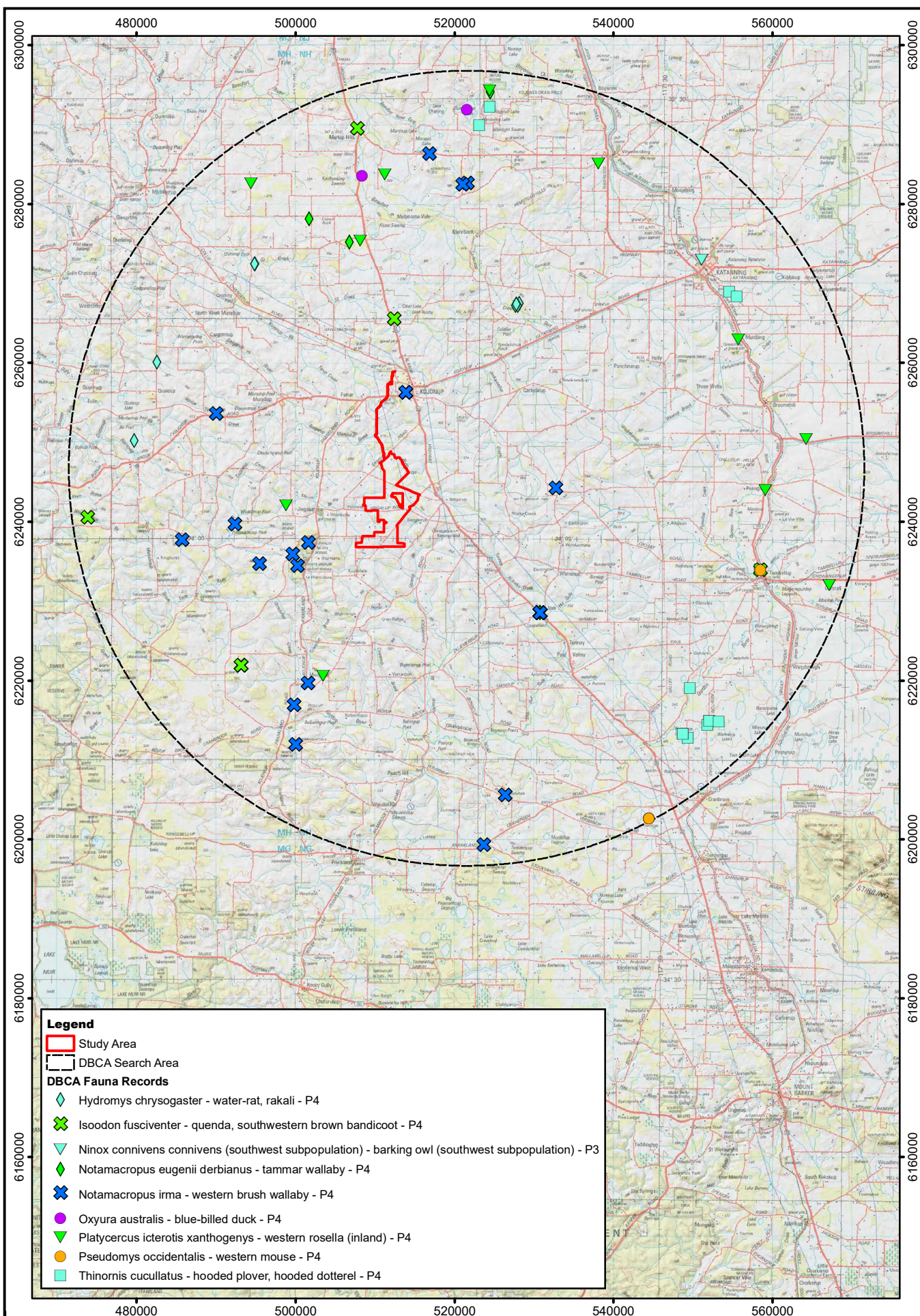
The southwest subspecies of the Masked Owl is listed as Priority 3 by DBCA.

The south-west subspecies of the Masked Owl inhabits forested areas, breeding in large tree hollows (Johnstone and Storr 1998). It is suggested that this species prefers open forests and forest edges for hunting (Liddelow *et al.* 2002). There are no records in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (DBCA 2023). As the study area is within the known range of the species, the Masked Owl possibly occurs in the study area. If present, it may nest in large hollows in eucalypt woodland habitat.

Central Long-eared Bat – *Nyctophilus major tor*

The Central Long-eared Bat is listed as Priority 3 by DBCA.

The Central Long-eared Bat is widespread across the arid south of Australia and though thought to have a population of substantially more than 10,000 individuals, the reliability of this estimate is low (Woinarski *et al.* 2014). It occurs in eucalypt woodlands with a tall shrub understorey and around granite outcrops, roosting beneath bark, in tree crevices or in the foliage of trees (Van Dyck and Strahan 2008, Churchill 2008). Current threats to this species are inferred and include habitat loss and fragmentation or inappropriate fire regimes leading to a loss of habitat and/or roost sites (Woinarski *et al.* 2014).



Drawn: CAD Resources
www.cadresources.com.au
Tel: (08) 9246 3242

CAD Ref: a3050Fa055

Date: October 2025

A4



Scale: 1:650,000
MGA94 (Zone 50)

Rev: A Author: J. Wilcox

Western
Wildlife



Kojonup Wind Farm
DBCA Priority fauna records

Figure:

16

Although there are no records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, this species is known to occur within 40km (ALA 2024). The study area represents the very western edge of the known range of this species. The Central Long-eared Bat possibly occurs in the eucalypt woodlands in the study area, roosting or breeding in tree hollows.

Western False Pipistrelle – *Falsistrellus mackenziei*

The Western False Pipistrelle is listed as Priority 4 by DBCA.

The Western False Pipistrelle is considered Near Threatened in the Action Plan for Australian Mammals 2012, as its population is declining, however, the population is not severely fragmented and does not exhibit extreme fluctuations (Woinarski *et al.* 2014). This species is endemic to south-west Australia and occurs in forests and woodlands. It is thought to be locally common in Karri forest but may be uncommon or declining in Jarrah and Tuart forests. The Western False Pipistrelle roosts in tree hollows, hollow branches or stumps during the day, in colonies of five to 30 (Churchill 2007). It favours habitats in or adjacent to old-growth forests (Churchill 2008).

There are no records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (DBCA 2023). The Western False Pipistrelle was not detected during the fauna survey (Appendix 7). It possibly occurs in the study area, however, the habitats present are likely to be too open, as this species prefers old-growth forests. If present, it is likely to occur in eucalypt woodlands, roosting in tree hollows.

Inland Western Rosella – *Platycercus icterotis xanthogenys*

The Inland Western Rosella is listed as Priority 4 by DBCA.

The Inland Western Rosella is endemic to southern Western Australia. The population of this species is thought to be declining in the western wheatbelt due to clearing, but stable in the western woodlands (Garnett and Crowley 2000). Although still listed as a Priority species, the Inland Western Rosella was not listed in the 2010 Action Plan for Australian Birds as the population is considered too large and the decline too slow to be designated Near Threatened (Garnett *et al.* 2011). This species occurs in eucalypt and casuarina woodlands, nesting in tree hollows (Johnstone and Storr 1998).

Despite there only being 11 records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 16, DBCA 2023), this species was regularly recorded during the fauna survey (Figure 11). The Inland Western Rosella is likely to be a breeding resident in the study area, nesting in eucalypt woodlands and foraging in all habitats, including cleared areas under crop.

Quenda – *Isoodon fusciventer*

The Quenda (or Southern Brown Bandicoot) is listed as Priority 4 by DBCA.

The Quenda occurs in a range of habitats, preferring dense vegetation such as wetlands and heathlands (Woinarski *et al.* 2014). The Quenda is listed as Least Concern in the Action Plan for Australian Mammals 2012, as although it has declined in the past, fox control has allowed its numbers to recover and the population is no longer declining (Woinarski *et al.* 2014).

There are nine records of Quenda in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, most of which are historical (Figure 16, DBCA 2023). The only more recent records are from Mobrup in 2012, about 46km south west of the study area. Although it is possible that this species occurs in the study area, none of its distinctive diggings were observed and most of the vegetation lacks the dense understory that this species requires for shelter. It is probable that the current range of this species has contracted to the west and no longer includes the study area, although occasional individuals possibly occur from time to time.

Tammar Wallaby – *Notamacropus eugenii derbianus*

The Tammar Wallaby is listed as Priority 4 by DBCA.

The Tammar Wallaby was once widespread in south-western Australia, but now occurs only on islands and in several reserves and National Parks, with reintroduced populations at a number of sites (Woinarski *et al.* 2014). This species is locally common in areas that are baited for foxes. The Tammar Wallaby inhabits dense vegetation during the day, foraging in open grassy areas at night (Woinarski *et al.* 2014).

There are seven records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, most of which are historical (Figure 16, DBCA 2023). The Tammar Wallaby possibly occurs in the study area, however, it is probable that this species is locally extinct in the area due to lack of fox control, habitat loss and fragmentation.

Western Brush Wallaby – *Notamacropus irma*

The Western Brush Wallaby is listed as Priority 4 by DBCA.

The Western Brush Wallaby occurs in areas of forest or woodland where there is a dense, shrubby understory. Although there are no robust measures of abundance, it is considered to be relatively common, particularly in areas with fox baiting (Woinarski *et al.* 2014). The home-range size of one individual has been estimated at about 9.9ha for males and 5.3ha for females (Bamford and Bamford 1999), therefore several individuals may be supported in the study area.

There are 25 records of the Western Brush Wallaby in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database (Figure 16, DBCA 2023). The most recent records are from Wingedine Nature Reserve and Jingalup Nature Reserve in 2005, at least 5km from the study area. The Western Brush Wallaby possibly occurs in larger areas of remnant vegetation but may be locally extinct due to lack of fox control, habitat loss and fragmentation.

Water-rat – *Hydromys chrysogaster*

The Water-rat is listed as Priority 4 by DBCA.

The Water-rat lives near permanent freshwater or brackish wetlands, including rivers, lakes and farm dams (Van Dyck and Strahan 2008). Although it hunts on land, the majority of its prey are aquatic insects, fish, crustaceans and molluscs. It dens in a burrow tunnelled into the bank, or sometimes a hollow log. This species is listed as Least Concern in the Action Plan for Australian Mammals 2012 (Woinarski *et al.* 2014) and is considered likely to have benefited from artificial waterways (Van Dyck and Strahan).

There are nine records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, the closest record from 2009, in a nature reserve 18km northeast of the study area (Figure 16, DBCA 2023). The Water-rat possibly occurs along the creeks and in dams in the study area, although most of this habitat is marginal as the dams are sparsely vegetated, the creeks are not permanent and are impacted by grazing and salinity.

Western Mouse – *Pseudomys occidentalis*

The Western Mouse is listed as Priority 4 by DBCA.

The Western Mouse is restricted to south-west Western Australia, occurring in remnant vegetation in the southern wheatbelt, with the smallest known occupied area being about 200ha (Woinarski *et al.* 2014). This species is listed as Near Threatened in the Action Plan for Australian Mammals 2012 (Woinarski *et al.* 2014) and is thought to be declining, although the evidence is not robust. The Western Mouse is nocturnal, sheltering in burrows by day, and feeds on invertebrates and fibrous plant material. It occurs in long-unburnt vegetation (Van Dyck and Strahan 2008).

There are four records of this species in the vicinity of the study area on DBCA's Threatened and Priority Fauna Database, the most recent record from 1987, from Anderson Lake Nature Reserve, 77km southeast of the study area (Figure 16, DBCA 2023). This species possibly occurs in the study area as it is known from the region, however, it is likely that the patches of vegetation in the study area are too small to support the Western Mouse.

6. Bird Utilisation of the Study Area

6.1 Species Richness and Abundance

Overall, 73 bird species were recorded on bird surveys, 72 species at impact sites and 53 at reference sites (Table 12). This is 94.8% of the 77 bird species recorded thus far across the site (Table 9). The lower number recorded at reference sites is likely to be a function of the smaller number of sites. The number of flights recorded for each species for each survey period at impact and reference sites are given in Appendix 8.

Thirteen of the 72 species in impact sites and 16 of the 53 species in reference sites were not recorded flying through open air on any survey, but were sighted within vegetation, perched or heard only (Table 12). These are represented by species with a total count of '0' in Appendix 8.

Across the three surveys, the total number of bird flights recorded was 4,052 at impact sites and 893 at reference sites (Table 12), noting that individual birds may be responsible for more than one flight record if crossing the survey area multiple times.

The most abundantly recorded birds at impact sites were the Tree Martin (1,278 flights), Australian Ringneck (655 flights), Australian Raven (489 flights) and Australian Magpie (310 flights). These birds were consistently the most abundant on each survey and between them comprised 67% of all flight records. Excluding species not recorded flying, 25 species (35%) were recorded flying on <10 occasions (Appendix 8a). Similarly, the most abundantly recorded birds at reference sites were the Tree Martin (286 flights), Australian Ringneck (117 flights), Australian Raven (97 flights) and Australian Magpie (66 flights) (Appendix 8b).

Table 12. Summary of bird survey statistics.

Summary statistic	Impact Sites (Sites K01 – K33)				Reference Sites (Sites C01 – C08 and A34 – A36)				Total
	Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Number of sites sampled	33	29	32	33	3	8	8	11	44
Total individual flights recorded:	1,115	1,745	1,192	4,052	82	395	414	891	4,943
Present, but not recorded flying	13	15	10	13	13	10	14	16	13
Flights below RSA (<50m)	1,055	1,662	1,131	3,848	81	391	403	875	4,723
Flights at RSA (50 – 200m)	60	83	61	204	1	4	11	16	220
Flights above RSA (>200m)	0	0	0	0	0	0	0	0	0
Proportion at RSA (50 – 200m)	5.4%	4.8%	5.1%	5.0%	1.2%	1.0%	2.7%	1.8%	4.5%
Total species richness:	57	59	53	72	21	41	39	53	73
Species richness at RSA (50 – 200m)	6	10	9	12	1	3	4	5	13
Species richness below RSA (<50m)	57	59	53	59	7	31	23	36	60
Conservation significant species recorded: (Total flights recorded, all flights below RSA (<50m).	<ul style="list-style-type: none"> • Carnaby's Cockatoo (En) - 23 • Forest Red-tailed Black-cockatoo (Vu) - 30 • Muir's Corella (CD) - 4 • Inland Western Rosella (P4) - 20 				<ul style="list-style-type: none"> • Carnaby's Cockatoo (En) - 42 • Forest Red-tailed Black-cockatoo (Vu) - 3 • Inland Western Rosella (P4) - 5 				

6.2 Flight Heights

Of the birds recorded flying at impact sites, 204 birds (5% of flights) of 12 species were recorded flying within the RSA (Table 13). The remaining 3,848 birds (95%) of 47 species were recorded below the RSA. Of birds recorded flying at reference sites, 16 birds (<2% of flights) of 5 species were recorded flying within the RSA (Table 13). No birds were recorded flying above the RSA (>200m) at any site.

At impact sites, the species most often recorded flying in the RSA were the Tree Martin (91 flights), Purple-crowned Lorikeet (32 flights) and Australian Raven (27 flights) with <10 individual flights of the remaining species (Table 13). Few birds were recorded flying in the RSA at reference sites, however, the Tree Martin (6 flights) and Wedge-tailed Eagle (5 flights) had the most records (Table 13).

Although the overall number of records were low, for the Wedge-tailed Eagle, of 19 flights observed overall, 73.7% were in the RSA. For the Welcome Swallow, 45% were in the RSA, for the Australian Kestrel 25% were in the RSA and for the Purple-crowned Lorikeet 19.3% were in the RSA. Although the Tree Martin had the overall largest number of flights recorded in the RSA (97), this represented only 6.2% of the flights observed (Table 13).

Table 13. Summary of all birds recorded flying in the RSA (50 – 200m).

Species	At-risk Group	Total Count			Count at RSA (50 – 200m)			Proportion at RSA (50 – 200m)		
		Impact	Reference	Total	Impact	Reference	Total	Impact	Reference	Overall
Australian Kestrel	DBOP	22	2	24	6	-	6	27.3%	-	25.0%
Australian Magpie	FHR	310	66	376	2	-	2	0.6%	-	0.5%
Australian Pipit	FHR	117	5	122	6	-	6	5.1%	-	4.9%
Australian Raven	FHR	489	97	586	27	3	30	5.5%	3.1%	5.1%
Black-faced Cuckoo-shrike	FHR	53	5	58	6	-	6	11.3%	-	10.3%
Black-faced Woodswallow	FHR	46	2	48	-	1	1	-	50.0%	2.1%
Dusky Woodswallow	FHR	33	3	36	6	-	6	18.2%	-	16.7%
Elegant Parrot	FHR	54	4	58	9	1	10	16.7%	25%	17.2%
Purple-crowned Lorikeet	FHR	129	37	166	32	-	32	24.8%	-	19.3%
Red Wattlebird	FHR	56	28	84	1	-	1	1.8%	-	1.2%
Tree Martin	FHR	1278	286	1564	91	6	97	7.1%	2.1%	6.2%
Wedge-tailed Eagle	DBOP	14	5	19	9	5	14	64.3%	100%	73.7%
Welcome Swallow	FHR	20	-	20	9	-	9	45.0%	-	45.0%
Total individuals:		2621	540	3161	204	16	220			
Total species:		13	12	13	12	5	13			

Four conservation significant birds were observed during bird surveys, but none were recorded flying in the RSA (Table 13, Appendix 8). Species not recorded flying largely represents a suite of species that prefer wooded habitats and rarely cross open cleared areas.

6.3 Risk Assessment – Birds

The details of the risk assessment are presented in Appendix 9. No birds were assessed as being at *Very High* risk or *High* risk (Table 14, Appendix 9). Five species were assessed as being at being at *Moderate* risk: Carnaby's Cockatoo, Baudin's Cockatoo, Forest Red-tailed Black-cockatoo, Wedge-tailed Eagle and Purple-crowned Lorikeet (Table 14). The remaining species have been assessed as being at *Minor* or *Negligible* risk (Table 14), primarily due to an unlikely intersection with the RSA height due to rarity in the region and/or flight behaviour, and a large, widespread population reducing the likelihood of population impacts.

Baudin's Cockatoo is listed as Endangered and although it was not recorded in the study area, it potentially occurs. Due to its very small total population size (3,250 birds), the fact the population is declining and this species has a slow replacement rate for lost adults, any loss of birds potentially has an impact on the population as a whole. However, despite three surveys in the study area, including searching for foraging signs, this species has yet to be recorded. This suggests that this species is rare or absent from the study area, possibly as a result of range contraction due to its declining population. As this drastically reduces the likelihood of a collision, the risk rating has been assessed at *Moderate* instead of *High*.

Both Carnaby's Cockatoo (Endangered) and the Forest Red-tailed Black Cockatoo (Vulnerable) were recorded in the study area. Although both these species are capable of flying at RSA height, only Carnaby's Cockatoo was recorded flying at RSA height, and only on a single occasion (Figure 17). All recorded flights of the Forest Red-tailed Black-cockatoo were below RSA height (Figure 18). Recorded activity of Carnaby's Cockatoo was centred around the southern part of the study area, particularly around larger areas of native vegetation and pine plantations (Figure 17). Flights were often along road verges, which is consistent with observations elsewhere (Shepard and Warren 2018). However, Carnaby's Cockatoo also made short flights across cleared areas. The Forest Red-tailed Black-cockatoo behaved similarly, but the activity of this species was more in the central part of the study area (Figure 18). The overall flock sizes recorded were very low, with between 1 and 10 for Carnaby's Cockatoo (with a flock of 40 recorded outside the impact area) and between 1 – 5 for the Forest Red-tailed Black-Cockatoo. For both species, loss of individuals potentially has an impact on the regional population, as the populations of these long-lived species are already under pressure from other threats. The data gathered thus far suggests that relatively modest numbers of these species occur, but there is the potential for larger flocks to move through on occasion. Flocks of hundreds of birds are considered unlikely to occur.

The Wedge-tailed Eagle has no formal conservation listing; however, it is regularly reported as a mortality at wind farms. This species was recorded during the survey, often recorded flying at RSA height and three nest sites were recorded in the study area (Figure 19, Plate 19). This species is long lived and slow to reproduce, and repeated loss of individuals may impact the regional population. Birds have nested successfully within 200m of turbines (BL&A 2017), but inexperienced young birds are likely to be at risk of collision. Despite this, the Wedge-tailed Eagle is common in the region, and their overall population trend is increasing (Birdlife International 2024), so although there is likely to be impacts, they are unlikely to significantly impact the persistence of the species in the region. An increasing population trend means that there is capacity within the population to replace lost individuals at a regional level.



Plate 19. Wedge-tailed Eagle nests in the study area.

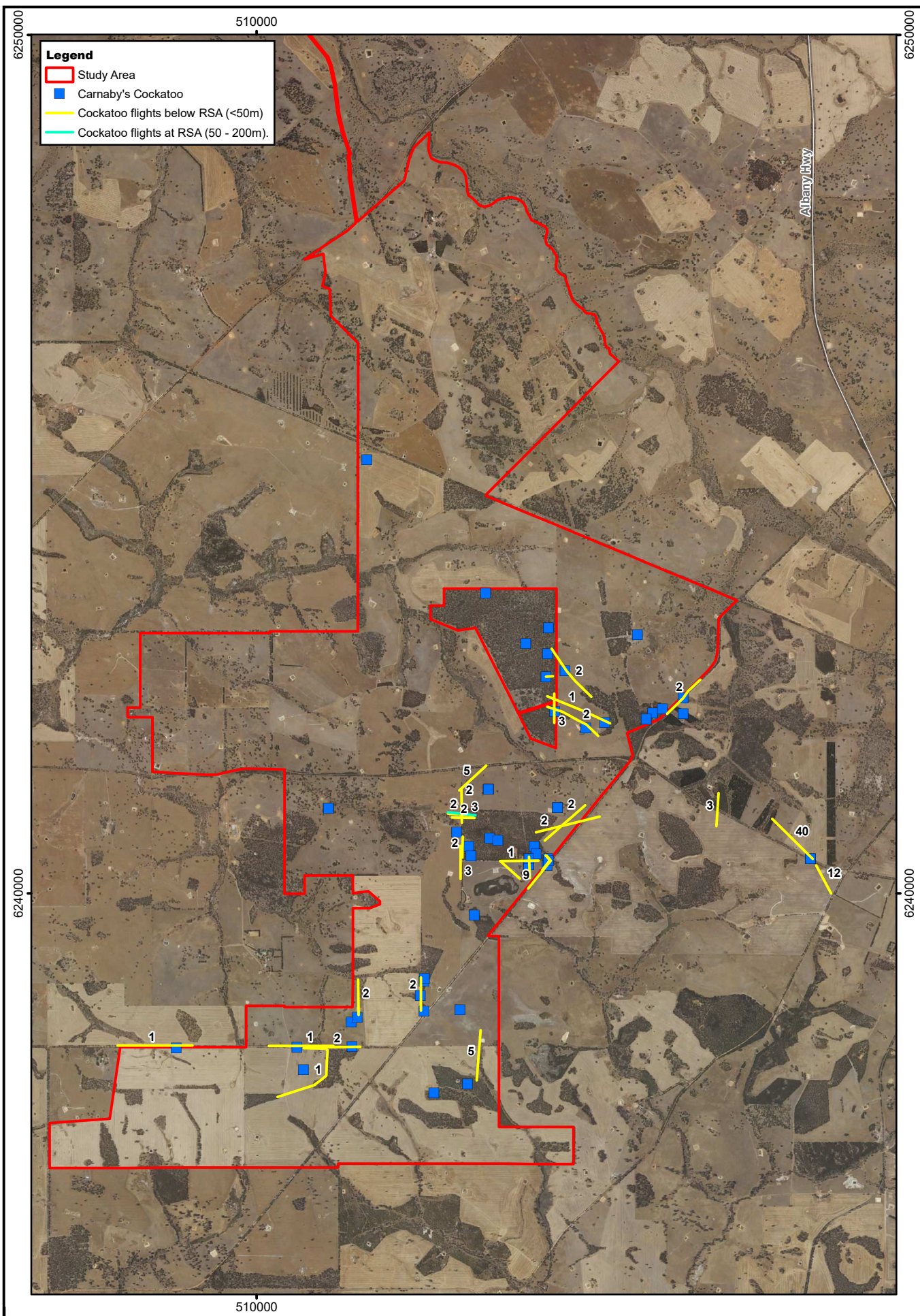
The Purple-crowned Lorikeet does not have a formal conservation listing but was recorded flying at RSA height during this survey (Table 13). This species is likely to be very common in the area when the eucalypt canopy is in flower, and the repeated loss of individuals has the potential to impact at least the local population, despite this species being relatively common.

