Pink Cockatoo observed within Koonaburra National Park, August 2024.

BIODIVERSITY ASSESSMENT REPORT

BOUNDARY MANAGEMENT TRAIL, FENCING AND DAM DECOMMISSIONING – KOONABURRA NATIONAL PARK

COBAR SHIRE LOCAL GOVERNMENT AREA, NSW

MARCH 2025

Report prepared by

OzArk Environment & Heritage

for NSW National Parks and Wildlife Service (NPWS)

OzArk
Environment & Heritage
145 Wingewarra St
(PO Box 2069)
Dubbo NSW 2830
Phone: (02) 6882 0118
Fax: (02) 6882 0630
enquiry@ozarkehm.com.au
www.ozarkehm.com.au

This page has intentionally been left blank.

DOCUMENT CONTROLS

Proponent	NSW National Parks and Wildlife Service		
Purchase order number			
Document description	Biodiversity Assessment Report		
	Name	**Signed**	**Date**
Client's reviewing officer			

Client's representative managing this document	**OzArk representatives managing this document**
Robert Pattinson	Lucca Brozler (LB), Dr Crystal Graham (CG)
Location	**OzArk job number**
V:\OzArk EHM Data\Clients\NPWS Central West\Koonaburra NP REF and ACHAR_Jan2024\Ecology\Reporting	4283

Document status: Final	**Version**	**Date**	**Action**
Internal Draft Series	V1.0	28/10/2024	LB to CG
	V1.1	11/11/2024	CG to LB
	V1.2	18/11/2024	LB to CG
	V1.3	18/11/2024	CG edit
First Draft for Client Review	V2.0	18/11/2024	CG to client
	V2.1	10/01/2024	LB client edits
Final Report for Client	V3.0	5/03/2025	LB to client
	V3.1	13/03/2025	LB to client

Prepared for	**Prepared by**
Robert Pattinson NSW National Parks and Wildlife Service Robert.pattinson@environment.nsw.gov.au	Lucca Brozler Ecologist OzArk Environment & Heritage 145 Wingewarra Street (PO Box 2069) Dubbo NSW 2830 P: 02 6882 0118 E: Gianlucca@ozarkehm.com.au

Acknowledgement

OzArk acknowledge Traditional Owners of the area on which this assessment took place and pay respect to their beliefs, cultural heritage, and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

New South Wales National Parks and Wildlife Service (NPWS; the proponent) has engaged OzArk Environment & Heritage (OzArk) to complete a Biodiversity Assessment Report (BAR) of proposed works at the newly gazetted Koonaburra National Park (NP). The proposed works include clearing and grading of a new boundary management trail adjacent to the park perimeter, upgrades to sections of the perimeter fence as required, the fencing of four dams, and the decommissioning of eight dams (the project). This BAR assesses the potential impacts of the project on biodiversity and will inform the Review of Environmental Factors (REF) being prepared by OzArk. Koonaburra NP is located 140 kilometres (km) southwest of Cobar and 95 km northeast of Ivanhoe in the Cobar Shire Local Government Area.

A field assessment of the site was undertaken by OzArk in August 2024. Approximately 77.63 ha of native vegetation occurs within the subject site. This vegetation was identified as belonging to 14 Plant Community Types (PCTs):

- PCT 57 – Belah/Black Oak - Western Rosewood - Wilga woodland of central NSW including the Cobar Peneplain Bioregion,
- PCT 72 – White Cypress Pine - Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion,
- PCT 103 – Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion,
- PCT 104 – Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion,
- PCT 105 – Poplar Box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion,
- PCT 108 – Gum Coolabah - Mulga open woodland on gravel ridges of the Cobar Peneplain Bioregion,
- PCT 119 – Sandplain Mulga tall shrubland - open shrubland of the semi-arid and arid climate zones,
- PCT 143 – Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes,
- PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion,
- PCT 173 – Sandplain mallee of central NSW,
- PCT 174 – Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion,
- PCT 207 – Poplar Box grassy low woodland of drainage lines and depressions of the semi-arid (hot) and arid zone climate zones,

- PCT 229 – Derived mixed shrubland on loamy-clay soils in the Cobar Peneplain Bioregion, and
- PCT 245 – Pine - Belah low open woodland of the western Cobar Peneplain and northern Murray Darling Depression Bioregion.

Seven PCTs within the impact area (57, 119, 143, 171, 173, 174, and 229) are associated with Threatened Ecological Community (TEC) listings. No areas of these PCTs within the subject site fit the criteria to be considered a TEC. However, PCT 245, which is not recognised as being associated with a TEC on the BioNet Vegetation Classification Database, was nevertheless found to meet criteria to be considered a TEC:

- *Biodiversity Conservation Act* 2016 (BC Act)-listed Endangered Ecological Community (EEC): *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions.*

Only areas of PCT 245 within the Murray Darling Depression Bioregion were regarded as belonging to this EEC; therefore, up to 0.94 ha of this EEC will be impacted by the proposal. While any reduction in the extent of an EEC is discouraged, the retention of larger areas of this EEC in the study area suggests that this proposal alone is unlikely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Six natural watercourses occur within the subject site:

- One unnamed Strahler 1st order, minor, on-perennial watercourse,
- Three unnamed Strahler 2nd order, minor, on-perennial watercourses,
- One unnamed Strahler 3rd order, minor, on-perennial watercourse, and
- Sandy Creek (>4th order, major, perennial watercourse).

Furthermore, various minor drainage lines flow into the human-made dams inside the NP boundary.

Although publicly available mapping does not identify Sandy Creek as Key Fish Habitat (KFH), the Department of Primary Industries (DPI) – Fisheries have advised that they expect the creek to be treated as KFH. As such, KFH occurs within the subject site.

However, no Protected Riparian Land (PRL), as recognised by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW), occurs within the 10 km search area. The closest area of PRL is located approximately 70 km south of the subject site at Conoble Creek. Furthermore, no threatened fish species are mapped as potentially occurring within the 10 km search area. As such, no tests of significance were considered necessary under the FM Act.

The subject site crosses Sandy Creek (a tributary of the Bogan River). As such, the Lowland Darling River aquatic ecological community occurs within the subject site. Considering eight water flow barriers (dams) will be removed, and no dredging or reclamation works will occur within Sandy Creek, the project should benefit the TEC in the long term and a test of significance under the FM Act was not considered necessary.

Eight human-made dams will be decommissioned as a component of this proposal. These dams provide habitat for waterfowl, turtles and frogs, and drinking water for other wildlife. Four dams will be retained (Emu, Harvey's and Twin Dam [2x dams]) and will provide an ongoing water source for wildlife within the NP.

Forty-eight habitat trees occur within or directly adjacent to the subject site. These trees contain a total of 106 hollows (11 extra-small hollows [< 5cm], 64 small hollows [5-9cm], 17 medium hollows [10-19cm], 13 large hollows [20-29cm], and one extra-large hollow [≥30cm]) and five nests. It is recommended that these habitat trees be retained, wherever possible. Where not possible, mitigation measures provided in this BAR apply. In addition to habitat trees, the subject site contained scattered bushrock and dead wood; it is recommended that these features be left in situ (where possible) or relocated to a suitable place nearby.

Sixty-two species listed as threatened and/or migratory under the BC Act and/or *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) were assessed as having a moderate or high likelihood of occurring at the subject site. Of these, five were detected during the field survey. Three threatened bird species and one threatened bat species were recorded within the subject site and/or study area – Grey-crowned Babbler (Vulnerable, BC Act), Southern Whiteface (Vulnerable, BC and EPBC Act), Pink Cockatoo (Vulnerable, BC Act; Endangered, EPBC Act), and Little Pied Bat (Vulnerable, BC Act). A further threatened bird species was also recorded outside of the 1.5 km study area – South-eastern Hooded Robin (Endangered, BC and EPBC Act). In total, 18 Grey-crowned Babblers, two South-eastern Hooded Robins, 26 Pink Cockatoos, and four Southern Whitefaces were seen during the field survey. Bird logger data from Trevor's and Jan's dam also recorded Grey-crowned Babbler and Southern Whiteface. Furthermore, the Little Pied Bat was recorded by bat loggers placed at Jan's Dam and Tom's Dam. Tests of significance were carried out for all 62 species assessed as having a moderate – high likelihood of occurring at the subject site. No significant impact on any threatened or migratory species is anticipated as a result of this proposal.

An EPBC Act protected matters search identified three Wetlands of International Importance, two TECs, 17 threatened, seven migratory species, and 13 marine species, that may occur within the search area. However, no significant impact to any entity listed under the EPBC Act is expected, provided adequate mitigation measures are followed.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the NSW Biodiversity Offsets Scheme (BOS) is triggered by a changed scope, additional field work and reporting completed according to the Biodiversity Assessment Method 2020 (BAM) may be required.

CONTENTS

FIGURES

TABLES

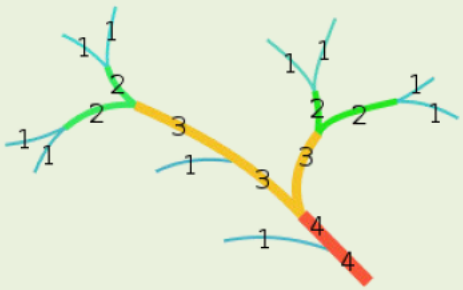
ABBREVIATIONS

Term	Description
^0C	Degrees Celsius
AOBV	Areas of Outstanding Biodiversity Value
BAM	Biodiversity Assessment Method 2020
BAR	Biodiversity Assessment Report
BDAR	Biodiversity Development Assessment Report
BC Act	NSW *Biodiversity Conservation Act 2016*
BOS	NSW Biodiversity Offsets Scheme
CAMBA	China-Australia Migratory Bird Agreement
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DCCEEW Cth.	Commonwealth Department of Climate Change, Energy the Environment and Water
DoE	Department of Environment
DPI	NSW Department of Primary Industries
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered ecological community
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FM Act	NSW *Fisheries Management Act 1994*
GDEs	Groundwater dependent ecosystems
GPS	Global Positioning System
ha	Hectare
HTE	High Threat Exotic
IBRA	Interim Biogeographic Regionalisation of Australia. Each region is a land area made up of a group of interacting ecosystems repeated in similar form across the landscape.
JAMBA	Japan-Australia Migratory Bird Agreement
KFH	Key Fish Habitat
KTP	Key Threatening Process
LEP	Local Environmental Plan
LGA	Local Government Area
mm/cm/m/m^2/km	Millimetre/centimetre/metre/square metre/kilometre
MNES	Matters of National Environmental Significance
NP	National Park
NPWS	NSW National Parks and Wildlife Service
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy the Environment and Water
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
PMST	Protected Matters Search Tool
PW	Priority Weed
RAMSAR	Convention on Wetlands of International Importance

Term	Description
REF	Review of Environmental Factors
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
TECs	Threatened Ecological Communities
VIS	Vegetation information system
WoNS	Weeds of National Significance

GLOSSARY OF TERMS

Term	Description
Areas of outstanding biodiversity	An area of outstanding biodiversity value is: • an area important at a State, national or global scale, and • an area that makes a significant contribution to the persistence of at least one of the following: o multiple species or at least one threatened species or ecological community o irreplaceable biological distinctiveness o ecological processes or ecological integrity o outstanding ecological value for education or scientific research. The declaration of an area may relate, but is not limited, to protecting threatened species or ecological communities, connectivity, climate refuges and migratory species (BC Act).
Cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Refer to Clause 228(2) of the EP&A Regulation 2000 for cumulative impact assessment requirements.
Direct impacts	Are those that directly affect the habitat of species and ecological communities and of individuals using the study area. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat (OEH 2018).
Habitat	The area occupied or used, including areas periodically or occasionally occupied or used, by any threatened species or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycle (OEH 2018).
Important population	Is a population that is necessary for a species' long-term survival and recovery; this may include populations identified as such in recovery plans, and/or that are: • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity, and/or • populations that are near the limit of the species range (DoE 2013).
Indirect impact	Occur when project-related activities affect species or ecological communities in a manner other than direct loss within the subject site. Indirect impacts may sterilise or reduce the habitability of adjacent or connected habitats. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, noise, light spill, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas (OEH 2018).
Invasive species	Is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.
Local occurrence (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
Local population (in regard to a threatened or migratory species)	A local population of a threatened plant species comprises those individuals occurring in a defined area or a cluster of individuals extends into habitat adjoining and contiguous with the study area where the individuals could reasonably be expected to cross-pollinate. A local population of fauna species comprises those individuals known or likely to occur in a defined area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area.

Term	Description
	The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time (DECC 2007).
Low condition (vegetation)	Either: a) woody native vegetation with native over-storey percent foliage cover less than 50% of the lower value of the over-story percent foliage cover benchmark for that vegetation type, and where either: • less than 50% of ground cover vegetation is indigenous species, or • greater than 90% of ground cover vegetation is cleared or b) native grassland, wetland or herb field where either: • less than 50% of ground cover vegetation is indigenous species, or • more than 90% of ground cover vegetation is cleared. Note: The percentages for the ground cover calculations must be made in a season when the proportion of native ground cover vegetated compared to non-native ground cover vegetation is likely to be at its maximum.
Moderate to good condition (vegetation)	If native vegetation is not in low condition (above), it is in moderate to good condition.
Mitigation	Action to reduce the severity of an impact.
Mitigation measure	Any measure that prevents, reduce or controls adverse environmental effects of a project.
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000 (OEH 2018).
Proposal	Is considered to include 'all activities likely to be undertaken within the subject site to achieve the objective of the proposed development' (DECC 2007).
Risk of extinction	The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
Search area	Is considered to 'include the lands that surround the subject site for a distance of 10 km' (DECC 2007). The search area has been used to search information sources to establish the landscape context of the subject site.
Significant impact	A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
Strahler stream order	Strahler stream orders are used to define stream size based on a hierarchy of tributaries, based on the diagram below. 
Study area	Means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account (OEH 2018). In this instance, the study area extends 1,500 m from the site.
Subject site	Means the area directly affected by the proposal. The subject site includes the footprint of the proposal and any ancillary works, facilities, accesses or hazard reduction zones that support the construction or operation of the development or activity (OEH 2018).
Target species	A species that is the focus of a study or intended beneficiary of a conservation action or connectivity measure.

1. INTRODUCTION

OzArk Environment & Heritage (OzArk) has been engaged by the New South Wales National Parks and Wildlife Service (NPWS; the proponent) to complete a Biodiversity Assessment Report (BAR) on the proposed carbon sequestration project at Koonaburra National Park ([NP] the proposal). This BAR assesses the potential impacts of the proposal on biodiversity.

1.1 THE PROPOSAL

NPWS manages a registered ACCU Scheme carbon sequestration project at Koonaburra NP with the Clean Energy Regulator. The carbon sequestration project uses the human-induced regeneration (HIR) carbon farming methodology, which is designed to achieve forest cover through changes in land management practices, including increased feral animal control. The resulting increase in vegetation sequesters additional carbon.

As part of the carbon sequestration project, NPWS proposes to clear and grade a boundary management trail adjacent to Koonaburra NP's perimeter fence (approximately 87 km), upgrade of perimeter fencing as required, and decommission or fence up to 13 dams.

The proposed boundary management works involve clearing and grading a 6 metre (m) corridor adjoining the perimeter fence. This trail will ensure access to the fenceline for upgrades and maintenance and support fire management activities in Koonaburra NP, including long-term protection of the sequestered carbon from risk of reversal due to fire. If funding is available in the future, the boundary management trail may be upgraded to a fire trail. This upgrade would require the clearing for periodic passing bays and turnarounds to meet the NSW Rural Fire Service (RFS) Fire Trail Standards. Therefore, the investigation area is a 10 m corridor adjoining the boundary fence along the perimeter's interior.

The proposed fencing works involve the staged replacement of existing perimeter fencing, as required on the basis of a perimeter fencing assessment, to be agreed with neighbours under the NPWS Boundary Fencing Policy. The preferred fence design is a minimum of 1070 mm high, using a hinge joint configuration of either 7/90/30 or 8/90/30 with heavy top and bottom wires. The bottom wire should sit no more than 50 mm from the ground. A barbed top wire is not recommended, but 'safe-twist barbless wire' may be trialled as an alternative. The posts and strainers would be round galvanised pipe, to prevent goats from climbing. Posts would be spaced every 4-5 meters to maintain fence tension, and an optional middle wire could be added for durability against impacts from wildlife. A mesh apron may also be added to prevent small goats from passing under the fence. Under the fencing policy NPWS is to supply fencing materials and the neighbour to undertake or organise construction. Fencing is intended to reduce feral goat movement into the park from neighbouring properties and improve the efficacy of NPWS' feral animal control measures.

The proposed dam works involve the potential decommissioning of up to eight dams (Rodney's, Trevor's, Johnnie's, Borri, Jan's, Tom's and Dingo dam) and construction of goat exclusion fencing around four dams (Emu, Twin [2x dams] and Harvey's dams). There are currently 13 dams on the property, two of which ('Twin Dam') share one location as seen on **Figure 1-2**. The field work survey investigated a 100 m buffer area around every dam from the toe of the bank (i.e. outer edge of the earth embankment) to inform this decision. Share Dam, included in this assessment, may be given to the neighbouring property pending negotiation with the landholder, to ensure integrity of the fencing on NPWS' side of the dam embankment. Dam works are intended to reduce incentives for feral goat movement into the park from neighbouring properties.

The project is located 140 kilometres (km) southwest of Cobar and 95 km northeast of Ivanhoe in the Cobar Shire Local Government Area. The regional and local location of the proposed works is shown in **Figure 1-1**and **Figure 1-2**, respectively.

This biodiversity assessment has been undertaken in accordance with Part 5 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). For this proposal, NPWS is the proponent and the determining authority (EP&A Act s.4.3). The biodiversity assessment has been prepared in accordance with Clause 171 of the EP&A Regulation (2021).

Table 1-1. Regional context for the proposal.

Criteria	Value
Interim Biogeographic Regionalisation for Australia (IBRA Region)	• Murray Darling Depression (subject site) • Cobar Peneplain (subject site)
Interim Biogeographic Regionalisation for Australia Sub-region (IBRA Sub-Region)	• Darling Depression (subject site) • Barnato Downs (subject site)
State	• NSW
Local Government Area	• Cobar Shire Council
Nearest town	• Ivanhoe
Nearest park, state forest or reserve	• Koonaburra National Park (subject site) • Paddington Nature Reserve (20 km northwest of subject site)
Mitchell Landscapes	• Barnato Downs • Barnato Incised Streams • Barnato Wide Valleys • Belarabon Range • Ivanhoe – Nangara Dunes • Ivanhoe – Nangara Linear Dunes • Ivanhoe – Nangara Sandplains • Nymagee Downs • Nymagee Isolated Bedrock Hills
Nearest waterway (Name, Type)	• numerous unnamed minor non-perennial watercourses – within subject site • Major-perennial watercourse (Sandy Creek) – within subject site
Surrounding land use	• 1.1.0 Nature Conservation (subject site) • 1.3.0 Other minimal use (study area) • 2.1.0 Grazing native vegetation (study area) • 5.4.0 Residential and farm infrastructure (subject site) • 6.2.0 Reservoir/dam (subject site) • 6.3.0 River (subject site)
Surrounding land zone	• C1 – National Parks and Nature Reserves (subject site) • RU1 – Primary Production (study area)

1.2 Search Area, Study area, Subject Site

This report uses the following terms to describe and contextualise the development location:

10 km search area the area within a 10 km radius of the subject site. This 10 km buffer has been used to search information sources to establish the landscape context of the subject site (**Figure 1-1**).

Study area the area within a 1,500 m radius of the subject site. Native vegetation has been mapped within this 1,500 m buffer to provide some context regarding the connectivity and cover of native vegetation in the area affected by the

proposal, and to inform the impact assessment of the proposal (**Figure 1-1**).

Subject site the footprint of the proposal and the area directly affected by the development activities (**Figure 1-2**). Note: the term 'Proposal site' is used in place of 'Subject site' in the Review of Environmental Factors (REF).

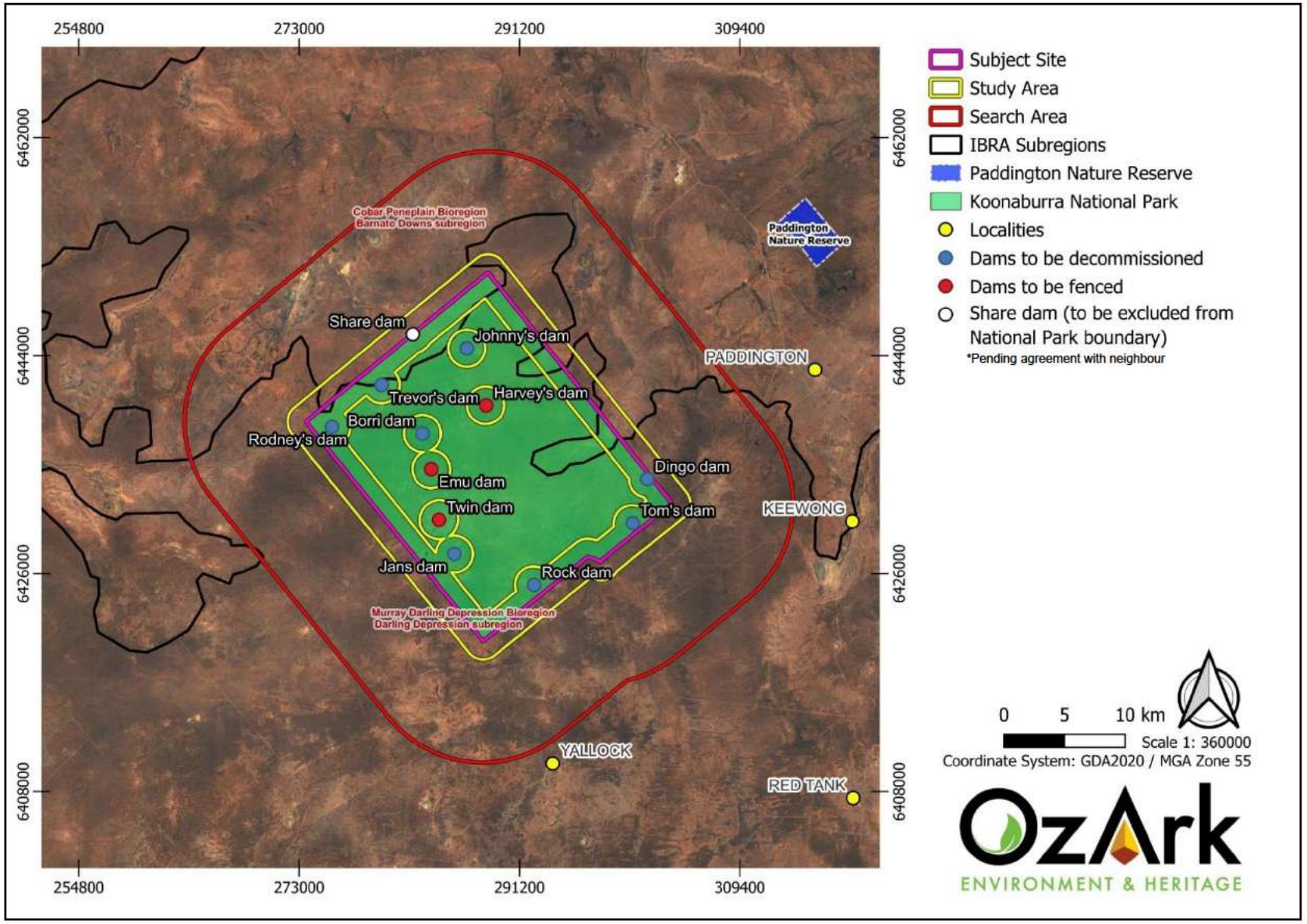


Figure 1-1. Regional location of the proposal.

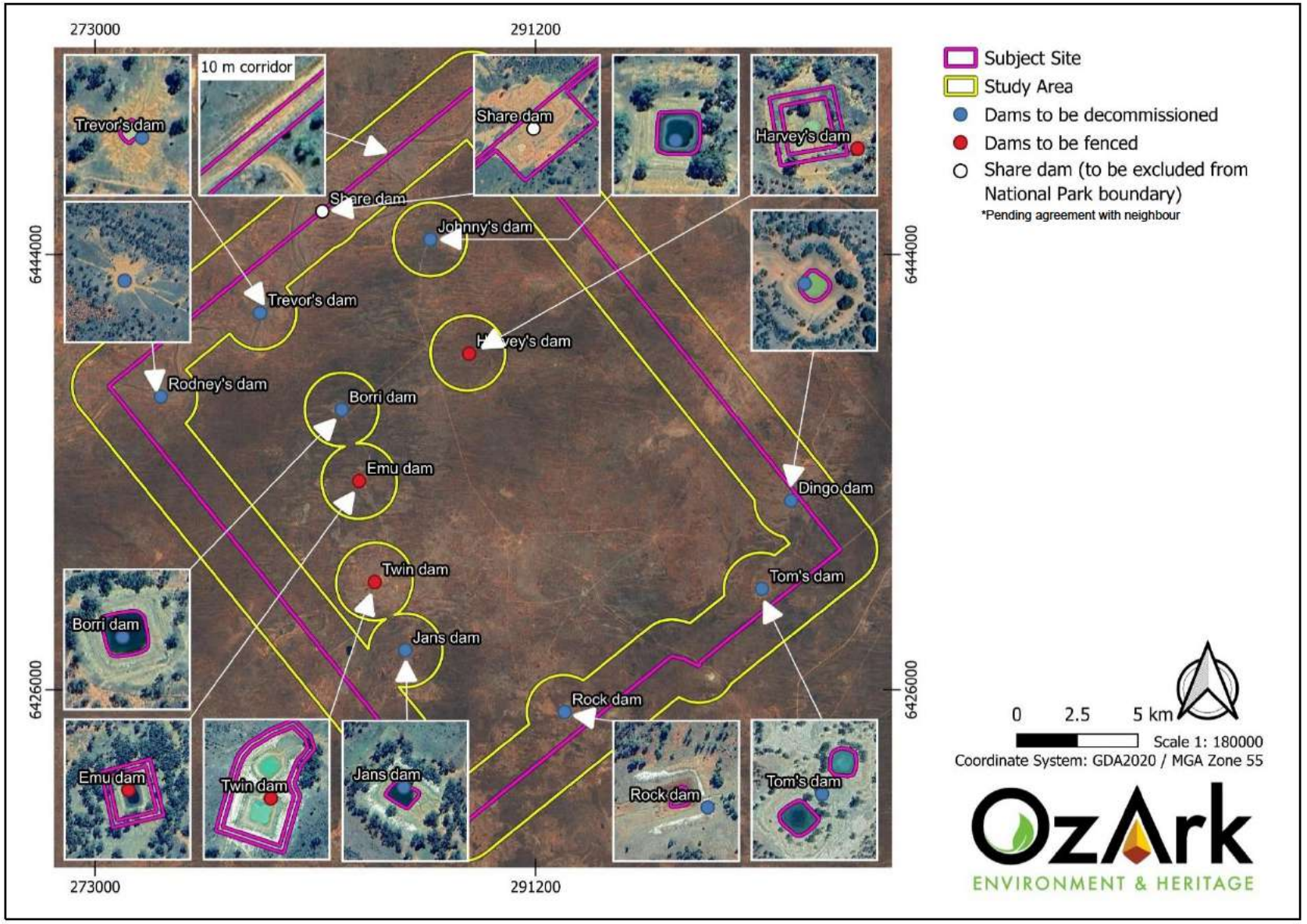


Figure 1-2. Subject Site showing boundary fencing and dams.