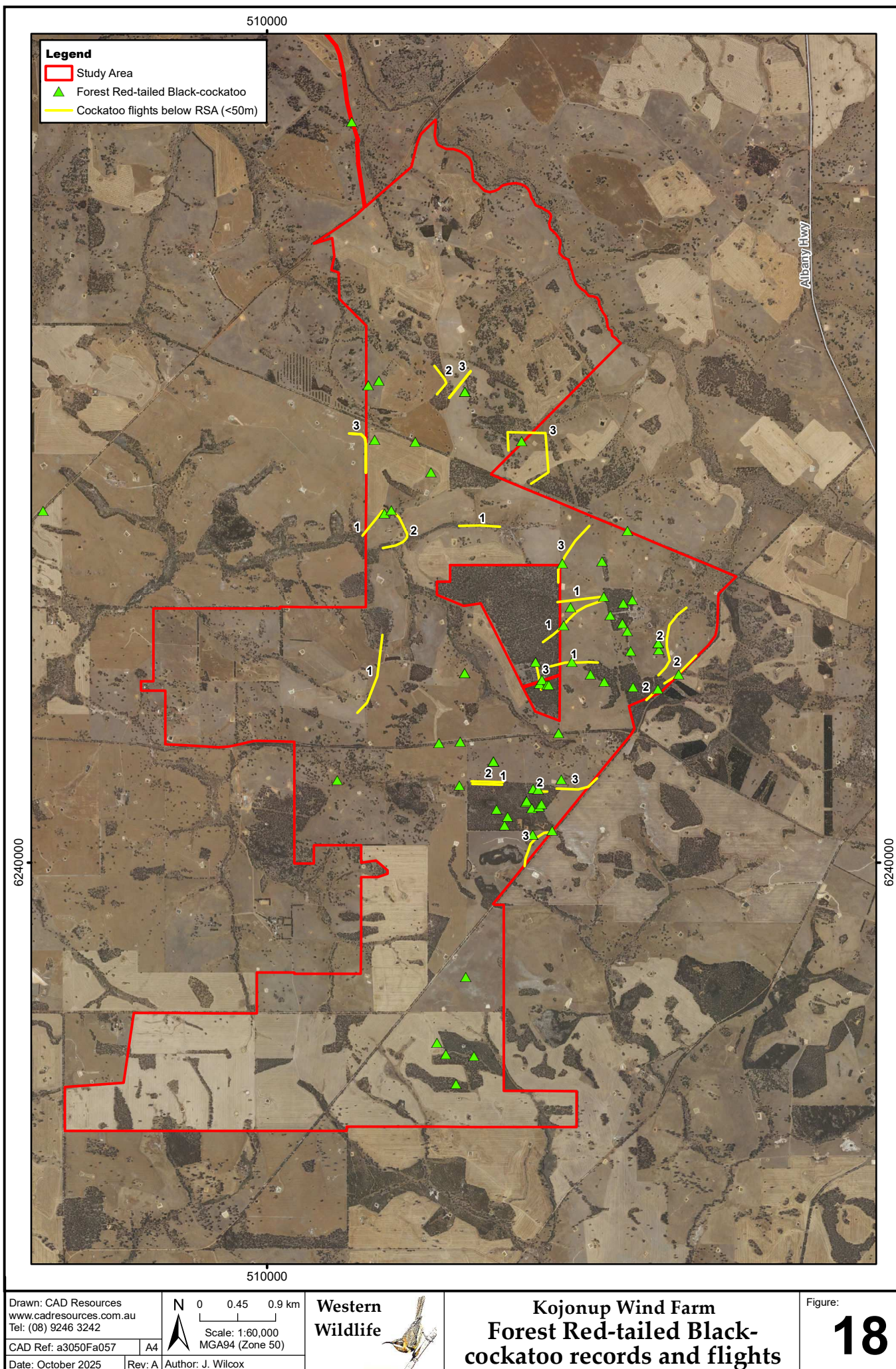
Table 14. Risk rating for assessed bird species.

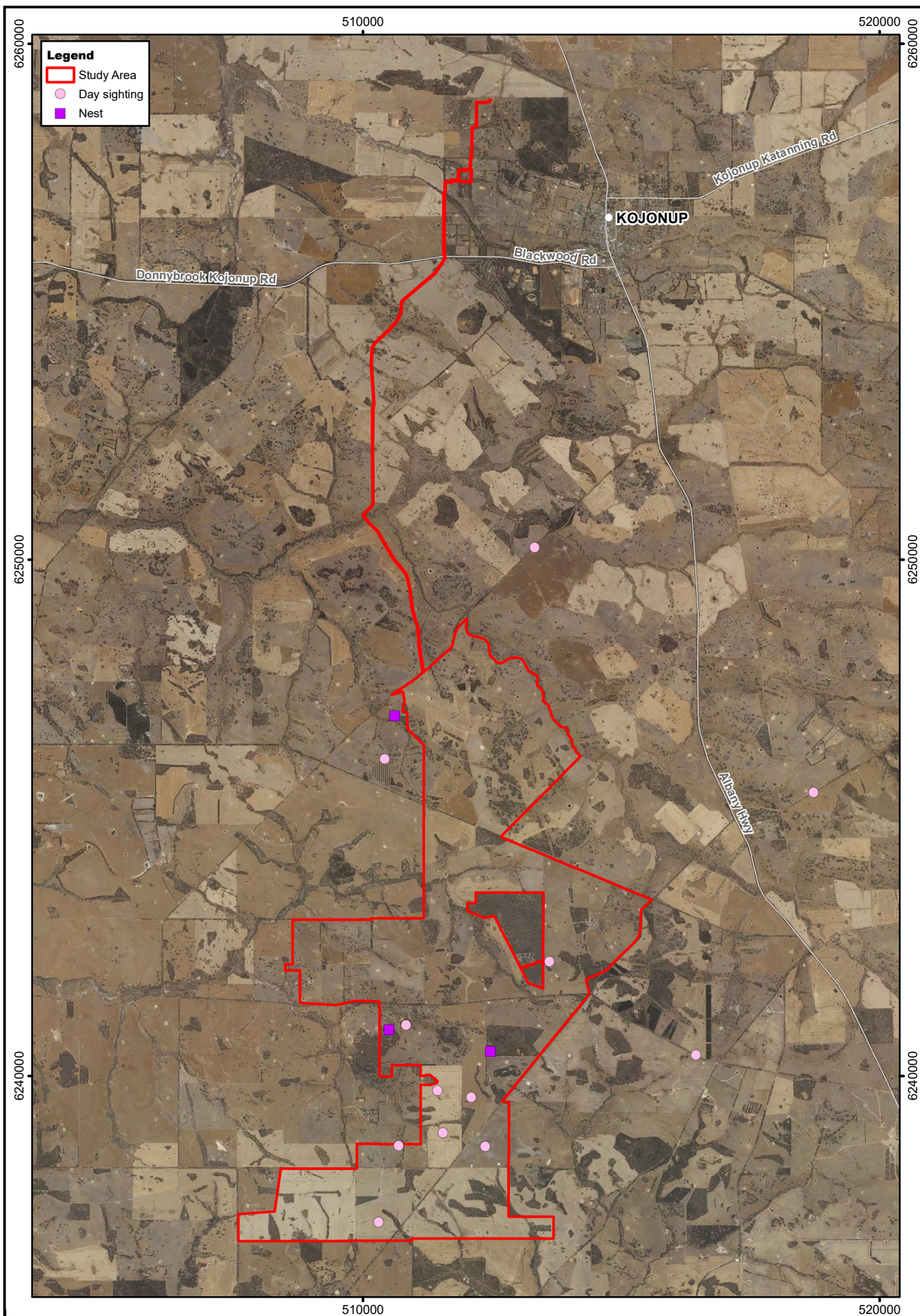
Species	Conservation Status	Recorded in study area	Risk Rating
Carnaby's Cockatoo <i>Zanda latirostris</i>	En	Yes	Moderate
Baudin's Black-Cockatoo <i>Zanda baudinii</i>	En	-	Moderate
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	Vu	Yes	Moderate
Malleefowl <i>Leipoa ocellata</i>	Vu	-	Minor
Common Sandpiper <i>Actitis hypoleucos</i>	Mi	-	Negligible
Fork-tailed Swift <i>Apus pacificus</i>	Mi	-	Minor
Peregrine Falcon <i>Falco peregrinus</i>	OS	Yes	Minor
Muir's Corella <i>Cacatua pastinator pastinator</i>	CD	Yes	Minor
Barking Owl <i>Ninox connivens connivens</i>	P3	-	Minor
Masked Owl <i>Tyto novaehollandiae novaehollandiae</i>	P3	-	Minor
Inland Western Rosella <i>Platycercus icterotis xanthogenys</i>	P4	Yes	Negligible
Black-shouldered Kite <i>Elanus axillaris</i>	-	Yes	Minor
Square-tailed Kite <i>Lophoictinia isura</i>	-	-	Minor
Whistling Kite <i>Haliastur sphenurus</i>	-	-	Negligible
Swamp Harrier <i>Circus approximans</i>	-	-	Negligible
Spotted Harrier <i>Circus assimilis</i>	-	-	Negligible
Brown Goshawk <i>Accipiter fasciatus</i>	-	-	Negligible
Collared Sparrowhawk <i>Accipiter cirrocephalus</i>	-	Yes	Negligible
Wedge-tailed Eagle <i>Aquila audax</i>	-	Yes	Moderate
Little Eagle <i>Hieraaetus morphnoides</i>	-	-	Minor
Australian Hobby <i>Falco longipennis</i>	-	-	Negligible
Brown Falcon <i>Falco berigora</i>	-	Yes	Minor
Australian Kestrel <i>Falco cenchroides</i>	-	Yes	Minor

Table 13. (cont.)

Species	Conservation Status	Recorded in study area	Risk Rating
Pacific Black Duck <i>Anas superciliosus</i>	-	Yes	Negligible
Grey Teal <i>Anas gracilis</i>	-	Yes	Negligible
Australian Shelduck <i>Tadorna tadornoides</i>	-	Yes	Negligible
Australian Wood Duck <i>Chenonetta jubata</i>	-	Yes	Negligible
White-faced Heron <i>Egretta novaehollandiae</i>	-	Yes	Negligible
Australasian Grebe <i>Tachybaptus novaehollandiae</i>	-	Yes	Negligible
Eastern Barn Owl <i>Tyto javanica</i>	-	-	Negligible
Southern Boobook <i>Ninox boobook</i>	-	-	Negligible
Tawny Frogmouth <i>Podargus strigoides</i>	-	-	Negligible
Spotted Nightjar <i>Eurostopodus argus</i>	-	-	Negligible
Australian Owlet-nightjar <i>Aegotheles cristatus</i>	-	-	Negligible
Purple-crowned Lorikeet <i>Parvipsitta porphyrocephala</i>	-	Yes	Moderate
Elegant Parrot <i>Neophema elegans</i>	-	Yes	Minor
Tree Martin <i>Petrochelidon nigricans</i>	-	Yes	Minor
Welcome Swallow <i>Hirundo neoxena</i>	-	Yes	Minor
Australian Magpie <i>Gymnorhina tibicen</i>	-	Yes	Minor
Australia Raven <i>Corvus coronoides</i>	-	Yes	Negligible
Black-faced Cuckoo-shrike <i>Coracina novaehollandiae</i>	-	Yes	Minor
Dusky Woodswallow <i>Artamus cyanopterus</i>	-	Yes	Minor
Black-faced Woodswallow <i>Artamus cinereus</i>	-	Yes	Negligible
Red Wattlebird <i>Anthochaera carunculata</i>	-	Yes	Negligible
Australian Pipit <i>Anthus australis</i>	-	Yes	Negligible







7. Bat Utilisation of the Study Area

7.1 Species Richness

There are ten species (or subspecies) of bat that potentially occur in the vicinity of the study area. A total of five species were confirmed as occurring in the study area, with at least a sixth species recorded but unable to be identified to species level (Table 15, Appendix 7). Species in the genus *Nyctophilus* are not readily separated on call, and their presence can only be confirmed by trapping.

All of the data were obtained from near ground level. It was not possible to obtain data from within the RSA due to the lack of sufficiently tall structures to place recording units, so thus far there are no data on the use of the RSA by bats in the study area.

7.2 Risk Assessment - Bats

The details of the risk assessment are presented in Appendix 8. No Threatened bats occur in the region and no bats were assessed as being of *Very High* or *High* risk (Table 15, Appendix 9). Two species were assessed as being at *Moderate* risk, the Gould's Wattled Bat and White-striped Freetail Bat (Table 15).

Table 15. Risk rating for all bat species potentially present.

Species	Conservation Status	Recorded in study area	Risk Rating
Central Long-eared Bat <i>Nyctophilus major tor</i>	P3	-	Minor
Chocolate Wattled Bat <i>Chalinolobus morio</i>	-	Yes	Minor
Gould's Wattled Bat <i>Chalinolobus gouldii</i>	-	Yes	Moderate
Greater Long-eared Bat <i>Nyctophilus major major</i>	-	-	Minor
Holt's Long-eared Bat <i>Nyctophilus holtorum</i>	-	-	Minor
Lesser Long-eared Bat <i>Nyctophilus geoffroii</i>	-	-	Negligible
South-west Freetail Bat <i>Ozimops kitcheneri</i>	-	Yes	Minor
Southern Forest Bat <i>Vespadelus regulus</i>	-	Yes	Negligible
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	P4	-	Minor
White-striped Freetail Bat <i>Austronomus australis</i>	-	Yes	Moderate

Both species were recorded during the field survey, and both are often recorded as mortalities at other wind farm projects. The White-striped Freetail Bat is the only bat in south-west Western Australia recognised as being migratory, moving northwards during the cooler months of April - September and southwards during the warmer months of October – March (Bullen and McKenzie 2005), and it also displays a high wing aspect ratio and high wing loading (Norberg *et al.* 1987). Both species are common and widespread across Australia, so although there is a risk of an impact to the local population of these species, it is not likely that there would be an impact to the population as a whole.

8. Potential Impacts to Fauna

This section provides a high-level summary of the likely impacts of a wind farm development on vertebrate fauna. The key potential impacts on vertebrate fauna are likely to be:

- habitat loss
- an increase in habitat fragmentation
- accidental mortalities
- collisions with turbines or other infrastructure
- barotrauma
- barrier effects and displacement

Each of these are discussed below.

8.1 Habitat Loss

The overall amount of clearing for wind farms is generally modest, with turbines sited in cleared areas, but there is likely to be some clearing for access and transmission infrastructure. The scale of the impact is related to the amount of habitat cleared, with the caveat that some habitats may be of greater importance where they are more intact, better connected in a network of ecological linkage, or provide breeding, foraging or roosting habitat for black-cockatoos or other conservation significant fauna.

A small amount of habitat loss is unlikely to significantly impact most species, however, loss of any potential cockatoo breeding habitat (most eucalypt woodlands) or more than 1ha of high-quality foraging habitat is potentially a significant impact for black-cockatoos (DAWE 2022). The eucalypt and granite woodlands of the study area are likely to provide both potential breeding habitat and high-quality foraging habitat (Figures 10 and 14, Appendix 6). Losses to habitat patches containing the Red-tailed Phascogale (*Phascogale calura*: Endangered) are likely to impact this species, given how little habitat remains in the landscape, and at the minimum, all occupied habitat is likely to be considered critical habitat for this species.

8.2 Habitat Fragmentation

Loss of entire habitat patches or increases in the distance between patches may negatively impact the ability of fauna to move through an already highly cleared landscape. Smaller species, such as the Red-tailed Phascogale (*Phascogale calura*: Endangered), are more at risk, as they are less likely to negotiate cleared areas and would be vulnerable to the feral predators that are prevalent in the landscape. Black-cockatoo movements are unlikely to be impeded by minor habitat loss, but cockatoos do travel along vegetated areas, including road verges, and this should be taken into consideration.

Increased habitat fragmentation and an influx of construction vehicles has the potential to add to habitat degradation through an increase in edge effects and importing weeds or disease. It is noted, however, that most habitat patches are already degraded through grazing, salinity, weeds and/or the presence of feral predators, and further impacts would be difficult to define in this context.

8.3 Accidental Mortalities

It is likely that there would be some mortality of fauna during construction, mostly due to habitat clearing, but also through accidental road mortalities or entrapment of fauna in excavations or bins. During construction and operation there is a risk of accidental road mortalities. Conservation significant species at risk during clearing are species that roost or den in hollows during the day, species that nest in hollows where the unfledged young are at risk and species that are more likely to hide than disperse away from clearing activities. These species, therefore, may be accidentally crushed during clearing. Fauna may be attracted to food-waste and trapped in bins or become trapped in steep-sided open excavations during construction. Road mortalities are more likely if there are vehicle movements at night and are more likely to impact ground-dwelling species.

Conservation significant species that may be at risk of accidental mortalities include:

- Red-tailed Phascogale (*Phascogale calura*: Endangered), Chuditch (*Dasyurus geoffroii*: Vulnerable) and Brush-tailed Phascogale (*Phascogale tapoatafa*: Conservation Dependent) as they shelter in tree hollows during the day, may be attracted to food waste and may become trapped in excavations.
- Unfledged young of the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*: Vulnerable), Carnaby's Cockatoo (*Zanda latirostris*: Endangered), Baudin's Cockatoo (*Zanda baudinii*: Endangered), Inland Western Rosella (*Platycercus icterotis xanthogenys*: Priority 4) or other conservation significant birds where they nest in tree hollows.
- Central Long-eared Bat (*Nyctophilus major tor*), as they roost in tree hollows during the day (although their likelihood of occurrence is 'possible').

8.4 Collisions with Turbines or Other Infrastructure

Mortality of both bats and birds at wind farms can result from collisions with turbine blades, towers, transmission lines and other infrastructure (Schuster *et al.* 2015). Factors influencing the risk of collisions include the attributes of the wind turbine (e.g. tower height, blade length and lighting), landscape attributes (e.g. topography, vegetation, proximity to wetlands, roost sites or migration flyways) and species-specific attributes (e.g. abundance, flight behaviour, patterns of dispersal).

Bats are generally thought to be at higher risk of mortality at wind farms than birds (Thaxter *et al.* 2017). Globally, collisions with wind turbines have become a leading cause of bat mortality, as the number of wind farm facilities have increased (O'Shea *et al.* 2016). Causes of susceptibility are not well understood. Some bats appear attracted to turbines, but the reasons for this remain uncertain (Cryan *et al.* 2014, Cryan and Barclay 2009). Multiple studies from both Australia and internationally have shown that the bat species most impacted by wind turbines tend to be:

- Tree-roosting species (Arnett 2008; Cryan *et al.* 2014), noting that all of the potentially occurring bat species in the study area are tree-roosting, although some have also adapted to using buildings (Churchill 2008).
- Species with a higher wing aspect ratio and high wing loading, resulting in higher flight speeds but less manoeuvrability (Hull and Cawthen 2013; AWWI 2018, Rydell *et al.* 2010).
- Migratory species (Arnett 2008; Frick *et al.* 2017, Hartman *et al.* 2021).
- Species that forage in the open air, as opposed to those that fly under the canopy, close to vegetation or in the understory (Rydell *et al.* 2010).

Equally, it has been noted in many studies that not all birds are equally at risk of collision. Higher risk groups include:

- Diurnal birds of prey (Thaxter *et al.* 2017, Perhold *et al.* 2020, Barrios and Rodriguez 2004, Ribeiro *et al.* 2022, Stewart *et al.* 2007).
- Migratory shorebirds (Thaxter *et al.* 2017, Stewart *et al.* 2007)
- Waterbirds (Stewart *et al.* 2007), although found less at risk by Thaxter *et al.* (2017).

Just because birds fly at the RSA height does not mean that collisions are inevitable. Collision avoidance behaviour has not been well documented, and a recent review found that it was difficult to make estimates of micro-avoidance rates as there were very few records of birds flying close enough to turbines to require micro-avoidance, and that collisions are likely to be rare events (Cook *et al.* 2018). A recent study of seabirds at an offshore windfarm in the United Kingdom has found that birds adjust their flight direction and heights to avoid turbines, resulting in micro-avoidance rates of 96%, with no collisions recorded during the span of the study (Tjørnløv *et al.* 2023).

Studies on diurnal birds of prey in the northern hemisphere have found collision avoidance rates of 98% for White-tailed Eagles (*Haliaeetus albicilla*) (May *et al.* 2011), 99% for Golden Eagles (*Aquila chrysaetos*) (Whitfield 2009), 99% for Hen Harriers (*Circus cyaneus*) (Whitfield and Madders 2006a) and 95% for the Kestrel (*Falco tinnunculus*) (Whitfield and Madders 2006b). There are no robust data on avoidance rates for Australian species, however SNH (2018) recommends 98% as a default for unknown species when undertaking collision risk modelling.

8.5 Barotrauma

Barotrauma occurs where bats show no obvious external injury but show significant internal damage as a result of sudden changes in air pressure in close proximity to turbine blades (Baerwald *et al.* 2008; Hartmann *et al.* 2021). There is no published information on barotrauma in Australia, and international studies display mixed results in the proportion of deaths attributable to barotrauma, as opposed to direct collisions. Baerwald *et al.* (2008) found that 46% of bat mortalities were due to barotrauma, while Rollins *et al.* (2012) attributed only 6% of mortalities to barotrauma.

8.6 Barrier Effects and Displacement

Indirect impacts of wind farms may arise through barrier effects or displacement due to disturbance by people, vehicles or the presence of turbines (Powlesland 2009, Drewitt and Langston 2006). Barrier effects, also known as macro-avoidance, are caused by wind farms diverting flights, including migratory flights, around the wind farm or disrupting movement of birds between foraging, roosting and/or breeding sites (Hötter *et al.* 2006, Schuster *et al.* 2015, Cook *et al.* 2018). Although there is currently no published information on the barrier effect of wind farms in Australia, it is considered more likely to impact migratory species and possible effects are higher energy consumption (Schuster *et al.* 2015).

The displacement impact of wind farms is not well understood, and studies are often hampered by poor survey design (Schuster *et al.* 2015, Cook *et al.* 2018). Habitat loss occurs due to avoidance of the wind farm site. Studies have found mixed results with some species showing no signs of displacement, while others avoiding both turbines and access roads.

9. Conclusions

The study area contains six habitats: eucalypt woodland, creek, granite outcrop, pine plantation, planted and cleared. These are likely to support a vertebrate faunal assemblage typical of the region, with larger, more intact habitat patches supporting more species than the smaller patches lacking understory. A key value of the habitats present is ecological linkage, maintaining faunal populations across the landscape by allowing dispersal. Some of these habitats are known or are likely to support conservation significant fauna.

Twenty-two conservation significant fauna potentially occur, but for most species, the study area is unlikely to provide important habitat because the habitats are marginal, the habitats are common and widespread in the region and/or the species has a low likelihood of occurring.

Six conservation significant fauna were recorded or considered likely to occur:

- **Carnaby's Cockatoo** (*Zanda latirostris*: Endangered) – recorded
- **Forest Red-tailed Black-cockatoo** (*Calyptorhynchus banksii naso*: Vulnerable) – recorded
- **Inland Western Rosella** (*Platycercus icterotis xanthagenys*: Priority 4) – recorded
- **Red-tailed Phascogale** (*Phascogale calura*: Endangered) – likely
- **Muir's Corella** (*Cacatua pastinator pastinator*: Conservation Dependent) – recorded
- **Peregrine Falcon** (*Falco peregrinus*: Other Specially Protected Fauna) – recorded

Of these, the black-cockatoos and Red-tailed Phascogale are most significant, as their populations are small and declining. The study area provides foraging habitat (particularly eucalypt woodland and pine plantation) and potential breeding habitat for cockatoos (eucalypt woodland, creek and isolated paddock trees in cleared areas). Loss of any potential cockatoo breeding habitat or more than 1ha of high-quality foraging habitat is potentially a significant impact for black-cockatoos (DAWE 2022). The Red-tailed Phascogale is likely to be present, particularly in larger eucalypt woodland or granite woodland patches. Loss of any habitat occupied by Red-tailed Phascogale is likely to be considered a significant impact on the species. The Inland Western Rosella and Peregrine Falcon are widespread and their populations are large and comparatively secure. Their habitats are common in the region and these species are less likely to be impacted by a wind farm development. Muir's Corella originally declined due to persecution, and once again has an increasing population trend

The remaining conservation significant species potentially or possibly occur. Many are on the edge of their known range in the vicinity of the study area (e.g. Western False Pipistrelle, *Falsistrellus mackenziei*), so they may or may not be present. Others are very rarely reported anywhere (e.g. Barking Owl, *Ninox connivens connivens* and Masked Owl, *Tyto novaehollandiae novaehollandiae*) and therefore their status is difficult to ascertain with certainty. More mobile species (e.g. Chuditch, *Dasyurus geoffroii* and Malleefowl, *Leipoa ocellata*) may disperse through the study area, but are unlikely to be resident. For these species, the study area is less likely to provide important habitat, however, habitats may still have importance for some species if further survey found them to be present.

Overall, 73 bird species were recorded on bird surveys, 94.8% of the 77 bird species recorded thus far across the study area. Of the birds recorded flying at impact sites, 204 birds (5% of flights) of 12 species were recorded flying within the RSA, while at reference sites, 16 birds (<2% of flights) of 5 species were records flying within the RSA. No birds were recorded flying above the RSA (>200m) at any site.

Although the overall number of records were low, for the Wedge-tailed Eagle, of 19 flights observed overall, 73.7% were in the RSA. For the Welcome Swallow, 45% were in the RSA, for the Australian Kestrel 25% were in the RSA and for the Purple-crowned Lorikeet 19.3% were in the RSA. Although the Tree Martin had the overall largest number of flights recorded in the RSA (97), this represented only 6.2% of the flights observed.

Four conservation significant birds were observed during bird surveys (Carnaby's Cockatoo, Forest Red-tailed Black-cockatoo, Muir's Corella and Inland Western Rosella), but none were recorded flying in the RSA in bird surveys. Flight paths of Carnaby's Cockatoo and Forest Red-tailed Cockatoos were recorded opportunistically, and all were below RSA height except one record of two Carnaby's flying at RSA height. From the data collected, Carnaby's and Forest Red-tailed Black-cockatoos were found to often fly along road verges and fence-lines, but also crossed cleared areas between patches of native vegetation.

No birds were assessed as being at *Very High* risk or *High* risk and five species were assessed as being at *Moderate* risk (Baudin's Cockatoo, Carnaby's Cockatoo, Forest Red-tailed Black-cockatoo, Wedge-tailed Eagle and Purple-crowned Lorikeet). It appears that Baudin's is rare or absent from the study area, as it has yet to be recorded despite three field surveys, and the other cockatoo species are present in small numbers. The Wedge-tailed Eagle has an increasing population trend, and although there are likely to be impacts, these are unlikely to significantly impact the persistence of the species in the region.

The remaining species were assessed as being at *Minor* or *Negligible* risk, primarily due to an unlikely intersection with the RSA height due to rarity in the region and/or flight behaviour, and a large and widespread population reducing the likelihood of population impacts. Both Migratory shorebirds and waterbirds are at low risk due to the lack of suitable wetland habitats in or in close proximity to the study area.

There are ten species (or subspecies) of bat that potentially occur in the vicinity of the study area. A total of five species were confirmed as occurring in the study area, with at least a sixth species recorded but unable to be identified to species level. All of the data were obtained from near ground level. Although thus far there are no data on the use of the RSA by bats in the study area, a bat detector placed at 50m on the meteorological mast has data that are yet to be analysed.

No Threatened bats occur in the region and no bats were assessed as being of *Very High* or *High* risk. Two species were assessed as being at *Moderate* risk (Gould's Wattled Bat and White-striped Freetail Bat) and the remainder were assessed as being at *Minor* or *Negligible* risk.

10. References

- ALA (Atlas of Living Australia) Database (2024). Database extract study area +40km buffer 2024.
- Baerwald, E.F., D'Amours, G.H., Klug, B.J. and Barclay, R.M.R. (2008). Barotrauma is a significant cause of bat fatalities at wind turbines. *Current Biology* 18(16), 695–696.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. (2003). *The New Atlas of Australian Birds*. Royal Australasian Ornithologists Union, Victoria.
- Barrios L, Rodriguez A. 2004 Behavioural and environmental correlates of soaring-bird mortality at on-shore wind turbines. *Journal of Applied Ecology* 41, 72–81
- Beard, J.S. (1980) A new phytogeographic map of Western Australia. Western Australian Herbarium Research Notes 3: 45.
- Benshemesh, J. (2007). *National Recovery Plan for Malleefowl*. Department for Environment and Heritage, South Australia.
- Biosis (2021). Silverton Wind Farm: Bird and Bat Monitoring 2018 - 2020. Report for GE Renewable Energy. E. Baldwin & C. Potts. Biosis Pty Ltd. Melbourne, VIC
- BirdLife International (2024) IUCN Red List for birds. URL: <http://www.birdlife.org>
- BL&A (Brett Lane and Associates Pty Ltd (2017). *Sapphire Wind Farm – Bird and Bat Adaptive Management Program*. Unpublished report to CWP Renewables Pty Ltd.
- Boehm, E.F. (1962). Some habits of the Fork-tailed Swift. *Emu* 61(4) 281-282.
- Brigham, R. M., Gutsell, R. C. A., Wiacek, R. S., and Geiser, F. (1999). Foraging Behaviour in Relation to the Lunar Cycle by Australian Owlet-nightjars *Aegotheles cristatus*. *Emu - Austral Ornithology*, 99(4), 253–261.
- Burbidge, A.H. and Gole, C. (2005). Regional reports: South Western Australia. In: Olsen et al. (eds) The state of Australia's birds 2005. Woodlands and birds. Supplement to Wingspan 15(4), p. 10.
- Bureau of Meteorology (2025). Monthly Climate Statistics for Kojonup and Katanning. URL: <http://www.bom.gov.au/climate/>
- Chapple, D., Tingley, R., Mitchell, N., Macdonald, S., Keogh, J.S, Bowles, P., Cox, N., and Woinarski, J. (2019). *The Action Plan for Australian Lizards and Snakes 2017*. CSIRO Publishing, Clayton South, Victoria.
- Churchill, S. (2008). *Australian Bats*. 2nd Edition. Reed New Holland, Sydney.
- Cogger, H.G., Cameron, E.E., Sadler, R.A. and Eggler, P. (1993). *The Action Plan for Australian Reptiles*. Endangered Species Programme Project Number 124, Australian Nature Conservation Agency, Canberra.
- Cook, A. S. C. P., Humphreys, E. M., Bennet, F., Masden, E. A., & Burton, N. H. K. (2018). Quantifying avian avoidance of offshore wind turbines: Current evidence and key knowledge gaps. *Marine Environmental Research*. 140: 278-288.
- Cryan PM, Barclay RMR (2009) Causes of bat fatalities at wind turbines: hypotheses and predictions. *Journal of Mammalogy* 90: 1330–1340.
- Cryan, P.M., Gorresen, P.M., Hein, C.D., Schirmacher, M.R., Diehl, R.H., Huso, M.M., et. al. (2014). Behaviour of bats at wind turbines. Proceedings of the National Academy of Sciences of the United States of America 111, 15126–15131.
- DAWE (2021). Onshore Wind Farms – interim guidance on bird and bat management.
- DAWE (Department of Agriculture, Water and Environment) (2022). *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo (Zanda latirostris), Baudin's Cockatoo (Zanda baudinii) and the Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso)*.
- DPAW (Department of Parks and Wildlife) (2015). Muir's Corella management. Wildlife Management Program No 61. Department of Parks and Wildlife, Perth, Western Australia.
- Debus, S. (1998). *The Birds of Prey of Australia: A Field Guide*. Oxford University Press, Australia.
- DBCA (2023). Threatened and Priority Fauna Database extract, 2023.
- DBCA (2024). Dandjoo Search Accessed April 2024.

- DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2020), Interim Biogeographic Regionalisation for Australia (Subregions) v. 7 (IBRA).
- DoE (Department of the Environment) (2015). Referral Guidelines for 14 birds listed as Migratory species under the EPBC Act. Commonwealth of Australia.
- DoEE (Department of Environment and Energy) (2017). EPBC Act Policy Statement 3.21 - Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species. Commonwealth of Australia.
- EcoLogical Australia (2022). *Implementation Report – Year One*. Unpublished report prepared for CWP Renewables Pty Ltd
- Elmoby (2019). Post Construction Bird and Bat Monitoring Results Year 1: July 2018 – June 2020, Yaloak South Wind Farm, Victoria. Unpublished Report to Pacific Hydro Pty Ltd.
- Elmoby (2020). Post Construction Bird and Bat Monitoring Results Year 2: July 2019 – June 2020, Yaloak South Wind Farm, Victoria. Unpublished Report to Pacific Hydro Pty Ltd.
- Elmoby (2021). Post Construction Bird and Bat Monitoring Results Year 3: July 2020 – June 2021, Yaloak South Wind Farm, Victoria. Unpublished Report to Pacific Hydro Pty Ltd.
- EPA (Environmental Protection Authority) (2020). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. EPA, Western Australia.
- Ferguson-Lees, J. and Christie, D.A. (2001) *Raptors of the world*. Houghton Mifflin Company, New York.
- Frith, H. J. (1962). The Mallee Fowl. Angus and Robertson, Sydney.
- Garnett, S.T. and Barker, G.B. (2021). *The Action Plan for Australian Birds 2020*. CSIRO Publishing, Collingwood, Victoria.
- Geering, A., Agnew, L. and Harding, S. (2007). *Shorebirds of Australia*. CSIRO Publishing, Collingwood, Victoria.
- Government of Western Australia (2000). *Bush Forever Volume 2*. Department of Environmental Protection, Perth.
- Hansen, B.D., Fuller, R.A., Watkins, D., Rogers, D.I., Clemens, R.S., Newman, M., Woehler, E.J. and Weller, D.R. (2016) *Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species*. Unpublished report for the Department of the Environment. BirdLife Australia, Melbourne.
- Hearn, R., Williams, K., Comer, S. and Beecham, B. (2002). Jarrah Forest 2 (JF2 – Southern Jarrah Forest Subregion). In 'A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002'. Ed by J.E. May and N.L. McKenzie. Department of Conservation and land Management, Western Australia.
- Hull, C.L., Stark, E.M., Peruzzo, S. and Sims, C.C. (2013). Avian collisions at two wind farms in Tasmania, Australia: taxonomic and ecological characteristics of colliders versus non-colliders, *New Zealand Journal of Zoology*, 40:1, 47-62.
- Johnstone, R.E. & Storr, G.M. (1998). *Handbook of Western Australian Birds. Volume 1: Nonpasserines (Emu to Dollarbird)*. Western Australian Museum, Perth.
- Johnstone, R.E. & Storr, G.M. (2004). *Handbook of Western Australian Birds. Volume 2: Passerines (Blue-winged Pitta to Goldfinch)*. Western Australian Museum, Perth.
- Kitchener, D.J. Dell, J., Muir, B.G. and Palmer, M. (1982). Birds in Western Australian wheatbelt reserves — implications for conservation. *Biological Conservation* 22(2): 127-163.
- May, R., Nygård, T., Lie Dahl, E., Reitan, O. & Bevanger, K. (2011). *Collision risk in white-tailed eagles. Modelling kernel-based collision risk using satellite telemetry data in Smøla wind-power plant*. NINA report 692.
- Maxwell, S., Burbidge, A. A., and Morris, K. (1996). *The 1996 action plan for Australian marsupials and monotremes*. Wildlife Australia, Canberra.
- McKenzie, N.L. and Start, A.N. (1986). Structure of bat guilds in the Kimberley mangroves, Australia. *Journal of Animal Ecology* 55:401 – 420.
- Menkhorst, P. and Knight, F. (2011). *A field guide to the mammals of Australia*. 3rd Edition. Oxford University Press, South Melbourne.

- Moloney P. D., Lumsden L. F. & Smales I. (2019). Investigation of existing post-construction mortality monitoring at Victorian wind farms to assess its utility in estimating mortality rates. Technical Report Series no. 302. Arthur Rylah Institute for Environmental Research, Heidelberg.
- Orell, P. and Morris, K. (1994). *Chuditch recovery plan*. Wildlife Management Program No 13. Department of Conservation and Land Management.
- O'Shea, T.J., Cryan, P.M., Hayman, D. T.S., Plowright, R.K., Streicker, D.G., 2016. Multiple mortality events in bats: a global review. *Mammal Review* 2016, 46, 175–190.
- Perhold, V., Ralston-Paton, S. and Ryan, P. (2020). On a collision course? The large diversity of birds killed by wind turbines in South Africa. *Journal of African Ornithology* 91(3): 228-239.
- Powlesland, R. (2009). Impact of wind farms on birds: a review. Science for Conservation.
- Ribeiro, J., Carduso, P.E., Debastiani, V. and Santos, J. (2022). 15 years of bird mortality at wind farms: a review for Portugal. Wind Energy and Wildlife Impacts Conference Proceedings.
- Riley, K. J., Warren, K., Armstrong, N., Yeap, L., Dawson, R., Mawson, P. R., Saunders, D. A., Cooper, C. E., & Shephard, J. M. (2023). Accelerometry reveals limits to use of an energy-saving anthropogenic food source by a threatened species: A case of Carnaby's cockatoos (*Zanda latirostris*) and canola. *Ecology and Evolution* 13, e10598. <https://doi.org/10.1002/ece3.10598>
- Rollins K.E., Meyerholz D.K., Johnson G.D., Capparella A.P., and Loew S.S. 2012. A forensic investigation into the etiology of bat mortality at a wind farm: barotrauma or traumatic injury? *Veterinary Pathology* 49: 362-371
- Rycken, S. J. E., Warren, K. S., Yeap, L., Donaldson, R., Mawson, P., Dawson, R., and Shephard, J.M. (2022). Forest specialist species in the urban landscape: Do different levels of urbanization affect the movements of Forest Red-tailed Black Cockatoos (*Calyptorhynchus banksii naso*)? *Avian Conservation and Ecology* 17(1):11. <https://doi.org/10.5751/ACE-02061-170111>
- Rycken, S., Shephard, J.M., Yeap, L., Vaughan-Higgins, R., Page, M., Dawson, D., Karen Smith, K., Mawson, P.R. and Kristin S. Warren, K.S. (2021). Regional variation in habitat matrix determines movement metrics in Baudin's cockatoos in southwest Western Australia. *Wildlife Research* 48: 18-29.
- Rydell, J., Bach, L., Dubourg-Savage, M., Green, M., Rodrigues, L., and Hedenström, A. (2010). Bat mortality at wind turbines in northwestern Europe. *Acta Chiropterol* 12(2):261–74.
- Saunders, D. and Ingram, J. (1995). *Birds of Southwestern Australia: An atlas of changes in the distribution and abundance of the wheatbelt avifauna*. Surrey Beatty and Sons, Chipping Norton.
- Schuster, E., Bulling, L., & Köppel, J. (2015). Consolidating the State of Knowledge: A Synoptical Review of Wind Energy's Wildlife Effects. *Environmental Management*, 56(2), 300–331.
- SNH (2018). *Wind farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model*. Scottish Natural Heritage.
- Specialised Zoological (2024). *Acoustic analysis and bat call identification from Kojonup, Western Australia*. Unpublished report by Specialised Zoological for Western Wildlife Pty Ltd, 6 May 2024, project reference SZ732.
- STEWART, G. B., PULLIN, A. S., & COLES, C. F. (2007). Poor evidence-base for assessment of windfarm impacts on birds. *Environmental Conservation*, 34(01), 1.
- Storr, G.M., Smith, L.A. and Johnstone, R.E. (1983). *Lizards of Western Australia. II. Dragons and Monitors*. W.A. Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone, R.E. (2002). *Snakes of Western Australia*. W.A. Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone, R.E. (1990). *Lizards of Western Australia. III. Geckoes and Pygopods*. W.A. Museum, Perth.
- Storr, G.M., Smith, L.A. and Johnstone, R.E. (1999). *Lizards of Western Australia. I. Skinks*. 2nd edition. W.A. Museum, Perth.
- Thaxter, C. B., Buchanan, G. M., Carr, J., Butchart, S. H. M., Newbold, T., Green, R. E., Pearce-Higgins, J. W. (2017). Bird and bat species' global vulnerability to collision mortality at wind farms revealed through a trait-based assessment. *Proceedings of the Royal Society B: Biological Sciences*, 284(1862), 20170829.
- Tjørnløv, R.S., Skov, H., Armitage, M., Barker, M., Jørgensen, J.B. Mortensen, L.O., Thomas, K. and Uhrenholdt, T. (2023). *Resolving Key Uncertainties of Seabird Flight and Avoidance Behaviours at Offshore Wind Farms: Final Report for the study period 2020-2021*. Unpublished report to Vattenfall.
- Tyler, M.J. (1998). *The Action Plan for Australian Frogs*. Environment Australia, Canberra.

- Tyler, M.J., Smith, L.A. and Johnstone, R.E. (2000). *Frogs of Western Australia*. W.A. Museum, Perth.
- Van Dyck and Strahan, R. (Ed.) (2008). *The Mammals of Australia*. 3rd Edition. Australian Museum/Reed Books, Sydney.
- Western Wildlife (in press). Flat Rocks Wind Farm Stage 2: Basic vertebrate fauna survey, bird and bat utilisation survey 2023. Unpublished report to Moonies Hill Pty Ltd.
- Whitfield, D.P. (2009). Collision avoidance of golden eagles at wind farms under the 'Band' collision risk model. Report to Scottish Natural Heritage.
- Whitfield, D.P. & Madders, M. (2006a). A review of the impacts of wind farms on hen harriers *Circus cyaneus* and an estimation of collision avoidance rates. Natural Research Information Note 1 (revised). Natural Research Ltd, Banchory, UK.
- Whitfield, D.P. & Madders, M. (2006b). Deriving collision avoidance rates for red kites *Milvus milvus*. Natural Research Information Note 3. Natural Research Ltd, Banchory, UK.
- Wilson, S. and Swan, G. (2017). *A complete guide to the reptiles of Australia*. 5th Edition. New Holland Publishers (Australia).
- Woinarski, J.C.Z., Burbidge, A.A. and Harrison, P.L. (2014). *The Action Plan for Australian Mammals 2012*. CSIRO Publishing.

Appendices.

Appendix 1. Daily weather observations during survey periods.

Data after BOM (2024), as recorded at Katanning, site number 010916.

Month	Date	Survey	Daily Temperature (°C)		Rainfall (mm)	Wind (speed km/hr, direction)	
			Minimum	Maximum		9AM	3PM
November 2023	20 – 11 – 23	1	11.5	29.2	0	19, ESE	22, SE
	21 – 11 – 23	1	12.8	30.3	0	26, ESE	24, E
	22 – 11 – 23	1	12.5	32.8	0	20, E	22, ENE
	23 – 11 – 23	1	12.9	33.2	0	24, NE	22, ENE
	24 – 11 – 23	1	12.3	36.4	0	20, NE	17, ESE
August 2024	10 – 08 – 24	2	6.8	20.7	0	09, N	28, NNW
	11 – 08 – 24	2	11.0	17.7	1.8	15, W	20, WNW
	12 – 08 – 24	2	10.7	16.7	0.4	19, WNW	28, WNW
	13 – 08 – 24	2	7.9	17.4	0.6	13, NNW	20, NNW
	14 – 08 – 24	2	9.2	15.0	4.8	20, WNW	28, WNW
	15 – 08 – 24	2	6.7	14.1	3.4	24, W	17, W
November 2024	03 – 11 – 24	3	10.4	23.1	0	09, SE	11, W
	04 – 11 – 24	3	9.9	27.3	0	11, ENE	09, WSW
	05 – 11 – 24	3	10.7	22.0	0	31, W	22, W
	06 – 11 – 24	3	10.2	19.9	0	26, SW	15, S
	07 – 11 – 24	3	5.3	21.7	0	20, WSW	15, SW
	08 – 11 – 24	3	10.2	17.3	0	11, ESE	15, ESE

Appendix 2. Sampling Locations.