2. STATUTORY AND PLANNING CONTEXT

2.1 COMMONWEALTH LEGISLATION

2.1.1 *ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT* 1999 (EPBC ACT)

To assist with nationally listed matters assessments, the *Matters of National Environmental Significance: Significant impact guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999* (DoE 2013) are followed.

Birds which are listed in the following international agreements are listed as migratory birds under the EPBC Act.

- Japan-Australia Migratory Bird Agreement (JAMBA).
- China-Australia Migratory Bird Agreement (CAMBA).
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Matters which fall under this legislation are addressed in **Section 5.7** and **Appendix E**.

2.2 NSW LEGISLATION

2.2.1 *ENVIRONMENTAL PLANNING AND ASSESSMENT ACT* 1979 (EP&A ACT)

The EP&A Act is the principal planning legislation for NSW by providing the framework for environmental planning and the assessment of proposals.

Part 5 of the Act requires that a determination be made as to whether a proposed action is likely to significantly affect threatened species or ecological communities, or their habitats listed on Schedule 1 and 2 of the BC Act. Where found, the assessment criteria under Part 7 Section 7.3 of the BC Act (the 'Assessment of Significance') will be drawn upon to determine whether there would be a significant effect on these species and hence whether a Species Impact Statement (or Biodiversity Development Assessment Report should the proponent elect that option) is required.

2.2.2 *BIODIVERSITY CONSERVATION ACT* 2016 (BC ACT)

The BC Act relates to the terrestrial environment and includes threatened species, ecological communities, key threatening processes (KTPs) and other protected animals and plants.

Section 7.3 of the BC Act contains a five-part test of significance for determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

Where a significant impact is likely to occur, the proponent must either opt into the Biodiversity Offsets Scheme (BOS) and prepare a Biodiversity Development Assessment Report (BDAR) or prepare a Species Impact Statement (SIS) for each significantly impacted BC Act-listed entity.

BC Act listed species and communities are addressed in **Sections 5.2 & 5.4** and **Appendices C** and **D**.

2.2.3 *BIOSECURITY ACT* 2015 (BIOSECURITY ACT)

The Biosecurity Act aims to manage biosecurity risks from animal and plant pests and diseases, weeds, and contaminants in NSW. The Biosecurity Act imposes a general biosecurity duty to ensure that, so far as is reasonably practicable, any biosecurity risk is prevented, eliminated, or minimised. The proponent is required to manage the presence of weeds in the subject site.

2.2.4 *LOCAL LAND SERVICES ACT* 2013 (LLS ACT)

The objects of the Act include 'to ensure the proper management of natural resources in the social, economic and environmental interests of the State, consistently with the principles of ecologically sustainable development. The Act regulates the clearing of native vegetation on rural land, however section 60(O)(b)(ii) excludes the need for consent under the LLS Act where the clearing is an activity carried out by a determining authority within the meaning of Part 5 of the EP&A Act 1979.

2.2.5 *FISHERIES MANAGEMENT ACT* 1994 (FM ACT)

Part 7A of the FM Act along with schedules within the act, list threatened aquatic and marine species, populations and ecological communities and KTPs which must be considered as part of obligations under Section 5.5 of the EP&A Act.

Section 199 of the FM Act states that a public authority (other than a local government authority) must, before it carries out or authorises the carrying out of dredging work or reclamation work—

(a) give the Minister written notice of the proposed work, and

(b) consider any matters concerning the proposed work that are raised by the Minister within 21 days after the giving of the notice (or such other period as is agreed between the Minister and the public authority).

Dredging work means any work that involves excavating water land. Reclamation work means any work that involves depositing any material on water land.

Under section 198A of the FM Act:

"water land" means land submerged by water:

(a) whether permanently or intermittently, or

(b) whether forming an artificial or natural body of water,

and includes wetlands and any other land prescribed by the regulations as water land to which this Division applies.

Refer to **Section 4.3** for issues relating to watercourses and the FM Act.

2.2.6 *WATER MANAGEMENT ACT* 2000 (WM ACT)

The WM Act aims to provide for the 'sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.'

The WM Act provides for the granting of various licenses and approvals, including for the use of water and water supply work. Additionally, the WM Act identifies provisions relating to 'controlled activities' carried out on 'waterfront land' (within 40 m of a river bank, lake shore, or estuary's high water mark). Controlled activities include:

- erecting a building,
- carrying out works,
- removing material (e.g., plants and rocks),
- depositing material (e.g., gravel and fill),
- any activity which affects the quantity or flow of water in a water source.

Examples of controlled activities include:

- construction of watercourse crossings (e.g., bridges, bed level crossings),
- laying pipes and cables,
- sand and gravel extraction.

Public Authorities have an exemption under Clause 41 of the *Water Management (General) Regulation 2018*, therefore controlled activity approval is not required.

2.2.7 COBAR LOCAL ENVIRONMENTAL PLAN 2012

A Local Environmental Plan (LEP) is a legal document prepared by a Council and approved by the State Government for the regulation of land-use and development. LEPs guide planning decisions for local governments. The plan allows Council to regulate the ways in which all land both private and public may be used and protected through zoning and development controls.

The subject site falls within the Cobar Shire Council LGA; consequently, the provisions of the Cobar LEP 2012 apply to the proposal.

The particular aims of this plan are as follows:

(1) This Plan aims to make local environmental planning provisions for land in Cobar in accordance with the relevant standard environmental planning instrument under section 3.20 of the Act.

(2) The particular aims of this Plan are as follows—

(a) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,

(b) to protect, enhance and conserve agricultural land through the proper management, development and conservation of natural and human-made resources,

(c) to encourage a range of housing, employment, recreation and community facilities to meet the needs of existing and future residents of Cobar,

(d) to promote the efficient and equitable provision of public services, infrastructure and amenities.

The subject site falls within an area mapped as possessing high terrestrial biodiversity sensitivity in the LEP (**Appendix A**).

2.2.8 *STATE ENVIRONMENTAL PLANNING POLICY (BIODIVERSITY AND CONSERVATION)* 2021

The *State Environmental Planning Policy (Biodiversity and Conservation*) 2021 is the collation of biodiversity and conservation related SEPPs. Chapters 3 and 4 aim to encourage the 'proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline'.

The *SEPP (Biodiversity and Conservation)* 2021 only applies to developments under Part 4 of the EP&A Act; therefore, this proposal is exempt from the conditions of the SEPP. Nevertheless, the proposal's potential impacts to threatened species, including the Koala, have been considered in **Section 5.4** and **Appendices C** - **E**.

2.2.9 *NATIONAL PARKS AND WILDLIFE ACT 1974* (NPW ACT)

The subject site contains land reserved under the *National Parks and Wildlife Act* 1974 (NPW Act). The objects of this Act are as follows—

(a) the conservation of nature, including, but not limited to, the conservation of—

(i) habitat, ecosystems and ecosystem processes, and

(ii) biological diversity at the community, species and genetic levels, and

(iii) landforms of significance, including geological features and processes, and

(iv) landscapes and natural features of significance including wilderness and wild rivers,

(b) the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to—

(i) places, objects and features of significance to Aboriginal people, and

(ii) places of social value to the people of New South Wales, and

(iii) places of historic, architectural or scientific significance,

(c) fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation,

(d) providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation.

Section 30E of the NPW Act outlines the purpose of reserving land as a National Park and details the principles of management, as stated below.

(1) The purpose of reserving land as a national park is to identify, protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features or landscapes or phenomena that provide opportunities for public appreciation and inspiration and sustainable visitor or tourist use and enjoyment so as to enable those areas to be managed in accordance with subsection (2).

(2) A national park is to be managed in accordance with the following principles—

(a) the conservation of biodiversity, the maintenance of ecosystem function, the protection of geological and geomorphological features and natural phenomena and the maintenance of natural landscapes,

(b) the conservation of places, objects, features and landscapes of cultural value,

(c) the protection of the ecological integrity of one or more ecosystems for present and future generations,

(d) the promotion of public appreciation and understanding of the national park's natural and cultural values,

(e) provision for sustainable visitor or tourist use and enjoyment that is compatible with the conservation of the national park's natural and cultural values,

(f) provision for the sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to the conservation of the national park's natural and cultural values,

(fa) provision for the carrying out of development in any part of a special area (within the meaning of the Hunter Water Act 1991) in the national park that is permitted under section 185A having regard to the conservation of the national park's natural and cultural values,

(g) provision for appropriate research and monitoring.

3. METHODS

The ecological assessment was carried out in three stages:

(1) An investigation and review of the relevant ecological databases to identify threatened species, populations or ecological communities listed in the BC Act, FM Act and/or the EPBC Act that have the potential to occur in the study area.

(2) A field survey of the subject site for the purposes of:

   a. Collating lists of present plant species; with these assisting in the identification of the site's vegetation communities.

   b. Determining the presence of habitat features such as rock outcrops, nests, and hollow-bearing trees.

   c. Determining the value of the dams to wildlife.

   d. Determining the presence of fauna species.

   e. Identifying and documenting the nature and extent of any threatened species or communities and describing its 'viable local population'.

(3) The preparation of a written BAR that describes the impacts of the proposed activity on native vegetation and threatened species, populations and ecological communities, and provides recommendations to avoid, minimise and mitigate these impacts.

3.1 PERSONNEL

OzArk operates under NSW Department of Planning, Industry and Environment (DPIE) Scientific License 101908, NSW Department of Primary Industries (DPI) Accreditation as an Animal Research Establishment (accreditation number 53103), and the Secretary's Animal Care and Ethics Committee Animal Research Authority RVF21/954.

The field survey was completed by Senior BAM-accredited Ecologist Dr Crystal Graham and Project Ecologist Ian Griffith on the 12th – 18th of August 2024. Reporting components were completed by Lucca Brozler, with quality control provided by Dr Graham. Key details of personnel involved are available in **Table 3-1**.

Table 3-1. Summary of OzArk personnel qualifications.

Name	Position	CV Details
Dr Crystal Graham	Senior Ecologist	• BAM-accredited Assessor #BAAS22024 • Postdoctoral Fellow – Smithsonian Tropical Research Institute • Doctor of Philosophy (Biology) – University of Sydney • Honours in Biology – University of Sydney • Bachelor of Advanced Science – University of Sydney • 4WD Training • First Aid Training • WH&S Induction Training for Construction Work • Worker at Heights Training
Ian Griffith	Project Ecologist	• Honours in Genetics – La Trobe University • Bachelor of Biological Sciences – La Trobe University • 4WD Training • First Aid Training • WH&S Induction Training for Construction Work • Rail Industry Worker Card
Lucca Brozler	Ecologist	• Masters in Conservation Biology – The University of Queensland • Bachelor of Biological Science – The University of Queensland • WH&S Induction Training for Construction Work

3.2 Background Research

Preliminary assessments drew on local experience, previous reporting, and information available on governmental databases. Database search results were used to assist in identifying distributions, suitability of habitats, and known records of threatened species to increase the effectiveness of field investigations. Information sources reviewed included:

- NSW Government Web Map Service (WMS) layers for NSW Imagery (compiled imagery, NSW Property, NSW Base Map and NSW Topographic Map) (https://www.spatial.nsw.gov.au/).
- EPBC Protected Matters Search Tool (https://www.environment.gov.au/epbc/protected-matters-search-tool)
- NSW State Vegetation Type Map C1.1.M1.1 (https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map)
- NSW DPI threatened fish indicative distribution maps (www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps)
- NSW BioNet Wildlife Atlas Vegetation classification (https://www.environment.nsw.gov.au/research/Visclassification.htm)
- NSW BioNet Threatened Biodiversity Data Collection (www.bionet.nsw.gov.au/)
- NSW BioNet Atlas (www.bionet.nsw.gov.au/)

- Register of Declared Areas of Outstanding Biodiversity Value (www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/critical-habitats)
- PlantNET, NSW Flora Online (www.plantnet.rbgsyd.nsw.gov.au/)
- NSW Department of Planning and Environment *Biodiversity Values Map* (https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap)
- Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category land Mapping (https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e)
- Acid Sulfate Soils Risk mapping (https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c)
- Directory of Important Wetlands of Australia (DIWA) (https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands)
- NSW wetlands mapping (https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7)

Database searches were undertaken before the field assessment to determine the predicted species and those previously recorded within 10 km of the subject site. The results of these searches led to the identification of key species for field survey effort and targeted searches. Results of the database searches are provided in **Appendix A.** A series of other background searches were performed to comply with requirements (please refer to **Table 3-2**).

Table 3-2. Presence and/or proximity of environmental considerations.

Environmental Considerations	In the study area?
Land identified on the Biodiversity Values Map under the *BC Act* 2016?	Yes (**Appendix A**)
Area of Outstanding Biodiversity Value (AOBV) under the *BC Act* 2016?	No
Critical habitat nationally?	No
An area reserved or dedicated under the NPW Act?	Yes
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation of other environmental protection purposes?	No
A World Heritage Area?	No
Environmental Protection Zones in environmental planning instruments?	Yes (C1 - National Parks and Nature Reserves)
Lands protected under *SEPP (Biodiversity and Conservation)* 2021?	Yes, though not applicable to Part 5 Developments
Land identified as wilderness under the *Wilderness Act* 1987 or declared as wilderness under the NSW *NPW Act?*	No
Aquatic reserves dedicated under the NSW *FM Act*?	No

Environmental Considerations	In the study area?
Aquatic threatened ecological community (TEC)?	No
Wetland areas dedicated under the Ramsar Wetlands Convention?	No
Land subject to a conservation agreement under the NSW *NPW Act*?	Yes
Land identified as State Forest under the *Forestry Act* 2012?	No
Acid sulphate area?	No
Protected riparian habitat?	No
Mapped Key Fish Habitat (KFH)?	Yes (see **section 4.3**)

3.3 HABITAT ASSESSMENT

The results of the database investigation and the field assessment were collated and reviewed in the context of local ecological knowledge to determine the likelihood of threatened species and ecological community occurrence, and potential impacts of the proposal (**Appendix C**). To demonstrate, a threatened species may be predicted to occur, but key habitat elements may be absent, in which case the species would be assessed as either not being impacted or not present.

The likelihood of the occurrence of threatened species, populations or ecological communities was categorised as follows:

- 'Present' – the species was observed or has been previously recorded on the site.
- 'High' – a medium to high probability that a species uses the site, based on nearby records and suitable habitat being present.
- 'Moderate' – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site.
- 'Low' – a very low likelihood that the species uses the site, based on lack of the preferred type and size of habitat.
- 'Absent' – habitat on-site and in the vicinity is unsuitable for the species.

For those species or ecological communities detected or considered to have a moderate-high likelihood of occurring at the site (**Appendix C**), tests of significance were then completed for these species and ecological communities in accordance with the BC Act (**Appendix D**) and/or the assessment of significance under the EPBC Act (**Appendix E**), and the relevant guidelines for these assessments.

3.4 FIELD SURVEY

The field survey was completed by Senior Ecologist Dr Crystal Graham and Project Ecologist Ian Griffith on the 12th – 18th of August 2024. The objectives of the field survey were to:

- Identify native species and vegetation communities within the subject site.
- Determine the extent of the proposed impact to these communities.
- Describe the quality and value of the vegetation and the flora and fauna that inhabit the subject site.
- Determine the value of the dams to wildlife.
- Determine the presence of species, populations, or ecological communities listed as threatened under the BC Act or EPBC Act.
- Determine the significance of impact to any threatened entities present or likely to be present.

3.4.1 VEGETATION SURVEYS

Vegetation communities were assessed across the entire subject site in accordance with the online NSW Master Plant Community Type Classification (NSW DCCEEW, 2024f), which is the current state-wide vegetation classification system for Plant Community Types (PCT). This classification system is used for vegetation mapping, development assessment and site planning purposes. It describes over 1,500 PCTs across the state, and groups the vegetation communities into vegetation Class and Formation / Sub-formation as per Keith (2004).

PCTs were identified on the following basis:

- NSW State Vegetation Type Map: C1.1.M1.1 (DPE, 2022c), which provides predictive mapping of PCTs in and around the subject site. This mapping is indicative only. It is not necessarily accurate at a fine scale for the purposes of the current study.
- Professional ecological knowledge about locally occurring vegetation types and landscape, soil, and topographic patterns, including transitions from one community to another and potential for intergrades between plant communities.
- Field survey results confirming the flora species present, vegetation structure, landscape position and soil type at the subject site and the extent and condition of native vegetation.
- The BioNet Vegetation Classification database was used to identify the candidate vegetation communities likely to be present based on the site conditions (flora species present, vegetation structure, bioregion, and landscape position and soil type) and the relevant published PCT descriptions.

If any of the PCTs were identified as having potential to be part of a TEC, the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community on the subject site. These guidelines provide the identification criteria used to positively identify the

community as being part of the TEC. Criteria includes location; species present; overstorey species; weed cover; number; and type of native species, including 'important' native species.

Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botanic Gardens and Domain Trust, 2024).

When surveying the assessment area, a version of the Random Meander Method (Cropper 1993) was employed. This method entails traversing sites that require investigation by foot, during which notes are made on the structure and floristic composition of the native vegetation, as well as the availability of habitat for threatened species.

3.4.2 FAUNA SURVEYS

The following targeted fauna surveys were conducted during the field survey (**Figure 3-1**):

- Elliot traps (100 trap nights),
    - Set 1: 20 x traps deployed for two nights (13th and 14th August 2024),
    - Set 2: 20 x traps deployed for three nights (15th, 16th, 17th August 2024),
- Camera traps (40 trap days),
    - Tom's dam: set 16th to 18th August 2024,
    - Jan's dam: set 14th to 31st August 2024,
    - Johnny's dam: set 13th to 31st of August 2024,
- Bird logger:
    - Trevor's dam: 1 x SM4 deployed for eight days (13th through 21st August 2024),
    - Jan's dam: 1 x SM4 deployed for two days (14th through 16th August 2024),
- Bat loggers:
    - Tom's Dam: 1 x SM4BAT deployed for two nights (16th August 2024 through dawn on 18th August 2024),
    - Jan's Dam: 1 x SM4BAT deployed for one night (14th August 2024 through dawn on 15th August 2024),
- Handheld bat detector:
    - Dingo Dam: Anabat Walkabout utilised for 25 minutes on 12th August 2024, and
- Spotlighting (night of 12th August 2024).

The subject site was also incidentally searched for fauna use while undertaking floristic and habitat surveys. All habitat trees (i.e., hollow-bearing trees or trees containing nests) were GPS tagged. The size, number of hollows and/or type of nest was recorded for each tree. Potential habitat (e.g., rocks, logs, loose bark and coarse woody debris) was examined for cryptic species. Areas of suitable substrate were searched for animal tracks and burrows. Secondary evidence of fauna presence on the subject site (e.g., scats, feathers and sloughed skin) was also recorded.

Herpetological searches were conducted by overturning bark, logs and rocks while traversing the site.

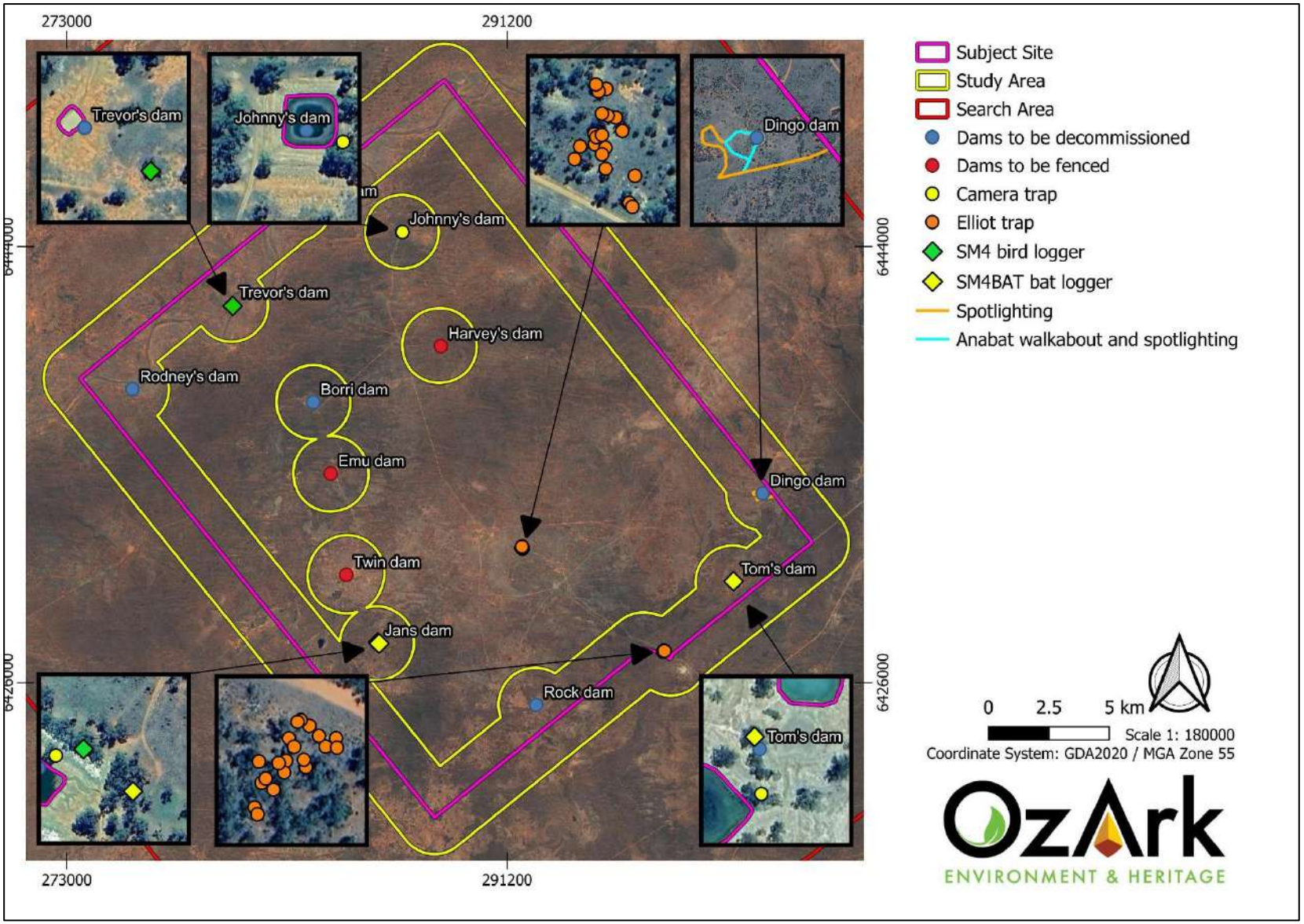


Figure 3-1. Targeted fauna survey effort.

3.5 LIMITATIONS

This study is based upon the species data available at the time of the study, and the environmental conditions, season, and time constraints imposed by the proposal for the field survey. Specific limitations on this study include the following:

- The field survey was completed over seven days in August 2024. Owing to the relatively short duration of the survey and the winter conditions at the time, it is unlikely that the survey captured all flora and fauna species that may occur locally. Therefore, the included flora and fauna lists should not be considered comprehensive as a greater diversity of species are likely to use the site.
- Plant community type extents outside of the subject site were not confirmed.
- Several bird and bat loggers malfunctioned during deployment, therefore those data sets are not as extensive as planned.

To overcome these limitations, a ‘precautionary approach’ for species presence was adopted. If suitable habitat for a particular threatened species is present on the site or is known to occur in the study area, then the species is assumed to be present, and the impact assessment will be completed on that basis.

The above-mentioned constraints were also considered when preparing the recommendations of avoiding, minimising, and mitigating potential impacts.

4. EXISTING ENVIRONMENT

4.1 BIOREGION

The subject site falls within the Darling Depression subregion of the Murray Darling Depression bioregion and the Barnato Downs subregion of the Cobar Peneplain bioregion, as per the Interim Biogeographic Regionalisation of Australia (IBRA) (Thackway & Cresswell, 1995). The relevant subregions are characterised by geology, landforms, soil types and vegetation as described in **Table 4-1** and **Table 4-2**.

Table 4-1. Description of the Darling Depression subregion (NSW NPWS 2003).

Bioregion	Murray Darling Depression
Subregion	Darling Depression
Geology	Quaternary aeolian sands and lake sediments. Isolated Devonian quartz sandstone outcrops.
Landforms	Extensive sandplains. Dunefields piled against Cobar Peneplain ranges. freshwater overflow lakes fed by rare floods in the Darling River. Stony ridges and ranges.
Soils	Deep siliceous and calcareous red to yellow sands, sandy earths, brown texture contrast soils on dunes and sandplains. Brown and grey and calcareous clays on lakes. Pale yellow sands on lunettes. Stony loams on hills.
Vegetation	Belah, rosewood, nelia, mulga wilga and woody shrubs on western sandplains. Pointed mallee, congoo mallee, yorrell with diverse shrubs and porcupine grass, occasional kurrajong and mallee cypress pine on eastern sandplains. Mulga, white cypress pine, red box, mallee, belah and poplar box on central dunes. Lignum, canegrass, black bluebush and black box or poplar box on margins and beds of swamps and lakes. Mulga with red box and shrubs on rocky hills.

Table 4-2. Description of the Barnato Downs subregion (NSW NPWS 2003).

Bioregion	Cobar Peneplain
Subregion	Barnato Downs
Geology	Devonian quartzose sandstones in ridges, finer sedimentary rocks under the plains often covered by a mantle of Quaternary alluvium.
Landforms	Steep ridges and rocky slopes controlled by bedding and joints in bedrock. Relief to 150m, length of ranges up to 40 km. Undulating low ridges and stony rises on softer rocks with a mantle of Quaternary colluvium and alluvium. Sands and minor clay deposits in stream lines. Lakes at Barnato.
Soils	Thin, discontinuous stony profiles on ridges, thickening downslope to stony, red, texture contrast soils and red earths on the plains. Valleys generally texture contrast soils with calcium carbonate in subsoil, small areas of cracking brown clays or red sands.
Vegetation	Mulga, red box and grey mallee on crests, white cypress pine and poplar box on slopes. Red box, mulga, white cypress pine and polar box on plains. Areas of belah rosewood and yarran. Pointed mallee in the south. Woody shrubs widespread.

4.2 NSW LANDSCAPES

The landscapes of NSW, previously known as Mitchell Landscapes, were mapped in 2002 to provide a framework for reporting and for determining over-cleared landscapes (Mitchell, 2002). These landscapes broadly describe areas of similar topography, geology, soils and vegetation. The subject site falls within the following landscapes:

- Barnato Incised Streams,
- Barnato Downs,
- Barnato Wide Valleys,
- Belarabon Range,
- Ivanhoe – Nangara Dunes,
- Ivanhoe – Nangara Linear Dunes,
- Ivanhoe – Nangara Sandplains,
- Nymagee Downs, and
- Nymagee Isolated Bedrock Hills.

These landscapes are described below and their location, in relation to the subject site, is shown in **Figure 4-1**.

Barnato Incised Streams

Barnato Incised Streams ecosystem includes parts of three land systems: Kaleno, Wrightville and Yanda. Major drainage lines with Quaternary alluvium draining north off the Cobar Peneplain. Partly scalded plains with few small drainage sinks, floodplains with stable incised and slightly sinuous channels, slightly terraced tributary drainage lines, small stony or sandy rises, relief to 3m. Reddish texture-contrast soils and red earths on plains, often gravely with some hardpan development. Sandy soils on rises and in creek channel.

Clearing status – 13% of this landscape is estimated to have been cleared.

Barnato Downs

Barnato Downs ecosystem includes parts of six land systems: Boulkra, Cottage, Ironstone, Lilyvale, Taringa and Wilsons Tank. Undulating rounded Devonian quartzite and sandstone ridges with small plateau, footslopes, and narrow and broad drainage flats, relief to 10m, occasionally to 20m. Includes areas of Tertiary silcrete ridges with long low slopes and broad level plains, relief to 20m. Some ridges are partly covered by aeolian sand. Shallow, stony, loamy and sandy soils on crests. Ferruginous red earths on lower slopes and in drainage lines. Deep, calcareous red earths and solonized brown soils with gilgai on plateau, Red earths and red texture-contrast soils on lower slopes, passing to deeper clays with gilgai, texture-contrast soils and solonized brown soils on lower slopes and in drainage lines.

Barnato Wide Valleys

Barnato Wide Valleys ecosystem includes parts of three land systems: Cubba, Meadows and Mulchara. Terraced broad plains with drainage lines of major and minor narrow stable channels. Isolated sand dunes and sandy rises, relief to 3m. Deep red earths, calcareous red earths and poorly structured texture-contrast soils on plains, with texture-contrast soils on lower terraces and non-cracking clays in some channels. Sands on dunes and creek levees.

Clearing status – 7% of this landscape is estimated to have been cleared.

Belarabon Range

Belarabon Range ecosystem includes parts of two land systems: Booroondarra and Mulga Downs. Low bevelled and rounded strike ridges and footslopes, rocky cliffs of Devonian quartzite, sandstone, conglomerate and shale with narrow alluvial valleys, relief to 200m. Shallow, sandy lithosols becoming deeper and better developed down slope, narrow valleys of red earths, incised drainage tracts with bare rock or sandy creek beds and levees.

Clearing status – 0% of this landscape is estimated to have been cleared.

Ivanhoe – Nangara Dunes

Ivanhoe-Nangara Dunes ecosystem includes parts of three land systems: Gundigoono, Keewong and Mandleman. Low rounded dunes of Quaternary sand with small level areas, drainage sinks and lunettes, relief to 10m. Dunefield of parabolic and unaligned dunes merging into slightly undulating sandplains, relief to 7m. Dunes oriented both east-west and north-south with red sandy earths and solonized brown soils. Swales of calcareous red earths and solonized brown soils. Sinks and swamps on calcareous red earths and non-cracking clays with dense bimble box.

Clearing status – 2% of this landscape is estimated to have been cleared.

Ivanhoe – Nangara Linear Dunes

Ivanhoe-Nangara Linear Dunes ecosystem includes parts of eight land systems: Arumpo, Bell Vale, Blackfella, Bulla Park, Cairo, Glenlea, Lachlan Downs and Tiltagoona. Parallel east-west trending dunes of Quaternary sands with narrow to broad swales and sandplain, small depressions and channels, relief 3 to 10m. Eastern margins low sloping sandplains with some dunes, abutting and partly overlying ranges and hills, relief to 20m. Deep calcareous red earths, loamy sand to red siliceous sand. Deep clayey sands, sandy earths, reddish-brown clay soils, red texture-contrast soils in swales and on sandplains. Solonized brown clay soils in sinks and channels.

Clearing status – 1% of this landscape is estimated to have been cleared.

Ivanhoe – Nangara Sandplains

Ivanhoe-Nangara Sandplains ecosystem includes parts of nineteen land systems: Ashmont, Bindi, Coonavitra, Frenchmans, Hatfield, Karwarn, Lysmoyle, Manara, Mulururu, Nangara, Nelgadale, Nelia, Nombinnie, Overnewton, Roto, Vidale, Wilkurra, Wyloona and Yallock. Extensive, slightly undulating, partially scalded sandplains of Quaternary alluvial and aeolian deposits with a few east-west dunes, isolated small depressions and small drainage sinks. Includes aeolian sand accumulation on range footslopes, relief 3 to 10m. Solonized brown soils and texture-contrast soils on the plains. Deep calcareous red earths, red clayey sands, sandy earths, and red and brown sands on dunes. Swales with deep calcareous red earths and red texture-contrast soils. Non-cracking brown and grey clays in depressions.

Clearing status – 3% of this landscape is estimated to have been cleared.

Nymagee Downs

Nymagee Downs ecosystem includes parts of eleven land systems: Boulkra, Cobar, Cottage, Hartwood, Ironstone, Killala, Kopyje, Lilyvale, Taringa and Yackerboon. Undulating rounded Ordovician, Silurian or Devonian quartzite, sandstone or phyllite ridges with narrow and broad drainage flats, relief 10 to 20m. Undulating silcrete ridges with long low slopes and broad level plains, relief to 20m. Drainage lines up to 1 km wide. Shallow, stony, loamy and sandy soils on crests, deep, calcareous red earths and solonized brown soils with gilgai on plateau, grading to deeper acid, neutral or calcareous red earths and red texture-contrast soils with hardpan down slope.

Clearing status – 35% of this landscape is estimated to have been cleared.

Nymagee Isolated Bedrock Hills

Nymagee Isolated Bedrock Hills ecosystem includes parts of five land systems; Belford, Booroondarra, Mineshaft, Mulga Downs and Wynwood. Isolated rounded hills, low strike ridges and rocky cliffs with associated drainage lines and lower slopes of Ordovician, Silurian or Devonian quartzite, sandstone, conglomerate, quartz-feldspar porphyry, phyllite, slate and schist. Relief 20 to 70m. Rocky outcrops, sandy lithosols becoming deeper and better developed down slope, narrow valleys of red earths, incised drainage tracts with bare rock or sand.

Clearing status – 10% of this landscape is estimated to have been cleared.

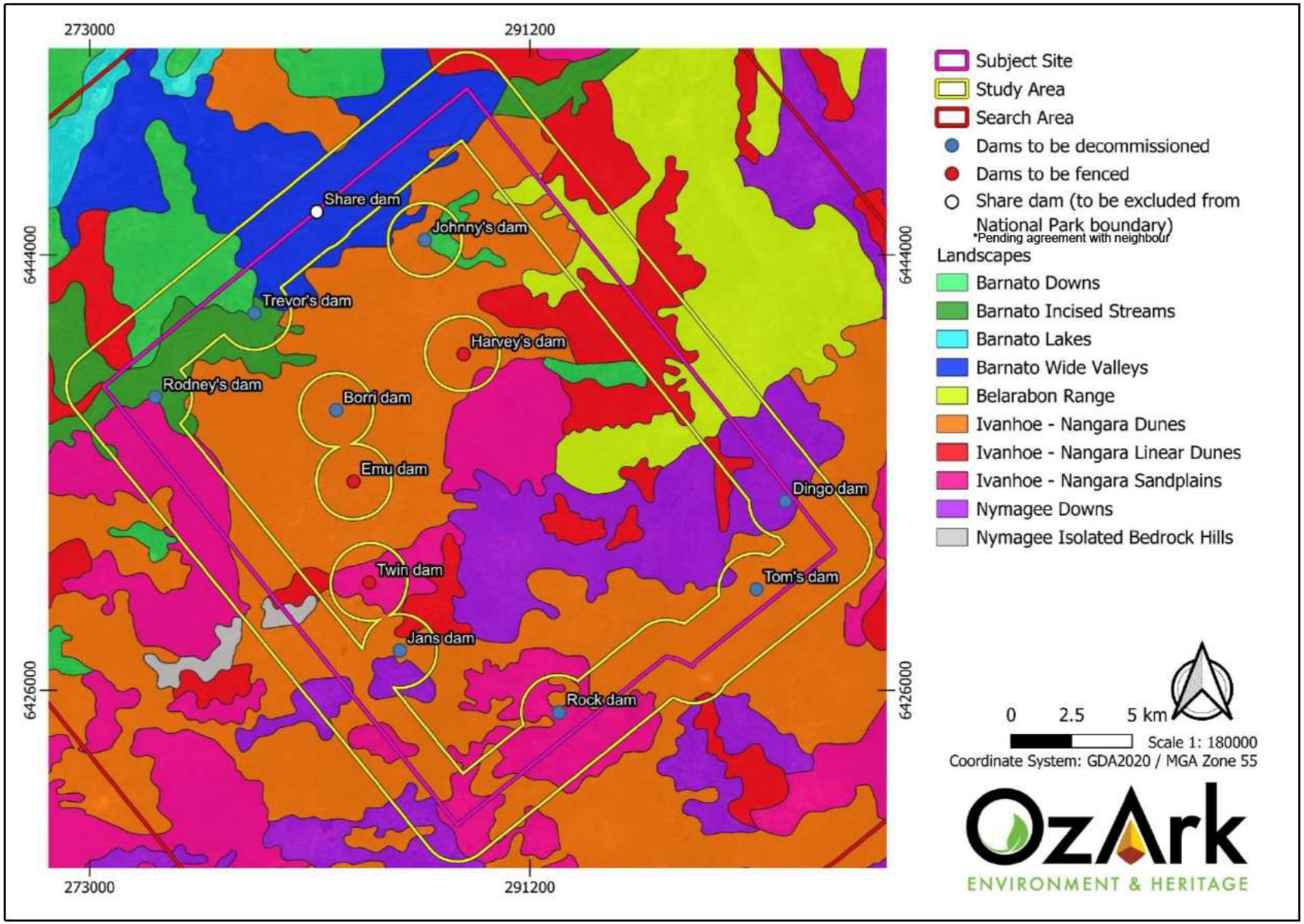


Figure 4-1. NSW landscapes within the study area.

4.3 WATERCOURSES

Six natural watercourses occur within the subject site (**Figure 4-4**):

- One unnamed Strahler 1st order, minor, on-perennial watercourse,
- Three unnamed Strahler 2nd order, minor, on-perennial watercourses,
- One unnamed Strahler 3rd order, minor, on-perennial watercourse, and
- Sandy Creek (>4th order, major, perennial watercourse).

Furthermore, various minor drainage lines flow into the human-made dams inside the NP boundary.

Although publicly available mapping does not identify Sandy Creek as Key Fish Habitat (KFH; **Figure 4-2**), the Department of Primary Industries (DPI) – Fisheries have advised that they expect the creek to be treated as KFH. As such, KFH occurs within the subject site.

However, no Protected Riparian Land (PRL), as recognised by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) occurs within the 10 km search area. The closest area of PRL is located approximately 70 km south of the subject site at Conoble Creek. Furthermore, no threatened fish species are mapped as potentially occurring within the 10 km search area. As such, no tests of significance were considered necessary under the FM Act.

However, as the proposal would involve dredging and/or reclamation in mapped waterways, the proponent must give the Minister written notice of the proposed work in accordance with Section 199 under Part 7 of the FM Act.

The subject site is located within the bounds of the EEC: Lowland Darling River aquatic ecological community (**Figure 4-3**). The aquatic ecological community of the lowland Darling River includes all native fish and aquatic invertebrates within all natural creeks, rivers, streams and associated lagoons, billabongs, lakes, anabranches, flow diversions to anabranches and floodplains of the Darling River within NSW. The listing includes:

- the Menindee Lakes,
- the Barwon River,
- the main Barwon-Darling channel from Mungindi (Qld-NSW border) to the convergence with the Murray River,
- the arid zone intermittent intersection streams (Warrego, Culgoa, and Narran rivers),
- the border rivers (Macintyre, Severn and Dumaresq rivers), and
- the regulated tributaries (Gwydir, Namoi, Macquarie, Castlereagh, and Bogan rivers).

The subject site crosses Sandy Creek (a tributary of the Bogan River). As such, the Lowland Darling River aquatic ecological community occurs within the subject site. However, considering eight water flow barriers (dams) will be removed, and no dredging or reclamation works will occur across Sandy Creek, a test of significance under the FM Act was not considered necessary for this aquatic TEC as the project should benefit the TEC in the long term.

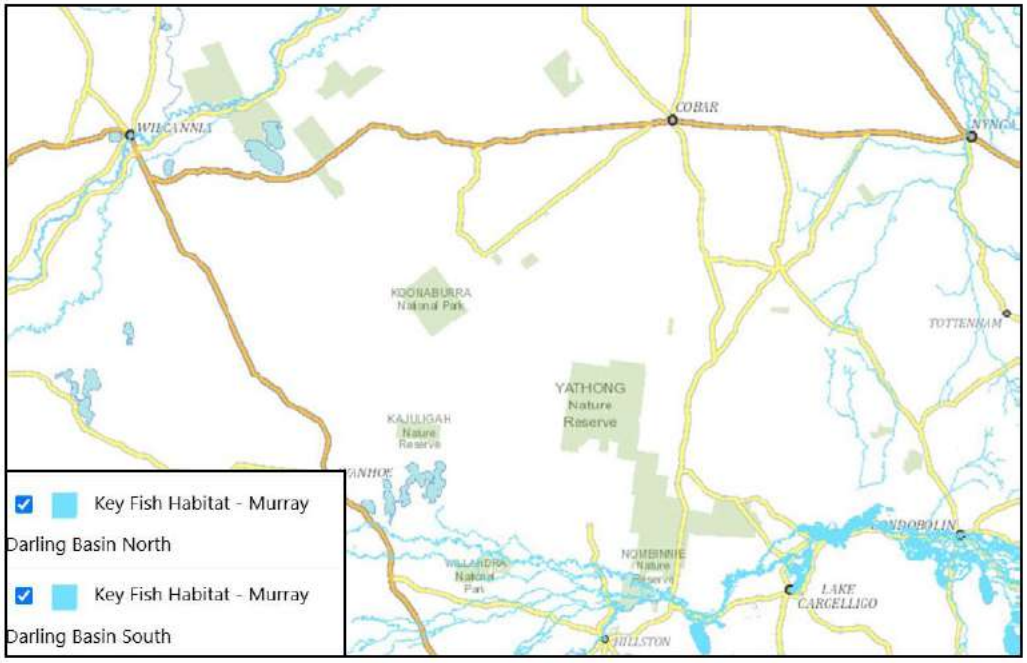
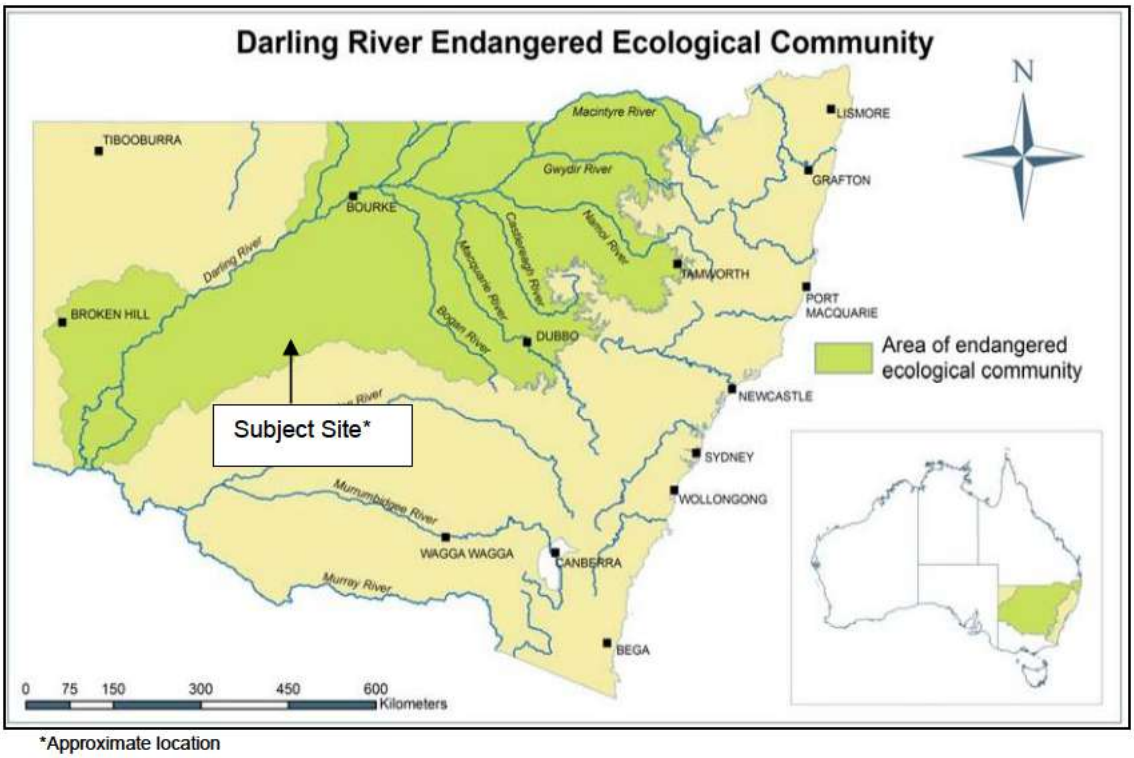


Figure 4-2. DPI Fisheries NSW Spatial Data Portal showing no KFH at Koonaburra National Park.



*Approximate location

Figure 4-3. Map of the Darling River Endangered Ecological Community (DPI 2007).

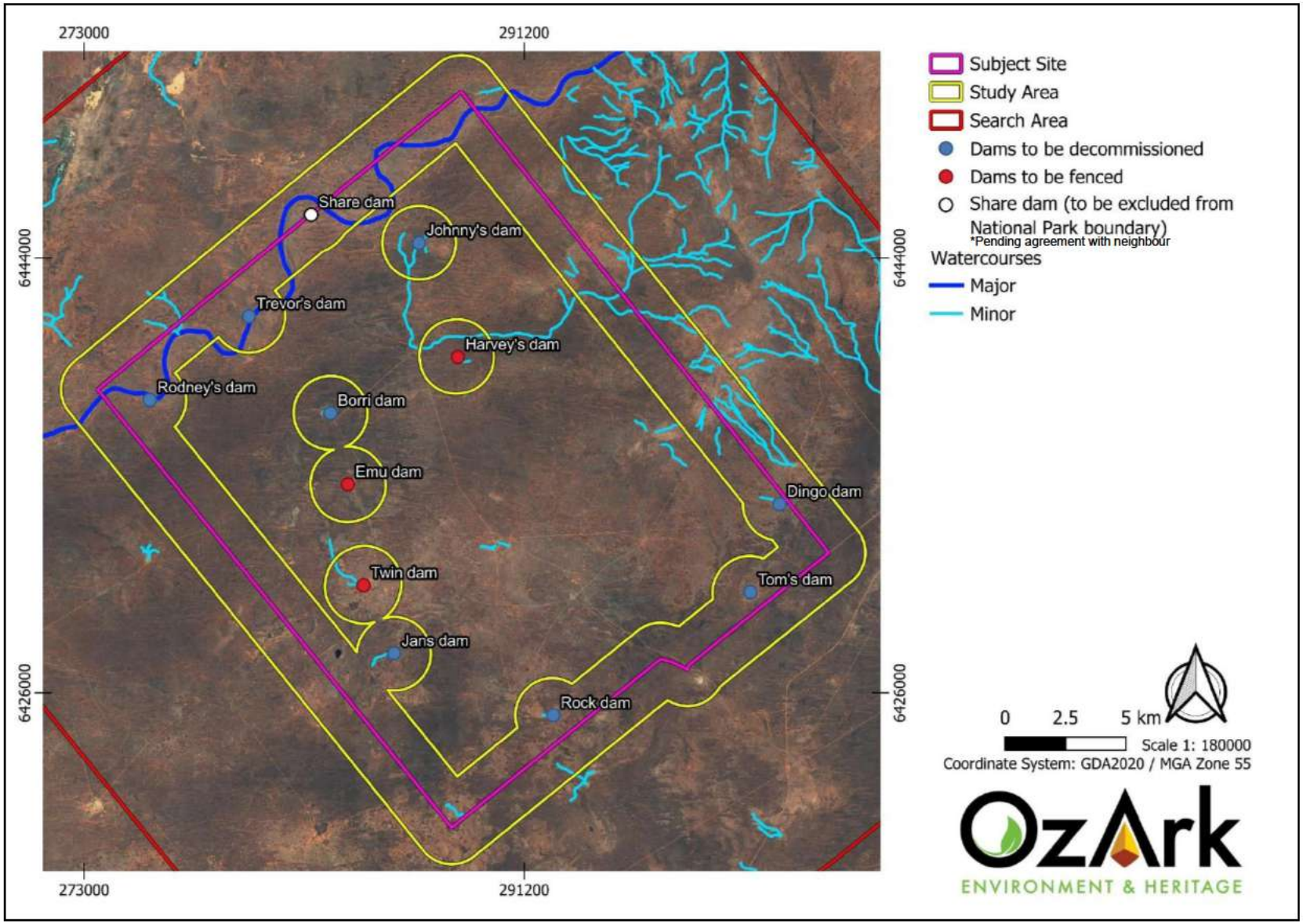


Figure 4-4. Watercourses within the study area.

4.4 GROUNDWATER DEPENDENT ECOSYSTEMS

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands, and both the estuarine and marine environment. Aquifer ecosystems are inherently groundwater dependent (QLD Department of Environment and Heritage Protection, 2017).

The probable vegetation GDE mapping for the Western Murray Darling Basin region (NSW DCCEEW 2021) identified areas of high potential GDEs within the subject site and study area (see **Figure 4-5**). Although the proposal may involve interaction with groundwater, due to the decommissioning of eight human-made dams, the potential for adverse impacts to GDEs is considered to be low. As such, no significant impacts are expected to result from this proposal. Mitigation procedures intended to reduce any potential impacts are provided in **Section 7.**

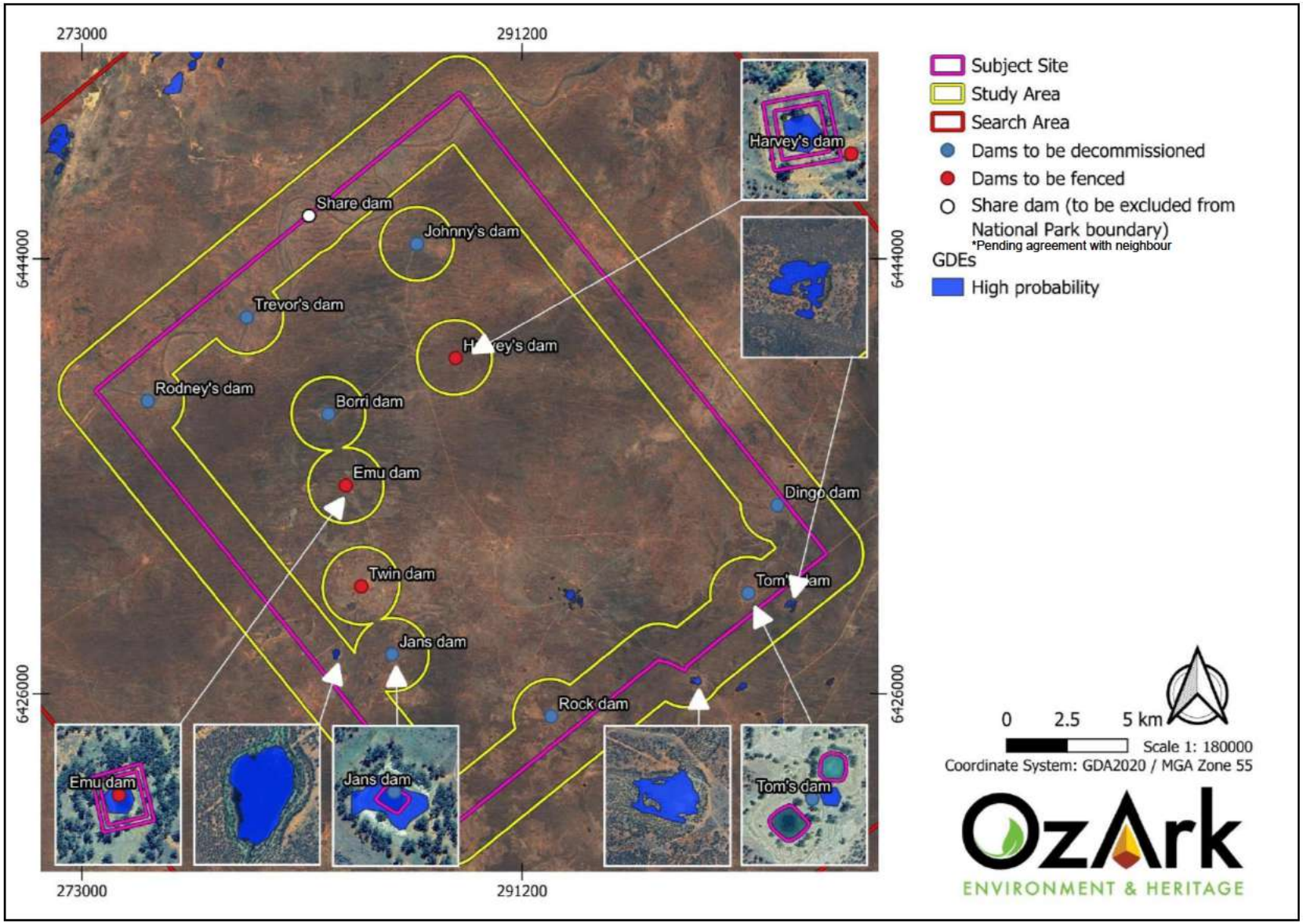


Figure 4-5. Groundwater Dependent Ecosystems (GDEs) within the study area.