Appendix 2						
Site Type	Site Name	Zone	Easting	Northing	Start Date	Stop Date
Bat recording	Bat01	50	513496	6240883	20/11/2023	24/11/2023
Bat recording	Bat02	50	512009	6237671	20/11/2023	24/11/2023
Bat recording	Bat03	50	512086	6246031	21/11/2023	24/11/2023
Bat recording	Bat04	50	511162	6247695	21/11/2023	24/11/2023
Bat recording	Bat05	50	510138	6242116	20/11/2023	24/11/2023
Bat recording	Bat06	50	513487	6241661	20/11/2023	24/11/2023
Bat recording	Bat07	50	513471	6242518	11/8/2024	15/8/2024
Bat recording	Bat08	50	510481	6237285	11/8/2024	15/8/2024
Bat recording	Bat09	50	509180	6242750	11/8/2024	15/8/2024
Bat recording	Bat10	50	512177	6245644	11/8/2024	15/8/2024
Bat recording	Bat11	50	511947	6238648	4/11/2024	8/11/2024
Bat recording	Bat12	50	511456	6244187	4/11/2024	8/11/2024
Bat recording	Bat13	50	510377	6241392	4/11/2024	8/11/2024
Bat recording	Bat14	50	513686	6244216	4/11/2024	8/11/2024
Habitat Assessment	Hab 3-1	50	510456	6237296	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-2	50	511606	6239099	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-3	50	511488	6239566	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-4	50	511345	6239349	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-5	50	512057	6237673	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-6	50	512402	6237766	20/11/2023	20/11/2023
Habitat Assessment	Hab 3-7	50	513376	6240826	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-8	50	513105	6240837	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-9	50	513056	6240699	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-10	50	513249	6240541	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-11	50	512474	6240489	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-12	50	512433	6240850	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-13	50	512656	6240717	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-14	50	512881	6240531	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-15	50	513017	6240056	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-16	50	512729	6240075	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-17	50	512324	6239703	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-18	50	511938	6238922	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-19	50	512107	6239291	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-20	50	512621	6239508	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-21	50	512529	6239737	21/11/2023	21/11/2023




Appendix 2						
Site Type	Site Name	Zone	Easting	Northing	Start Date	Stop Date
Habitat Assessment	Hab 3-22	50	512236	6237370	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-24	50	511333	6239887	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-25	50	510226	6237611	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-26	50	509958	6237536	21/11/2023	21/11/2023
Habitat Assessment	Hab 3-27	50	511144	6239218	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-28	50	511929	6238640	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-29	50	511835	6238801	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-30	50	511074	6238129	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-31	50	510850	6237797	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-32	50	510705	6238239	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-33	50	508279	6236864	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-34	50	508241	6237216	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-35	50	508809	6236855	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-36	50	508662	6237194	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-37	50	508875	6237289	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-38	50	508525	6237624	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-39	50	510089	6242019	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-40	50	509263	6242125	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-41	50	510435	6240776	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-42	50	510406	6240471	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-43	50	511488	6240760	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-44	50	511676	6240704	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-45	50	511226	6240925	22/11/2023	22/11/2023
Habitat Assessment	Hab 3-46	50	510385	6246012	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-47	50	514019	6243553	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-48	50	513589	6242043	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-49	50	513885	6242240	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-50	50	514133	6241975	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-51	50	514217	6242863	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-52	50	514277	6243106	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-53	50	514517	6242161	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-54	50	514310	6242166	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-55	50	514667	6242097	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-56	50	510616	6246201	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-57	50	510815	6246323	23/11/2023	23/11/2023
Habitat Assessment	Hab 3-58	50	511493	6246133	23/11/2023	23/11/2023




Appendix 2						
Site Type	Site Name	Zone	Easting	Northing	Start Date	Stop Date
Habitat Assessment	Hab 3-59	50	514484	6242746	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-60	50	510345	6246935	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-61	50	510792	6247063	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-62	50	510846	6246885	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-63	50	510909	6246749	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-64	50	512208	6244719	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-65	50	512089	6245459	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-66	50	512049	6245995	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-67	50	512657	6244558	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-68	50	511736	6242118	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-69	50	511388	6242645	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-70	50	511408	6243059	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-71	50	511677	6243230	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-72	50	511488	6243771	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-73	50	511961	6243921	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-74	50	512450	6241705	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-75	50	511650	6241612	24/11/2023	24/11/2023
Habitat Assessment	Hab 3-76	50	511546	6255904	4/11/2024	4/11/2024
Habitat Assessment	Hab 3-77	50	511567	6257067	4/11/2024	4/11/2024
Habitat Assessment	Hab 3-78	50	511924	6257330	4/11/2024	4/11/2024
Habitat Assessment	Hab 3-79	50	512098	6258349	4/11/2024	4/11/2024
Habitat Assessment	Hab 3-80	50	509340	6237079	10/8/2024	10/8/2024
Habitat Assessment	Hab 3-81	50	509486	6237755	10/8/2024	10/8/2024
Habitat Assessment	Hab 3-82	50	513409	6242528	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-83	50	513044	6242428	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-84	50	513063	6242800	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-85	50	513393	6242135	13/8/2024	13/8/2024
Habitat Assessment	Hab 3-86	50	513158	6242180	13/8/2024	13/8/2024
Habitat Assessment	Hab 3-87	50	513322	6241887	13/8/2024	13/8/2024
Habitat Assessment	Hab 3-88	50	513364	6243401	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-89	50	512917	6243435	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-90	50	512662	6243492	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-91	50	512351	6243399	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-92	50	512768	6243196	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-93	50	513196	6243177	14/8/2024	14/8/2024
Habitat Assessment	Hab 3-94	50	511015	6248043	5/11/2024	5/11/2024




Appendix 2						
Site Type	Site Name	Zone	Easting	Northing	Start Date	Stop Date
Habitat Assessment	Hab 3-95	50	510923	6248501	5/11/2024	5/11/2024
Habitat Assessment	Hab 3-96	50	511006	6248824	5/11/2024	5/11/2024
Habitat Assessment	Hab 3-97	50	510017	6250754	5/11/2024	5/11/2024
Habitat Assessment	Hab 3-98	50	511743	6246658	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-99	50	512032	6246310	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-100	50	512106	6245902	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-101	50	512147	6245538	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-102	50	512354	6244767	11/8/2024	11/8/2024
Habitat Assessment	Hab 3-103	50	513272	6244402	11/8/2024	11/8/2024
Bird Survey Impact Site	K01	50	511793	6246626		
Bird Survey Impact Site	K02	50	512361	6245619		
Bird Survey Impact Site	K03	50	511332	6245747		
Bird Survey Impact Site	K04	50	511952	6244659		
Bird Survey Impact Site	K05	50	511282	6245046		
Bird Survey Impact Site	K06	50	511388	6243145		
Bird Survey Impact Site	K07	50	512562	6243769		
Bird Survey Impact Site	K08	50	513482	6243714		
Bird Survey Impact Site	K09	50	513619	6243050		
Bird Survey Impact Site	K10	50	514666	6242622		
Bird Survey Impact Site	K11	50	513617	6242225		
Bird Survey Impact Site	K12	50	512356	6242262		
Bird Survey Impact Site	K13	50	511250	6242264		
Bird Survey Impact Site	K14	50	510288	6242753		
Bird Survey Impact Site	K15	50	509244	6242775		
Bird Survey Impact Site	K16	50	509617	6242048		
Bird Survey Impact Site	K17	50	510622	6241704		
Bird Survey Impact Site	K18	50	511775	6241668		
Bird Survey Impact Site	K19	50	512700	6241211		
Bird Survey Impact Site	K20	50	513509	6240997		
Bird Survey Impact Site	K21	50	512293	6240925		
Bird Survey Impact Site	K22	50	511492	6240417		
Bird Survey Impact Site	K23	50	510837	6240988		
Bird Survey Impact Site	K24	50	513166	6240335		
Bird Survey Impact Site	K25	50	511446	6239717		
Bird Survey Impact Site	K26	50	511545	6238902		
Bird Survey Impact Site	K27	50	512370	6238638		




Appendix 2						
Site Type	Site Name	Zone	Easting	Northing	Start Date	Stop Date
Bird Survey Impact Site	K28	50	512022	6237851		
Bird Survey Impact Site	K29	50	511102	6238495		
Bird Survey Impact Site	K30	50	510545	6237941		
Bird Survey Impact Site	K31	50	509485	6237940		
Bird Survey Impact Site	K32	50	510300	6237162		
Bird Survey Impact Site	K33	50	509462	6237113		
Bird Survey Reference Site	C01	50	513321	6250238		
Bird Survey Reference Site	C02	50	507503	6244390		
Bird Survey Reference Site	C03	50	506431	6240810		
Bird Survey Reference Site	C04	50	506594	6238220		
Bird Survey Reference Site	C05	50	507588	6234873		
Bird Survey Reference Site	C06	50	512939	6235186		
Bird Survey Reference Site	C07	50	516450	6240406		
Bird Survey Reference Site	C08	50	518729	6245501		
Bird Survey Reference Site	A34	50	511793	6246626		
Bird Survey Reference Site	A35	50	512361	6245619		
Bird Survey Reference Site	A36	50	511332	6245747		




Appendix 3. Habitat Assessments.




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-1</p> <p>Habitat: Eucalypt woodland / creek</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland, planted Sheoak, over low mixed shrubs, some <i>Hakea prostrata</i>, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, weeds</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plants (Marri, Jarrah, <i>Hakea prostrata</i>), some tree hollows, some logs, leaf litter, understory vegetation, linkage.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-2</p> <p>Habitat: Creek</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses and spike rush.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, weeds</p> <p>Soil: brown sandy clay</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plants (Marri, Jarrah) some tree hollows, logs, linkage.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-3</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: very small remnant, grazed, weeds</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri), linkage.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-4</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, grazed, weeds</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: tree hollows, logs, leaf litter, understory vegetation, linkage.</p> <p>Wetlands: none</p>	
<p>Hab 3-5</p> <p>Habitat: Eucalypt woodland / creek</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sparse low mixed shrubs, some <i>Banksia sessilis</i>, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, grazed, weeds, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: some laterite boulders</p> <p>Important elements: Cockatoo food plants (Jarrah, Marri, <i>B. sessilis</i>) tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	
<p>Hab 3-6</p> <p>Habitat: Pine plantation</p> <p>Landform: gentle slope</p> <p>Vegetation: Planted Pines.</p> <p>Fire age: no recent fire</p> <p>Disturbance: original vegetation entirely replaced</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (pine).</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-7</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and occasional Marri woodland, over low mixed shrubs and sedges, some <i>Hakea lissocarpa</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, <i>H. lissocarpa</i>), tree hollows, logs, leaf litter, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-8</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and occasional Marri woodland, over low mixed shrubs and sedges, some <i>Hakea lissocarpa</i>, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, <i>H. lissocarpa</i>), tree hollows, logs, leaf litter, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-9</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland, over low mixed shrubs and sedges, some <i>Banksia armata</i>(?) and <i>Banksia trifurcata</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: timber cutting</p> <p>Soil: yellow gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, <i>Banksia</i>), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-10</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland, over low mixed shrubs and sedges, some <i>Banksia sessilis</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-11</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland with scattered Wandoo, over low mixed shrubs and sedges, some <i>Banksia sessilis</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-12</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Jarrah, Marri and Wandoo woodland, over low mixed shrubs and sedges, some <i>Hakea lissocarpha</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Hakea), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-13</p> <p>Habitat: Sheoak woodland / Granite outcrop</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland, over <i>Hypocalymma angustifolium</i> and sedges. Mosses and Boyra on granite.</p> <p>Fire age: no recent fire</p> <p>Disturbance: rabbits</p> <p>Soil: brown sand</p> <p>Rock: Granite exposures</p> <p>Important elements: Exfoliating rock, dense vegetation.</p> <p>Wetlands: seasonally damp at granite edges</p>	
<p>Hab 3-14</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over low mixed shrubs and sedges, some <i>Hakea lissocarpha</i>, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, weeds, ground disturbance</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Hakea), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-15</p> <p>Habitat: Sheoak woodland / Granite outcrop</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland, over <i>Hypocalymma angustifolium</i> and sedges. Mosses and Boyra on granite.</p> <p>Fire age: no recent fire</p> <p>Disturbance: rabbits, weeds</p> <p>Soil: brown sand</p> <p>Rock: Granite exposures</p> <p>Important elements: Exfoliating rock, ephemeral rock pools, dense vegetation.</p> <p>Wetlands: seasonally damp at granite edges, ephemeral pools</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-16</p> <p>Habitat: Sheoak woodland / Granite outcrop</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland, over <i>Hypocalymma angustifolium</i> and sedges. Mosses and Boyra on granite.</p> <p>Fire age: no recent fire</p> <p>Disturbance: rabbits, weeds</p> <p>Soil: brown sand</p> <p>Rock: Granite exposures</p> <p>Important elements: Exfoliating rock, ephemeral rock pools, dense vegetation.</p> <p>Wetlands: seasonally damp at granite edges, ephemeral pools</p>	
<p>Hab 3-17</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over low mixed shrubs and sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: small remnant, weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, understory vegetation, linkage.</p> <p>Wetlands: none</p>	
<p>Hab 3-18</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over grasstrees, low mixed shrubs and sedges, some <i>Banksia armata</i> (?), native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, some grazing</p> <p>Soil: brown sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-19</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over low mixed shrubs and sedges, some <i>Hakea lissocarpa</i>, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, some grazing</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Hakea), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-20</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Regrowth Jarrah and Marri woodland with some Sheoak over low mixed shrubs and sedges, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, some grazing</p> <p>Soil: brown gravelly sand</p> <p>Rock: small outcropping granite</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-21</p> <p>Habitat: Sheoak woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland with occasional Wandoo over grasstrees, <i>Hypocalymma angustifolium</i> and sedges. Mosses and Boyra on granite.</p> <p>Fire age: no recent fire</p> <p>Disturbance: rabbits, weeds</p> <p>Soil: brown sand</p> <p>Rock: Near small granite exposures</p> <p>Important elements: Tree hollows, dense vegetation.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-22</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Jarrah woodland with some Marri and Wandoo over some <i>Banksia sessilis</i>, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, timber cutting, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: surface laterite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-24</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: grazed, weeds</p> <p>Soil: brown gravelly sand</p> <p>Rock: granite boulders and small exposures</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-25</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Jarrah, Marri and Wandoo woodland over mixed low shrubs, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds</p> <p>Soil: grey gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-26</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Regrowth Jarrah and Wandoo woodland over low mixed shrubs and sedges, native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Jarrah), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-27</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low hill</p> <p>Vegetation: Wandoo woodland with occasional Jarrah and Marri, over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: laterite gravel and granite boulders</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-28</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo woodland with some Sheoak over grasstrees, low mixed shrubs and sedges, some <i>Banksia armata</i> (?), <i>Hakea</i> sp., native grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Banksia, Hakea), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-29</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: grey sand</p> <p>Rock: granite rocks</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-30</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland with some Wandoo over sparse mixed shrubs and native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey sandy clay</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-31</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland with some Wandoo over sparse mixed shrubs and native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-32</p> <p>Habitat: Eucalypt woodland / creek</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo woodland over exotic grasses. Some planted vegetation along creek.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown sand</p> <p>Rock: granite boulders</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-33</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low hill</p> <p>Vegetation: Jarrah woodland with some Marri and Wandoo over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-34</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low hill</p> <p>Vegetation: Jarrah and Wandoo woodland with some Marri over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-35</p> <p>Habitat: Creek</p> <p>Landform: gentle slope</p> <p>Vegetation: Mostly planted eucalypts with some remnant York Gum, Wandoo and Marri over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, ground disturbance</p> <p>Soil: brown sandy clay</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri), tree hollows, logs, seasonal water.</p> <p>Wetlands: dam, seasonal creek</p>	
<p>Hab 3-36</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed.</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-37</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: recently burnt</p> <p>Disturbance: weeds, grazed, tree deaths</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-38</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low hill</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, tree deaths</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-39</p> <p>Habitat: Paddock trees</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo Jarrah and Marri trees over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows.</p> <p>Wetlands: none</p>	
<p>Hab 3-40</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo and Powderbark Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, rabbits</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-41</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: laterite gravel</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-42</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Regrowth Jarrah woodland with some Marri over occasional Banksia sessilis, sparse low shrubs and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-43</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle lower slope</p> <p>Vegetation: Jarrah and Marri woodland over mixed low shrubs, sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey sandy clay</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	


Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-44</p> <p>Habitat: Sheoak woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland over sparse Tea-tree and sedges.</p> <p>Fire age: no recent fire</p> <p>Disturbance: grazed</p> <p>Soil: brown sand</p> <p>Rock: small granite outcrops</p> <p>Important elements: Leaf litter, dense vegetation.</p> <p>Wetlands: none</p>	
<p>Hab 3-45</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown sand</p> <p>Rock: small granite boulders</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), logs.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-46</p> <p>Habitat: Planted</p> <p>Landform: gentle slope</p> <p>Vegetation: Planted eucalypts</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, replacement of original vegetation</p> <p>Soil: brown sand</p> <p>Rock: none</p> <p>Important elements: Linkage.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-47</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: outcropping granite boulders</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-48</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: outcropping granite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), some tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-49</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland with occasional Wandoo over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown sand</p> <p>Rock: laterite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-50</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland with occasional Wandoo over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown sand</p> <p>Rock: laterite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	
<p>Hab 3-51</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over sparse low shrubs, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-52</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-53</p> <p>Habitat: Sheoak woodland / granite outcrop</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak woodland over <i>Banksia armata</i> (?), sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: granite outcrop</p> <p>Important elements: Cockatoo food plant (<i>Banksia</i>), ephemeral pools, exfoliating granite.</p> <p>Wetlands: ephemeral pools</p>	
<p>Hab 3-54</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sparse low shrubs, sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: laterite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-55</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over <i>Banksia armata</i> (?), sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: yellow gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, <i>Banksia</i>), tree hollows, logs, understory vegetation.</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-56</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low hill</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-57</p> <p>Habitat: Creek</p> <p>Landform: valley</p> <p>Vegetation: Flooded Gum woodland over spike rush and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown sand</p> <p>Rock: none</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-58</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Marri and Sheoak woodland over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: granite rocks</p> <p>Important elements: Cockatoo food plant (Marri, Sheoak), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-59</p> <p>Habitat: Creek / Dam</p> <p>Landform: valley</p> <p>Vegetation: Flooded Gum and Marri woodland over spike rush and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri) tree hollows, logs.</p> <p>Wetlands: seasonal creek, dam</p>	
<p>Hab 3-60</p> <p>Habitat: Creek</p> <p>Landform: valley</p> <p>Vegetation: Flooded Gum woodland over spike rush and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: grey sand</p> <p>Rock: occasional granite boulder</p> <p>Important elements: tree hollows, logs.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-61</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: hilltop</p> <p>Vegetation: Jwandoo and Powderbark Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: outcropping laterite rocks</p> <p>Important elements: tree hollows, logs, leaf litter</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-62</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: regrowth Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri).</p> <p>Wetlands: none</p>	
<p>Hab 3-63</p> <p>Habitat: Granite outcrop</p> <p>Landform: gentle slope</p> <p>Vegetation: Sheoak, Jarrah and Marri woodland over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown sand</p> <p>Rock: outcropping granite</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), exfoliating rock, ephemeral pools.</p> <p>Wetlands: ephemeral pools</p>	
<p>Hab 3-64</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: grey sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-65</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), small tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-66</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), small tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-67</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland with occasional Sheoak over sparse low shrubs, sedges, native and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-68</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah, Wandoo and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: minor laterite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-69</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: minor laterite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-70</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: moderate slope</p> <p>Vegetation: Marri woodland over exotic grasses.</p> <p>Fire age: recent fire, young saplings</p> <p>Disturbance: weeds, grazed, ring-barked trees</p> <p>Soil: brown gravelly sand</p> <p>Rock: laterite outcropping</p> <p>Important elements: Cockatoo food plant (Marri), tree hollows..</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-71</p> <p>Habitat: Creek</p> <p>Landform: valley</p> <p>Vegetation: Open Flooded Gum woodland over spikerush and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown clay-sand</p> <p>Rock: none</p> <p>Important elements: Tree hollows.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-72</p> <p>Habitat: Creek</p> <p>Landform: valley</p> <p>Vegetation: Melaleuca woodland over sedges and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown clay-sand</p> <p>Rock: none</p> <p>Important elements: Dense vegetation.</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-73</p> <p>Habitat: Creek</p> <p>Landform: valley</p> <p>Vegetation: Open Flooded Gum woodland over spikerush and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown clay-sand</p> <p>Rock: none</p> <p>Important elements: None noted.</p> <p>Wetlands: seasonal creek</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-74</p> <p>Habitat: Planted</p> <p>Landform: gentle slope</p> <p>Vegetation: Planted eucalypts over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, original vegetation cleared</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: None noted</p> <p>Wetlands: none</p>	
<p>Hab 3-75</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: minor laterite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-76</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: flat</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, remnant on road verge</p> <p>Soil: grey gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-77</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: flat</p> <p>Vegetation: Wandoo woodland over Sheoak over mixed native shrubs, sedges and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, remnant on road verge</p> <p>Soil: grey gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (<i>Banksia sessilis</i>), leaf litter</p> <p>Wetlands: none</p>	
<p>Hab 3-78</p> <p>Habitat: Creek</p> <p>Landform: shallow valley</p> <p>Vegetation: Melaleuca woodland over exotic grasses, spikerush and samphire. Wandoo on higher ground.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, dead trees</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Tree hollows, frog habitat</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-79</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri), tree hollows.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-80</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, narrow tree line</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-81</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle upper slope</p> <p>Vegetation: Jarrah and Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, narrow tree line</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-82</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Wandoo woodland with occasional Marri over open sedges and herbs.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-83</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges and low Banksia sp.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-84</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges.</p> <p>Fire age: no recent fire</p> <p>Disturbance: old fenceline, timber cutting</p> <p>Soil: brown sandy clay</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-85</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges and low shrubs</p> <p>Fire age: no recent fire</p> <p>Disturbance: old contour banks</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter</p> <p>Wetlands: none</p>	




Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-86</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle mid-slope</p> <p>Vegetation: Jarrah and Marri woodland over sedges and low shrubs</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown gravelly sand</p> <p>Rock: minor granite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	
<p>Hab 3-87</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges and low shrubs</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter</p> <p>Wetlands: none</p>	
<p>Hab 3-88</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah, Marri and Wandoo woodland over open sedges, sparse low shrubs and pasture weeds.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, some tree deaths</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs.</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-89</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah, Marri and Wandoo woodland over open sedges and low shrubs.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds.</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Hakea), tree hollows, logs, leaf litter</p> <p>Wetlands: none</p>	
<p>Hab 3-90</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah, Marri and Wandoo woodland over open sedges and low shrubs including Banksia sp.</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown sandy clay</p> <p>Rock: minor granite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah, Banksia, Hakea), tree hollows, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-91</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: moderate slope</p> <p>Vegetation: Wandoo and Powderbark Wandoo woodland over sparse sedges and low shrubs</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown gravelly sand</p> <p>Rock: small breakaway, rocks</p> <p>Important elements: Tree hollows, logs, leaf litter, rock crevices</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-92</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges and low shrubs.</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown gravelly sand</p> <p>Rock: minor granite outcropping</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter, rock crevices.</p> <p>Wetlands: none</p>	
<p>Hab 3-93</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over sedges and low shrubs.</p> <p>Fire age: no recent fire</p> <p>Disturbance: none noted</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	
<p>Hab 3-94</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown gravelly sand</p> <p>Rock: occasional granite boulders</p> <p>Important elements: Cockatoo food plant (Marri).</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-95</p> <p>Habitat: Creek</p> <p>Landform: shallow valley</p> <p>Vegetation: Flooded Gum woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown clay</p> <p>Rock: occasional granite boulders</p> <p>Important elements: Tree hollows, frog habitat</p> <p>Wetlands: seasonal creek</p>	
<p>Hab 3-96</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown sand</p> <p>Rock: granite boulders and minor outcropping</p> <p>Important elements: Cockatoo food plant (Marri), tree hollows, rock crevices</p> <p>Wetlands: none</p>	
<p>Hab 3-97</p> <p>Habitat: Creek</p> <p>Landform: shallow valley</p> <p>Vegetation: Flooded Gum and Melaleuca woodland over sedges and exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed</p> <p>Soil: brown clayey sand</p> <p>Rock: none</p> <p>Important elements: Small tree hollows, frog habitat.</p> <p>Wetlands: seasonal creek</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-98</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared, tree deaths</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri), tree hollows.</p> <p>Wetlands: none</p>	
<p>Hab 3-99</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: low rise</p> <p>Vegetation: Wandoo and Powderbark Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared, timber cutting</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Tree hollows, leaf litter, logs.</p> <p>Wetlands: none</p>	
<p>Hab 3-100</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows.</p> <p>Wetlands: none</p>	

Appendix 3	
Habitat Assessment	Photograph
<p>Hab 3-101</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo, Jarrah and Marri woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows.</p> <p>Wetlands: none</p>	
<p>Hab 3-102</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: flat</p> <p>Vegetation: Jarrah and Marri woodland over Sheoak over sedges and low shrubs.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Cockatoo food plant (Marri, Jarrah), tree hollows, logs, leaf litter.</p> <p>Wetlands: none</p>	
<p>Hab 3-103</p> <p>Habitat: Eucalypt woodland</p> <p>Landform: gentle slope</p> <p>Vegetation: Wandoo woodland over exotic grasses.</p> <p>Fire age: no recent fire</p> <p>Disturbance: weeds, grazed, parkland cleared</p> <p>Soil: brown gravelly sand</p> <p>Rock: none</p> <p>Important elements: Tree hollows</p> <p>Wetlands: none</p>	

Appendix 4. Vertebrate fauna potentially occurring in the Study Area.

Key to records:

- This survey = species recorded in the study area on this survey, November 2023.
- FRWF S2 = species recorded at the Flat Rocks Wind Farm Stage 2 (Western Wildlife, in press)
- ALA = species recorded within 40km on the Atlas of Living Australia Database.
- Dandjoo = species recorded within 40km on Dandjoo Database.
- DBCA = species records from the DBCA Threatened and Priority Species Database.
- EPBC = species & species habitat from the EPBC Protected Matters Search Tool.
- Int = introduced species.

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
FROGS								
Pelodyadidae								
Slender Tree Frog	<i>Litoria adelaidensis</i>				+	+		
Motorbike Frog	<i>Litoria moorei</i>				+			
Limnodynastidae								
Western Spotted Frog	<i>Heleioporus albopunctatus</i>				+	+		
Hooting Frog	<i>Heleioporus barycragus</i>							
Whooping Frog	<i>Heleioporus inornatus</i>							
Moaning Frog	<i>Heleioporus eyrei</i>				+	+		
Pobblebonk / Banjo Frog	<i>Limnodynastes dorsalis</i>		+		+	+		
Humming Frog	<i>Neobatrachus pelobatoides</i>				+			
Myobatrachidae								
Quacking Frog	<i>Crinia georgiana</i>				+	+		
Bleating Froglet	<i>Crinia pseudinsignifera</i>		+		+	+		
Turtle Frog	<i>Myobatrachus gouldii</i>				+	+		
Guenther’s Toadlet	<i>Pseudophryne guentheri</i>				+	+		
REPTILES								
Chelidae								
Long-necked Turtle	<i>Chelodina oblonga</i>				+	+		
Carphodactylidae								
Southern Barking Gecko	<i>Underwoodisaurus milii</i>				+	+		

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Diplodactylidae								
Clawless Gecko	<i>Crenadactylus ocellatus</i>				+	+		
South Coast Gecko	<i>Diplodactylus calcicolus</i>				+	+		
Wheatbelt Ground Gecko	<i>Diplodactylus granariensis</i>				+	+		
Speckled Stone Gecko	<i>Diplodactylus lateroides</i>				+	+		
Reticulated Velvet Gecko	<i>Hesperoedura reticulata</i>				+	+		
Gekkonidae								
Marbled Gecko	<i>Christinus marmoratus</i>				+	+		
Variegated Dtella	<i>Gehyra variegata</i>				+			
Pygopodidae								
Granite Worm-lizard	<i>Aprasia pulchella</i>					+		
Sandplain Worm-lizard	<i>Aprasia repens</i>				+	+		
Striated Worm-lizard	<i>Aprasia striolata</i>				+			
Marble-faced Delma	<i>Delma australis</i>				+			
Fraser's Legless Lizard	<i>Delma fraseri</i>				+	+		
Burton's Legless Lizard	<i>Lialis burtonis</i>				+			
Common Scaly-foot	<i>Pygopus lepidopodus</i>				+	+		
Agamidae								
Ornate Crevice Dragon	<i>Ctenophorus ornatus</i>		+		+	+		
Bearded Dragon	<i>Pogona minor</i>				+			
Scincidae								
Southwestern Cool-skink	<i>Acritoscincus trilineatus</i>				+	+		
Fence Skink	<i>Cryptoblepharus buechananii</i>		+	+	+	+		
Odd-striped Ctenotus	<i>Ctenotus impar</i>				+	+		
King's Skink	<i>Egernia kingii</i>				+			
Southwestern Crevice-skink	<i>Egernia napoleonis</i>				+	+		
Bright Crevice-skink	<i>Egernia richardi</i>				+			
Lowlands Earless Skink	<i>Hemiergis peronii</i>				+	+		
Dwarf Four-toed Slider	<i>Lerista distinguenda</i>				+	+		
Bull Skink	<i>Liopholis multiscutata</i>				+			
Dwarf Skink	<i>Menetia greyii</i>		+		+	+		
Dusky Morethia	<i>Morethia obscura</i>				+	+		
Western Blue-tongue	<i>Tiliqua occipitalis</i>				+			
Bobtail	<i>Tiliqua rugosa</i>		+	+	+	+		
Varanidae								
Gould's Monitor	<i>Varanus gouldii</i>				+			
Southern Heath Monitor	<i>Varanus rosenbergi</i>				+			
Pythonidae								
Children's Python	<i>Antaresia childreni</i>				+	+		
Carpet Python	<i>Morelia spilota imbricata</i>							

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Typhlopidae								
Southern Blind Snake	<i>Anilius australis</i>				+	+		
Fat Blind Snake	<i>Anilius pinguis</i>				+			
Beaked Blind Snake	<i>Anilius waitii</i>							
Elapidae								
Bardick	<i>Echiopsis curta</i>				+			
Western Crowned Snake	<i>Elapognathus coronatus</i>				+			
Tiger Snake	<i>Notechis scutatus</i>				+	+		
Dugite	<i>Pseudonaja affinis</i>				+	+		
Gwardar / Western Brown Snake	<i>Pseudonaja mengdeni</i>				+			
Jan's Banded Snake	<i>Simoselaps bertholdi</i>				+			
Gould's Hooded Snake	<i>Suta gouldii</i>				+	+		
Black-backed Snake	<i>Suta nigriceps</i>				+	+		
BIRDS								
Casuariidae								
Emu	<i>Dromaius novaehollandiae</i>				+			
Anatidae								
Black Swan	<i>Cygnus atratus</i>				+	+		
Grey Teal	<i>Anas gracilis</i>		+		+	+		
Pacific Black Duck	<i>Anas superciliosa</i>		+		+	+		
Australian Wood Duck	<i>Chenonetta jubata</i>		+	+	+			
Pink-eared Duck	<i>Malacorhynchus membranaceus</i>				+			
Australian Shelduck	<i>Tadorna tadornoides</i>		+		+	+		
Megapodiidae								
Malleefowl	<i>Leipoa ocellata</i>	T			+		+	+
Phasianidae								
Stubble Quail	<i>Coturnix pectoralis</i>		+	+	+			
Brown Quail	<i>Synoicus ypsilophora</i>				+			
Podargidae								
Tawny Frogmouth	<i>Podargus strigoides</i>			+	+	+		
Caprimulgidae								
Spotted Nightjar	<i>Eurostopodus argus</i>				+			
Aegothelidae								
Australian Owlet-Nightjar	<i>Aegotheles cristatus</i>				+	+		
Apodidae								
Fork-tailed Swift	<i>Apus pacificus</i>	Mi						+

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Cuculidae								
Pallid Cuckoo	<i>Heteroscenes pallidus</i>				+			
Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>		+		+			
Horsfield's Bronze-Cuckoo	<i>Chalcites basalus</i>		+	+	+			
Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>		+	+	+			
Columbidae								
Domestic (Feral) Pigeon	<i>Columba livia</i>	Int			+			
Common Bronzewing	<i>Phaps chalcoptera</i>		+	+	+	+		
Brush Bronzewing	<i>Phaps elegans</i>		+		+			
Crested Pigeon	<i>Ocyphaps lophotes</i>		+	+	+			
Spotted Turtle-dove	<i>Spilopelia chinensis</i>	Int			+			
Laughing Turtle-dove	<i>Spilopelia senegalensis</i>	Int			+			
Rallidae								
Eurasian Coot	<i>Fulica atra</i>				+	+		
Dusky Moorhen	<i>Gallinula tenebrosa</i>				+			
Purple Swampphen	<i>Porphyrio porphyrio</i>				+	+		
Australian Spotted Crake	<i>Porzana fluminea</i>				+			
Spotless Crake	<i>Zapornia tabuensis</i>				+			
Black-tailed Nativehen	<i>Tribonyx ventralis</i>				+			
Podicipedidae								
Hoary-headed Grebe	<i>Poliocephalus poliocephalus</i>				+	+		
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>		+		+			
Turnicidae								
Painted Button-quail	<i>Turnix varius</i>		+	+	+			
Little Button-quail	<i>Turnix velox</i>				+			
Burhinidae								
Bush Stone-Curlew	<i>Burhinus grallarius</i>				+	+		
Recurvirostridae								
Black-winged Stilt	<i>Himantopus himantopus</i>				+			
Charadriidae								
Red-capped Plover	<i>Charadrius ruficapillus</i>				+			
Black-fronted Dotterel	<i>Elseya melanops</i>				+			
Red-kneed Dotterel	<i>Erythronyx cinctus</i>				+			
Banded Lapwing	<i>Vanellus tricolor</i>				+	+		
Scolopacidae								
Common Sandpiper	<i>Actitis hypoleucos</i>	Mi			+		+	
Phalacrocoracidae								
Little Pied Cormorant	<i>Microcarbo melanoleucos</i>				+	+		
Great Cormorant	<i>Phalacrocorax carbo</i>				+			
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>				+			

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Threskiornithidae								
Yellow-billed Spoonbill	<i>Platalea flavipes</i>				+	+		
Australian White Ibis	<i>Threskiornis moluccus</i>				+	+		
Straw-necked Ibis	<i>Threskiornis spinicollis</i>				+			
Ardeidae								
Eastern Great Egret	<i>Ardea alba</i>				+			
White-necked Heron	<i>Ardea pacifica</i>				+			
White-faced Heron	<i>Egretta novaehollandiae</i>		+	+	+			
Nankeen Night Heron	<i>Nycticorax caledonicus</i>				+			
Accipitridae								
Black-shouldered Kite	<i>Elanus axillaris</i>		+		+			
Square-tailed Kite	<i>Lophoictinia isura</i>				+			
Whistling Kite	<i>Haliastur sphenurus</i>				+			
Swamp Harrier	<i>Circus approximans</i>				+			
Spotted Harrier	<i>Circus assimilis</i>				+			
Brown Goshawk	<i>Accipiter fasciatus</i>				+			
Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>		+		+			
Wedge-tailed Eagle	<i>Aquila audax</i>		+	+	+	+		
Little Eagle	<i>Hieraaetus morphnoides</i>				+			
Tytonidae								
Eastern Barn Owl	<i>Tyto javanica</i>			+	+			
Masked Owl	<i>Tyto novaehollandiae</i>	P			+			
Strigidae								
Barking Owl (southwest)	<i>Ninox connivens connivens</i>	P			+		+	
Southern Boobook Owl	<i>Ninox boobook</i>				+	+		
Alcedinidae								
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	Int	+	+	+			
Sacred Kingfisher	<i>Todiramphus sanctus</i>		+	+	+			
Meropidae								
Rainbow Bee-eater	<i>Merops ornatus</i>		+		+	+		
Falconidae								
Peregrine Falcon	<i>Falco peregrinus</i>	OS	+	+	+		+	
Australian Hobby	<i>Falco longipennis</i>				+			
Brown Falcon	<i>Falco berigora</i>		+	+	+	+		
Australian Kestrel	<i>Falco cenchroides</i>		+	+	+			

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Cacatuidae								
Muir's Corella	<i>Cacatua pastinator pastinator</i>	CD	+		+		+	
Little Corella	<i>Cacatua sanguinea</i>				+			
Forest Red-tailed Black-cockatoo	<i>Calyptorhynchus banksii naso</i>	T	+	+	+		+	+
Baudin's Cockatoo	<i>Zanda baudinii</i>	T			+		+	+
Carnaby's Cockatoo	<i>Zanda latirostris</i>	T	+	+	+		+	+
Galah	<i>Eolophus roseicapilla</i>		+	+	+			
Psittaculidae								
Purple-crowned Lorikeet	<i>Parvipsitta porphyrocephala</i>		+	+	+	+		
Regent Parrot	<i>Polytelis anthopeplus</i>		+	+	+	+		
Australian Ringneck	<i>Barnardius zonarius</i>		+	+	+	+		
Inland Western Rosella	<i>Platycercus icterotis xanthogenys</i>	P	+	+	+	+		
Red-capped Parrot	<i>Purpureicephalus spurius</i>		+	+	+	+		
Budgerigar	<i>Melopsittacus undulatus</i>				+			
Elegant Parrot	<i>Neophema elegans</i>		+	+	+	+		
Climacteridae								
Rufous Treecreeper	<i>Climacteris rufus</i>		+	+	+	+		
Maluridae								
Splendid Fairy-wren	<i>Malurus splendens</i>		+	+	+	+		
Blue-breasted Fairy-wren	<i>Malurus pulcherrimus</i>				+	+		
Meliphagidae								
Western Spinebill	<i>Acanthorhynchus superciliosus</i>				+	+		
Red Wattlebird	<i>Anthochaera carunculata</i>		+	+	+	+		
Western Wattlebird	<i>Anthochaera lunulata</i>		+		+	+		
Spiny-cheeked Honeyeater	<i>Acanthagenys rufogularis</i>				+			
Yellow-throated Miner	<i>Manorina flavigula</i>		+	+	+	+		
Singing Honeyeater	<i>Gavicalis virescens</i>		+	+	+	+		
White-eared Honeyeater	<i>Nesoptilotis leucotis</i>				+			
Yellow-plumed Honeyeater	<i>Ptilotula ornata</i>		+	+	+	+		
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>		+		+	+		
Gilbert's Honeyeater	<i>Melithreptus chloropsis</i>		+		+			
Brown Honeyeater	<i>Lichmera indistincta</i>		+	+	+	+		
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>		+		+	+		
White-cheeked Honeyeater	<i>Phylidonyris niger</i>				+	+		
Tawny-crowned Honeyeater	<i>Glyciphila melanops</i>				+	+		
Black Honeyeater	<i>Sugomel nigrum</i>				+			
White-fronted Chat	<i>Epthianura albifrons</i>		+		+			
Pardalotidae								
Spotted Pardalote	<i>Pardalotus punctatus</i>		+		+	+		
Striated Pardalote	<i>Pardalotus striatus</i>		+	+	+	+		

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Acanthizidae								
White-browed Scrubwren	<i>Sericornis frontalis</i>				+	+		
Rufous Fieldwren	<i>Calamanthus campestris</i>				+			
Weebill	<i>Smicronis brevirostris</i>		+	+	+	+		
Western Gerygone	<i>Gerygone fusca</i>		+	+	+	+		
Inland Thornbill	<i>Acanthiza apicalis</i>		+		+	+		
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>		+	+	+	+		
Western Thornbill	<i>Acanthiza inornata</i>		+	+	+	+		
Chestnut-rumped Thornbill	<i>Acanthiza uropygialis</i>				+			
Pomatostomidae								
White-browed Babbler	<i>Pomatostomus superciliosus</i>		+	+	+	+		
Artamidae								
Masked Woodswallow	<i>Artamus personatus</i>				+			
Black-faced Woodswallow	<i>Artamus cinereus</i>		+	+	+			
Dusky Woodswallow	<i>Artamus cyanopterus</i>		+	+	+	+		
Grey Butcherbird	<i>Cracticus torquatus</i>		+	+	+	+		
Pied Butcherbird	<i>Cracticus nigrogularis</i>		+	+	+			
Australian Magpie	<i>Gymnorhina tibicen</i>		+	+	+	+		
Grey Currawong	<i>Strepera versicolor</i>				+	+		
Campephagidae								
Ground Cuckoo-shrike	<i>Coracina maxima</i>				+			
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>		+	+	+	+		
White-winged Triller	<i>Lalage tricolor</i>		+	+	+			
Neosittidae								
Varied Sittella	<i>Daphoenositta chrysoptera</i>		+	+	+	+		
Oreoicidae								
Crested Bellbird	<i>Oreoica gutturalis</i>				+			
Falcunculidae								
Western Shrike-tit	<i>Falcunculus frontatus</i>				+	+		
Pachycephalidae								
Western Golden Whistler	<i>Pachycephala fuliginosus</i>		+	+	+	+		
Rufous Whistler	<i>Pachycephala rufiventris</i>		+	+	+	+		
Grey Shrike-thrush	<i>Colluricincla harmonica</i>		+	+	+	+		
Rhipiduridae								
Grey Fantail	<i>Rhipidura albiscapa</i>		+	+	+	+		
Willie Wagtail	<i>Rhipidura leucophrys</i>		+	+	+			
Monarchidae								
Magpie-lark	<i>Grallina cyanoleuca</i>		+	+	+	+		
Restless Flycatcher	<i>Myiagra inquieta</i>		+	+	+	+		
Corvidae								
Australian Raven	<i>Corvus coronoides</i>		+	+	+	+		

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Petroicidae								
Jacky Winter	<i>Microeca fascinans</i>				+	+		
Hooded Robin	<i>Melanodryas cucullata</i>				+			
Red-capped Robin	<i>Petroica goodenovii</i>		+		+			
Scarlet Robin	<i>Petroica boodang</i>		+	+	+	+		
Western Yellow Robin	<i>Eopsaltria griseogularis</i>		+	+	+	+		
Hirundinidae								
White-backed Swallow	<i>Cheramoeca leucosterna</i>				+			
Welcome Swallow	<i>Hirundo neoxena</i>		+	+	+			
Fairy Martin	<i>Petrochelidon ariel</i>				+			
Tree Martin	<i>Petrochelidon nigricans</i>		+	+	+	+		
Acrocephalidae								
Australian Reed Warbler	<i>Acrocephalus australis</i>				+			
Locustellidae								
Brown Songlark	<i>Cincloramphus cruralis</i>		+	+	+			
Rufous Songlark	<i>Cincloramphus mathewsi</i>				+			
Little Grassbird	<i>Poodytes gramineus</i>				+			
Zosteropidae								
Silvereye	<i>Zosterops lateralis</i>		+	+	+	+		
Dicaeidae								
Mistletoebird	<i>Dicaeum hirundinaceum</i>		+		+			
Motacillidae								
Australian Pipit	<i>Anthus australis</i>		+	+	+			
MAMMALS								
Tachyglossidae								
Echidna	<i>Tachyglossus aculeatus</i>		+	+	+			
Dasyuridae								
Mardo	<i>Antechinus flavipes</i>				+	+		
Chuditch	<i>Dasyurus geoffroii</i>	T			+		+	+
Red-tailed Phascogale	<i>Phascogale calura</i>	T			+		+	+
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	CD			+		+	
Fat-tailed Dunnart	<i>Sminthopsis crassicaudata</i>				+	+		
Dusky Dunnart	<i>Sminthopsis fuliginosus</i>				+			
Gilbert's Dunnart	<i>Sminthopsis gilberti</i>				+	+		
Myrmecobiidae								
Numbat	<i>Myrmecobius fasciatus</i>	T			+		+	+
Peramelidae								
Quenda/South'n Brown Bandicoot	<i>Isodon fusciventer</i>	P			+		+	
Burramyidae								
Western Pygmy Possum	<i>Cercartetus concinnus</i>				+	+		

Appendix 4								
Species		Status	Records					
			This survey	FRWF S2	ALA	Dandjoo	DBCA	EBPC
Tarsipedidae								
Honey Possum	<i>Tarsipes rostratus</i>							
Phalangeridae								
Common Brushtail Possum	<i>Trichosurus vulpecula</i>		+	+	+	+		
Macropodidae								
Tammar Wallaby	<i>Notamacropus eugenii derbianus</i>	P			+		+	
Western Brush Wallaby	<i>Notamacropus irma</i>	P			+		+	
Western Grey Kangaroo	<i>Macropus fuliginosus</i>		+	+	+	+		
Muridae								
Water Rat	<i>Hydromys chrysogaster</i>	P			+		+	
House Mouse	<i>Mus musculus</i>	Int			+	+		
Western Mouse	<i>Pseudomys occidentalis</i>	P					+	
Black Rat	<i>Rattus rattus</i>	Int			+			
Molossidae								
White-striped Free-tailed Bat	<i>Austronomus australis</i>		+	+	+			
Western Free-tailed Bat	<i>Ozimops kitcheneri</i>		+	+	+			
Vespertilionidae								
Gould's Wattled Bat	<i>Chalinolobus gouldii</i>		+	+	+	+		
Chocolate Wattled Bat	<i>Chalinolobus morio</i>		+	+	+	+		
Western False Pipistrelle	<i>Falsistrellus mackenziei</i>	P						
Lesser Long-eared Bat	<i>Nyctophilus geoffroyi</i>				+			
Holt's Long-eared Bat	<i>Nyctophilus holtorum</i>							
Greater Long-eared Bat	<i>Nyctophilus major major</i>							
Central Long-eared Bat	<i>Nyctophilus major tor</i>	P			+			
Southern Forest Bat	<i>Vespadelus regulus</i>		+	+	+	+		
Canidae								
Fox	<i>Vulpes vulpes</i>	Int	+	+	+			
Felidae								
Feral Cat	<i>Felis catus</i>	Int			+			
Leporidae								
Rabbit	<i>Oryctolagus cuniculus</i>	Int	+	+	+	+		

Appendix 5. EPBC Protected Matters Search Tool results.