4.5 CLIMATE

The nearest weather station (Ivanhoe Aerodrome AWS; station number: 049000) is located ~80 km southeast of the subject site. Temperature and rainfall records at this station began in 2000.

This area experiences warm – hot summers, with the highest mean maximum temperature of 35.9ºC experienced in January. Mild – warm minimum temperatures are experienced during this summer period (January 20.7ºC). Winters are mild, with temperatures in the coolest month (July) ranging from a minimum of 5.0ºC to a mean maximum of 16.7ºC (Bureau of Meteorology, 2024; **Figure 4-6**).

An average of 276.5mm of rainfall is recorded annually, with no distinctive wet/dry season. November has the highest mean of 30.2mm, followed by June (29.5mm) and March (25.9mm). The lowest mean rainfall occurs in July (17.8mm), followed by December (18.4mm) and October (18.6mm; BOM, 2024; **Figure 4-6**).

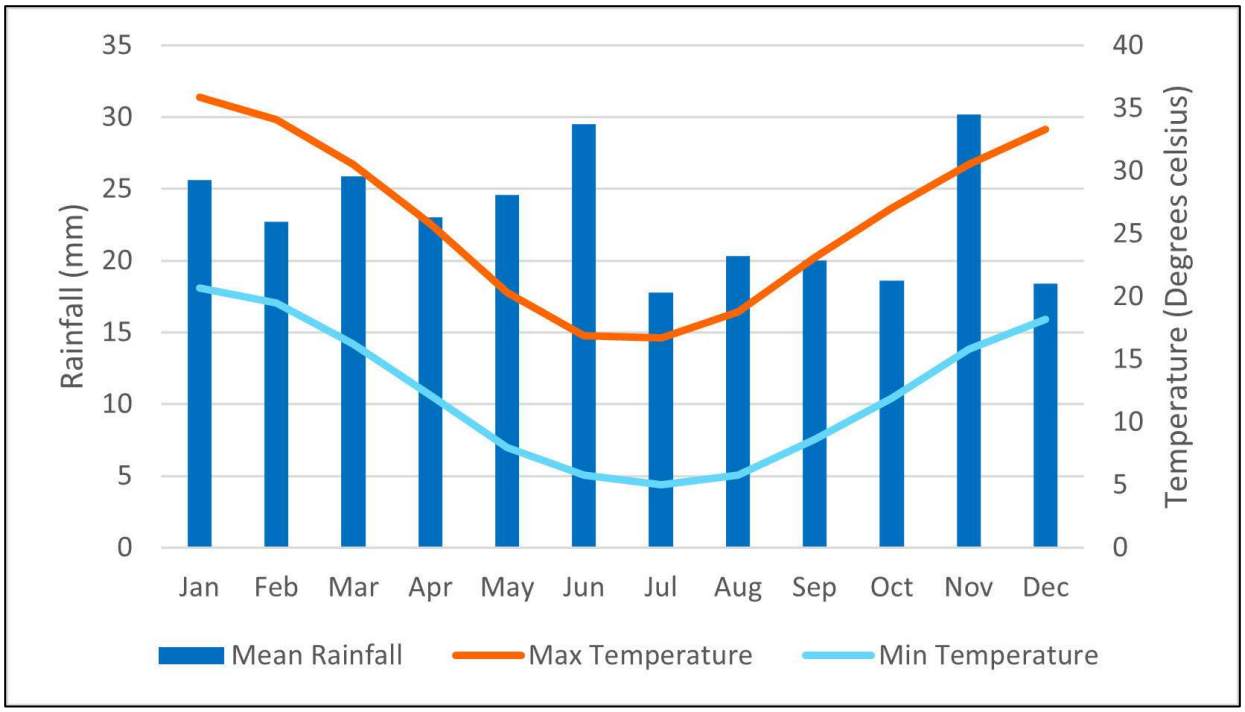


Figure 4-6. Climate data for Ivanhoe Aerodrome AWS (station number: 049000), showing mean monthly rainfall and minimum/maximum temperatures.

5. RESULTS

5.1 PLANT COMMUNITY TYPES (PCTS)

Computer modelling, through the application of the NSW State Vegetation Type Map: C1.1.M1.1, predicted 25 Plant Community Types (PCTs) within the study area:

- PCT 15 - Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion),
- PCT 24 - Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains,
- PCT 39 - Coolabah - River Coobah - Lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion,
- PCT 40 - Coolabah open woodland wetland with chenopod/grassy ground cover on grey and brown clay floodplains,
- PCT 57 - Belah/Black Oak - Western Rosewood - Wilga woodland of central NSW including the Cobar Peneplain Bioregion,
- PCT 58 - Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion,
- PCT 68 - White Cypress Pine - Mulga low open woodland on the stony ranges of the arid zone (far north western NSW),
- PCT 72 - White Cypress Pine - Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion,
- PCT 103 - Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion,
- PCT 105 - Poplar Box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion,
- PCT 106 - White Cypress Pine - Mulga low woodland on siliceous rocky ranges mainly of the Cobar Peneplain Bioregion,
- PCT 108 - Gum Coolabah - Mulga open woodland on gravel ridges of the Cobar Peneplain Bioregion,
- PCT 125 - Mulga - Ironwood shrubland on loams and clays mainly of the Cobar Peneplain Bioregion,
- PCT 128 - Nelia tall open shrubland of semi-arid sandplains,
- PCT 134 - Ironwood woodland of the semi-arid plains,
- PCT 143 - Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes,

- PCT 170 - Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones,
- PCT 171 - Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion,
- PCT 172 - Deep sand mallee of irregular dunefields of the semi-arid (warm) zone,
- PCT 173 - Sandplain mallee of central NSW,
- PCT 174 - Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion,
- PCT 207 - Poplar Box grassy low woodland of drainage lines and depressions of the semi-arid (hot) and arid zone climate zones,
- PCT 218 - Grey Mallee - Mulga shrubland of the north-western Cobar Peneplain Bioregion,
- PCT 233 - River Red Gum - Poplar Box grassy woodland wetland on Quaternary alluvial sandy-loam soils of the Cobar Peneplain, and
- PCT 631 - White Cypress Pine - Western Rosewood - spinifex grass open woodland on sand-dunes in the Murray Darling Depression Bioregion.

During the field survey, ten of these predicted PCTs (57, 72, 103, 105, 108, 143, 171, 173, 174, and 207) and a further four PCTs which were not predictively mapped to the study area (104, 119, 229, and 245) were identified within the subject site (see **Table 5-1**). PCT mapping has been provided in digital format to NPWS. A list of all flora species encountered during the field survey and representative photographs of each PCT are provided in **Appendix B**.

Table 5-1. Plant Community Types recorded within the subject site.

PCT ID	PCT Name	Area within Subject Site (ha)
57	Belah/Black Oak - Western Rosewood - Wilga woodland of central NSW including the Cobar Peneplain Bioregion	5.34
72	White Cypress Pine - Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion	3.27
103	Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion	6.40
104	Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion	6.97
105	Poplar Box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion	0.83
108	Gum Coolabah - Mulga open woodland on gravel ridges of the Cobar Peneplain Bioregion	4.67
119	Sandplain Mulga tall shrubland - open shrubland of the semi-arid and arid climate zones	1.83
143	Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes	2.71
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	9.62
173	Sandplain mallee of central NSW	20.52
174	Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion	5.45
207	Poplar Box grassy low woodland of drainage lines and depressions of the semi-arid (hot) and arid zone climate zones	0.87
229	Derived mixed shrubland on loamy-clay soils in the Cobar Peneplain Bioregion	5.95
245	Pine - Belah low open woodland of the western Cobar Peneplain and northern Murray Darling Depression Bioregion	3.20
Total Native Vegetation		*77.63*
Non-native vegetation, access tracks, and bare ground		*12.15*
Total Area		89.78

5.2 THREATENED ECOLOGICAL COMMUNITIES (TECS)

According to the BioNet Vegetation Classification Database, seven PCTs within the impact area (57, 119, 143, 171, 173, 174, and 229) are associated with TEC listings. A further PCT (245), which is not recognised as being associated with a TEC on the BioNet Vegetation Classification Database, was nevertheless found to meet the criteria to be considered a TEC. TEC determinations and area calculations for both BC and EPBC-Act listed TECs are provided in **Table 5-2** and **Table 5-3**, respectively. Locations of recorded TECs within the subject site can be seen in **Figure 5-1**.

Table 5-2. BC Act-listed TECs associated with PCTs within the Subject Site, TEC Determination, and TEC areas.

PCT ID	BC Act-listed TEC Associations	Subject Site Fits the TEC?	Area (ha) in Subject Site
57	• EEC: *Acacia loderi* shrublands	**No.** *Acacia loderi* was not recorded within the subject site.	-
119	• EEC: *Acacia loderi* shrublands	**No.** *Acacia loderi* was not recorded within the subject site.	-
143	• EEC: *Acacia loderi* shrublands	**No.** *Acacia loderi* was not recorded within the subject site.	-
173	• EEC: *Acacia loderi* shrublands • EEC: *Acacia melvillei* Shrubland in the Riverina and Murray-Darling Depression bioregions	**No.** *Acacia loderi* was not recorded within the subject site. **No*.** *Acacia melvillei* was not recorded within the subject site.	-
174	• EEC: *Acacia loderi* shrublands	**No.** *Acacia loderi* was not recorded within the subject site.	-
229	• EEC: *Acacia loderi* shrublands	**No.** *Acacia loderi* was not recorded within the subject site.	-
245	• EEC: Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	**Yes.** The White pine dominated woodlands within the Murray-Darling Depression bioregion has the correct species assemblage for listing as this TEC. Areas of this PCT that fall within the Cobar Peneplain Bioregion do not fit the criteria for this TEC and have been excluded.	0.94

*Please note, this EEC was observed within the southern extent of the NP, but not within the impact areas.

Table 5-3. EPBC Act-listed TECs associated with PCTs within the Subject Site, TEC Determination, and TEC areas.

PCT ID	EPBC Act-listed TEC Associations	Subject Site Fits the TEC?	Area (ha) in Subject Site
171	• EEC: Mallee Bird Community of the Murray Darling Depression Bioregion	**No.** The subject site lacked the assemblage of bird species required for listing.	-
173	• EEC: Mallee Bird Community of the Murray Darling Depression Bioregion • CEEC - Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions	**No.** The subject site lacked the assemblage of bird species required for listing. **No.** The subject site lacked *Eucalyptus porosa* (Black Mallee Box) or *E. behriana* (Bull Mallee), and is outside of the known range of this TEC	-
174	• EEC: Mallee Bird Community of the Murray Darling Depression Bioregion	**No.** The subject site lacked the assemblage of bird species required for listing.	-

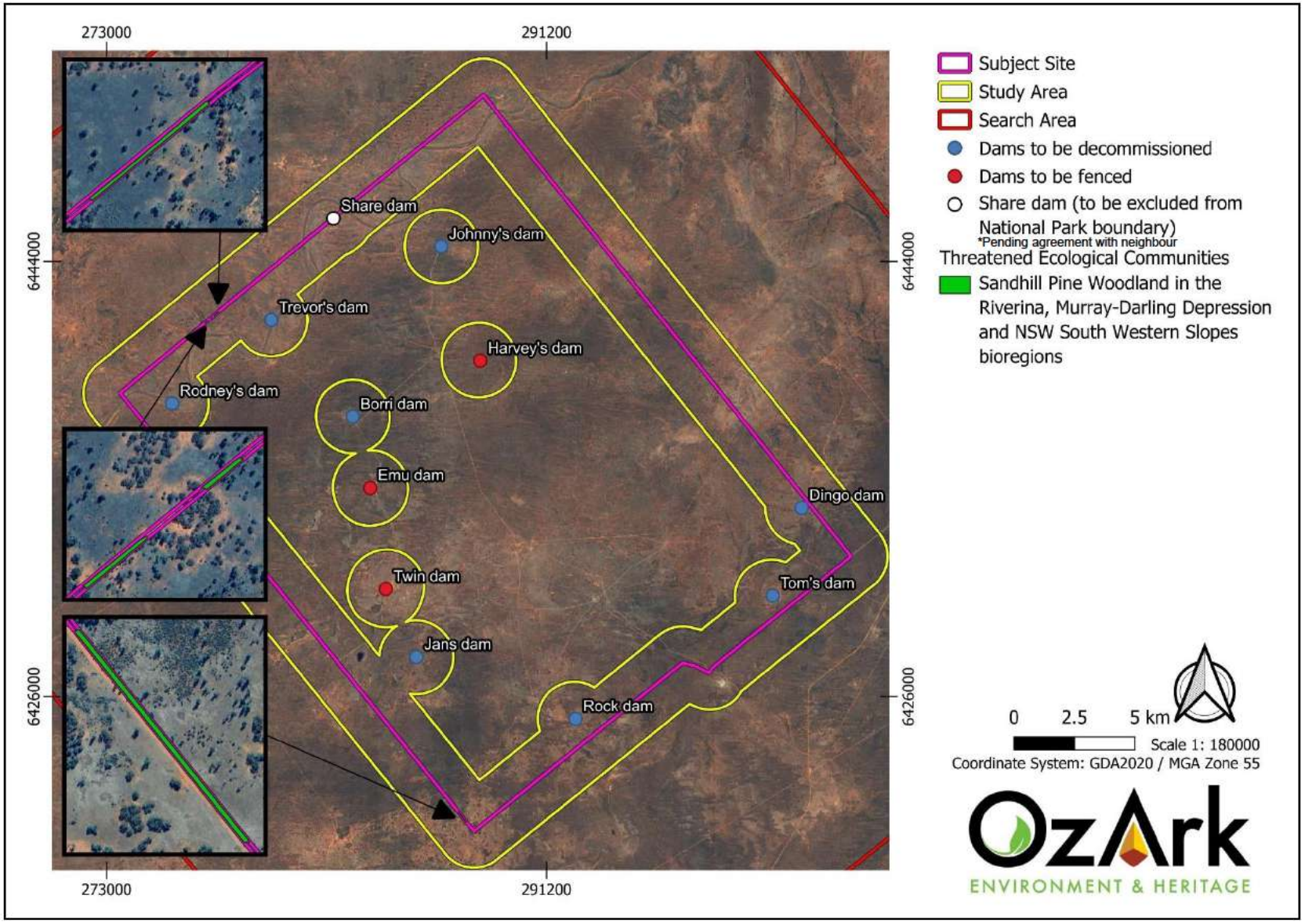


Figure 5-1. Threatened Ecological Communities (TECs) recorded within the subject site.

5.3 AQUATIC THREATENED ECOLOGICAL COMMUNITIES

The subject site is located within the bounds of the EEC: Lowland Darling River aquatic ecological community (**Figure 4-3**). Considering eight water flow barriers (dams) will be removed, and no new trails will be constructed across Sandy Creek, a test of significance under the FM Act was not considered necessary for this aquatic TEC as the project should benefit the TEC in the long term.

5.4 THREATENED AND MIGRATORY SPECIES AND POPULATIONS

A review of the Threatened Species Profiles database found 103 threatened or migratory species or populations that are known or predicted to occur within the Darling Depression subregion of the Murray Darling Depression Bioregion, and the Barnato Downs subregion of the Cobar Peneplain Bioregion (**Appendices A** and **C**). Based on the proximity of past records, habitat requirements, and results of the field survey, 62 threatened or migratory species demonstrated a moderate-high likelihood of occurrence (**Appendix C**). These are listed in Table 5-4.

In total, 91 fauna species were detected during the field survey (**Appendix B**). Three threatened bird species were recorded within or nearby the subject site – Grey-crowned Babbler (Vulnerable, BC Act), Southern Whiteface (Vulnerable, BC and EPBC Act), and Pink Cockatoo (Vulnerable, BC Act; Endangered, EPBC Act). A further threatened bird species was also recorded outside of the 1.5 km study area – South-eastern Hooded Robin (Endangered, BC and EPBC Act). In total, 18 Grey-crowned Babblers, two South-eastern Hooded Robins, 26 Pink Cockatoos, and four Southern Whitefaces were seen during the field survey. Bird logger data from Trevor's and Jan's dam also recorded Grey-crowned Babbler and Southern Whiteface (**Appendix B**). The bat logger data from both Jan's and Tom's Dam further identified one threatened bat species – Little Pied Bat (Vulnerable, BC Act). However, due to similarities in the calls of some bat species, conclusive identification of some species was not possible (e.g., Inland Forest Bat; **Appendix B**). All threatened species recorded during the 2024 field survey are mapped in **Figure 5-2**.

One-hundred and twenty-nine flora species were observed during the field survey (**Appendix B**). No threatened flora species were detected. Due to the short duration and timing of the surveys (winter), non-detection of a species cannot be considered as confirmation of the absence of that species from the subject site.

Table 5-4. BC Act & EPBC Act-listed threatened or migratory species detected or considered to have a moderate-high potential to occur within the subject site.

Scientific Name	Common Name	*NSW Status	+Comm. Status	Records within 10km
Crinia sloanei	Sloane's Froglet	E1,P	E	0
Amytornis striatus striatus	Mukarrthippi Grasswren	E4A,P	CE	0
Aphelocephala leucopsis	**Southern Whiteface**	**V,P**	**V**	**2**
Ardeotis australis	Australian Bustard	E1,P		0
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		0
Burhinus grallarius	Bush Stone-curlew	E1,P		0
Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	V,P,2		0
Certhionyx variegatus	Pied Honeyeater	V,P		0
Chthonicola sagittata	Speckled Warbler	V,P		0
Cinclosoma castanotum	Chestnut Quail-thrush	V,P		0
Circus assimilis	Spotted Harrier	V,P		0
Daphoenositta chrysoptera	Varied Sittella	V,P		0
Drymodes brunneopygia	Southern Scrub-robin	V,P		0
Epthianura albifrons	White-fronted Chat	V,P		0
Falco hypoleucos	Grey Falcon	V,P,2	V	0
Falco subniger	Black Falcon	V,P		0
Grantiella picta	Painted Honeyeater	V,P	V	0
Grus rubicunda	Brolga	V,P		0
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P		0
Hamirostra melanosternon	Black-breasted Buzzard	V,P,3		0
Hieraaetus morphnoides	Little Eagle	V,P		0
Hirundapus caudacutus	White-throated Needletail	V,P	V,C,J,K	0
Hylacola cautus	Shy Heathwren	V,P		0
Lathamus discolor	Swift Parrot	E1,P	CE	0
Leipoa ocellata	Malleefowl	E1,P	V	2
Lophochroa leadbeateri	**Pink Cockatoo**	**V,P,2**	**E**	**3**
Lophoictinia isura	Square-tailed Kite	V,P,3		0
Melanodryas cucullata cucullata	**South-eastern Hooded Robin**	**E1,P**	**E**	**0**
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V,P		0
Neophema pulchella	Turquoise Parrot	V,P,3		0
Pachycephala inornata	Gilbert's Whistler	V,P		0
Pachycephala rufogularis	Red-lored Whistler	E4A,P	V	0
Polytelis swainsonii	Superb Parrot	V,P,3	V	0
Pomatostomus halli	Hall's Babbler	V,P		0
Pomatostomus temporalis temporalis	**Grey-crowned Babbler (eastern subspecies)**	**V,P**		**1**
Stagonopleura guttata	Diamond Firetail	V,P	V	0
Tyto novaehollandiae	Masked Owl	V,P,3		0

Scientific Name	Common Name	*NSW Status	+Comm. Status	Records within 10km
Acacia curranii	Curly-bark Wattle	V	V	0
Atriplex infrequens	A saltbush	V	V	0
Austrostipa metatoris	A spear-grass	V	V	0
Dodonaea sinuolata subsp. *acrodentata*	A Hopbush	E1		0
Eleocharis obicis	Spike-Rush	V	V	0
Goodenia occidentalis	Western Goodenia	E1		0
Grevillea ilicifolia subsp. *ilicifolia*	Holly-leaf Grevillea	E4A		0
Lepidium monoplocoides	Winged Peppercress	E1	E	0
Pterostylis cobarensis	Greenhood Orchid	V,P,2		0
Antechinomys laniger	Kultarr	E1,P		0
Chalinolobus picatus	**Little Pied Bat**	**V,P**		**1**
Ningaui yvonneae	Southern Ningaui	V,P		0
Nyctophilus corbeni	Corben's Long-eared Bat	V,P	V	2
Phascolarctos cinereus	Koala	E1,P	E	0
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		0
Setirostris eleryi	Bristle-faced Free-tailed Bat	E1,P		0
Sminthopsis macroura	Stripe-faced Dunnart	V,P		0
Vespadelus baverstocki	Inland Forest Bat	V,P		2
Antaresia stimsoni	Stimson's Python	V,P		0
Delma australis	Marble-faced Delma	E1,P		0
Lerista xanthura	Yellow-tailed Plain Slider	V,P		0
Pseudonaja modesta	Ringed Brown Snake	E1,P		0
Simoselaps fasciolatus	Narrow-banded Snake	V,P		0
Strophurus elderi	Jewelled Gecko	V,P		0
Tiliqua occipitalis	Western Blue-tongued Lizard	V,P		0

Bold font indicates those species detected within the NP during the field survey.

***NSW Status:** P=Protected, P13=Protected native plant, V=Vulnerable, E1=Endangered, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

+ Comm. Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

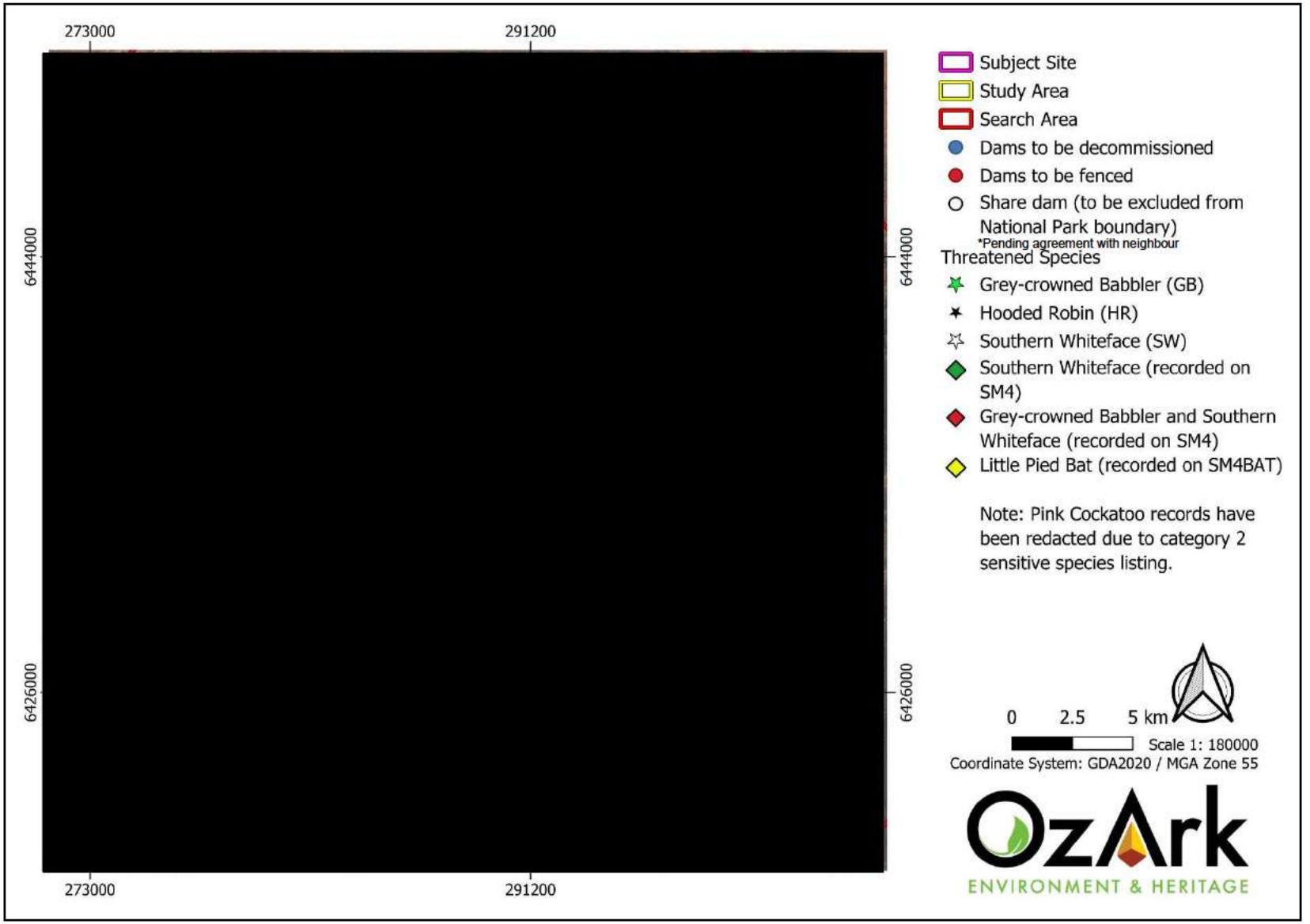


Figure 5-2. Threatened Species recorded during the field survey.

5.5 WILDLIFE CONNECTIVITY CORRIDORS

Vegetation within the subject site forms part of a large remnant patch which extends in all directions. Fragmentation within the landscape is limited to roads and smaller access tracks. The construction of a boundary fence and a 6 – 10 m cleared corridor adjoining the boundary fence will exacerbate fragmentation within the region; however, this is unlikely to impact the dispersal of most native species which can fly over the fence or are small enough to move through the fence. In comparison, larger mammals and flightless birds (e.g., Koalas and Emus may not be able pass through/over the boundary fence. As such, habitat connectivity will be reduced for these protected species. Furthermore, decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. The proposal may isolate habitat for these species by removing access to some water sources.

However, as the intention is to reduce the numbers of feral herbivores within the NP, and this will ultimately be beneficial to many species of fauna and flora within the NP. Mitigation measures designed to reduce the impact of the proposal on wildlife connectivity and habitat fragmentation are provided in **Section 7**.

5.6 HABITAT FEATURES

Eight human-made dams will be decommissioned as a component of this proposal. These dams provide habitat for waterfowl, turtles and frogs, and drinking water for other wildlife. Emu, Harvey's, Jan's, Tom's, and Twin Dam were considered to be the better examples of aquatic habitat, primarily due to the presence of aquatic vegetation. Of these, Emu, Harvey's and Twin Dam will be ultimately retained. Photographs of each dam and lists of waterfowl and frogs observed are provided in **Appendix B**.

Forty-eight habitat trees occur within or directly adjacent to the proposed boundary trail/fence. These trees contain a total of five nests, 106 hollows (11 extra-small hollows [< 5cm], 64 small hollows [5-9cm], 17 medium hollows [10-19cm], 13 large hollows [20-29cm], and one extra-large hollow [≥30cm]). Any hollows greater than 10 cm in diameter are potentially suitable for the Pink Cockatoo to breed in, therefore, these should be prioritised for retention, where possible (see **Section 7.2**). Location data for each habitat tree is provided in **Table 5-5**. While habitat trees also occur adjacent to some dams, mature trees around dams will be avoided.

Parts of the subject site contained scattered bushrock and dead wood which provides habitat for reptiles and small mammals.

Table 5-5. Habitat trees within or immediately adjacent to the subject site.

Hollows*					Nests	Stag (Yes/No)	Eastings	Northings
XS	S	M	L	XL				
-	1	-	-	-	-	No	[redacted]	[redacted]
-	2	-	-	-	-	No	[redacted]	[redacted]
-	2	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	3	-	-	-	-	No	[redacted]	[redacted]
-	5	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-		-	1	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	3	-	1	-	-	No	[redacted]	[redacted]
-	-	-	1	-	-	No	[redacted]	[redacted]
-	3	-	-	1	-	No	[redacted]	[redacted]
1	1	1	1	-	-	No	[redacted]	[redacted]
-	-	1	-	-	One stick nest	No	[redacted]	[redacted]
-	-	-	-	-	Four Grey-crowned Babbler roost nests	No	[redacted]	[redacted]
1	1	-	-	-	-	No	[redacted]	[redacted]
6	-	1	-	-	-	Yes	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	1	2	-	-	-	No	[redacted]	[redacted]
-	-	1	-	-	-	No	[redacted]	[redacted]
-	-	1	-	-	-	No	[redacted]	[redacted]
-	-	-	1	-	-	No	[redacted]	[redacted]
-	3	2	1	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	-	2	-	-	-	No	[redacted]	[redacted]
-	2	1	-	-	-	Yes	[redacted]	[redacted]
1	3	-	-	-	-	Yes	[redacted]	[redacted]
1	1	-	-	-	-	Yes	[redacted]	[redacted]
-	2	-	-	-	-	No	[redacted]	[redacted]
1	-	-	-	-	-	No	[redacted]	[redacted]
-	1	1	1	-	-	No	[redacted]	[redacted]
-	-	1	-	-	-	Yes	[redacted]	[redacted]
-	-	2	2	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	Yes	[redacted]	[redacted]
-	1	-	-	-	-	Yes	[redacted]	[redacted]
-	1	1	-	-	-	No	[redacted]	[redacted]
-	3	-	-	-	-	Yes	[redacted]	[redacted]
-	2	-	-	-	-	Yes	[redacted]	[redacted]
-	4	-	-	-	-	Yes	[redacted]	[redacted]
-	3	-	-	-	-	Yes	[redacted]	[redacted]
-	2	-	-	-	-	Yes	[redacted]	[redacted]

Hollows*					Nests	Stag (Yes/No)	Eastings	Northings
XS	S	M	L	XL				
-	-	-	4	-	-	Yes (2x)	[redacted]	[redacted]
-	4	-	-	-	-	No	[redacted]	[redacted]
-	1	-	-	-	-	No	[redacted]	[redacted]

***Hollows** XS= <5 cm, S= 5-9cm, M= 10-19cm, L= 20-29cm, XL= ≤30 cm

5.7 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Under the environmental assessment provisions of the EPBC Act; Matters of National Environmental Significance (MNES) and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government DCCEEW.

The EPBC Act protected matters search identified no World Heritage Properties, three wetlands of International Importance, two TECs, 17 threatened species, seven migratory species, and 13 marine species that may occur within the search area (**Appendices A** and **E**), with a summary available in **Table 5-6**. No entities listed under the EPBC Act are likely to be significantly impacted by the proposal.

Table 5-6. Impacts to Matters of National Environmental Significance and Commonwealth Land.

Consideration	Potential impact?
Any impact on a listed threatened species or communities?	Yes (non-significant, **Appendix E**)
Any impacts on listed migratory species?	Yes (non-significant, **Appendix E**)
Any impacts on a Ramsar wetland of international importance?	No
Any impacts on a Commonwealth marine environment?	No
Any impacts on a World Heritage property?	No
Any impacts on a National Heritage place?	No
Any impacts on the Great Barrier Reef Marine Park?	No
Does the proposal involve a nuclear action (including uranium mining)?	No
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	No
Additionally, any impact (direct or indirect) on Commonwealth land?	No

6. IMPACT ASSESSMENTS

6.1 DIRECT IMPACTS

6.1.1 IMPACTS ON NATIVE VEGETATION AND THREATENED ECOLOGICAL COMMUNITIES

The subject site is 89.78 ha in area, of which 12.15 ha is free from native vegetation (access tracks and bare ground). The remaining 77.63 ha consists of native vegetation (PCTs 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) that would be removed or disturbed by the proposal.

PCT 245 met the criteria to be considered an example of the BC Act-listed EEC: *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions.* Only areas of PCT 245 within the Murray Darling Depression Bioregion were regarded as belonging to this EEC; therefore, up to 0.94 ha of this EEC will be impacted by the proposal.

Clearing of native vegetation is a Key Threatening Process under the BC and EPBC Acts (**Appendix F**). The extent of native vegetation within the study area suggests that the impacts of the proposed clearing would not be significant; however, impacts to the TEC must be minimised to the greatest possible extent (see **Section 7**).

6.1.2 IMPACTS ON THREATENED FLORA

Nine threatened plant species were assessed as having a moderate or greater potential of occurring at the proposal site (**Table 5-4**), although none were detected during the field survey. However, due to the timing of the surveys (i.e., over a single week in August, when many species may not have been in flower due to seasonal factors), non-detection cannot be considered as confirmation of their absence. Due to the large area of remnant vegetation within the wider landscape and absence of nearby records, it is not expected that any significant impacts to threatened flora will occur as a result of the proposal (**Appendices D-E**).

6.1.3 IMPACTS ON THREATENED FAUNA AND ASSOCIATED HABITAT

Fifty-three threatened or migratory fauna species listed under the BC and/or EPBC Act were considered to have a moderate, or greater, chance of occurring within the subject site (**Table 5-4**). Four threatened bird species and one threatened bat species were recorded during the 2024 field survey (**Figure 5-2**).

Forty-eight habitat trees occur within or directly adjacent to the proposed boundary trail/fence. These trees contain a total of five nests and 106 hollows (**Table 5-5)**. While habitat trees also occur adjacent to some dams, mature trees around dams will be avoided. Furthermore, the subject site contained scattered bushrock and dead wood.

Eight human-made dams will be decommissioned as a component of this proposal. These dams provide habitat for waterfowl, turtles and frogs, and drinking water for other wildlife, including threatened species.

The 5-part test of significance and EPBC test of significance (if applicable) was applied to all 53 species (**Appendices D** and **E**). The results concluded that the proposal would not constitute a significant impact on these species or their habitats, provided mitigation measures outlined in **Section 7** are adhered to.

6.1.4 FAUNA INJURY AND MORTALITY

During the construction phase of the proposal, the removal of vegetation and habitat features (e.g., fallen timber) is likely to disturb fauna. In addition, fauna may become trapped in or may choose to shelter in machinery that is stored in the study area overnight. If these animals were to remain inside the machinery, or under the wheels or tracks, they may be injured or die once the machinery is in use. Furthermore, there is an ongoing risk of vehicle strikes to fauna. Mitigation measures designed to reduce injury and mortality of fauna are provided in **Section 7.**

6.2 INDIRECT/OPERATIONAL IMPACTS

6.2.2 EDGE EFFECTS ON ADJACENT NATIVE VEGETATION AND HABITAT

The proposal site and surrounding landscape contains a large area of remnant vegetation and is currently subject to low levels of edge effects. The clearance of vegetation will increase the impacts of edge effects on the adjacent native vegetation. This may result from changes in abiotic factors (e.g., the microclimate) or from biotic factors associated with colonisation. Weed encroachment, which is a significant edge effect, is considered further below.

6.2.3 INVASION AND SPREAD OF WEEDS

Four weed species listed as High-threat Exotic Species (HTE) under the BAM were recorded during the site survey (**Table 6-1**). Of these, one species – African Boxthorn (*Lycium ferocissimum*) – is also considered a Weed of National Significance (WoNS) and a Priority Weed (PW) for the Western Local Land Services (LLS) region. See **Appendix B** for a full list of exotic species recorded on site.

Table 6-1. List of significant weeds recorded from the subject site.

Growth Form	Scientific name	Common name	HTE	WoNS	PW
FG	*Brassica tournefortii*	Mediterranean Turnip	Yes	No	No
FG	*Carrichtera annua*	Ward's Weed	Yes	No	No
FG	*Carthamus lanatus*	Saffron Thistle	Yes	No	No
SG	*Lycium ferocissimum*	African Boxthorn	Yes	Yes	Yes

The proliferation of weeds species is an indirect impact of the proposal activities. The likely cause of weed dispersal is associated with earthworks, movement of soil, and attachment of seeds (and other propagules) to vehicles and machinery. The proponent is required to manage the presence of weeds in the subject site. Mitigation measures designed to limit the spread of weeds are provided in **Section 7**.

6.2.4 INVASION AND SPREAD OF PESTS

The study area is already inhabited by numerous pest species such as the goat (*Capra hircus*), the pig (*Sus scrofa*), the red fox (*Vulpes vulpes*), the European rabbit (*Oryctolagus cuniculus*), the feral cat (*Felis catus)*, and the wild dog (*Canis lupus*). This proposal aims to reduce the abundance of feral goats within the NP by reducing their access to water, therefore the proposal will not exacerbate the invasion and spread of animal pests.

6.2.5 INVASION AND SPREAD OF PATHOGENS AND DISEASE

Several pathogens known from NSW have the potential to impact biodiversity as a result of their transportation during the construction phase of this proposal. Of these, three are listed as KTPs under either the EPBC Act and/or BC Act including:

- Dieback caused by *Phytophthora* (Root Rot; EPBC Act and BC Act)
- Infection of frogs by amphibian chytrid fungus causing the disease chytridiomycosis (EPBC Act and BC Act)
- Infection by Psittacine Circoviral (beak and feather) Disease (EPBC Act and BC Act)

These pathogens were not observed or tested for in the study area. The most likely causes of pathogen dispersal and importation include earthworks, movement of soil, and attachment of plant matter to vehicles and machinery during establishment of the clear zone. Mitigation measures designed to limit the invasion and spread of pathogens and disease are provided in **Section 7**.

6.2.6 NOISE AND VIBRATION

Some noise and vibration impacts are expected during the construction phase of the proposal. Given the small-scale nature and short duration of the proposed works, these sources of noise and vibration should not significantly impact biodiversity.

6.3 CUMULATIVE IMPACTS

The potential impacts of this proposal must be considered as part of the wider loss of biodiversity in NSW. Rather than acting in isolation, this proposal would be an additive part contributing to

biodiversity loss. The incremental effects of multiple impacts – past, present, and future – are referred to as cumulative impacts. This BAR provides an opportunity to consider the proposal within a greater strategic context.

Historic vegetation clearing for agriculture and infrastructure have caused significant biodiversity losses in NSW. Ongoing projects in the LGA, such as the Cobar Wind Farm and the Ivanhoe Estate, will continue to reduce remaining biodiversity values into the future. The proposal, by itself, would not significantly impact regional biodiversity, given that it only intends to impact a narrow strip of vegetation (up to 10 m) and decommission eight manmade dams. Further, the long term goal of the project is to enhance biodiversity through feral pest control.

6.4 IMPACT SUMMARY

An Assessment of Significance has been conducted for each BC Act and EPBC Act-listed threatened or migratory species, population, and community that is considered to have a moderate-high likelihood of occurring due to the presence of suitable habitat (**Appendices C-E**). Based on these assessments and provided the mitigation measures outlined in **Section 7** are adhered to, the proposal is unlikely to have a significant impact on biodiversity, including predicted populations of threatened or migratory species and threatened ecological communities.

7. AVOID, MINIMISE AND MITIGATE IMPACTS

A key part of the proponent's management of biodiversity for this proposal is the application of the 'avoid, minimise, mitigate and offset' hierarchy as follows:

1. Avoid and minimise impacts as the highest priority

2. Mitigate impacts where avoidance is not feasible or practicable in the circumstance

3. Offset where residual, significant unavoidable impacts would occur

7.1 AVOIDANCE AND MINIMISATION

The following impact avoidance and minimisation methods were implemented by NSW NPWS during the design phase of the proposal:

- The proponent's initial intention was to retain three dams: Emu, Borri and Harvey's Dam. On OzArk's recommendation, Twin Dam will be retained instead of Borri Dam. Twin Dam was observed to contain superior habitat to Borri Dam as frogs were calling from Twin Dam and aquatic vegetation was present, including Spike Rushes. As such four dams (Emu, Twin [2x dams], and Harvey's) will be retained within the Koonaburra NP, these dams will provide options for access to water for wildlife within the NP.

The following impact avoidance methods are recommended to be implemented:

- To avoid impacts associated with weed introduction and spread, inspect all machinery before entering and exiting the subject site. Machinery must be clean of all mud, soil and vegetation material.

- The construction works and vehicle access to the site is to be constrained to the minimum area practical.

- Material stockpiles, equipment and machinery storage and laydown areas will be consolidated within a defined impact area to minimise the overall impact footprint.

- The impact footprint will be minimised by restricting access across the site to the defined development footprint, including avoiding unnecessary vehicle and personnel movements across unused land.

- A pre-clearance survey to be conducted prior to vegetation clearing to identify hollows and logs currently utilised by fauna where possible (detection is not always possible from the ground). All hollow-bearing habitat trees and are to be identified and felled under the supervision of a fauna spotter-catcher or other suitably qualified personnel.

- The tree containing four Grey-crowned Babbler nests (**Table 5-5**) is to be avoided if possible. If this habitat tree requires removal, it should not be disturbed in the early morning or late evening to avoid disturbing any roosting birds.
- It is recommended to avoid decommissioning dams during the Little Pied Bat breeding season (September–December) to minimize stress and reduce the risk of young mortality

7.2 MITIGATION MEASURES

Mitigation measures are to be undertaken during the construction and operational phases, including managing the vegetation clearing process, weed management, and installation of erosion and sediment controls as appropriate.

The following mitigation measures are recommended for implementation (see **Table 7-1**).

Table 7-1: Mitigation measures and environmental safeguards recommended for implementation.

Aspect	Environmental safeguards	Responsibility	Timing
General	1. Any change in design outside the assessed impact footprint (subject site) will require further ecological survey and assessment. **2.** All personnel working on site will be made aware of the environmental sensitivities of the site and safeguards/mitigations to be implemented, e.g., site induction and 'toolbox' style briefings. This includes all native vegetation, threatened ecological communities (see **Figure 5-1**) and known/potential threatened flora and fauna that may be present (see **Table 5-4**). Evidence of all personnel receiving an induction will be kept on file (e.g., signed induction sheets).	Proponent	Pre-construction, construction, operation
Clearing of native vegetation	3. All construction personnel should be inducted to be aware that any deliberate or accidental damage of a stand of native vegetation outside the subject site has legislative consequences under Part 4 or 5 of the EP&A Act. 4. If any threatened flora species are encountered, construction must stop in the immediate area and an ecologist should be consulted for advice and guidance before proceeding with works. 5. Where possible, hollow-bearing trees will be avoided. If any hollow-bearing trees need to be removed, a fauna spotter catcher, or otherwise suitably qualified person, will be present to ensure that no animals are injured (see further details below [16-26]). 6. Where practical, before starting work, a physical vegetation clearing boundary at the approved clearing limit is to be demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, parawebbing or similar. 7. Vegetation would be removed in such a way as to avoid damage to surrounding vegetation. 8. Groundcover disturbance would be kept to a minimum. 9. Any stockpile and compound sites should be located using the following criteria: • At least 40 m away from the nearest waterway • In areas of low ecological conservation significance (i.e. previously disturbed land) • On relatively level ground • Outside the one in 10-year Average Recurrence Interval (ARI) floodplain 10. Stockpiling materials and equipment and parking vehicles would be avoided within the dripline (extent of foliage cover) of any tree. 11. Dangerous or overhanging trees or branches within the subject site will be assessed, and potentially trimmed to avoid potential future impacts on conservation fence integrity. 12. Where practical, removed hollow bearing trees with a DBH of 40 cm or greater, should be retained and repurposed as coarse woody debris/ hollow bearing logs on the ground to provide habitat. All remaining vegetation within the conservation fence corridor clearing footprint is to be mulched, windrowed, relocated, piled for habitat or a combination of	Proponent / contractor	Pre-construction, construction

Aspect	Environmental safeguards	Responsibility	Timing
	multiple techniques. However, no windrows will be left along the conservation fence line corridor. 13. Mulch dispersal should be avoided in or directly adjacent to waterways/drainage lines to avoid the mulch from being washed away, or any tannin leachate related water quality issues. Areas with weed infestations are not to be used for mulch generation and reuse. 14. Where possible, stumps will be mulched to ground level rather than being ripped and removed. 15. Mallee roots will be either removed, windrowed and/or mulched, with the material used to backfill the hole caused from the stump removal or piled for habitat.		
Habitat tree removal	16. The removal of hollow-bearing trees will be avoided wherever possible. 17. The tree containing four threatened Grey-crowned Babbler nests (**Table 5-5**) is to be avoided if possible. As this species uses these nests year-round for roosting, if this habitat tree must be removed, this should occur in the middle of the day, to reduce the chance of injuring roosting birds. 18. Removal of hollow-bearing trees with suitable breeding hollows for the Pink Cockatoo (>10 cm diameter [M,L,XL hollows in **Table 5-5**]) will not take place during this species' breeding season (August – November). 19. If temperature is predicted to exceed 35ºC, the temperature at the site of the activity will be monitored and felling of hollow bearing-trees is not permitted when the temperature exceeds 35ºC. 20. A pre-clearance check should be conducted by a suitably qualified person prior to any vegetation disturbance, all potential habitat trees must be clearly marked with flagging tape or spray paint during the pre-clearance survey and evidence of occupation by fauna should be noted. 21. A fauna spotter catcher, or otherwise suitably qualified person, should be present during the removal of habitat trees to ensure that no animals are injured. 22. When removing hollow-bearing trees, surrounding areas should be cleared first, then the hollow should be inspected with a camera, if possible. If fauna is present, the tree will be left for one night to allow the fauna to move on before being felled. 23. Trees should be shaken by being tapped by an excavator or similar prior to felling in an attempt to scare fauna from hollows. 24. If the tree is being removed in stages, the hollow-bearing branch should be the last to be removed. 25. Following felling, hollows and the surrounding area are to be checked again to ensure no trapped or injured fauna are present.	Proponent, contractor	Construction

Aspect	Environmental safeguards	Responsibility	Timing
	26. Where practical, hollow bearing trees with a DBH of 40 cm or greater, should be retained and repurposed as coarse woody debris/ hollow bearing logs on the ground to provide habitat.		
Decommissioning Dams	27. It is recommended to avoid decommissioning dams during the Little Pied Bat breeding season (September–December) to minimize stress and reduce the risk of young mortality	Proponent, contractor	Construction
Accidental death of fauna	28. If threatened fauna species are discovered, they should be permitted to leave the area on their own accord. No vegetation known to contain threatened species may be removed until the animal has departed. If the species is suspected to be breeding within the vegetation to be removed, stop works immediately and contact a suitably qualified ecologist for advice prior to proceeding. 29. Qualified personnel with animal handling experience will be onsite during the removal of hollow-bearing trees to monitor temperatures, inspect hollows, relocate fauna as necessary and manage any injured wildlife. 30. Where fauna is encountered, the qualified personnel will remove the animal(s) and relocate them nearby, or if necessary, deliver them to a veterinarian or wildlife carer for rehabilitation. Fauna should be removed from the work zone passively (i.e. ushering) where possible, or where not possible, they would be removed manually. 31. In the case of injured fauna, the qualified personnel will make an assessment and may euthanize the animal.	Contractor	Construction
Lighting	32. Any artificial lighting to be used during construction should follow the Best Practice Lighting Design within the National Light Pollution Guidelines (DoEE 2020). In particular, all lighting should be kept close to the ground, directed, and shielded to avoid light spill.	Contractor	Pre-construction, construction
Soil management	33. Install erosion and sediment controls in line with Landcom's Managing Urban Stormwater, Soils & Construction Guidelines (The Blue Book. Landcom 2004). 34. Where practicable, spread mulch made from vegetation cleared on site on areas of bare soil to stabilise, preventing dust and erosion. 35. Erosion and sedimentation controls are to be checked and maintained on a regular basis. This includes clearing of sediment from behind barriers and after heavy rainfall events. 36. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. 37. Stockpile topsoil removed to be redistributed across site at completion of construction. 38. Implement dust suppression activities.	Contractor	Pre-construction and construction

Aspect	Environmental safeguards	Responsibility	Timing
Introduction and spread of priority weeds and pathogens	39. Construction crew should be briefed on the identification of priority weeds that occur on site during inductions (see **Table 6-1**). 40. If declared priority weeds are identified during construction they will be managed according to the requirements of the *Biosecurity Act 2015*. 41. Construction machinery (bulldozers, excavators, trucks, loaders and graders) will be cleaned using a high-pressure washer or other suitable device before entering and exiting work sites. 42. Machinery will be inspected by designated personnel following washdown to ensure no soil, mud, or vegetative material remains. Records of inspections to be maintained. 43. All pesticides will be used in accordance with the requirements on the label. Any person carrying out pesticide (including herbicide) application will be trained to do so and have the proper certificate of completion/competency or statement of attainment issued by a registered training organisation. 44. Keep records of any weed control activities that take place.	Contractor	Construction
Disturbance to fallen timber, dead wood, and bush rock	45. Any fallen timber, dead wood, and bush rock encountered on site would be left *in situ* (where possible) or relocated to a suitable place nearby.	Contractor	Construction
Exacerbating invasive fauna	46. All food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent providing forage habitats for foxes, rats, dogs, and cats.	Contractor	Construction
Increased risk of fire	47. If any "hot works" are to be undertaken, these activities will not take place on days of extreme fire danger (where possible).	Contractor	Construction
Aquatic habitat	48. Consideration will be given to undertaking the works during low (or no) flow conditions where possible, to minimise impacts on aquatic organisms. 49. Impacts to snags large woody debris >50 cm in two dimensions) within waterways will be avoided. If snags must be moved, they would be realigned within the waterway, rather than removed. 50. For any dredging or reclamation work within watercourses, the proponent must give the Minister written notice of the proposed work in accordance with Section 199 under Part 7 of the FM Act.	Proponent, contractor	Pre-construction, construction and post-construction

8. CONCLUSION

Approximately 77.63 ha of native vegetation occurs within the subject site. This vegetation was identified as belonging to 14 PCTs:

- PCT 57 – Belah/Black Oak - Western Rosewood - Wilga woodland of central NSW including the Cobar Peneplain Bioregion,
- PCT 72 – White Cypress Pine - Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion,
- PCT 103 – Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion,
- PCT 104 – Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion,
- PCT 105 – Poplar Box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion,
- PCT 108 – Gum Coolabah - Mulga open woodland on gravel ridges of the Cobar Peneplain Bioregion,
- PCT 119 – Sandplain Mulga tall shrubland - open shrubland of the semi-arid and arid climate zones,
- PCT 143 – Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes,
- PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion,
- PCT 173 – Sandplain mallee of central NSW,
- PCT 174 – Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion,
- PCT 207 – Poplar Box grassy low woodland of drainage lines and depressions of the semi-arid (hot) and arid zone climate zones,
- PCT 229 – Derived mixed shrubland on loamy-clay soils in the Cobar Peneplain Bioregion, and
- PCT 245 – Pine - Belah low open woodland of the western Cobar Peneplain and northern Murray Darling Depression Bioregion.

Seven PCTs within the impact area (57, 119, 143, 171, 173, 174, and 229) are associated with TEC listings. No areas of these PCTs within the subject site fit the criteria to be considered a TEC. However, PCT 245, which is not recognised as being associated with a TEC on the BioNet Vegetation Classification Database, was nevertheless found to meet criteria to be considered a TEC:

- BC Act-listed EEC: *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions.*

Only areas of PCT 245 within the Murray Darling Depression Bioregion were regarded as belonging to this EEC; therefore, up to 0.94 ha of this EEC will be impacted by the proposal. While any reduction in the extent of an EEC is discouraged, the retention of larger areas of this EEC in the study area suggests that this proposal alone is unlikely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Six natural watercourses occur within the subject site:

- One unnamed Strahler 1st order, minor, on-perennial watercourse,
- Three unnamed Strahler 2nd order, minor, on-perennial watercourses,
- One unnamed Strahler 3rd order, minor, on-perennial watercourse, and
- Sandy Creek (>4th order, major, perennial watercourse).

Furthermore, various minor drainage lines flow into the human-made dams inside the NP boundary.

Although publicly available mapping does not identify Sandy Creek as KFH, the DPI – Fisheries have advised that they expect the creek to be treated as KFH. As such, KFH occurs within the subject site.

However, no PRL, as recognised by the NSW DCCEEW, occurs within the 10 km search area. The closest area of PRL is located approximately 70 km south of the subject site at Conoble Creek. Furthermore, no threatened fish species are mapped as potentially occurring within the 10 km search area. As such, no tests of significance were considered necessary under the FM Act.

The subject site crosses Sandy Creek (a tributary of the Bogan River). As such, the Lowland Darling River aquatic ecological community occurs within the subject site. Considering eight water flow barriers (dams) will be removed, and no dredging or reclamation works will occur across Sandy Creek, a test of significance under the FM Act was not considered necessary.

Eight human-made dams will be decommissioned as a component of this proposal. These dams provide habitat for waterfowl, turtles and frogs, and drinking water for other wildlife. Four dams will be retained (Emu, Harvey's and Twin Dam [2x dams]) and will provide an ongoing water source for wildlife within the NP.