Fauna species listed for the study area with a 5km buffer.

Species	EPBC Act Status	Type of Presence
<i>Aphelocephala leucopsis</i> Southern Whiteface	Vulnerable	Species or species habitat MAY occur within area
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	Vulnerable, Migratory	Species or species habitat MAY occur within area
<i>Calidris ferruginea</i> Curlew Sandpiper	Critically Endangered, Migratory	Species or species habitat MAY occur within area
<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black-cockatoo	Vulnerable	Species or species habitat KNOWN to occur within area
<i>Falco hypoleucos</i> Grey Falcon	Vulnerable	Species or species habitat MAY occur within area
<i>Leipoa ocellata</i> Malleefowl	Vulnerable	Species or species habitat LIKELY to occur within area
<i>Zanda baudinii</i> Baudin's Cockatoo	Endangered	Breeding KNOWN to occur within area
<i>Zanda latirostris</i> Carnaby's Cockatoo	Endangered	Species or species habitat KNOWN to occur within area
<i>Dasyurus geoffroii</i> Chuditch	Vulnerable	Species or species habitat KNOWN to occur within area
<i>Myrmecobius fasciatus</i> Numbat	Endangered	Species or species habitat MAY occur within area
<i>Phascogale calura</i> Red-tailed Phascogale	Vulnerable	Species or species habitat KNOWN to occur within area
<i>Actitis hypoleucos</i> Common Sandpiper	Migratory	Species or species habitat MAY occur within area
<i>Calidris melanotos</i> Pectoral Sandpiper	Migratory	Species or species habitat MAY occur within area
<i>Apus pacificus</i> Fork-tailed Swift	Migratory	Species or species habitat LIKELY to occur within area
<i>Motacilla cinerea</i> Grey Wagtail	Migratory	Species or species habitat MAY occur within area

Appendix 6. Foraging Quality Scoring Tool

Appendix 6			
Attribute	Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black-cockatoo
Starting Score	10 Site contains foraging habitat, consisting of woodlands containing Marri as the primary food-plant and woodlands containing Jarrah as a secondary food-plant.	10 Site contains foraging habitat, consisting of woodlands containing Marri, Hakea and Banksia sessilis as the primary food-plants. Also small pine plantations with pine as the primary foodplant.	10 Site contains foraging habitat, consisting of woodlands containing Marri and Jarrah as the primary food-plants and Sheoak as a secondary food-plant.
Foraging potential <i>Subtract 2 from your score if there is no evidence of feeding debris on your site.</i>	-2 No foraging evidence noted.	-0 Evidence of foraging on Marri, Hakea, pine and Banksia sessilis.	-0 Evidence of foraging on Marri and birds sighted foraging on Jarrah.
Connectivity <i>Subtract 2 from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.</i>	-0 Site is within 12km of other woodlands containing Marri.	-0 Site is within 12km of other woodlands containing Marri and Banksia sessilis.	-0 Site is within 12km of other woodlands containing Marri and Jarrah.
Proximity to breeding <i>Subtract 2 if you have evidence to conclude that your site is more than 12 km from breeding habitat</i>	-0 This species is known to breed in the vicinity of Kojonup.	-0 Breeding recorded 7km south of the study area.	-0 The nearest confirmed breeding record is 25km north of the study area, however, it is likely that there is undocumented breeding within 12km
Proximity to roosting <i>Subtract 1 if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.</i>	-0 Roosting may occur at Kojonup, as 'white-tailed black cockatoos' have been recorded roosting (Figure 12)	-0 Roosting may occur at Kojonup, as 'white-tailed black cockatoos' have been recorded roosting (Figure 12). Also, as this species is present in the study area it is likely that there are roosts within 20km.	-0 Although no roost sites are known in the region, as this species is present in the study area it is likely that there are roosts within 20km.
Impact from significant plant disease <i>Subtract 1 if your site has disease present (e.g. Phytophthora spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.</i>	-0 No significant plant disease noted during field survey.	-0 No significant plant disease noted during field survey.	-0 No significant plant disease noted during field survey.
Total Score	8	10	10

Appendix 6			
Attribute	Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black-cockatoo
Appraisal	<p>Potential foraging habitat occurs throughout the study area in patches of remnant vegetation containing Marri and/or Jarrah woodlands and woodlands with an understory containing proteaceous shrubs such as Banksia and Hakea. There are areas of similar native woodland within 12km of the site, including to the south-west in Jingalup Nature Reserve (see Figure 2). There is one 'white-tailed black-cockatoo' roost site in the region, at Kojonup, however, there are also likely to be undocumented roosts for at least Carnaby's Cockatoo and the Forest Red-tailed Black-cockatoo, as these species have been recorded in the study area. Carnaby's Cockatoo is known to breed within 12km. The closest confirmed breeding record for the Forest Red-tailed Black-Cockatoo is 25km north of the study area, but there are likely to be undocumented breeding sites.</p>		

Appendix 7. Bat Call Analysis

Acoustic analysis and bat call identification from Kojonup, Western Australia

Prepared for **Western Wildlife Pty Ltd**

Version **6 May 2024**

SZ project reference **SZ732**



Prepared by **Dr Kyle Armstrong and Yuki Konishi**

Specialised Zoological ABN 92 265 437 422

Tel 0404 423 264

kyle.n.armstrong@gmail.com

© Copyright - Specialised Zoological, ABN 92 265 437 422. This document and its content are copyright and may not be copied, reproduced or distributed (in whole or part) without the prior written permission of Specialised Zoological other than by the Client for the purposes authorised by Specialised Zoological ("Intended Purpose"). The Client acknowledges that the Final Report is intended for the sole use of the Client, and only to be used for the Intended Purpose. Any representation or recommendation contained in the Final Report is made only to the Client. Specialised Zoological will not be liable for any loss or damage whatsoever arising from the use and/or reliance on the Final Report by any third party. To the extent that the Intended Purpose requires the disclosure of this document and/or its content to a third party, the Client must procure such agreements, acknowledgements and undertakings as may be necessary to ensure that the third party does not copy, reproduce, or distribute this document and its content other than for the Intended Purpose. This disclaimer does not limit any rights Specialised Zoological may have under the *Copyright Act 1968 (Cth)*.

This report should be included as an appendix in any larger submission to Government, and cited as:

Specialised Zoological (2024). Acoustic analysis and bat call identification from Kojonup, Western Australia. Unpublished report by Specialised Zoological for Western Wildlife Pty Ltd, 6 May 2024, project reference SZ732.

Summary

Bat identifications from acoustic recordings are provided from two areas ('Stage 2', 'Stage 3') near Kojonup, c. 240 km south-east of Perth, Western Australia. The identification of bat species from full spectrum WAV-format recordings of their echolocation calls was based on measurements of characteristic frequency, observation of pulse shape, and the pattern of harmonics. At least six species of bat were identified as being present (**Tables 1** and **2**). Representative echolocation calls for each identification are illustrated (**Figure 1**), as recommended by the Australasian Bat Society (ABS 2006). Further details are available should verification be required.

Methods

The data provided were recorded in WAV format with Titley Scientific Anabat Swift bat detectors (sampling rate 500 kHz, set to turn on automatically at sunset and off at sunrise).

A multi-step acoustic analysis procedure developed to process large full spectrum echolocation recording datasets from insectivorous bats (Armstrong et al. 2021a,b) was applied to the recordings made on the survey. Firstly, the WAV files were scanned for bat echolocation calls using several parameter sets in the software SCAN'R version 1.8.3 (Binary Acoustic Technology), which also provides measurements (SCAN'R parameters) from each putative bat pulse. The outputs were then used to determine if putative bat pulses measured in SCAN'R could be identified to species. This was done using a custom [R] language application that performed three tasks:

1. undertook a Discriminant Function Analysis on training data from representative calls from south-western Australia;
2. from the measurements of each putative bat pulse from SCAN'R, calculated values for the first two Discriminant Functions that could separate the echolocation call types derived from the analysis of training data, and plotted these resulting coordinates over data ellipses representing one standard deviation of the variation for the defined call types; and
3. facilitated an inspection in a spectrogram of multiple examples of each call type for each recording night by opening the original WAV files containing pulses of interest in Adobe Audition version 23.1.

Species were identified based on information in Churchill (2008). Nomenclature follows Jackson and Groves (2015). Identifications were supported by distribution information in a curated source of distribution records maintained by the Australasian Bat Society, Inc. (<https://www.ausbats.org.au/batmap.html>) (Milne et al. 2023).

Comments on identifications

Most species were identified unambiguously. The call type allocated to a species of long-eared bat *Nyctophilus* sp. is attributable to one of three species: Holt's long-eared bat *Nyctophilus holtorum*, the lesser long-eared bat *N. geoffroyi*, and/or the western long-eared bat *N. major major*.

Limitations

The identifications presented in this report have been made within the following context:

1. The identifications made herein were based on the ultrasonic acoustic data recorded and provided by a 'third party' (the client named on the front of this report).
2. The scope of this report extended to providing information on the identification of bat species in bulk ultrasonic recordings. Further comment on these species and the possible impacts of a planned project on bat species were not part of the scope.
3. In the case of the present report, the recording equipment was set up and supplied by Specialised Zoological. The equipment was operated by the third party during the survey.
4. Other than the general location of the study area, Specialised Zoological has not been provided with detailed information of the survey area, has not made a visit to observe the habitats available for bats, nor have we visited the specific project areas on a previous occasion.
5. Specialised Zoological has had no input into the overall design and timing of this bat survey, recording site placement, nor the degree of recording site replication.
6. While Specialised Zoological has made identifications to the best of our ability given the available materials, and reserves the right to re-examine the data and revise any identification following a query, it is the client's and / or proponent's responsibility to provide supporting evidence for any identification, which might require follow-up trapping effort or non-invasive methods such as video recordings. Specialised Zoological bears no liability for any follow-up work that may be required to support an identification based initially on the analysis of acoustic recordings undertaken and reported on here.
7. There are a variety of factors that affect the 'detectability' of each bat species, given the frequency, power and shape characteristics of their calls. Further information on the analysis and the various factors that can impinge on the reliability of identifications can be provided upon request.
8. The analysis of ultrasonic recordings is one of several methods that can be used to survey for bats, and comprehensive surveys typically employ more than one method. If an identification in the present report is ambiguous or in question, a trapping programme would help to resolve the presence of the possibilities in the project area.
9. This version of the document supersedes any previous version. Previous drafts are not authorised by us for submission to the regulator or the public domain.

References

- ABS (2006). Recommendations of the Australasian Bat Society Inc for reporting standards for insectivorous bat surveys using bat detectors. *The Australasian Bat Society Newsletter* 27: 6–9. [ISSN 1448-5877]
- Armstrong K.N., Broken-Brow J., Hoyer G., Ford G., Thomas M. and Corben C. (2021a). Effective detection and identification of sheath-tailed bats of Australian forests and woodlands. *Australian Journal of Zoology* 68:346–363. <https://doi.org/10.1071/ZO20044>
- Armstrong K.N., Clarke S., Linke A., Scanlon A., Roetman P., Hitch, A.T. and Donnellan S.C. (2021b). Citizen science implements the first intensive acoustics-based survey of insectivorous bat species across the Murray-Darling Basin of South Australia. *Australian Journal of Zoology* 68: 364–381. <https://doi.org/10.1071/ZO20051>
- Churchill, S.K. (2008). *Australian bats*. 2nd ed. Allen and Unwin, Crows Nest, NSW.
- Jackson, S.M. and Groves, C.P. (2015). *Taxonomy of Australian mammals*. CSIRO Publishing, Victoria.
- Milne D.J., Reardon T.B. and Ford G. (2023) BatMap – authoritative distribution maps for Australian bats. *Australian Mammalogy*. 45: 350–355. <https://doi.org/10.1071/AM23005>

Table 1. Species identified in the present survey from all sites combined.

VESPERTILIONIDAE	
Gould's wattled bat	<i>Chalinolobus gouldii</i>
Chocolate wattled bat	<i>Chalinolobus morio</i>
Unidentified long-eared bat	<i>Nyctophilus</i> sp.
Southern forest bat	<i>Vespadelus regulus</i>
MOLOSSIDAE	
White-striped free-tailed bat	<i>Austronomus australis</i>
Western free-tailed bat	<i>Ozimops kitcheneri</i>

Table 2. Species identifications from all recording nights at all sites. See Table 1 for full species names.

					<i>A. australis</i>	<i>C. gouldii</i>	<i>C. morio</i>	<i>O. kitcheneri</i>	<i>Nyctophilus</i> sp.	<i>V. regulus</i>
Serial	First night	Last night	Nights	Coordinates						
Stage 2										
449972	8/11/2023	12/11/2023	5	-33.929913, 117.402043	X	X	X	X	NC	X
461278	8/11/2023	12/11/2023	5	-33.884078, 117.301968	X	X	X	X	NC	X
642025	9/11/2023	12/11/2023	4	-33.921063, 117.380552	X	X	.	X	.	X
642149	8/11/2023	12/11/2023	5	-33.884685, 117.364992	X	X	.	X	NC	X
Stage 3										
449972	21/11/2023	23/11/2023	3	-33.926173, 117.130733	X	X	X	X	NC	X
461278	21/11/2023	23/11/2023	3	-33.911102, 117.120643	X	X	.	X	.	X
636475	20/11/2023	23/11/2023	4	-33.972466, 117.146172	X	X	.	X	.	X
642025	20/11/2023	23/11/2023	4	-33.965592, 117.145852	X	X	X	X	NC	X
642149	20/11/2023	23/11/2023	4	-33.961430, 117.109705	X	X	.	.	.	X
656318	20/11/2023	23/11/2023	4	-34.001530, 117.130043	X	X	X	X	NC	X

Definition of confidence level codes

. Not detected.

X Unambiguous identification of the species at the site based on measured call characteristics and comparison with available reference material. Greater confidence in this ID would come only after capture and supported by morphological measurements or a DNA sequence.

NC Needs Confirmation. Either call quality was poor, or the species cannot be distinguished reliably from another that makes similar calls. Alternative identifications are indicated in the *Comments on identifications* section of this report. If this is a species of conservation significance, further survey work might be required to confirm the record.

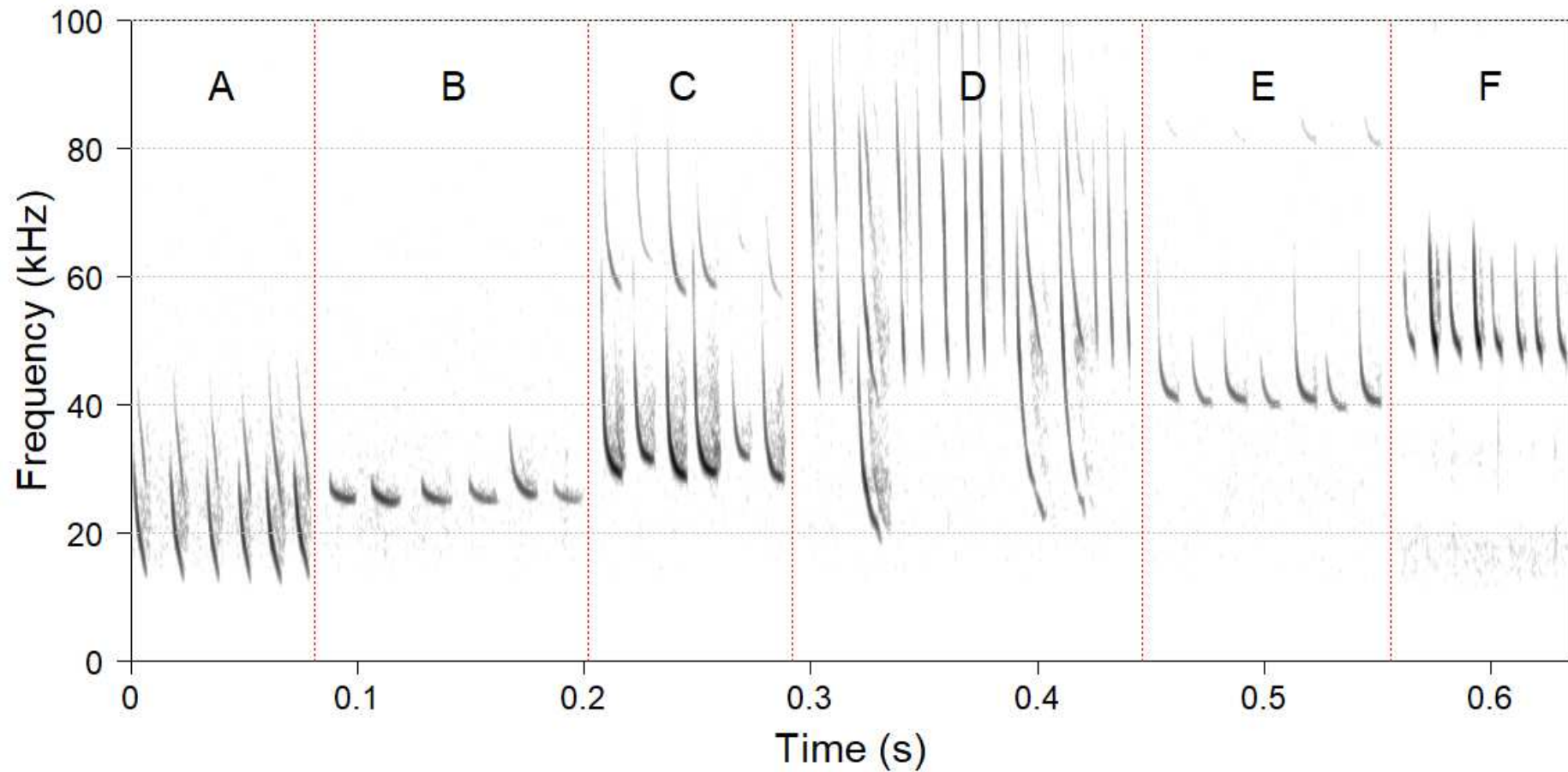


Figure 1. Representative echolocation call sequence portions of the species identified (**A:** *Austronomus australis*; **B:** *Ozimops kitcheneri*; **C:** *Chalinolobus gouldii*; **D:** *Nyctophilus* sp.; **E:** *Vespadelus regulus*; **F:** *Chalinolobus morio*; time between pulses has been compressed).

Appendix 8. Flight heights of birds recorded in surveys.

Appendix 8a. Flight heights of all birds recorded in impact site surveys.

Sites K01 – K33.

Key to At-risk Group: CS = Conservation Significant species, DBOP = Diurnal Bird of Prey, WB = Waterbird, FHR = Flight Height Risk as recorded flying in the RSA in this survey.

Appendix 8a										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Australasian Grebe	WB		3		3					3
Australian Kestrel	DBOP	3	6	7	16		2	4	6	22
Australian Magpie	FHR	93	119	96	308	1	1		2	310
Australian Pipit	FHR	26	34	51	111			6	6	117
Australian Raven	FHR	97	218	147	462		17	10	27	489
Australian Ringneck		135	354	165	654					655
Australian Shelduck	WB		19	2	21					21
Australian Wood Duck	WB	2	37	17	56					56
Black-faced Cuckoo-shrike	FHR	4	15	28	47		4	2	6	53
Black-faced Woodswallow		11	19	16	46					46
Black-shouldered Kite	DBOP	4			4					4
Brown Falcon	DBOP		2	3	5					5
Brown Honeyeater		4	1		5					5
Brown Songlark		6			6					6
Brown-headed Honeyeater			19		19					19
Brush Bronzewing			1		1					1
Carnaby's Cockatoo*	CS	18	3	2	23					23
Common Bronzewing			1	2	3					3
Crested Pigeon				3	3					3
Dusky Woodswallow	FHR	2	23	2	27		2	4	6	33
Elegant Parrot	FHR	14	18	13	45	4	4	1	9	54
Fan-tailed Cuckoo										0
Forest Red-tailed Black-cockatoo	CS	19	4	7	30					30
Galah		5		5	10					10
Golden Whistler										0
Grey Butcherbird		2			2					2
Grey Fantail		11	1	1	13					13

Appendix 8a										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Grey Shrike-thrush		3	1	4	8					8
Grey Teal	WB									0
Horsfield's Bronze Cuckoo				1	1					1
Inland Thornbill										0
Inland Western Rosella	CS	9	6	5	20					20
Laughing Kookaburra		10	4	7	21					21
Magpie-lark		28	7	7	42					42
Muir's Corella	CS			4	4					4
New Holland Honeyeater										0
Painted Button-quail										0
Pied Butcherbird										0
Purple-crowned Lorikeet	FHR	47	26	24	97	16	8	8	32	129
Red Wattlebird	FHR	30	11	14	55		1		1	56
Red-capped Parrot		1	6	1	8					8
Red-capped Robin			1		1					1
Regent Parrot		17	69	62	148					148
Restless Flycatcher			1		1					1
Rufous Treecreeper		1			1					1
Rufous Whistler		2		0	2					2
Sacred Kingfisher				1	1					1
Scarlet Robin		5	9	5	19					19
Shining Bronze-cuckoo		3		1	4					4
Silvereye		8		11	19					19
Singing Honeyeater		1	9	8	18					18
Splendid Fairy-wren										0
Spotted Pardalote										0
Striated Pardalote		7	15	12	34					34
Stubble Quail										0
Tree Martin	FHR	355	511	321	1187	25	42	24	91	1278
Varied Sitella			11	15	26					26
Wedge-tailed Eagle	DBOP		2	3	5	5	2	2	9	14
Weebill		4	26	15	45					45
Welcome Swallow	FHR	10	1		11	9			9	20
Western Gerygone		3	25	13	41					41

Appendix 8a										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Western Thornbill		5	2		7					7
Western Wattlebird			1		1					1
Western Yellow Robin										0
White-browed Babbler										0
White-faced Heron	WB	1	1	1	3					3
White-fronted Chat				2	2					2
White-winged Triller		1			1					1
Willie Wagtail		21	4	4	29					29
Yellow-plumed Honeyeater										0
Yellow-rumped Thornbill		18	16	23	57					57
Yellow-throated Miner		9			9					9
Total individuals:		1055	1662	1131	3848	60	83	61	204	4052
Total species:		57	59	53	59	6	10	9	12	72

*Note that Carnaby's Cockatoo was recorded flying at RSA opportunistically outside of surveys.

Appendix 8b. Flight heights of all birds recorded in reference site surveys.

Sites C01 – C08, A34 - 36

Key to At-risk Group: CS = Conservation Significant species, DBOP = Diurnal Bird of Prey, WB = Waterbird, FHR = Flight Height Risk as recorded flying in the RSA in this survey.

Appendix 8b										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Australasian Grebe	WB									0
Australian Kestrel	DBOP		1	1	2					2
Australian Magpie	FHR	6	32	28	66					66
Australian Pipit	FHR		2	3	5					5
Australian Raven	FHR	38	34	22	94		1	2	3	97
Australian Ringneck		12	62	43	117					117
Australian Shelduck	WB		3		3					3

Appendix 8b										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Australian Wood Duck	WB									0
Black-faced Cuckoo-shrike			3	2	5					5
Black-faced Woodswallow	FHR			1	1			1	1	2
Brown Falcon	DBOP		1		1					1
Brown Honeyeater										0
Brown-headed Honeyeater			4		4					4
Carnaby's Cockatoo	CS		2	40	42					42
Common Bronzewing				2	2					2
Crested Pigeon				2	2					2
Dusky Woodswallow	FHR		3		3					3
Elegant Parrot	FHR		2	1	3		1		1	4
Fan-tailed Cuckoo										0
Forest Red-tailed Black-cockatoo	CS	3			3					3
Galah				2	2					2
Grey Butcherbird										0
Grey Fantail			1		1					1
Grey Shrike-thrush										0
Grey Teal	WB									0
Inland Thornbill										0
Inland Western Rosella	CS		4	1	5					5
Laughing Kookaburra			1		1					1
Magpie-lark			1	1	2					2
Mistletoebird										0
Painted Button-quail										0
Pied Butcherbird										0
Purple-crowned Lorikeet			7	30	37					37
Red Wattlebird	FHR		16	12	28					28
Red-capped Parrot		2	6		8					8
Regent Parrot		17	33	10	60					60
Restless Flycatcher										0
Rufous Whistler										0
Scarlet Robin			5		5					5
Silveryeye			7	9	16					16
Singing Honeyeater			2	6	8					8

Appendix 8b										
Species	At-risk Group	Flights Below RSA (<50m)				Flights At RSA (50 – 200m)				Total
		Nov 2023	Aug 2024	Nov 2024	Subtotal	Nov 2023	Aug 2024	Nov 2024	Subtotal	
Splendid Fairy-wren										0
Spotted Pardalote										0
Striated Pardalote			14	1	15					15
Stubble Quail										0
Tree Martin	FHR	3	97	180	280		2	4	6	286
Varied Sitella			4		4					4
Wedge-tailed Eagle	DBOP					1		4	5	5
Weebill			13		13					13
Western Gerygone			7		7					7
White-faced Heron	WB		1	1	2					2
Willie Wagtail			4		4					4
Yellow-rumped Thornbill			19	5	24					24
Total individuals:		81	391	403	875	1	4	11	16	893
Total species:		7	31	23	36	1	3	4	5	53

Appendix 9. Bird and Bat Risk Assessment

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Conservation Significant Birds				
Carnaby's Cockatoo <i>Zanda latirostris</i>	Endangered	Moderate <ul style="list-style-type: none"> Recorded in the study area. Of 65 recorded individuals on BUS surveys, all were observed flying below the RSA, however, a single flight in the RSA by 2 birds was recorded opportunistically. It is considered likely that the majority of flights would be below the RSA, but this species is capable of flying at RSA. A post-nuptial migrant, moving between inland breeding sites and coastal foraging sites, however, it is unknown whether the study area lies in a path of migration. Also undertakes daily movements averaging 16km between roost sites and foraging sites (Shephard and Warren 2018) and averaging 6km between breeding sites and foraging sites (Riley <i>et al.</i> 2023). Species likely to largely occur in woodlands when foraging and breeding. A large bird, it is likely to traverse open habitats, although it is known to prefer following vegetated areas such as road verges (Shephard and Warren 2018). 	Moderate <ul style="list-style-type: none"> Population restricted to south-west Western Australia, estimated at 40,000 birds and declining (Garnett and Baker 2021). Single young raised each year by long-lived birds. Generation length estimated at 10.85 years (BirdLife International 2024). Limited capacity to replace lost adults, population already under pressure from other threats. Important breeding area occurs nearby in the vicinity of Tambellup (between about 25 – 55km southeast), where there is likely to be a concentration of birds. Likely to concentrate at roost sites, but it is unknown whether roosting occurs near turbine locations. Listed as Endangered (EPBC Act). 	Moderate

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Baudin's Black-Cockatoo <i>Zanda baudinii</i>	Endangered	Low <ul style="list-style-type: none"> Not recorded in the study area but likely to occur. As this species has not been recorded across three field trips, it appears likely that this species is uncommon in the region. It is considered likely that the majority of flights would be below the RSA, but this species is capable of flying at RSA. A post-nuptial migrant, moving north after the breeding season, however, the study area is not likely to be in a path of migration as it is on the edge of the known range of the species. Species likely to largely occur in woodlands when foraging and breeding. A large bird, it is likely to traverse open habitats. 	High <ul style="list-style-type: none"> Population estimated at 3,250 and declining rapidly (Garnett and Baker 2021). Single young raised each year by long-lived birds. Generation length estimated at 13.24 years (BirdLife International 2024). Limited capacity to replace lost adults, population already under pressure from other threats. Study area is on the eastern edge of this species' range and there are unlikely to be concentrations of the population present. Listed as Endangered (EPBC Act). Listed as Critically Endangered in 2022 on the IUCN Red List for Birds (BirdLife International 2024). 	Moderate
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	Vulnerable	Moderate <ul style="list-style-type: none"> Recorded in the study area. Of 33 recorded individuals on BUS surveys, all were observed flying below the RSA. It is considered likely that the majority of flights would be below the RSA, but this species is capable of flying at RSA. Species likely to largely occur in woodlands when foraging and breeding. A large bird, it is likely to traverse open habitats 	Moderate <ul style="list-style-type: none"> Population estimated at 16,800 with the likelihood for future declines (Garnett and Baker 2021). Single young raised each year by long-lived birds. Generation length estimated at 14.3 years (BirdLife International 2024). Limited capacity to replace lost adults, population already under pressure from other threats. Likely to concentrate at roost sites, but it is unknown whether roosting occurs near turbine locations. Listed as Vulnerable (EPBC Act). 	Moderate

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Malleefowl <i>Leipoa ocellata</i>	Vulnerable	Low <ul style="list-style-type: none"> Not recorded in study area but may possibly occur as infrequent dispersing birds as they are known from the region. Not migratory. Adult birds rarely fly except when disturbed or to roost in the canopy (Frith 1962). Considered unlikely to fly at the RSA. 	Moderate <ul style="list-style-type: none"> Population estimated at 25,000 and are likely to decline further, mainly due to the increased frequency of drought and large-scale fires (Garnett and Baker 2021). Species is not likely to congregate in the vicinity of the study area, instead it is less likely to occur compared to surrounding areas with larger areas of remnant native vegetation. Long-lived, generation length estimated at 9.13 years (BirdLife International 2024). Listed as Vulnerable (EPBC Act). 	Minor
Common Sandpiper <i>Actitis hypoleucos</i>	Migratory	Low <ul style="list-style-type: none"> Not recorded in study area but may possibly occur as single birds on farm dams. No data on flight height are available for this species, but shorebirds in general fly at considerable height, well above the RSA, during migration. Migratory species, but the study area is not in a major flyway and there are limited resources in the region to attract the species. 	Low <ul style="list-style-type: none"> Study area not likely to regularly support more than 1 or 2 birds due to lack of habitat; a nationally important site supports 190 birds and an internationally important site supports 1,900 birds (Hansen <i>et al.</i> 2016). Species is not likely to congregate in the vicinity of the study area due to lack of suitable wetland habitat. Generation length estimated at 6.8 years (BirdLife International 2024). Listed as Migratory (EPBC Act) 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Fork-tailed Swift <i>Apus pacificus</i>	Migratory	Moderate <ul style="list-style-type: none"> Not recorded in study area and no nearby records but may possibly occur in small groups in summer. Flight heights between 1m and 1,000m have been recorded (DoE 2015). A non-breeding Migratory species, it enters north-west Australia in October-November, departing in April. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Species has a very large global range and a large global population of at least 100,000, that is stable (Birdlife International 2024, DoE 2015). In Australia, it occurs across the country but is more common in the north and more common in coastal and sub-coastal areas. Species is not likely to congregate in the vicinity of the study area and significant numbers (0.1% of the population or 100 birds) are unlikely to regularly occur. Long-lived, generation length estimated at 12.5 years (BirdLife International 2024). Listed as Migratory (EPBC Act). 	Minor
Peregrine Falcon <i>Falco peregrinus</i>	Other Specially Protected Fauna (BC Act)	Moderate <ul style="list-style-type: none"> Recorded opportunistically in study area, flying below RSA. Likely to use open habitats for foraging. Forages by hunting from a high perch, high quartering or soaring, or low fast flight. Also display flights during breeding season (Debus 1998), so likely to intersect the RSA. 2 wind farm mortalities recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Species occurs across Australia and has a very large global range. The global population is very large (248,000 – 478,000 individuals) and the trend is increasing after a ban on DDT in the 1970s (Birdlife International (2024). Long-lived, generation length estimated at 6 years (BirdLife International 2024), young disperse widely (60km for males, 130k for females and up to 500km recorded) (Debus 1998). Listed as Other Specially Protected Fauna (BC Act). 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Muir's Corella <i>Cacatua pastinator pastinator</i>	Conservation Dependent (BC Act)	Moderate <ul style="list-style-type: none"> Recorded in study area. Edge of the current known range of this species. Of 4 recorded individuals on BUS surveys, all were observed flying below the RSA. Likely to largely occur in woodlands and farmlands when foraging and breeding. A large bird, it is likely to traverse open habitats between woodland patches. 3 (of other <i>Cacatua</i> sp.) in south-west Victoria (Biosis 2020). 	Low <ul style="list-style-type: none"> Population estimated at 20,000 and increasing (Garnett and Baker 2021). Population has increased to the extent that it has once again become a pest species in farmland and towns (DPAW 2015). Small area of occupancy but expanding as the population increases. Long-lived, generation length estimated at 13 years (BirdLife International 2024). Listed as Conservation Dependent (BC Act) and as Least Concern in Action Plan (Garnett and Baker 2021). 	Minor
Barking Owl <i>Ninox connivens connivens</i>	Priority 3	Low <ul style="list-style-type: none"> Not recorded in study area. May possibly occur as the study area is within the known range of the species, but only one nearby record and extremely rarely recorded in the south-west. May forage in open farmland. 	Moderate <ul style="list-style-type: none"> The south-west subspecies is considered extremely rare (Liddelew <i>et al.</i> 2002). No population estimate exists, although the population of the species outside Queensland has been estimated at 1,000 individuals (Garnett and Baker 2021). Not congregatory, breeding pairs spaced 2 – 10km apart and overall density low at 0.10 – 0.12birds/ha (Garnett and Baker 2021). Moderately long-lived, generation length estimated at 4.1 years (BirdLife International 2024). Listed as DBCA Priority 3 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Masked Owl <i>Tyto novaehollandiae novaehollandiae</i>	Priority 3	Low <ul style="list-style-type: none"> Not recorded in study area. May possibly occur as the study area is within the known range of the species, but no nearby records and likely to be uncommon. May forage in open farmland. 	Moderate <ul style="list-style-type: none"> For the species overall, the population is suspected to be declining, little data available on this subspecies, but it is restricted to south-west Western Australia and poorly known. Not congregatory. Moderately long-lived, generation length estimated at 5.01 years (BirdLife International 2024). Listed as DBCA Priority 3 	Minor
Inland Western Rosella <i>Platycercus icterotis xanthogenys</i>	Priority 4	Low <ul style="list-style-type: none"> Recorded in the study area. Of 25 recorded individuals on BUS surveys, all were observed flying below the RSA. Considered unlikely to fly at RSA height. Sedentary species, likely to forage and breed in eucalypt woodlands, but may also forage in crops and likely to disperse across cleared areas between habitat patches. 	Low <ul style="list-style-type: none"> This subspecies is restricted to the semi-arid southern interior Western Australia, where it has declined in the north-eastern part of its range but is still moderately common in the vicinity of the study area (Johnstone and Storr 1998). Not congregatory, occurs as pairs and small flocks (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 5.01 years (BirdLife International 2024), clutch size usually 5-8 (Johnstone and Storr 1998). Listed as DBCA Priority 4 and as Least Concern in Action Plan (Garnett and Baker 2021). 	Negligible
Diurnal Birds of Prey				

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Black-shouldered Kite <i>Elanus axillaris</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 4 records in the BUS, all were below RSA height. Prefers open habitats, including farmland (Johnstone and Storr 1998). Forages by quartering and hovering, or sometimes from a perch (Debus 1998). 3 wind farm mortalities recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread across Australia, this species has increased in abundance due to clearing for agriculture. Global population very large, Australian population not quantified but likely to be large (Birdlife International 2024). Not congregatory, usually occurs as singles, sometimes pairs (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 6.6 years (BirdLife International 2024). May have 2 broods in a year, juveniles disperse widely, up to 1,000km recorded (Debus 1998). No conservation listing. 	Minor
Square-tailed Kite <i>Lophoictinia isura</i>	Least Concern	Moderate <ul style="list-style-type: none"> Not recorded in study area and likely to be a relatively rare species in the region. Mainly occurs in eucalypt woodlands (Johnstone and Storr 1998). Migratory, with southern birds moving north in winter after breeding (Debus 1998). Forages by low, slow quartering of the tree or shrub canopy, dropping to snatch prey. Aerial displays in breeding season (Debus 1998). 	Low <ul style="list-style-type: none"> Widespread across Australia. Population not quantified but believed to be small but stable (Birdlife International 2024). Not congregatory, solitary outside of the breeding season (Debus 1998). Moderately long-lived, generation length estimated at 7.6 years (BirdLife International 2024). No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Whistling Kite <i>Haliastur sphenurus</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area. May possibly occur but more likely to prefer wetland areas (absent from the study area). Favours wooded wetlands and farmlands in the south-west (Johnstone and Storr 1998). Regularly soars, forages by quartering, high soaring or ambushing from trees near water (Debus 1998), therefore considered likely to intersect the RSA. 1 wind farm mortality in south-west Victoria (Biosis 2020), 15 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread across Australia. Population may be in slight decline but it is very large (Birdlife International 2024). Not congregatory. Usually occurs as singles or pairs or small flocks around wetlands (Johnstone and Storr 1998). Long-lived, generation length estimated at 11.5 years (BirdLife International 2024). No conservation listing. 	Negligible
Swamp Harrier <i>Circus approximans</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area. Although known from the region, this species usually forages in wetland habitats. Forages by low, slow quartering, as well as soaring (Debus 1998). Breeding display involves soaring high (Debus 1998), therefore considered likely to intersect RSA at times. 2 wind farm mortalities at 2 sites in Tasmania (Hull <i>et al.</i>, 2013), 6 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Population not quantified but believed to be moderately small - large and stable (Birdlife International 2024). Moderately long-lived, generation length estimated at 7.8 years (BirdLife International 2024). No conservation listing. 	Negligible
Spotted Harrier <i>Circus assimilis</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area. Uncommon in the far south-west so likely to be uncommon in the study area. Inhabits sparsely wooded plains, including farmland (Johnstone and Storr 1998). Forages by low, slow quartering, or transect hunting, often at or near ground level (Debus 1998). Breeding display infrequent but involves soaring high (Debus 1998), therefore considered likely to intersect RSA at times. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> This species is widespread in Australia and has a large population that appears to be stable (BirdLife International 2024). Moderately long-lived, generation length estimated at 7.8 years (BirdLife International 2024). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Brown Goshawk <i>Accipiter fasciatus</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area but likely to occur. Inhabits both woodlands and farmlands. Usually forages from a perch, ambushing prey, but to a lesser extent also employs low fast flight and soaring (Debus 1998). Therefore, considered less likely to intersect RSA. 3 wind farm mortalities recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> This species occurs across Australia and has a large population, although it is suspected of decreasing (BirdLife International 2024). Not congregatory, usually occurs as singles, sometimes pairs (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 5.44 years (BirdLife International 2024). No conservation listing. 	Negligible
Collared Sparrowhawk <i>Accipiter cirrocephalus</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded opportunistically in study area. Inhabits both woodlands and farmlands. Usually forages from a concealed perch in foliage, also short tree to tree flights, to a lesser extent it also forages by quartering or with low fast flight (Debus 1998), therefore, considered less likely to intersect RSA. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> This species occurs across Australia and has a large population that appears to be stable (BirdLife International 2024). Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 4.4 years (BirdLife International 2024). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Wedge-tailed Eagle <i>Aquila audax</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area and nesting sites present. Of 19 records in the BUS, 14 were in the RSA. Occurs in lightly wooded habitats, including farmlands and is sedentary in favourable areas (Johnstone and Storr 1998). Foraging strategy/flight behaviour involves regular soaring (Debus 1998) and likely intersection with the RSA. 2 mortalities reported at Silverton Wind Farm in NSW (Biosis 2021), 5 in south-west Victoria (Biosis 2020), 5 in NSW (EcoLogical 2022), 4 and 2 in Victoria (Elmoby 2020, 2021), 18 at 2 sites in Tasmania (Hull <i>et al.</i>, 2013), 58 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread in Australia, population large and possibly increasing due to clearing for agriculture and the introduction of rabbits (Birdlife International 2024, Ferguson-Lees and Christie 2001). Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). May be other pressures on this species in farmland, including illegal trapping and shooting (Ferguson-Lees and Christie 2001) Long-lived, generation time estimated at 18.1 years (Birdlife International 2024). Each pair in the south-west on average raises less than 1 young per year (Debus 2019). No conservation listing. 	Moderate
Little Eagle <i>Hieraaetus morphnoides</i>	Least Concern	Moderate <ul style="list-style-type: none"> Not recorded in study area but may occur. Inhabits woodlands and open habitats, particularly favours a mosaic of timbered and open country, such as farmland (Marchant and Higgins 1993). Some populations migratory. Foraging strategy/flight behaviour involves regular soaring (Debus 1998), therefore likely intersection with the RSA. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread in Australia, population large and stable (Birdlife International 2024). Not congregatory, usually occurs as singles, sometimes pairs (Johnstone and Storr 1998). Long lived, generation time estimated at 18 years (Birdlife International 2024), juveniles disperse up to 3,000km (Debus 1998). No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australian Hobby <i>Falco longipennis</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area but may occur, although this species is uncommon in the region. Occurs in woodlands, often near water, and likely to forage in and traverse open habitats. At least partly migratory, birds in the south or at high altitude migrate north in autumn after breeding (Debus 1998, Johnstone and Storr 1998). Forages using low, fast flight, but also uses high quartering. Soaring and chasing involved in breeding behaviour (Debus 1998). 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread across Australia. Common in well-watered arid and semi-arid areas, uncommon elsewhere (Johnstone and Storr 1998) Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 6.2 years (BirdLife International 2024), clutch size usually 3 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Brown Falcon <i>Falco berigora</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area, likely to be a relatively common inhabitant of open farmland and woodland edges. Of 6 records in the BUS, all were below RSA. Largely sedentary, some movement north in autumn has been recorded (Johnstone and Storr 1998). Foraging is mostly from a perch, but some soaring is used (Debus 1998). 8 wind farm mortalities in south-west Victoria (Biosis 2020), 2 in NSW (EcoLogical 2022), 1 in Victoria (Elmoby 2021), 6 at 2 sites in Tasmania (Hull <i>et al.</i>, 2013), 1 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Common, widespread across Australia. Population may be declining slowly (BirdLife International 2024). Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 6.2 years (BirdLife International 2024), clutch size usually 3 (Johnstone and Storr 1998). No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australian Kestrel <i>Falco cenchroides</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 24 records in the BUS, 18 were below RSA and 6 were at RSA height. At least partly migratory, moving north in autumn, returning late winter (Johnstone and Storr 1998). Foraging strategy to fly low and slow over ground, then hover when prey sighted (Johnstone and Storr 1998). May hover at RSA height. 1 mortality reported at Silverton Wind Farm in NSW (Biosis 2021), 23 in south-west Victoria (Biosis 2020), 5 in NSW (EcoLogical 2022), 2 in Victoria (Elmoby 2021), 54 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Common, widespread across Australia. Population large and increasing (BirdLife International 2024). Not congregatory, usually occurs in singles, sometimes pairs (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 6.2 years (BirdLife International 2024), clutch size usually 4 (Johnstone and Storr 1998). No conservation listing. 	Minor
Nocturnal Birds of Prey				
Eastern Barn Owl <i>Tyto javanica</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area but likely to occur. Prefers lightly-wooded habitats. Although it forages in open habitats, foraging strategy involves flying at low speed within 3-5m of the ground. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread and common across Australia. Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). Moderately long-lived, generation length estimated at 6.2 years (Birdlife International 2024), clutch size usually 3 (Johnstone and Storr 1998). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Southern Boobook <i>Ninox boobook</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area but likely to occur as it is relatively common in the south-west. Occurs in a variety of habitats including woodlands and open habitats. 	Low <ul style="list-style-type: none"> Widespread and common across Australia, population >100,000 individuals, thought to be declining but this has not been quantified (BirdLife International 2024). Not congregatory, usually occurs in pairs and singles (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 5.45 years, clutch size usually 2 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Tawny Frogmouth <i>Podargus strigoides</i>	Least concern	Low <ul style="list-style-type: none"> Not recorded in study area but likely to be a relatively common species. Occurs in wooded habitats, roosting in trees. Likely to forage in and traverse open habitats. Forages by taking prey from the ground, so unlikely to regularly fly at RSA height. Occasional mortalities reported (unpublished data reported in BL&A 2017). 	Low <ul style="list-style-type: none"> Widespread across Australia except for desert regions. Population not quantified but believed to be large and stable (Birdlife International 2024). Not congregatory, occurs as pairs or singles (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 7.5 years (BirdLife International 2024), clutch size usually 2 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Spotted Nightjar <i>Eurostopodus argus</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area but possibly occurs, unlikely to be common in the region. Prefers open habitats, including farmland. Forages by hawking for insects. 	Low <ul style="list-style-type: none"> Widespread across much of Australia. Population not quantified but believed to be large and stable (Birdlife International 2024). Not congregatory, occurs as pairs or singles (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 5.4 years (BirdLife International 2024), clutch size usually 1 (Johnstone and Storr 1998). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australian Owlet-nightjar <i>Aegotheles cristatus</i>	Least Concern	Low <ul style="list-style-type: none"> Not recorded in study area, may occur but uncommon in the wetter parts of its range. Occurs in eucalypt woodlands, roosting and nesting in tree hollows. Nocturnal forager. Forages by flying out or up from a perch to catch prey in the air or off vegetation. Brigham <i>et al.</i> (1999) found the proportion of time spent perching above 10m varied from 0 to 49%. 1 mortality reported at Silverton Wind Farm in NSW (Biosis 2021). 	Low <ul style="list-style-type: none"> Widespread across Australia. Population not quantified but believed to be common and no reported declines (BirdLife International 2024). Not congregatory, occurs as singles (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 5.4 years (BirdLife International 2024), clutch size usually 3 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Waterbirds				
Pacific Black Duck <i>Anas superciliosus</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded opportunistically in the study area and likely to occur in small numbers, mostly on farm dams, creeks or damp pasture. Forages on the ground and in water. Nomadic. 3 wind farm mortalities recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread across Australia. This species has an extremely large range and although the population trend is decreasing, the population size is large (BirdLife International 2024). Usually occurs as singles, pairs, and small groups, large aggregations occur on larger wetlands (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 5.6 years (BirdLife International 2024), clutch size usually 7 - 10 (Johnstone and Storr 1998). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Grey Teal <i>Anas gracilis</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded opportunistically in the study area and likely to occur in small numbers, mostly on farm dams, creeks or damp pasture. Forages on the ground and in water. Nomadic. 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Widespread across Australia. The population large and fluctuating, with a declining population trend (BirdLife International 2024). Occurs as singles, pairs and small groups, large aggregations occur on larger wetlands (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 4.9 years (BirdLife International 2024), clutch size usually 6 - 10 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Australian Shelduck <i>Tadorna tadornoides</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded in study area and likely to occur in small numbers, mostly on farm dams, creeks or green pasture. Of 24 records in the BUS, all were below RSA. Forages on the ground or in water. 	Low <ul style="list-style-type: none"> Widespread across Australia. Population large with an increasing population trend (BirdLife International 2024). Population in the south-west has increased since establishment of the wheatbelt (Johnstone and Storr 1998). Seasonally congregatory, occurs in pairs or family parties in the breeding season, then can congregate in large flocks in October – May (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 7.3 years (BirdLife International 2024), clutch size usually 5-24 (Johnstone and Storr 1998). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australian Wood Duck <i>Chenonetta jubata</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded in study area and likely to occur in small numbers, mostly on farm dams, creeks or green pasture. Of 24 records in the BUS, all were below RSA. Forages on the ground. Mortalities at wind farms reported (unpublished data reported in BL&A 2017), 1 in south-west Victoria (Biosis 2020). 	Low <ul style="list-style-type: none"> Widespread across Australia. Population not quantified but believed to be common (BirdLife International 2024). Population in the south-west has increased since European settlement, particularly since the 1940s due to increased farmland and dams (Johnstone and Storr 1998). Somewhat congregatory, occasionally large aggregations, but usually occurs in pairs, family parties or small groups (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 7 years (BirdLife International 2024), clutch size usually 5-20 (Johnstone and Storr 1998). No conservation listing. 	Negligible
White-faced Heron <i>Egretta novaehollandiae</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded in study area and likely to occur in small numbers, mostly on farm dams or damp pasture. Forages on the ground or in shallow water. Of 5 records in the BUS, all were below RSA. 	Low <ul style="list-style-type: none"> Widespread across Australia. Population not quantified but believed to be common (BirdLife International 2024). Not usually congregatory, occurs as singles and pairs, large aggregations rare (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 6.6 years (BirdLife International 2024), clutch size usually 4 (Johnstone and Storr 1998). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australasian Grebe <i>Tachybaptus novaehollandiae</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded opportunistically in the study area and likely to occur in very small numbers, mostly on farm dams and unlikely to use other habitats. Forages on the water. 	Low <ul style="list-style-type: none"> Widespread across Australia. Population not quantified but believed to be common (BirdLife International 2024). Not usually congregatory, occurs as singles and pairs, larger flocks on large lakes (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 6.6 years (BirdLife International 2024), clutch size usually 4- 5 (Johnstone and Storr 1998). No conservation listing. 	Negligible
Bird species recorded flying at RSA in this survey				
Purple-crowned Lorikeet <i>Parvipsitta porphyrocephala</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area and likely to be common. Of 166 records in the BUS, 134 were below RSA and 32 were in the RSA. Forages in forests and woodlands but crosses open habitats between woodland patches. Nomadic, moving in response to the availability of blossom (Johnstone and Storr 1998). Likely to be common in study area when eucalypt canopy is in flower. Flight fast and direct when moving between habitat patches. 	Low <ul style="list-style-type: none"> Restricted to south-west Western Australia, common within its range but thought to be slowly declining (BirdLife International 2024). Somewhat congregatory, occurring in small flocks up to 40, moving in response to availability of flowering eucalypts. Sometimes breed in groups, many pairs using tree hollows in close proximity (Johnstone and Storr 1998). Modest lifespan, generation time estimated at 3.5 years (BirdLife International 2024), clutch size usually 2-4 (Johnstone and Storr 1998), reasonable capacity to replace lost adults. No conservation listing. 	Moderate