Forty-eight habitat trees occur within or directly adjacent to the subject site. These trees contain a total of 106 hollows (11 extra-small hollows [< 5cm], 64 small hollows [5-9cm], 17 medium hollows [10-19cm], 13 large hollows [20-29cm], and one extra-large hollow [≥30cm]) and five

nests. Furthermore, the subject site contained scattered bushrock and dead wood. It is recommended that these habitat features be left in situ (where possible) or relocated to a suitable place nearby.

Sixty-two species listed as threatened and/or migratory under the BC Act and/or EPBC Act were assessed as having a moderate or high likelihood of occurring at the subject site. Of these, five were detected during the field survey. Three threatened bird species and one threatened bat species were recorded within the subject site and/or study area – Grey-crowned Babbler (Vulnerable, BC Act), Southern Whiteface (Vulnerable, BC and EPBC Act), and Pink Cockatoo (Vulnerable, BC Act; Endangered, EPBC Act), Little Pied Bat (Vulnerable, BC Act). A further threatened bird species was also recorded outside of the 1.5 km study area – South-eastern Hooded Robin (Endangered, BC and EPBC Act). In total, 18 Grey-crowned Babblers, two South-eastern Hooded Robins, 26 Pink Cockatoos, and four Southern Whitefaces were seen during the field survey. Bird logger data from Trevor's and Jan's dam also recorded Grey-crowned Babbler and Southern Whiteface. Furthermore, the Little Pied Bat was recorded by bat loggers placed at both Jan's Dam and Tom's Dam. Tests of significance were carried out for all 62 species assessed as having a moderate – high likelihood of occurring at the subject site. No significant impact on any threatened or migratory fauna species is anticipated as a result of this proposal.

An EPBC Act protected matters search identified three Wetlands of International Importance, two TECs, 17 threatened, seven migratory species, and 13 marine species, that may occur within the search area. However, no significant impact to any entity listed under the EPBC Act is expected, provided adequate mitigation measures are followed.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the NSW BOS is triggered by a changed scope, additional field work and reporting completed according to the BAM may be required.

9. BIBLIOGRAPHY

Australian Government Bureau of Meteorology (2024). Atlas of Groundwater Dependent Ecosystems. <http://www.bom.gov.au/water/groundwater/gde/map.shtml>

Australian Government Bureau of Meteorology (2024). Climate Data Online. <http://www.bom.gov.au/climate/data/>

Australian Government Department of Climate Change, Energy, the Environment and Water (2021). Directory of Important Wetlands. https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

Australian Government Department of Climate Change, Energy, the Environment and Water (2024). Protected Matters Search Tool. <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>

Australian Government Department of Sustainability, Environment, Water, Population and Communities (2011). Survey Guidelines for Australia's Threatened Mammals. Guidelines for detecting mammals listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*. < https://www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf>

Australian Government Department of Sustainability, Environment, Water, Population and Communities (2012). Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Subregions). Canberra.

Australian Government Department of the Environment (2013). Matters of National Environmental Significance - Significant impact guidelines 1.1 - *Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia. <http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf>

Australian Government Department of the Environment, Water, Heritage and the Arts (2010). Survey Guidelines for Australia's Threatened Birds. Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*.

Australian Virtual Herbarium 2024, https://avh.chah.org.au/

Briggs, J and Leigh, J 1996, Rare or Threatened Australian Plants, CSIRO Publishing, Collingwood, Victoria

Don E. Wilson, Russell A. Mittermeier (2019): Vespertilionidae. In: Handbook of the Mammals of the World – Volume 9 Bats. Barcelona: Lynx Edicions: 716-981, ISBN: 978-84-16728-19-0, DOI: 10.5281/zenodo.6397752

Fairfull, S. (2013). Policy and Guidelines for Fish Habitat Conservation and Management. Sydney: NSW Department of Primary Industries.

Higgins PJ, Peter JM (eds.) (2002). Handbook of Australian, New Zealand and Antarctic Birds. Volume 6: Pardalotes to Shrike-thrushes. Oxford University Press, Melbourne, Australia.

Keith, D. (2004). Ocean Shores to Desert Dunes: the Vegetation of New South Wales and the ACT. Department of Environment and Conservation NSW.

Mitchell, P. (2002). Descriptions for NSW (Mitchell) Landscapes. NSW Department of Planning and Environment.

Morgan, G., & Terrey, J. (1992). Nature conservation in western New South Wales. Sydney: National Parks Association.

NSW Department of Climate Change, Energy, the Environment and Water (2021). HEVAE Vegetation Groundwater Dependent Ecosystems Value - Western Division. <https://datasets.seed.nsw.gov.au/dataset/hevae-vegetation-groundwater-dependent-ecosystems-western-division >

NSW Department of Planning and Environment (2011a). NSW Wetlands. <https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7>

NSW Department of Planning and Environment (2011b). Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category. <https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e>

NSW Department of Planning and Environment (2016). NSW (Mitchell) Landscapes – version 3.1. <https://datasets.seed.nsw.gov.au/dataset/nsw-mitchell-landscapes-version-3-1>

NSW Department of Planning and Environment (2017). NSW Landuse mapping. <https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017>

NSW Department of Planning and Environment (2022a). Threatened Reptiles Biodiversity Assessment Method Survey Guide. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-reptiles-biodiversity-assessment-method-survey-guide>

NSW Department of Planning and Environment (2022b). Areas of Outstanding Biodiversity Value. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value>

NSW Department of Planning and Environment (2022c). State Vegetation Type Map C1.1.M1.1. <https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map>

NSW Department of Planning and Environment (2022d). Acid Sulfate Soils Risk. <https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c>

NSW Department of Climate Change, Energy, the Environment and Water (2024a). BioNet. <https://www.bionet.nsw.gov.au/>

NSW Department of Climate Change, Energy, the Environment and Water (2024b). Threatened Biodiversity Data Collection. < https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/about-bionet-atlas/threatened-biodiversity-profiles>

NSW Department of Climate Change, Energy, the Environment and Water (2024c). BioNet Vegetation Classification. <http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx>

NSW Department of Climate Change, Energy, the Environment and Water (2024d). NSW Biodiversity Values Map. https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map

NSW Department of Climate Change, Energy, the Environment and Water (2024e). Wetlands. https://www.environment.nsw.gov.au/topics/water/wetlands

NSW Department of Climate Change, Energy, the Environment and Water (2024f). NSW Plant Community Type Classification. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/nsw-plant-community-type-classification>

NSW Department of Planning and Industry (2007). Primefacts. Endangered ecological communities in NSW. Lowland Darling River aquatic ecological community. <https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/634557/Lowland-Darling-River-aquatic-ecological-community.pdf>

NSW Department of Planning, Industry and Environment (2020a). Surveying threatened plants and their habitats. NSW survey guide for the Biodiversity Assessment Method.

NSW Department of Planning, Industry and Environment (2020b). Biodiversity Assessment Method. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf>

NSW Department of Primary Industries (2023). Freshwater threatened species distribution maps. https://www.dpi.nsw.gov.au/fishing/threatened-species/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps

NSW Department of Primary Industries (2024). NSW WeedWise: Priority weeds for the Western < https://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=44>

NSW National Parks and Wildlife Service (2003). The Bioregions of New South Wales their biodiversity, conservation and history.

NSW Office of Environment and Heritage (2018). 'Species credit' threatened bats and their habitats. NSW survey guide for the Biodiversity Assessment Method.

Royal Botanic Gardens and Domain Trust. (2024). PlantNET. <http://plantnet.rbgsyd.nsw.gov.au>

Serov, P, Kuginis, L, Williams, JP. (2012). Risk assessment guidelines for groundwater dependent ecosystems, Volume 1 – The conceptual framework, NSW Department of Primary Industries, Office of Water, Sydney.

Spatial Services (DCS). 2016. NSW Hydrography. <https://datasets.seed.nsw.gov.au/dataset/nsw-hydrography>

Thackway, R., & Cresswell, I. (1995). An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program.

Triggs, B 1996, Tracks, scats and other traces: a field guide to Australian mammals, Oxford University Press, Melbourne, Victoria

Van Dyck, S and Strahan, R (Eds) 2008, The mammals of Australia (3rd edition). Reed New Holland, Sydney, NSW

Van Dyck et al. (2012). Field Companion to The Mammals of Australia. New Holland Books.

Wilson, DE and Mittermeier, RA (Eds.) 2019, Handbook of the Mammals of the World - Vol. 9, Bats.

APPENDIX A – DATABASE SEARCH RESULTS

EPBC Act Protected Matters Report

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 09-Aug-2024

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	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	17
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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
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:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

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

Ramsar Site Name	Proximity
Banrock station wetland complex	400 - 500km upstream from Ramsar site
Riverland	300 - 400km upstream from Ramsar site
The coorong, and lakes alexandrina and albert wetland	500 - 600km upstream from Ramsar site

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
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community may occur within area
Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	Community likely to occur 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
BIRD		
Amytornis striatus striatus Mukarrthippi Grasswren, Striated Grasswren (sandplain) [26001]	Critically Endangered	Species or species habitat may occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat likely to occur within area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Stagonopleura guttata		
Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area
FISH		
Maccullochella macquariensis		
Trout Cod [26171]	Endangered	Species or species habitat may occur within area
MAMMAL		
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat known to occur within area
PLANT		
Lepidium monoplocoides		
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

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

Scientific Name	Threatened Category	Presence Text
Chalcites osculans as Chrysococcyx osculans		
Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Neophema chrysostoma		
Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Koonaburra	National Park	NSW

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

BioNET Atlas search – threatened species predicted to occur within the Darling Depression subregion of the Murray Darling Depression Bioregion, and the Barnato Downs subregion of the Cobar Peneplain Bioregion.

Class	Scientific Name	Common Name	*NSW status	+Comm Status	-Records
Amphibia	*Crinia sloanei*	Sloane's Froglet	E1,P	E	1
Amphibia	*Litoria raniformis*	Southern Bell Frog	E1,P	V	P
Aves	*Actitis hypoleucos*	Common Sandpiper	P	C,J,K	1
Aves	*Amytornis striatus striatus*	Mukarrthippi Grasswren	E4A,P	CE	38
Aves	*Aphelocephala leucopsis*	Southern Whiteface	V,P	V	251
Aves	*Apus pacificus*	Fork-tailed Swift	P	C,J,K	9
Aves	*Ardeotis australis*	Australian Bustard	E1,P		4
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		40
Aves	*Botaurus poiciloptilus*	Australasian Bittern	E1,P	E	P
Aves	*Burhinus grallarius*	Bush Stone-curlew	E1,P		1
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C,J,K	1
Aves	*Calidris ruficollis*	Red-necked Stint	P	C,J,K	1
Aves	*Calyptorhynchus banksii samueli*	Red-tailed Black-Cockatoo (inland subspecies)	V,P,2		3
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	1
Aves	*Certhionyx variegatus*	Pied Honeyeater	V,P		19
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P		29
Aves	*Cinclosoma castanotum*	Chestnut Quail-thrush	V,P		305
Aves	*Circus assimilis*	Spotted Harrier	V,P		32
Aves	*Climacteris affinis*	White-browed Treecreeper population in Carrathool local government area south of the Lachlan River and Griffith local government area	E2,P		2
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	68
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		66
Aves	*Drymodes brunneopygia*	Southern Scrub-robin	V,P		459
Aves	*Epthianura albifrons*	White-fronted Chat	V,P		44
Aves	*Falco hypoleucos*	Grey Falcon	V,P,2	V	7
Aves	*Falco subniger*	Black Falcon	V,P		18
Aves	*Gallinago hardwickii*	Latham's Snipe	V,P	V,J,K	1
Aves	*Gelochelidon nilotica*	Gull-billed Tern	P	C	5
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P		1
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	15
Aves	*Grus rubicunda*	Brolga	V,P		4
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P		1
Aves	*Hamirostra melanosternon*	Black-breasted Buzzard	V,P,3		2
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P		56
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K	3
Aves	*Hydroprogne caspia*	Caspian Tern	P	J	10
Aves	*Hylacola cautus*	Shy Heathwren	V,P		421
Aves	*Lathamus discolor*	Swift Parrot	E1,P	CE	2
Aves	*Leipoa ocellata*	Malleefowl	E1,P	V	129
Aves	*Limosa lapponica*	Bar-tailed Godwit	P	C,J,K	1
Aves	*Limosa limosa*	Black-tailed Godwit	V,P	E,C,J,K	P
Aves	*Lophochroa leadbeateri*	Pink Cockatoo	V,P,2	E	378
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3		1

Class	Scientific Name	Common Name	*NSW status	+Comm Status	-Records
Aves	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	E1,P	E	145
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		1
Aves	*Neophema chrysostoma*	Blue-winged Parrot	V,P	V	7
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3		6
Aves	*Ninox connivens*	Barking Owl	V,P,3		4
Aves	*Oxyura australis*	Blue-billed Duck	V,P		4
Aves	*Pachycephala inornata*	Gilbert's Whistler	V,P		318
Aves	*Pachycephala rufogularis*	Red-lored Whistler	E4A,P	V	358
Aves	*Pedionomus torquatus*	Plains-wanderer	E1,P,3	CE	1
Aves	*Petroica phoenicea*	Flame Robin	V,P		3
Aves	*Polytelis swainsonii*	Superb Parrot	V,P,3	V	25
Aves	*Pomatostomus halli*	Hall's Babbler	V,P		1
Aves	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P		320
Aves	*Pyrrholaemus brunneus*	Redthroat	V,P		P
Aves	*Rostratula australis*	Australian Painted Snipe	E1,P	E	1
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	8
Aves	*Stictonetta naevosa*	Freckled Duck	V,P		26
Aves	*Tringa nebularia*	Common Greenshank	P	C,J,K	2
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3		P
Flora	*Acacia curranii*	Curly-bark Wattle	V	V	7
Flora	*Acacia petraea*	Lancewood	E1		1
Flora	*Atriplex infrequens*	A saltbush	V	V	P
Flora	*Austrostipa metatoris*	A spear-grass	V	V	1
Flora	*Brachyscome papillosa*	Mossgiel Daisy	V	V	P
Flora	*Dodonaea sinuolata subsp. acrodentata*	A Hopbush	E1		1
Flora	*Dysphania plantaginella*		E1		2
Flora	*Eleocharis obicis*	Spike-Rush	V	V	P
Flora	*Goodenia occidentalis*	Western Goodenia	E1		4
Flora	*Grevillea ilicifolia subsp. ilicifolia*	Holly-leaf Grevillea	E4A		5
Flora	*Kippistia suaedifolia*	Fleshy Minuria	E1		11
Flora	*Lepidium monoplocoides*	Winged Peppercress	E1	E	2
Flora	*Leptorhynchos orientalis*	Lanky Buttons	E1		24
Flora	*Osteocarpum pentapterum*		E4		1
Flora	*Phyllanthus maderaspatensis*		E1		P
Flora	*Pterostylis cobarensis*	Greenhood Orchid	V,P,2		3
Flora	*Rutidosis leptorrhynchoides*	Button Wrinklewort	E1	E	1
Flora	*Solanum karsense*	Menindee Nightshade	V	V	6
Flora	*Swainsona murrayana*	Slender Darling Pea	V	V	P
Mammalia	*Antechinomys laniger*	Kultarr	E1,P		24
Mammalia	*Chalinolobus picatus*	Little Pied Bat	V,P		46
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	2
Mammalia	*Macrotis lagotis*	Bilby	E4,P	V	2
Mammalia	*Ningaui yvonneae*	Southern Ningaui	V,P		5
Mammalia	*Nyctophilus corbeni*	Corben's Long-eared Bat	V,P	V	12
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	4
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	6
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		14
Mammalia	*Setirostris eleryi*	Bristle-faced Free-tailed Bat	E1,P		2
Mammalia	*Sminthopsis macroura*	Stripe-faced Dunnart	V,P		K

Class	Scientific Name	Common Name	*NSW status	+Comm Status	-Records
Mammalia	*Vespadelus baverstocki*	Inland Forest Bat	V,P		23
Reptilia	*Antaresia stimsoni*	Stimson's Python	V,P		P
Reptilia	*Delma australis*	Marble-faced Delma	E1,P		7
Reptilia	*Lerista xanthura*	Yellow-tailed Plain Slider	V,P		1
Reptilia	*Pseudonaja modesta*	Ringed Brown Snake	E1,P		P
Reptilia	*Simoselaps fasciolatus*	Narrow-banded Snake	V,P		1
Reptilia	*Strophurus elderi*	Jewelled Gecko	V,P		P
Reptilia	*Tiliqua occipitalis*	Western Blue-tongued Lizard	V,P		11

***NSW Status:** P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

+ Comm. Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

- Records: P = predicted to occur, K = known to occur.

BioNET Atlas search – Threatened ecological communities predicted to occur within the Darling Depression subregion of the Murray Darling Depression Bioregion, and the Barnato Downs subregion of the Cobar Peneplain Bioregion.

Community	*NSW Status	+Comm status	-Records
Acacia loderi shrublands	E3		K
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	E3		K
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions		E	K
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions		E	K
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia		E	K
Mallee Bird Community of the Murray Darling Depression Bioregion		E	K
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	E3		K
Poplar Box Grassy Woodland on Alluvial Plains		E	K
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	E3		P
Weeping Myall Woodlands		E	K
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		CE	K

***NSW Status:** E3= Endangered, E4B=Critically endangered
+Comm. Status: CE=Critically endangered, E=Endangered.
- Records: P = predicted to occur, K = known to occur.

BioNET Atlas search – Key Threatening Processes predicted to occur within the Darling Depression subregion of the Murray Darling Depression Bioregion, and the Barnato Downs subregion of the Cobar Peneplain Bioregion.

Threats	NSW Status	Comm Status
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP	
Anthropogenic Climate Change	KTP	KTP
Bushrock removal	KTP	
Clearing of native vegetation	KTP	KTP
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)	KTP	KTP
Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758	KTP	KTP
Competition from feral honey bees, *Apis mellifera* L.	KTP	
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP	
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758	KTP	
Herbivory and environmental degradation caused by feral deer	KTP	
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP	
Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972	KTP	KTP
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP
Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)	KTP	
Invasion and establishment of exotic vines and scramblers	KTP	
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP	
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP
Invasion of native plant communities by African Olive *Olea europaea subsp. cuspidata* (Wall. ex G. Don) Cif.	KTP	
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP	
Invasion of native plant communities by exotic perennial grasses	KTP	
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW	KTP	
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)	KTP	
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP
Loss of Hollow-bearing Trees	KTP	
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP	
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP	
Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP	
Predation by the European Red Fox *Vulpes Vulpes* (Linnaeus, 1758)	KTP	KTP
Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)	KTP	KTP
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758	KTP	KTP

Threats	NSW Status	Comm Status
Removal of dead wood and dead trees	KTP	

Biodiversity Values Map and Threshold Tool

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		20/08/2024 1:27 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	yes
1.2	**Was ALL BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
1.3	**Date of expiry of dark purple 90 day mapping**	N/A
1.4	**Is the Biodiversity Values Map threshold exceeded?**	yes
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	464,613,060.3 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	464,290,595.0 sqm
2.3	**Method for determining Minimum Lot Size**	LEP
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	10,000,000 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	20,000 sqm
2.6	**Does the estimate exceed the Area Clearing Threshold?** (NVACE results are an estimate and can be reviewed using the Guidance)	yes
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		**yes**

Page 1 of 4

NSW GOVERNMENT Department of Planning and Environment

What do I do with this report?

- If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

- If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is "likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

- If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

- If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

- If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

- If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: _____ Date: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

20/08/2024 01:27 PM

Page 2 of 4

Department of Planning and Environment

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

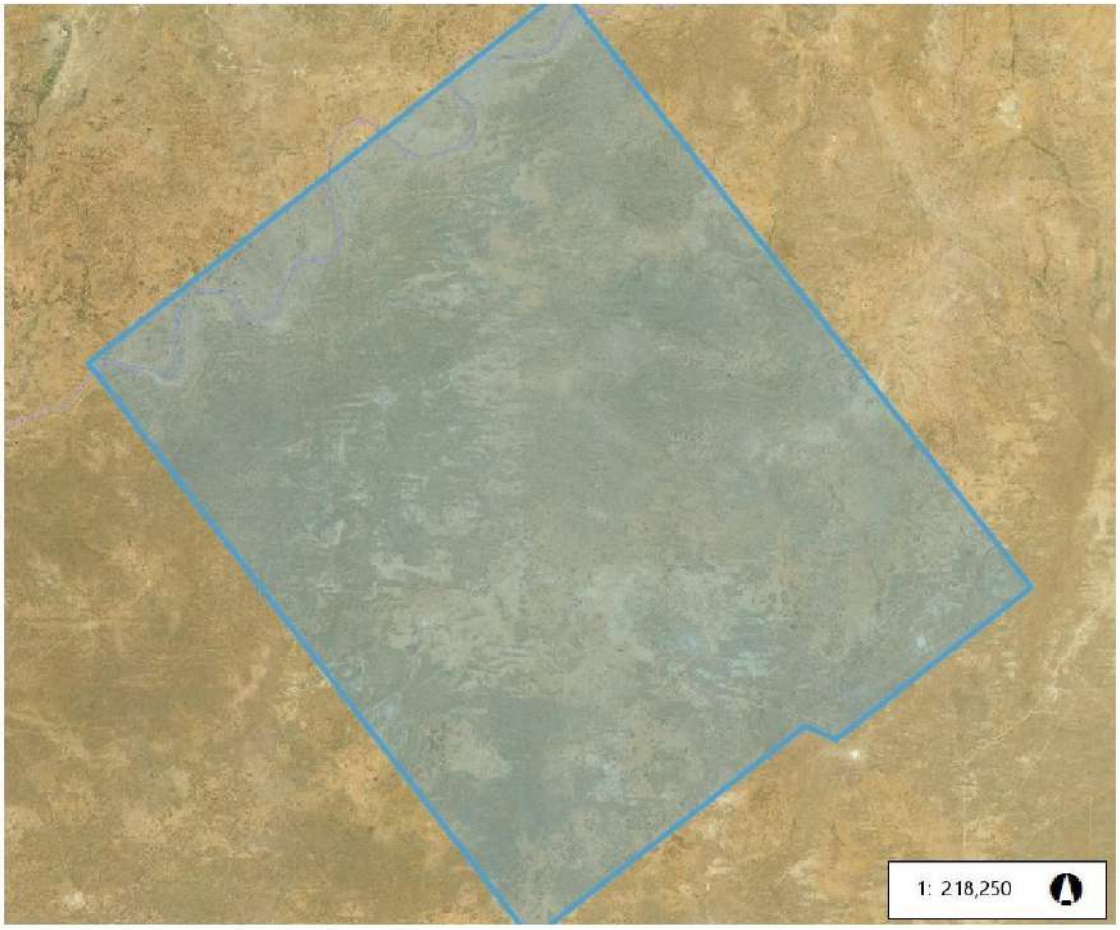
What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Page 3 of 4

Biodiversity Values Map



11,087.1 0 5,543.55 11,087.1 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

20/08/2024 01:27 PM

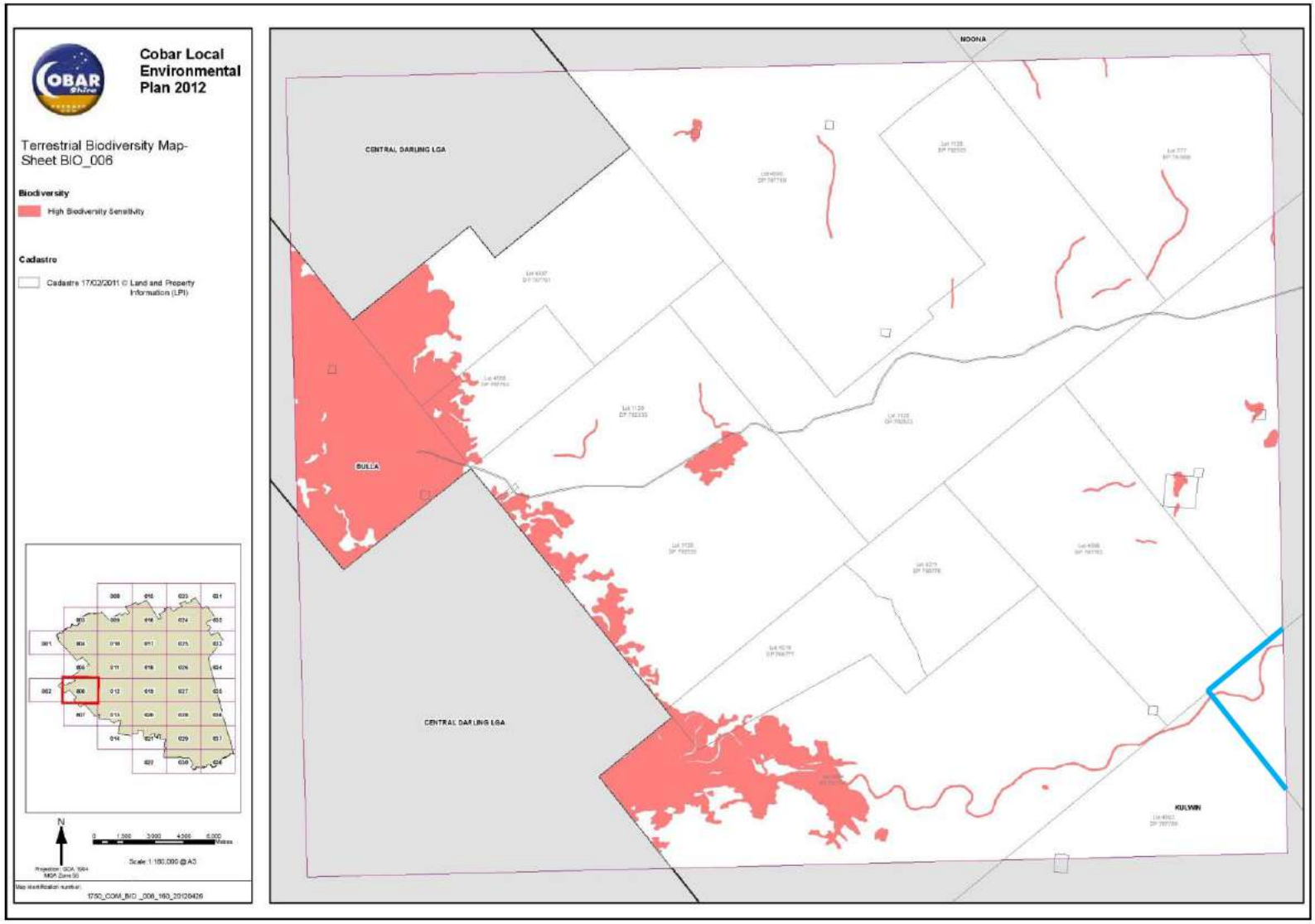
The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

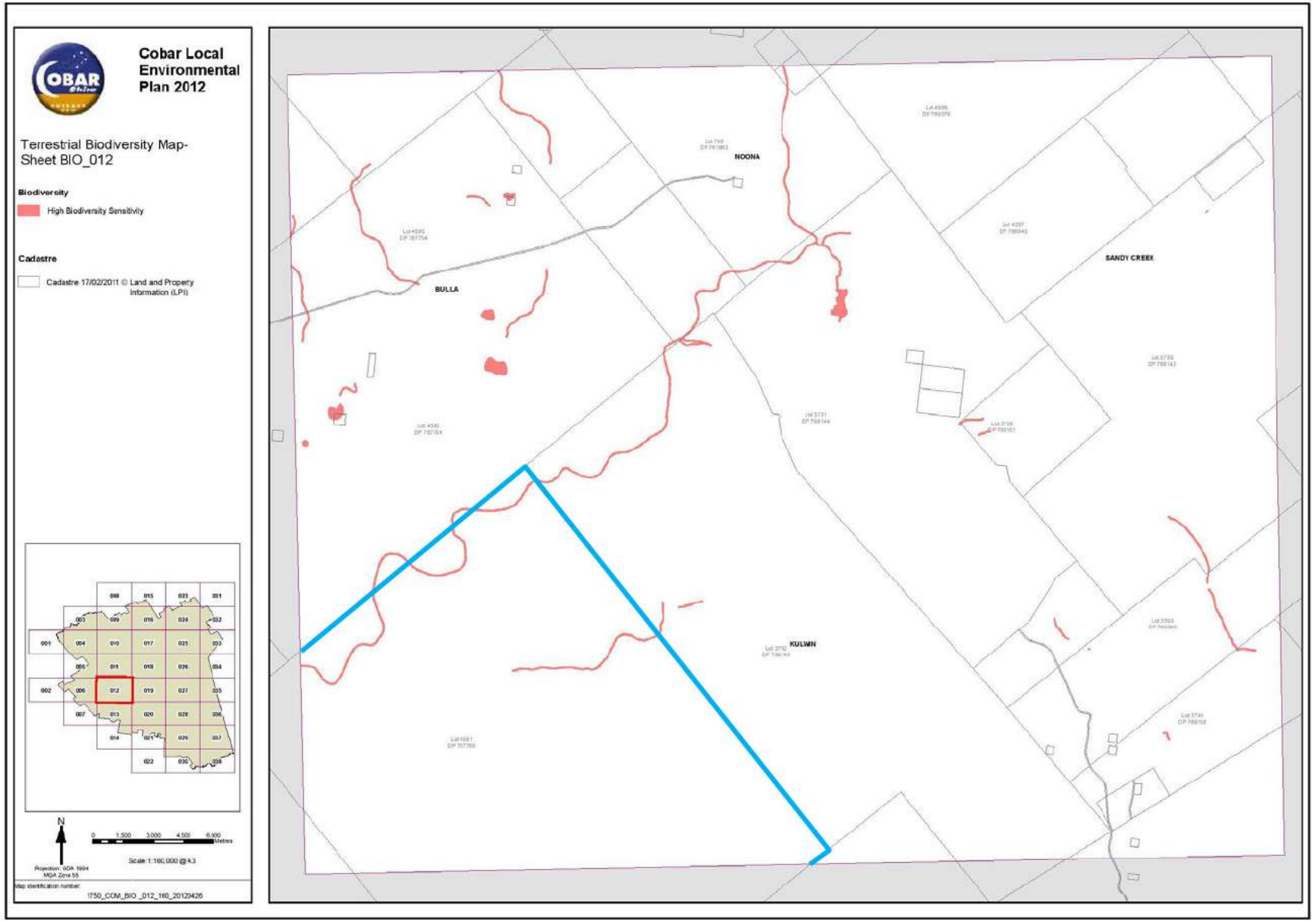
This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

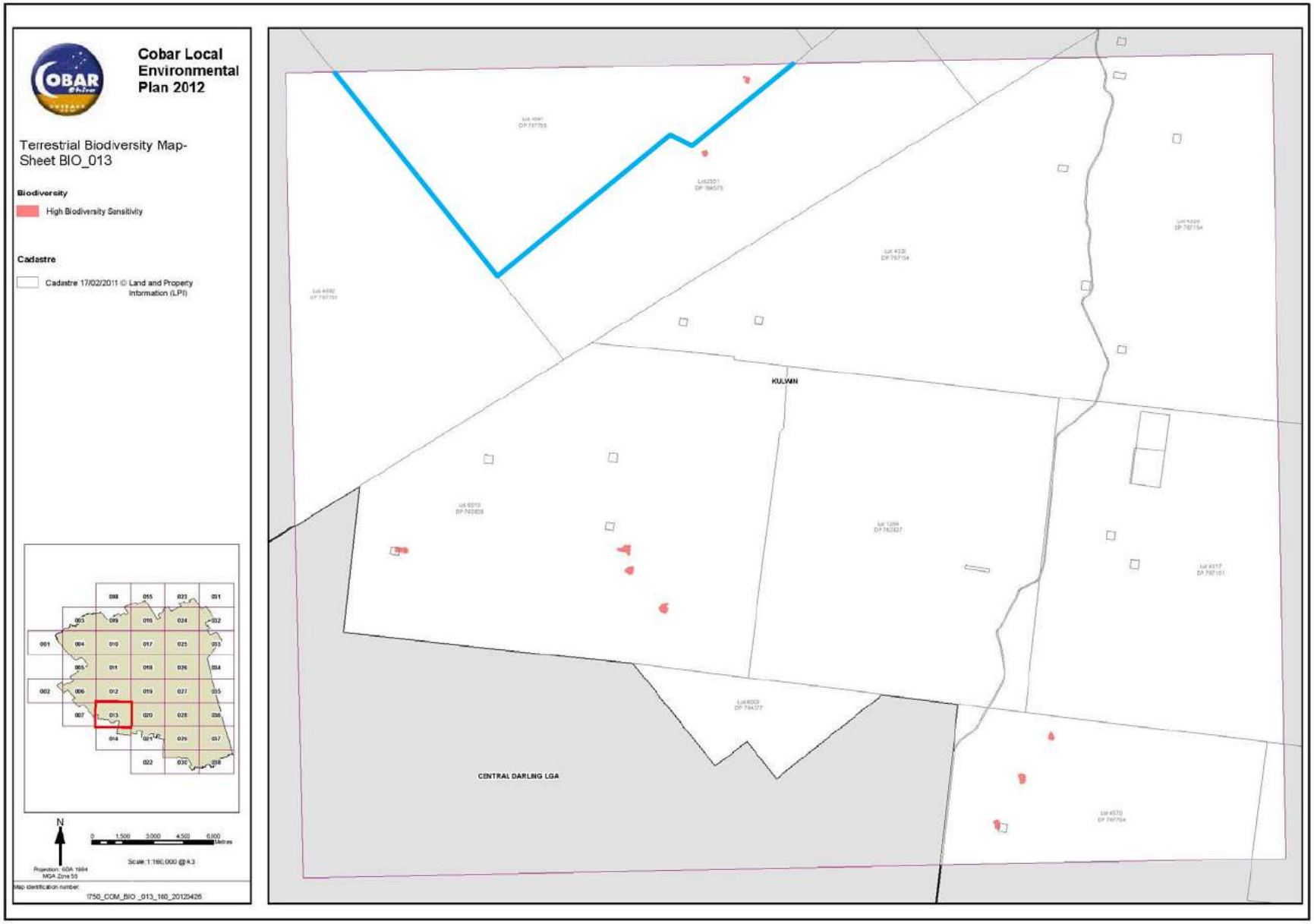
Page 4 of 4

Cobar Local Environmental Plan 2012 – Terrestrial Biodiversity Mapping

The subject site (approximately shown by the blue polygon) falls within an area mapped as possessing high terrestrial biodiversity sensitivity (red). See below.




Cobar Local Environmental Plan 2012
Terrestrial Biodiversity Map- Sheet BIO_012
Biodiversity
High Biodiversity Sensitivity
Cadastre
Cadastre 17/02/2011 © Land and Property Information (LPI)
NOONA
BULLA
SANDY CREEK
KULWIN
N
Scale 1:160,000 @ A3
I750_COM_BIO_012_160_20120426


Cobar Local Environmental Plan 2012
Terrestrial Biodiversity Map- Sheet BIO_013
Biodiversity
High Biodiversity Sensitivity
Cadastre
Cadastre 17/02/2011 © Land and Property Information (LPI)
KULWIN
CENTRAL DARLING LGA
N
Scale:1:160,000 @A3
Projection: GDA 1994 MGA Zone 55
Map identification number:
1750_COM_BIO_013_160_20120426

APPENDIX B – FIELD SURVEY RESULTS

REPRESENTATIVE PHOTOS OF PCTS

PCT	Photograph
57	

PCT	Photograph
72	

PCT	Photograph
103	

PCT	Photograph
104	

PCT	Photograph
105	

PCT	Photograph
108	

PCT	Photograph
119	

PCT	Photograph
143	

PCT	Photograph
171	

PCT	Photograph
173	

PCT	Photograph
174	

PCT	Photograph
207	

PCT	Photograph
229	

PCT	Photograph
245	

DAMS INSPECTED WITHIN KOONABURRA NATIONAL PARK

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Borri (to be decommissioned)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Black-fronted dotterel (*Elseyornis melanops*)	No
Dingo (to be decommissioned)		• Wood Duck (*Chenonetta jubata*)	No

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Emu (to be retained and fenced)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Black Duck (*Anas superciliosa*) • Wood Duck (*Chenonetta jubata*)	Yes
Harvey's (to be retained and fenced)		None	Yes

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Jans (to be decommissioned)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Black-fronted dotterel (*Elseyornis melanops*) • Grey Teal (*Anas gracilis*) • Wood Duck (*Chenonetta jubata*)	Yes
Johnny's (to be decommissioned)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Grey Teal (*Anas gracilis*)	No

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Rock (to be decommissioned)		• Grey Teal (*Anas gracilis*) • Wood Duck (*Chenonetta jubata*)	No
Rodney's (to be decommissioned)		• Wood Duck (*Chenonetta jubata*)	No

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Share (to be excluded from Koonaburra NP)		• Wood Duck (*Chenonetta jubata*)	No
Tom's (to be decommissioned)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Black-fronted dotterel (*Elseyornis melanops*) • Grey Teal (*Anas gracilis*) • Wood Duck (*Chenonetta jubata*)	Yes

Dam Name	Photo	Wetland Fauna Species Present	Aquatic Vegetation Present?
Trevor's (to be decommissioned)		• Wood Duck (*Chenonetta jubata*)	No
Twin (to be retained and fenced)		• Australasian Grebe (*Tachybaptus novaehollandiae*) • Black-fronted dotterel (*Elseyornis melanops*) • Grey Teal (*Anas gracilis*) • Spotted Marsh Frog (*Limnodynastes tasmaniensis*) • Barking Marsh Frog (*Limnodynastes fletcheri*) • Wood Duck (*Chenonetta jubata*)	Yes

FLORA SPECIES LIST

In total, 129 plant species were detected during the 12th – 18th of August 2024 field survey; these species are listed in the table below. Of these, 108 (83.72%) were native and 21 (16.28%) were introduced. Four of the introduced species are listed as high-threat exotic species (HTE) under the BAM, one of which – African Boxthorn (*Lycium ferocissimum*) – is also considered a Weed of National Significance (WoNS) and a Priority Weeds (PW) for the Western Local Land Services (LLS) region. No threatened species were detected.

[1]Growth form	Scientific name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
EG	*Marsilea drummondii*	Common Nardoo	N	No	No	No
FG	*Actinobole uliginosum*	Flannel Cudweed	N	No	No	No
FG	*Atriplex limbata*	-	N	No	No	No
FG	*Boerhavia dominii*	Tarvine	N	No	No	No
FG	*Calandrinia eremaea*	Small Purslane	N	No	No	No
FG	*Calotis cuneifolia*	Purple Burr-Daisy	N	No	No	No
FG	*Calotis hispidula*	Bogan Flea	N	No	No	No
FG	*Centipeda cunninghamii*	Common Sneezeweed	N	No	No	No
FG	*Dysphania cristata*	Crested Crumbweed	N	No	No	No
FG	*Einadia nutans*	Climbing Saltbush	N	No	No	No
FG	*Erodium crinitum*	Blue Crowfoot	N	No	No	No
FG	*Euphorbia drummondii*	Caustic Weed	N	No	No	No
FG	*Goodenia cycloptera*	Cut-leaf Goodenia	N	No	No	No
FG	*Goodenia fascicularis*	Mallee Goodenia	N	No	No	No
FG	*Hyalosperma semisterile*	-	N	No	No	No
FG	*Maireana enchylaenoides*	Wingless Fissure-weed	N	No	No	No
FG	*Myriophyllum verrucosum*	Red Water-milfoil	N	No	No	No
FG	*Omphalolappula concava*	Burr Stickseed	N	No	No	No
FG	*Plantago turrifera*	Small Sago-weed	N	No	No	No
FG	*Ptilotus polystachyus var. polystachyus*	Long Tails	N	No	No	No
FG	*Rhodanthe pygmaea*	Pigmy Sunray	N	No	No	No
FG	*Roepera ammophila*	Sand Twinleaf	N	No	No	No
FG	*Sida corrugata*	Corrugated Sida	N	No	No	No
FG	*Sida fibulifera*	Pin Sida	N	No	No	No
FG	*Solanum esuriale*	Quena	N	No	No	No
FG	*Swainsona burkittii*	-	N	No	No	No
FG	*Tetragonia eremaea*	-	N	No	No	No
FG	*Teucrium racemosum*	Grey Germander	N	No	No	No
FG	*Triptilodiscus pygmaeus*	Common Sunray	N	No	No	No
FG	*Vittadinia spp.*	Fuzzweed	N	No	No	No
FG	*Xerochrysum bracteatum*	Golden Everlasting	N	No	No	No
GG	*Aristida contorta*	Bunched Kerosene Grass	N	No	No	No
GG	*Aristida holathera var. holathera*	Erect Kerosene Grass	N	No	No	No
GG	*Aristida jerichoensis*	Jericho Wiregrass	N	No	No	No
GG	*Austrostipa nodosa*	-	N	No	No	No

[1]Growth form	Scientific name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
GG	*Austrostipa scabra*	Speargrass	N	No	No	No
GG	*Austrostipa tuckeri*	Tucker's Spear-grass	N	No	No	No
GG	*Bothriochloa macra*	Red Grass	N	No	No	No
GG	*Chloris truncata*	Windmill Grass	N	No	No	No
GG	*Eleocharis pallens*	Pale Spike Sedge	N	No	No	No
GG	*Enteropogon acicularis*	Curly Windmill Grass	N	No	No	No
GG	*Eragrostis lacunaria*	Purple Lovegrass	N	No	No	No
GG	*Eragrostis setifolia*	Neverfail	N	No	No	No
GG	*Monachather paradoxus*	Bandicoot Grass	N	No	No	No
GG	*Panicum effusum*	Hairy Panic	N	No	No	No
GG	*Paspalidium constrictum*	Knottybutt Grass	N	No	No	No
GG	*Sporobolus caroli*	Fairy Grass	N	No	No	No
GG	*Thyridolepis mitchelliana*	Mulga Mitchell Grass	N	No	No	No
GG	*Triodia scariosa*	Porcupine Grass	N	No	No	No
OG	*Amyema quandang*	Grey Mistletoe	N	No	No	No
SG	*Abutilon otocarpum*	Desert Lantern	N	No	No	No
SG	*Acacia aneura*	Mulga	N	No	No	No
SG	*Acacia burkittii*	Sandhill Wattle	N	No	No	No
SG	*Acacia colletioides*	Wait-a-while	N	No	No	No
SG	*Acacia havilandiorum*	Haviland's Wattle	N	No	No	No
SG	*Acacia ligulata*	Sandhill Wattle	N	No	No	No
SG	*Acacia tetragonophylla*	Dead Finish	N	No	No	No
SG	*Acacia wilhelmiana*	Wilhelm's Wattle	N	No	No	No
SG	*Apophyllum anomalum*	Warrior Bush	N	No	No	No
SG	*Atriplex stipitata*	Mallee Saltbush	N	No	No	No
SG	*Beyeria Spp.*	-	N	No	No	No
SG	*Bossiaea walkeri*	Cactus Pea	N	No	No	No
SG	*Capparis mitchellii*	Native Orange	N	No	No	No
SG	*Chenopodium curvispicatum*	-	N	No	No	No
SG	*Chenopodium desertorum*	Desert Goosefoot	N	No	No	No
SG	*Dissocarpus paradoxus*	Cannonball Burr	N	No	No	No
SG	*Dodonaea viscosa subsp. angustissima*	Narrow-leaf Hop-bush	N	No	No	No
SG	*Duma florulenta*	Lignum	N	No	No	No
SG	*Enchylaena tomentosa*	Ruby Saltbush	N	No	No	No
SG	*Eremophila deserti*	Turkeybush	N	No	No	No
SG	*Eremophila glabra*	Tar Bush	N	No	No	No
SG	*Eremophila longifolia*	Emubush	N	No	No	No
SG	*Eremophila maculata*	Spotted Fuchsia	N	No	No	No
SG	*Eremophila mitchellii*	Budda	N	No	No	No
SG	*Eremophila sturtii*	Turpentine Bush	N	No	No	No
SG	*Geijera parviflora*	Wilga	N	No	No	No
SG	*Hakea tephrosperma*	Hooked Needlewood	N	No	No	No
SG	*Halgania cyanea*	Rough Halgania	N	No	No	No
SG	*Maireana aphylla*	Cotton Bush	N	No	No	No

[1]Growth form	Scientific name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
SG	*Maireana pyramidata*	Black Bluebush	N	No	No	No
SG	*Melaleuca uncinata*	Broombush	N	No	No	No
SG	*Myoporum montanum*	Western Boobialla	N	No	No	No
SG	*Myoporum platycarpum*	Sugarwood	N	No	No	No
SG	*Olearia pimeleoides*	-	N	No	No	No
SG	*Pittosporum angustifolium*	Butterbush	N	No	No	No
SG	*Sclerolaena birchii*	Galvinized Burr	N	No	No	No
SG	*Sclerolaena convexula*	Tall Copperburr	N	No	No	No
SG	*Sclerolaena diacantha*	Grey Copperburr	N	No	No	No
SG	*Sclerolaena tricuspis*	Giant Redburr	N	No	No	No
SG	*Senna artemisioides subsp. filifolia*	-	N	No	No	No
SG	*Senna artemisioides subsp. X artemisioides*	-	N	No	No	No
SG	*Senna artemisioides subsp. zygophylla*	-	N	No	No	No
SG	*Solanum ferocissimum*	Spiny Potato-bush	N	No	No	No
TG	*Acacia melvillei*	Yarran	N	No	No	No
TG	*Acacia oswaldii*	Miljee	N	No	No	No
TG	*Alectryon oleifolius*	Western Rosewood	N	No	No	No
TG	*Brachychiton populneus*	Kurrajong	N	No	No	No
TG	*Callitris glaucophylla*	White Cypress Pine	N	No	No	No
TG	*Casuarina pauper*	Black Oak	N	No	No	No
TG	*Eucalyptus coolabah*	Coolibah	N	No	No	No
TG	*Eucalyptus dumosa*	White Mallee	N	No	No	No
TG	*Eucalyptus gracilis*	Snap and Rattle	N	No	No	No
TG	*Eucalyptus intertexta*	Gum Coolibah	N	No	No	No
TG	*Eucalyptus largiflorens*	Black Box	N	No	No	No
TG	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	N	No	No	No
TG	*Eucalyptus populnea subsp. bimbil*	Bimble Box	N	No	No	No
TG	*Eucalyptus socialis*	Red Mallee	N	No	No	No
TG	*Flindersia maculosa*	Leopardwood	N	No	No	No
FG	*Alyssum linifolium*	Flax-leaf Alyssum	I	No	No	No
FG	*Asphodelus fistulosus*	Onion Weed	I	No	No	No
FG	*Brassica tournefortii*	Mediterranean Turnip	I	Yes	No	No
FG	*Carrichtera annua*	Ward's Weed	I	Yes	No	No
FG	*Carthamus lanatus*	Saffron Thistle	I	Yes	No	No
FG	*Centaurea melitensis*	Maltese Cockspur	I	No	No	No
FG	*Echium plantagineum*	Patterson's Curse	I	No	No	No
FG	*Elacholoma prostrata*	Small Monkey-flower	I	No	No	No
FG	*Heliotropium europaeum*	Potato Weed	I	No	No	No
FG	*Marrubium vulgare*	White Horehound	I	No	No	No
FG	*Medicago laciniata*	Cut-leaved Medic	I	No	No	No
FG	*Medicago minima*	Woolly Burr Medic	I	No	No	No
FG	*Ptilotus sessilifolius*	-	I	No	No	No

[1]Growth form	Scientific name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
FG	*Salvia verbenaca*	Vervain	I	No	No	No
FG	*Sisymbrium erysimoides*	Smooth Mustard	I	No	No	No
FG	*Spergularia rubra*	Sandspurry	I	No	No	No
GG	*Enneapogon spp.*	Bottle Washers	I	No	No	No
GG	*Hordeum leporinum*	Barley Grass	I	No	No	No
GG	*Rostraria pumila*	Roughtail	I	No	No	No
SG	*Lycium ferocissimum*	African Boxthorn	I	Yes	Yes	Yes
SG	*Nicotiana glauca*	Tree Tobacco	I	No	No	No

[1]Growth form: FG = Forb, GG = Grass and Grass-like, SG = Shrub, TG = Tree, EG = Fern, OG = Other. [2]Status: N = Native, I =Introduced. [3]High-threat exotic species (Yes/No). [4]Weed of National Significance (Yes/No). [5]Priority weed for the Western region (Yes/No).

FAUNA SPECIES LIST

In total, 91 fauna species (88 native and 3 introduced) were detected during the August 2024 field survey. Two frogs, 73 birds, 11 mammals, and five reptiles were detected.

Four threatened bird species and one threatened bat species were detected during the field survey:

- Southern Whiteface (*Aphelocephala leucopsis*) – Vulnerable under the BC and EPBC Acts.
- Pink Cockatoo (*Lophochroa leadbeateri*) – Vulnerable under the BC Act and Endangered under the EPBC Act.
- Hooded Robin south-eastern form (*Melanodryas cucullata cucullata*) - Endangered under the BC and EPBC Acts.
- Grey-crowned Babbler eastern subspecies (*Pomatostomus temporalis temporalis*) – Vulnerable under the BC Act.
- Little Pied Bat (*Chalinolobus picatus*) - Vulnerable under the BC Act.

One species listed as marine under the EPBC Act was also detected:

- Horsfield's Bronze Cuckoo (*Chrysococcyx basalis*)

Class	Scientific Name	Common Name	Status	Seen	Heard (SM4)	*NSW status	+Comm Status
Amphibia	*Limnodynastes fletcheri*	Barking Marsh Frog	N	X			
Amphibia	*Limnodynastes tasmaniensis*	Spotted Marsh Frog	N	X			
Aves	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	N	X	X		
Aves	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	N	X			
Aves	*Acanthiza nana*	Yellow Thornbill	N	X			
Aves	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	N	X			
Aves	*Aegotheles cristatus*	Australian Owlet-nightjar	N		X		
Aves	*Anas gracilis*	Grey Teal	N	X			
Aves	*Anas superciliosa*	Black Duck	N	X	X		
Aves	*Aphelocephala leucopsis*	Southern Whiteface	N	X	X	V	V
Aves	*Aquila audax*	Wedge-tailed Eagle	N	X			
Aves	*Artamus superciliosus*	White-browed Woodswallow	N		X		
Aves	*Barnardius zonarius*	Australian Ringneck	N	X			
Aves	*Cacatua sanguinea*	Little Corella	N	X			
Aves	*Chenonetta jubata*	Wood Duck	N	X	X		
Aves	*Chlamydera maculata*	Spotted Bowerbird	N		X		
Aves	*Chrysococcyx basalis*	Horsfield's Bronze Cuckoo	N	X			M
Aves	*Climacteris picumnus picumnus*	Brown Treecreeper	N	X	X		
Aves	*Colluricincla harmonica*	Grey Shrike-thrush	N	X	X		
Aves	*Coracina novaehollandiae*	Black-faced Cuckooshrike	N	X			
Aves	*Corcorax melanorhamphos*	White-winged Chough	N	X			

Class	Scientific Name	Common Name	Status	Seen	Heard (SM4)	*NSW status	+Comm Status
Aves	*Corvus bennetti*	Little Crow	N	X	X		
Aves	*Corvus coronoides*	Australian Raven	N	X	X		
Aves	*Corvus mellori*	Little Raven	N	X			
Aves	*Cracticus nigrogularis*	Pied Butcherbird	N		X		
Aves	*Cracticus torquatus*	Grey Butcherbird	N	X	X		
Aves	*Dromaius novaehollandiae*	Emu	N	X			
Aves	*Egretta novaehollandiae*	White-faced Heron	N	X			
Aves	*Elseyornis melanops*	Black-fronted Dotterel	N	X			
Aves	*Eolophus roseicapilla*	Galah	N	X	X		
Aves	*Eopsaltria australis*	Eastern Yellow Robin	N		X		
Aves	*Eurostopodus argus*	Spotted Nightjar	N		X		
Aves	*Falco berigora*	Brown Falcon	N	X			
Aves	*Falco cenchroides*	Nankeen Kestrel	N	X			
Aves	*Gavicalis virescens*	Singing Honeyeater	N		X		
Aves	*Geopelia placida*	Peaceful Dove	N		X		
Aves	*Grallina cyanoleuca*	Australian Magpie-lark	N	X	X		
Aves	*Gymnorhina tibicen*	Australian Magpie	N	X	X		
Aves	*Heteroscenes pallidus*	Pallid Cuckoo	N		X		
Aves	*Himantopus himantopus leucocephalus*	Pied Stilt	N	X			
Aves	*Hirundo neoxena*	Welcome Swallow	N	X	X		
Aves	*Lalage tricolor*	White-winged Triller	N		X		
Aves	*Lichenostomus penicillatus*	White-plumed Honeyeater	N	X			
Aves	*Lichenostomus plumulus*	Grey-fronted Honeyeater	N	X			
Aves	*Lichenostomus virescens*	Singing Honeyeater	N	X			
Aves	*Lophochroa leadbeateri*	Pink Cockatoo	N	X		V	E
Aves	*Manorina flavigula*	Yellow-throated Miner	N	X	X		
Aves	*Manorina melanocephala*	Noisy Miner	N	X	X		
Aves	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	N	X		E	E
Aves	*Myiagra inquieta*	Restless Flycatcher	N	X	X		
Aves	*Nightjar species*	Nightjar	N	X			
Aves	*Ocyphaps lophotes*	Crested Pigeon	N	X			
Aves	*Oreoica gutturalis*	Crested Bellbird	N		X		
Aves	*Pachycephala rufiventris*	Rufous Whistler	N	X	X		
Aves	*Pardalotus striatus*	Striated Pardalote	N	X	X		
Aves	*Petrochelidon ariel*	Fairy Martin	N	X			
Aves	*Petroica goodenovii*	Red-capped Robin	N	X			
Aves	*Phaps chalcoptera*	Common Bronzewing	N	X			
Aves	*Philemon citreogularis*	Little Friarbird	N		X		
Aves	*Philemon corniculatus*	Noisy Friarbird	N	X			
Aves	*Plectorhyncha lanceolata*	Striped Honeyeater	N		X		
Aves	*Podargus strigoides*	Tawny Frogmouth	N		X		
Aves	*Pomatostomus temporalis*	Grey-crowned Babbler	N		X		
Aves	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	N	X		V	

Class	Scientific Name	Common Name	Status	Seen	Heard (SM4)	*NSW status	+Comm Status
Aves	*Psephotus haematonotus*	Red-rumped Parrot	N	X	X		
Aves	*Psephotus varius*	Mulga Parrot	N	X			
Aves	*Ptilotula ornata*	Yellow-plumed Honeyeater	N	X			
Aves	*Ptilotula penicillata*	White-plumed Honeyeater	N		X		
Aves	*Purnella albifrons*	White-fronted Honeyeater	N	X			
Aves	*Rhipidura leucophrys*	Willy Wagtail	N	X	X		
Aves	*Smicrornis brevirostris*	Weebill	N	X			
Aves	*Struthidea cinerea*	Apostlebird	N	X	X		
Aves	*Tachybaptus novaehollandiae*	Australasian Grebe	N	X			
Aves	*Tyto alba*	Barn Owl	N		X		
Aves	*Vanellus miles*	Masked Lapwing	N	X			
Mammalia	*Austronomus australis*	White-striped Free-tailed Bat	N	X			
Mammalia	*Capra hircus*	Feral Goat	I	X			
Mammalia	*Chalinolobus gouldii*	Gould's Wattled Bat	N	X			
Mammalia	*Chalinolobus picatus*	Little Pied Bat	N	X		V	
Mammalia	*Felis catus*	Feral Cat	I	X			
Mammalia	*Macropus fuliginosus*	Western Grey Kangaroo	N	X			
Mammalia	*Macropus rufus*	Red Kangaroo	N	X			
Mammalia	*Ozimops petersi*	Inland Free-Tailed Bat	N	X			
Mammalia	*Scotorepens balstoni*	Inland Broad-nosed Bat	N	X			
Mammalia	*Scotorepens greyii*	Little Broad-nosed Bat	N	X			
Mammalia	*Sus scrofa*	Feral Pig	I	X			
Reptilia	*Ctenophorus nuchalis*	Central Netted Dragon	N	X			
Reptilia	*Ctenotus robustus*	Eastern Striped Ctenotus	N	X			
Reptilia	*Lerista timida*	Timid Slider	N	X			
Reptilia	*Morethia boulengeri*	Southeastern Morethia Skink	N	X			
Reptilia	*Pogona vitticeps*	Central Bearded Dragon	N	X			

Status: N=Native, I=Introduced.