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Elegant Parrot <i>Neophema elegans</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 58 records in the BUS, 48 were below RSA and 10 were in the RSA. Favours lightly wooded habitats including farmland, usually foraging on the ground. Largely sedentary, some movements north and south-west in autumn (Johnstone and Storr 1998). 	Negligible <ul style="list-style-type: none"> Has increased its range since European settlement. Restricted to southern Australia, common in the southern part of its range, uncommon or scarce elsewhere (Johnstone and Storr 1998). Not usually congregatory, pairs or small flocks, occasionally large flocks (Johnstone and Storr 1998). Moderately long-lived, generation time estimated at 4.9 years (BirdLife International 2024), clutch size 4-6 (Johnstone and Storr 1998). No conservation listing. 	Minor
Tree Martin <i>Petrochelidon nigricans</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 1,564 records in the BUS, 1,467 were below RSA and 97 were in the RSA. Migratory; birds in south-west Australia forming flocks in early summer, moving north in late summer - autumn and returning in late winter – spring to breed (Johnstone and Storr 2004). An aerial insectivore, flight highly manoeuvrable. 	Negligible <ul style="list-style-type: none"> Common and widespread across Australia, believed to be increasing in abundance (BirdLife International 2024). Congregates in roaming flocks in early summer, but these flocks wander and are unlikely to be restricted to a particular site. Moderately long-lived, generation length estimated at 4 years (BirdLife International 2024). No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Welcome Swallow <i>Hirundo neoxena</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats, usually in association with buildings, tanks and other infrastructure. Of 20 records in the BUS, 11 were below RSA and 9 were in the RSA. Likely to be sedentary in the south-west, migratory elsewhere. An aerial insectivore, flight highly manoeuvrable. 1 wind farm mortality in Victoria (Elmoby 2019), 4 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Negligible <ul style="list-style-type: none"> Originally confined to coasts, this species has colonised the interior with European settlement. Widespread and abundant, the population trend is increasing (Birdlife International 2024). Not congregatory, occurs as singles, pairs and small flocks (Johnstone and Storr, 1998). Moderately long-lived, generation length estimated at 4 years (BirdLife International 2024). No conservation listing. 	Minor
Australian Magpie <i>Gymnorhina tibicen</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 376 records in the BUS, 374 were below RSA and 2 were in the RSA. Sedentary. Known to collide with turbines (unpublished data reported in BL&A 2017), 13 in south-west Victoria (Biosis 2020), 9 in NSW (EcoLogical 2022), 1, 1 and 3 in Victoria (Elmoby 2019, 2020, 2021), 115 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Common and widespread across Australia, believed to be increasing in abundance and particularly common in coastal and agricultural areas (BirdLife International 2024). Not congregatory, usually in pairs and small groups (Johnstone and Storr 2004). Long-lived, generation length estimated at 12.7 years (BirdLife International 2024). Usually breeds in small groups containing some non-breeding members, so some capacity to replace lost adults. No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Australia Raven <i>Corvus coronoides</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area and likely to be a common species of open farmland habitats. Of 586 records in the BUS, 556 were below RSA and 30 were in the RSA. Sedentary. Forages mainly on the ground. 12 (<i>Corvus</i> spp.) wind farm mortalities in south-west Victoria (Biosis 2020), 1 in NSW (EcoLogical 2022), 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Negligible <ul style="list-style-type: none"> Common and widespread across Australia, this species has an extremely large range and a large population with an increasing population trend (BirdLife International 2024). In the south-west, this species is most numerous in farmlands, especially the wheatbelt (Johnstone and Storr 2004). Usually congregatory, mostly in singles, pairs or small groups, occasionally in large flocks (300+) at food-rich sites (Johnstone and Storr 2004). Long-lived, generation length estimated at 7.9 years (BirdLife International 2024). No conservation listing. 	Negligible
Black-faced Cuckoo-shrike <i>Coracina novaehollandiae</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area. Occurs in wooded habitats and cleared land. This species can cross open areas on migration. Of the 58 records in the BUS, 52 were below RSA and 6 were in the RSA. Migrant, southern birds move north in mid-January to June (Johnstone and Storr 2004). Usually forages in the tree canopy (Johnstone and Storr 2004). 	Low <ul style="list-style-type: none"> Common and widespread across Australia, this species has an extremely large range and the population size is large but the population trend is decreasing (BirdLife International 2024). Not congregatory, usually in singles or pairs or small groups of up to 30 on migration (Johnstone and Storr 2004). Moderately long-lived, generation length estimated at 4.6 years (BirdLife International 2024). No conservation listing. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Dusky Woodswallow <i>Artamus cyanopterus</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area. Favours partly cleared farmland and eucalypt woodlands but uncommon in the wheatbelt due to clearing (Johnstone and Storr 2004). Of the 36 records in the RSA, 30 were below the RSA and 6 were in the RSA. Partial migrant. Flocks in autumn and moves north. An aerial insectivore, flight highly manoeuvrable. Hawks for insects over the canopy (Johnstone and Storr 2004). 1 wind farm mortality recorded from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Common and widespread across southern Australia, this species has an extremely large range, and the population is large but the population trend is decreasing (BirdLife International 2024). This species has declined in the south-west, often replaced by the conspecific Black-faced Woodswallow (Johnstone and Storr 2004). Not usually congregatory, usually in singles, pairs or small groups, occasionally large flocks of up to 200 (Johnstone and Storr 2004). Moderately long-lived, generation length estimated at 3.6 years (BirdLife International 2024). No conservation listing. 	Minor
Black-faced Woodswallow <i>Artamus cinereus</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area, prefers open or sparsely-wooded habitats including farmland. Of the 48 records in the BUS, 47 were below the RSA and 1 was in the RSA. Mostly sedentary. An aerial insectivore, flight highly manoeuvrable 	Negligible <ul style="list-style-type: none"> Common and widespread across Australia, this species has an extremely large range and an unquantified but large population with an increasing population trend (BirdLife International 2024). This species has greatly increased its range and abundance in southern agricultural areas (Johnstone and Storr (2004). Not congregatory, usually in singles, pairs or small groups (Johnstone and Storr 2004). Moderately long-lived, generation length estimated at 3.7 years (BirdLife International 2024). No conservation listing. 	Negligible

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Red Wattlebird <i>Anthochaera carunculata</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area but prefers well-wooded habitats. Of the 84 records in the BUS, 83 were below the RSA and 1 was in the RSA. Intersection with the RSA considered likely to be a rare event. Partly migratory, largely leaving the warmer, drier parts of its range in summer. Moves in flocks from late summer to early winter (Johnstone and Storr 2004). 	Negligible <ul style="list-style-type: none"> Common and widespread across southern Australia, this species has an extremely large range and the population trend is stable (BirdLife International 2024). Not usually congregatory, usually in singles or pairs sometimes in large flocks of up to 100 in late summer/early winter (Johnstone and Storr 2004). Moderately long-lived, generation length estimated at 6.9 years (BirdLife International 2024). No conservation listing. 	Negligible
Australian Pipit <i>Anthus australis</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded in study area and considered a very common species of open farmland habitats (Johnstone and Storr 2004). Of the 122 records in the BUS, 116 were below the RSA and 6 were at the RSA. Largely sedentary Forages mainly on the ground (Johnstone and Storr 2004). Courting males conduct undulating flights that may intersect the RSA on occasion. Known to collide with turbines on occasion: 1 mortality in south-west Victoria (Biosis 2020), 2 from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Low <ul style="list-style-type: none"> Common and widespread across Australia, this species has an extremely large range and an unknown but very large population with a stable population trend (BirdLife International 2024). Not congregatory, usually in singles, pairs or small groups (Johnstone and Storr 2004). Moderately long-lived, generation length estimated at 3.7 years (BirdLife International 2024). No conservation listing. 	Negligible
BATS				

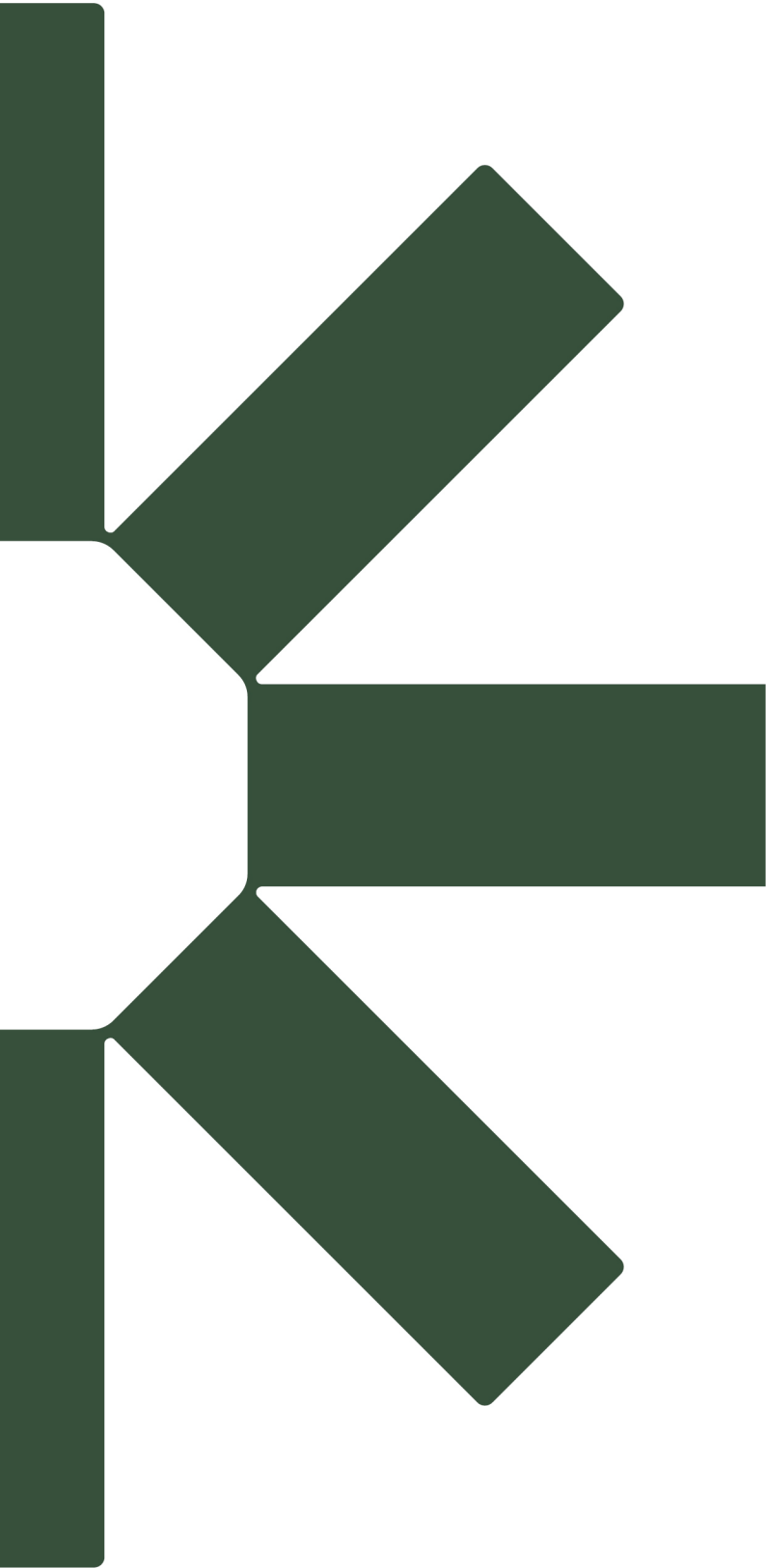
Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Central Long-eared Bat <i>Nyctophilus major tor</i>	Priority 3	Low <ul style="list-style-type: none"> Possibly occurs, project is on very western edge of its known range. Usually under the canopy, flying within the understory (Churchill 2008). Wing aspect ratio high, wing loading low (Norberg and Rayner 1987). 	Moderate <ul style="list-style-type: none"> Population likely >10,000 (Woinarski <i>et al.</i>, 2014) and widespread across southern arid Australia. Listed as DBCA Priority 3, Least Concern in Action Plan (Woinarski <i>et al.</i>, 2014). 	Minor
Chocolate Wattled Bat <i>Chalinolobus morio</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area. Relatively unlikely to fly in RSA, flies in the open spaces between the forest canopy and understory (Churchill 2008). Sedentary species, flies 5 – 10km from the roost to forage (Churchill 2008). Flight agile (Bullen and McKenzie 2001), wing aspect ratio high, wing loading medium (Norberg and Rayner 1987). 5 wind farm mortalities from 15 sites across Victoria (Moloney <i>et al.</i> 2019), 1 from south-west Victoria (Bennett <i>et al.</i> 2022), 1 and 2 in Victoria (Elmoby 2019, 2021). 	Low <ul style="list-style-type: none"> No conservation listing. Often bears twins (Churchill 2008), so moderate ability to replace lost individuals compared with other bats. Population large and widespread across southern Australia. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Gould's Wattled Bat <i>Chalinolobus gouldii</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area. May fly in the RSA, flies below or within the lower level of the forest canopy, along forest edges, creeklines and around isolated paddock trees (Churchill 2008). Flight agile (Bullen and McKenzie 2001), wing aspect ratio high, wing loading medium (Norberg and Rayner 1987). 38 wind farm mortalities in Tasmania (Hull and Cawthen 2013), 49 from 15 sites across Victoria (Moloney <i>et al.</i> 2019), 9 from south-west Victoria (Bennett <i>et al.</i> 2022), 11 in south-west Victoria (Biosis 2020), 2 from Silvertown in NSW (Biosis 2021), 1 in NSW (EcoLogical 2022), 14 and 9 in Victoria (Elmoby 2019, 2021). 	Low <ul style="list-style-type: none"> No conservation listing. Usually bears twins (Churchill 2008), so moderate ability to replace lost individuals compared with other bats. Population large and widespread across Australia. 	Moderate
Greater Long-eared Bat <i>Nyctophilus major major</i>	Least Concern	Low <ul style="list-style-type: none"> Possibly occurs, project is on very eastern edge of its known range. Flight likely below RSA, usually under the canopy, flying within the understory (Churchill 2008). Sedentary but using multiple roosts, flying up to 1,200m from the roost to forage. Wing aspect ratio high, wing loading medium (Norberg and Rayner 1987). 	Moderate <ul style="list-style-type: none"> No conservation listing. Often bears twins (Churchill 2008), so moderate ability to replace lost individuals compared with other bats. Population restricted to forested regions in south-west Western Australia. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Holt's Long-eared Bat, <i>Nyctophilus holtorum</i> (Previously Gould's Long-eared Bat, <i>Nyctophilus gouldi</i>)	Least Concern	Low <ul style="list-style-type: none"> Possibly occurs in study area but no records within 40km on ALA (2023) and species is on the very eastern edge of its range. Unlikely to fly in RSA, flies under the forest canopy, 2-5m above the ground. Wing aspect ratio high, wing loading low (Norberg and Raynor 1987). Data from closely related <i>Nyctophilus gouldii</i>: 1 wind farm mortality from 15 sites across Victoria (Moloney <i>et al.</i> 2019) 3 in south-west Victoria (Biosis 2020). 	Moderate <ul style="list-style-type: none"> No conservation listing. Bears twins about 50% of the time (Churchill 2008), so moderately-low ability to replace lost individuals compared with other bats. Population restricted to forested regions in south-west Western Australia. 	Minor
Lesser Long-eared Bat <i>Nyctophilus geoffroii</i>	Least Concern	Low <ul style="list-style-type: none"> Likely to occur in study area, presence not confirmed. Forages close to vegetation, including in the understory, usually 6-10m above the ground in forests (Churchill 2008). Wing aspect ratio high, wing loading low (Norberg and Rayner 1987). 6 wind farm mortalities from 15 sites across Victoria (Moloney <i>et al.</i> 2019), 2 from south-west Victoria (Bennett <i>et al.</i> 2022), 13, 2 in Victoria (Elmoby 2019, 2021). 	Low <ul style="list-style-type: none"> No conservation listing. Usually bears twins (Churchill 2008), so moderate ability to replace lost individuals compared with other bats. Population large and widespread across Australia. 	Negligible
South-west Freetail Bat <i>Ozimops kitcheneri</i>	Least Concern	Moderate <ul style="list-style-type: none"> Recorded in study area. Flies at or above canopy height, also forages on ground (Churchill 2008). Forages up to 12km from the roost. Wing aspect ratio average, wing loading high (Norberg and Rayner 1987). 	Low <ul style="list-style-type: none"> No conservation listing. Bears a single young each year, but relatively long-lived at 10 years (Churchill 2008), so moderate ability to replace lost individuals. Population large and widespread across Australia. 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
Southern Forest Bat <i>Vespadelus regulus</i>	Least Concern	Low <ul style="list-style-type: none"> Recorded in study area. Unlikely to fly in RSA, usually forages at less than half the canopy height, close to vegetation, including foraging within the understory (Churchill 2008). Flight agile (Bullen and McKenzie 2001), wing aspect ratio average, wing loading low (Norberg and Rayner 1987). 2 wind farm mortalities in Tasmania (Hull and Cawthen 2013), 2 from 15 sites across Victoria (Moloney <i>et al.</i> 2019), 2 from south-west Victoria (Bennett <i>et al.</i> 2022) 3 and 3 in Victoria (Elmoby 2019, 2021). 	Low <ul style="list-style-type: none"> No conservation listing. Bears a single young each year (Churchill 2008), so limited ability to replace lost individuals. Population large and widespread across Australia. 	Negligible
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	Priority 4	Low <ul style="list-style-type: none"> Not recorded but possibly occurs, however, prefers old growth habitats and project is on the very eastern edge of its known range. Flight fast and direct, but usually in the open spaces between the forest canopy and understory (Churchill 2008). Wing aspect ratio high, wing loading high (Bullen 2008). 28 wind farm mortalities of a similar species, <i>Falsistrellus tasmaniensis</i>, from 15 sites across Victoria (Moloney <i>et al.</i> 2019). 	Moderate <ul style="list-style-type: none"> Population likely to be >10,000 individuals but declining (Woinarski <i>et al.</i> 2014). Bears a single young each year (Churchill 2008), so limited ability to replace lost individuals. Population restricted to forested regions in south-west Western Australia. Listed as DBCA Priority 4, Near Threatened in Action Plan (Woinarski <i>et al.</i> 2014). 	Minor

Appendix 9				
Species	Status	Likelihood	Consequence	Risk Rating
White-striped Freetail Bat <i>Austronomus australis</i>	Least Concern	High <ul style="list-style-type: none"> Recorded in study area. Likely to fly in RSA, flies over canopy, typically 50m above ground (Churchill 2008). Migratory, moving northwards during the cooler months of April - September and southwards during the warmer months of October – March) (Bullen and McKenzie 2005). Wing aspect ratio high, wing loading very high (Norberg and Rayner 1987). 296 wind farm mortalities in Victoria across 15 sites (Moloney <i>et al.</i> 2019), 24 in southwest Victoria (Bennett <i>et al.</i> 2022), 18 in south-west Victoria (Biosis 2020), 4 from Silvertown in NSW (Biosis 2021), 9 in NSW (EcoLogical 2022), 26 and 9 in Victoria (Elmoby 2019, 2021). 	Low <ul style="list-style-type: none"> No conservation listing. Bears a single young each year (Churchill 2008), so limited ability to replace lost individuals. High capacity for dispersal. Population large and widespread across Australia. 	Moderate



Making Sustainability Happen