*NSW Status: V=Vulnerable, E=Endangered

+Comm: V=Vulnerable, E=Endangered, M=Marine

BAT LOGGER DATA

Two SM4BATs (song meter ultrasonic bat detectors) were deployed at Jan's (named BRAM in dataset below) and Tom's Dam (named LUCY in dataset below) in mid-August and one Anabat Walkabout was used at Dingo Dam on the 12th of August 2024. Bat data was analysed by Amanda Lo Cascio (see below).

Identification of echolocation call sequences recorded at Koonaburra National Park, New South Wales.

Methods

Data

Data was received by mail in October 2024. In total 1,761 Full Spectrum (FS) recordings were received, collected at three locations over six survey nights the 12th – 18th August Acoustic recordings made with a Wildlife Acoustics SM4BAT detectors and an Anabat Walkabout.

Bat call analysis and species identification

Call identification was based on call keys and descriptions for bat species in New South Wales (Pennay et al. 2004), and with further reference to information on bat species in southern Queensland (Reinhold et al. 2001), plus the authors' own resource of echolocation recordings (A. Lo Cascio unpublished data).

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).

Species identification per detector location is presented in Table 1.

Species of conservation significance

The scope of the analysis was to provide species identification per location and is presented in Table1, examples of calls are presented in Appendix 1. Please note composite groups where only identified if they contained a previously unidentified species. The reliability of identification is as follows:

Definite; one or more calls were there is no doubt about the identification of the species.

Probable; most likely to be the species named, low probability of confusion with species that use similar calls.

Possible; call is comparable with the named species, with a moderate to high probability of confusion with species of similar calls.

1

Table 1. Species identification per detector location.

Detector description	SM4 Bat Logger - Bram	SM4 BAT - Lucy	Anabat Walkabout
Coordinates	-32.267753 144.727065	-32.247306 144.882952	-32.214486 144.895982
Dates	14-15 August 2024	16-18 August 2024	12-August 2024
Total Files	159	1584	18
Autonomous australis	D	D	
Ozimops planiceps/O. petersi *	Pr	Pr	
Ozimops petersi	D	D	
Chalinolobus gouldii	Pr	D	D
Scotorepens balstoni		D	D
Scotorepens greyii	D	D	D
Scotorepens greyii/Nyctophilus spp.	Pr		
Vespadelus baverstocki		Pr	
Chalinolobus picatus	D	D	
Vespadelus vulturnus		Pr	

D - Definite

Pr – Probable

* Based on distribution records Ozimops planiceps is not expected in the area. It as been included as part of a composite group due to the relatively low characteristic frequency of the call sequences observed.

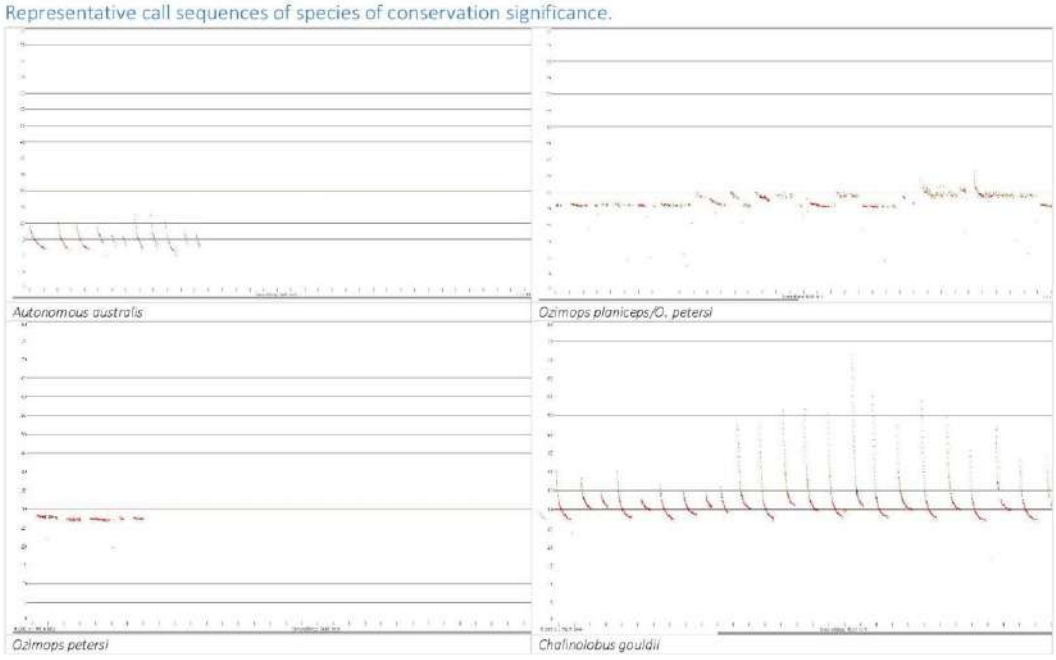
2

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 OzArk Environment & Heritage.
2. The scope of this report extended to providing information on the identification of bat species in the recordings provided. 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 equipment was operated by OzArk Environment & Heritage the during the survey.
4. Other than the general location of the study area, Amanda Lo Cascio (ABN 59 357 037 376) 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. Amanda Lo Cascio (ABN 59 357 037 376) 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. The identifications listed herein have been made to the best of our ability given the available materials, and we reserve 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. Amanda Lo Cascio (ABN 59 357 037 376) 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.

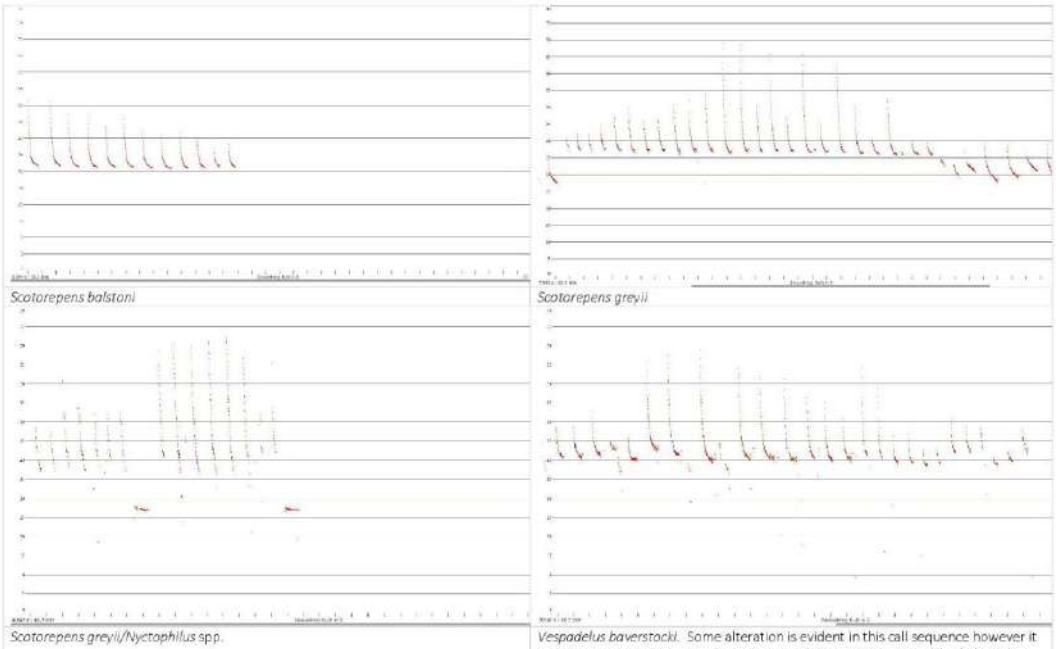
Representative call sequences of species of conservation significance.



Autonomous australis | *Ozimops planiceps/O. petersi*

Ozimops petersi | *Chalinolobus gouldii*

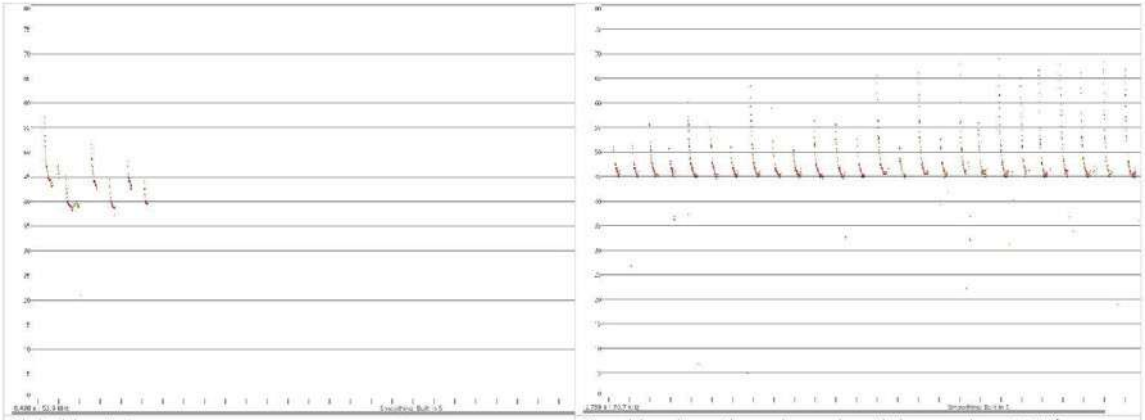
4



Scotorepens balstoni | *Scotorepens greyii*

Scotorepens greyii/Nyctophilus spp. | *Vespadelus baverstocki*. Some alteration is evident in this call sequence however it is not consistent when viewed in FS some pulses are consistent with *Chalinolobus picatus*

5



Chalinolobus picatus

Vespadelus vulturnus these pulses overlap with the upper characteristic frequency of *Vespadelus baverstocki*

Figure 1. Representative call examples for species of conservation significance identified in the dataset.

6

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]

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.

Pennay, M., Law, B. and Reinhold, L. (2004). Bat calls of New South Wales: Region based guide to the echolocation calls of microchiropteran bats. NSW Department of Environment and Conservation, Hurstville.

Pennay, M. and Lavery, T. (2017). Identification guide to bat echolocation calls of Solomon Islands and Bougainville. Unpublished report available at URL: https://www.ausbats.org.au/bat-calls-of-the-solomon-islands.html

Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). Key to the bat calls of south-east Queensland and north-east New South Wales. Forest Ecosystem Research and Assessment Technical paper 2001-07, Department of Natural Resources and Mines, Queensland. NRIM Job 16730, QNRM1001, March 2001.

Titley Scientific. 2019. Anabat Insight User Manual Version 1.9.7. Queensland: Titley.

Disclaimer

8

BIRD LOGGER DATA

Two SM4s (song meter acoustic recorder) were deployed at Jan's (named Venise in dataset below) and Trevor's Dam (named Ashwin in dataset below) in mid-August. Bird data was analysed by Kristy Peters at Wingbeat Ecology (see below).

Kristy Peters
Principal Ecologist
Address: PO Box 579, Gloucester NSW 2422
Email: kristy@wingbeat.com.au
Phone: 0438 328 049

wingbeat ecology
ABN: 12 118 428 909

21 November 2024

Attn: Crystal Graham
Team Lead - Senior Ecologist
OzArk Environment & Heritage

RE: Songmeter analysis of data provided from Koonaburra National Park, NSW

Thank you for the opportunity to analyse Songmeter data collected from the newly gazetted Koonaburra National Park in outback NSW. Wingbeat Ecology understands that the park is situated between Cobar and Ivanhoe and is approximately 45,000 ha, protecting a variety of habitats including an extensive area of sandplain and dune field country, mulga-dominated shrubland, and two threatened ecological communities, *Acacia melvillei* shrubland and sandhill pine woodland.

From a review of several ecological databases (Bionet, Atlas of Living Australia and Birdata), Wingbeat Ecology notes that there has been little prior bird survey effort documented from within the National Park which is understandable due to its prior land use as a private pastoral station. A search of the NSW Bionet Atlas, Atlas of Living Australia and BirdLife Australia's Birdata revealed that 30 bird species have been recorded within the gazetted boundaries of Koonaburra National Park from 1960, 1998, 2004 and 2024 (**Table 1**).

Songmeter Analysis Scope

Kristy Peters, Principal Ecologist at Wingbeat Ecology analysed the data from two Songmeter 4 units; one unit had data from 13 – 21 August 2024 (Songmeter ID Ashwin) and the second unit had data from 14 – 16 August 2024 (Songmeter ID Venise). The data was analysed using Kaleidoscope Pro software with each data set clustered using the program's Cluster Analysis tool to automatically scan the data for animal vocalisations. Once detected the sounds are sorted into groups of similar sounds called "clusters". The top results in each cluster were listened to, and where possible, a species identification was assigned. Dawn chorus recordings and nocturnal recordings were specifically focused on to identify as many species as possible within the time available.

Songmeter Analysis Results

A total of 38 bird species were confidently identified during the analysis, including two threatened species listed as Vulnerable under the NSW *Biodiversity Conservation Act 2016* (Grey-crowned Babbler and Southern Whiteface) (**Table 2**). The latter species is also listed as Vulnerable under the Commonwealth *Environment Protection & Biodiversity Conservation Act* 1999. The lists from the tables below have also been provided in an Excel spreadsheet format.

Discussion of Results and Recommendations for Future Songmeter Deployment

Songmeter analysis has been a useful tool to confirm the continued presence of a variety of relatively common diurnal bird species, especially those that sing loudly and regularly during the dawn chorus and for detecting a variety of nocturnal bird species. Songmeter deployment was also useful in detecting several woodland bird species that have unique, far-carrying calls such as the Brown Treecreeper and Grey-crowned Babbler. However, the detectors have potentially missed picking up quieter (and sometimes less distinct) calls of species such as the Splendid Fairy-wren, Chestnut-rumped Thornbill, Inland Thornbill, Bluebonnet, Mulga Parrot, Black, Painted and Pied Honeyeater which I would expect to occur at this location.

This may have been affected by the Songmeter deployment timing in late Winter, as many Australian songbird species are less vocal during the non-breeding period. Food sources can also be quite scarce at this time of year meaning that bird species (especially nectivores and species with large home ranges) may be spread out across the landscape searching for patchy foraging resources. Timing future Songmeter deployment to occur in Spring (particularly from mid-October onwards to capture the return of migratory species) and in Autumn is recommended to increase the diversity of species detected. Targeting a variety of habitats containing some of these key habitat features should also reveal additional species:

- Spinifex with mallee, acacias – Mukarrthippi Grasswren (*Amytornis striatus striatus*), Chestnut Quail-Thrush (*Cinclosoma castanotum*), Splendid Fairy-wren (*Malurus splendens*)
- Mulga and acacia-dominated shrubland with flowering/fruiting mistletoes – Painted Honeyeater (*Grantiella picta*), Pied Honeyeater (*Certhionix variegatus*), Black Honeyeater (*Sugomel nigrum*), Mistletoebird (*Dicaeum hirundinaceum*)
- Box – Gum – Cypress Pine woodland – Gilbert's Whistler (*Pachycephala inornata*), Varied Sittella (*Daphoenositta chrysoptera*), a variety of Thornbill species
- Watercourse vegetation, gilgai wetlands – migratory wading birds, wetland bird species, birds of prey

BirdLife Australia's Birdata database contains records of over 230 bird species from within a bounding box centred on Kulwin, and stretching to Cobar in the north-east and Ivanhoe in the south-west. Promotion of the National Park to birdwatching and field naturalist groups is recommended as their visitation will help to quickly build the data set of bird species, and other types of fauna and flora within the Park. Several of these Clubs have previously run campouts to nearby national parks such as Gundabooka and Toorale NPs to the north and Yathong and Nombinnie Nature Reserves to the south-east.

Please feel free to contact me if you have any questions about the results provided.

Kind regards,

Kristy Peters
Principal Ecologist
Wingbeat Ecology
Email: kristy@wingbeat.com.au
Phone: 0438 328 049

Table 1: Bird species previously recorded within Koonaburra National Park

Family	Scientific Name	Common Name	Source / Year	Status
Casuariidae	*Dromaius novaehollandiae*	Emu	Bionet 1998	
Anatidae	*Anas gracilis*	Grey Teal	Bionet 1960	
Columbidae	*Ocyphaps lophotes*	Crested Pigeon	Bionet 1998	
Columbidae	*Phaps chalcoptera*	Common Bronzewing	Bionet 1998	
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	Bionet 1998	
Cacatuidae	*Eolophus roseicapilla*	Galah	Bionet 1998	
Psittacidae	*Psephotus varius*	Mulga Parrot	Bionet 1998	
Psittacidae	*Barnardius zonarius*	Australian Ringneck	Birdata 2024	
Psittacidae	*Northiella haematogaster*	Bluebonnet	Birdata 2004	
Psittacidae	*Lophochroa leadbeateri*	Pink Cockatoo	NSW Bird Atlassers 1987	V – BC Act / E – EPBC Act
Maluridae	*Malurus assimilis*	Purple-backed Fairy-wren	Bionet 1998	
Acanthizidae	*Smicrornis brevirostris*	Weebill	Bionet 1998	
Acanthizidae	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	Birdata 2024	
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	Bionet 1998	
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	Bionet 1998 / Birdata 2024	
Meliphagidae	*Entomyzon cyanotis*	Blue-faced Honeyeater	Bionet 1998	
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner	Bionet 1998/ Birdata 2004, 2024	
Meliphagidae	*Nesoptilotis leucotis*	White-eared Honeyeater	Bionet 1998	
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	Bionet 1998	
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird	Bionet 1998	
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush	Bionet 1998	
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	Bionet 1998 / Birdata 2024	
Artamidae	*Cracticus torquatus*	Grey Butcherbird	Bionet 1998	
Artamidae	*Gymnorhina tibicen*	Australian Magpie	Bionet 1998 / Birdata 2004	
Artamidae	*Artamus superciliosus*	White-browed Woodswallow	Birdata 2024	
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	Bionet 1998	
Corvidae	*Corvus coronoides*	Australian Raven	Bionet 1998	
Petroicidae	*Petroica goodenovii*	Red-capped Robin	Birdata 2024	
Petroicidae	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	Birdata 2024	E – BC Act & EPBC Act
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	Birdata 2024	

wingbeat ecology

Table 2: Bird species confidently identified from analysis of Songmeter data collected during August 2024 from Koonaburra National Park

Family	Scientific Name	Common Name	Songmeter ID		Status
			Ashwin	Venise	
Anatidae	*Chenonetta jubata*	Australian Wood Duck	+	+	
Anatidae	*Anas superciliosa*	Pacific Black Duck		+	
Columbidae	*Geopelia placida*	Peaceful Dove		+	
Podargidae	*Podargus strigoides*	Tawny Frogmouth	+		
Eurostopodidae	*Eurostopodus argus*	Spotted Nightjar		+	
Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar	+	+	
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo	+		
Tytonidae	*Tyto alba*	Barn Owl	+		
Cacatuidae	*Eolophus roseicapilla*	Galah	+		
Psittaculidae	*Psephotus haematonotus*	Red-rumped Parrot	+	+	
Ptilonorhynchidae	*Chlamydera maculata*	Spotted Bowerbird		+	
Climacteridae	*Climacteris picumnus picumnus*	Brown Treecreeper		+	
Meliphagidae	*Plectorhyncha lanceolata*	Striped Honeyeater	+	+	
Meliphagidae	*Philemon citreogularis*	Little Friarbird	+		
Meliphagidae	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	+	+	
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater	+	+	
Meliphagidae	*Ptilotula penicillata*	White-plumed Honeyeater	+	+	
Meliphagidae	*Manorina melanocephala*	Noisy Miner		+	
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner	+	+	
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	+	+	
Acanthizidae	*Aphelocephala leucopsis*	Southern Whiteface	+	+	V - BC Act & EPBC Act
Pomatostomidae	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	+		V - BC Act
Oreoicidae	*Oreoica gutturalis*	Crested Bellbird	+		
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler		+	
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush		+	
Campephagidae	*Lalage tricolor*	White-winged Triller	+		
Artamidae	*Gymnorhina tibicen*	Australian Magpie	+	+	
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird	+	+	
Artamidae	*Cracticus torquatus*	Grey Butcherbird	+		
Artamidae	*Artamus superciliosus*	White-browed Woodswallow		+	
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	+	+	
Monarchidae	*Myiagra inquieta*	Restless Flycatcher		+	
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	+	+	
Corvidae	*Corvus bennetti*	Little Crow	+	+	
Corvidae	*Corvus coronoides*	Australian Raven	+		
Corcoracidae	*Struthidea cinerea*	Apostlebird	+		

Family	Scientific Name	Common Name	Songmeter ID		Status
			Ashwin	Venise	
Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin	+		
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	+		
		Total species per unit	28	25	

References

Atlas of Living Australia (2024). Atlas of Living Australia – Open access to Australia's biodiversity data (ala.org.au), database accessed 12/11/2024.

BirdLife Australia (2024). Birdata web portal Home | Birdata (birdlife.org.au), database accessed 12/11/2024.

Department of Climate Change, Environment, Energy & Water (2024). Threatened biodiversity profile search Threatened biodiversity profile search | NSW Environment, Energy and Science, accessed 12/11/2024.

NSW Bionet Atlas (2024). Species sightings search Environment & Heritage | NSW BioNet, accessed 12/11/2024.

APPENDIX C – BC & EPBC ACT HABITAT ASSESSMENT FOR THREATENED SPECIES AND COMMUNITIES PREDICTED TO OCCUR

List generated by conducting a vegetation associations report for the Darling Depression subregion of the Murray Darling Depression Bioregion, and the Barnato Downs subregion of the Cobar Peneplain Bioregion, and filtering the results by the PCTs present within the subject site. To determine whether any threatened species were known to occur near the subject site, BioNet Atlas records of threatened species within these subregions were downloaded and the records clipped to within 10 km of the subject site in QGIS. Likelihood of occurrence description is sourced from https://www.environment.nsw.gov.au/threatenedSpeciesApp

Likelihood of occurrence table for BC and EPBC Act listed threatened species

Species name	Common Name	NSW Status*	Comm. Status+	Records within 10 km?	Likelihood of Occurrence	Test of Significance Required (Yes / No)
Crinia sloanei	Sloane's Froglet	E1,P	E	0	Sloane's Froglet has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in New South Wales. It has not been recorded recently in the northern part of its range and has only been recorded infrequently in the southern part of its range in NSW. It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (105) is present. However, no records occur within 10 km.**	Yes
Litoria raniformis	Southern Bell Frog	E1,P	V	0	In NSW the species was once distributed along the Murray and Murrumbidgee Rivers and their tributaries, the southern slopes of the Monaro district and the central southern tablelands as far north as Tarana, near Bathurst. Currently, the species is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. A few yet unconfirmed records have also been made in the Murray Irrigation Area in recent years. The species is also found in Victoria, Tasmania and South Australia, where it has also become endangered. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys. They are also found in irrigated rice crops, particularly where there is no available natural habitat.	No

					Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.	
Actitis hypoleucos	Common Sandpiper	P	C,J,K	0	Found along all coastlines of Australia and in many areas inland, the Common Sandpiper is widespread in small numbers. The population when in Australia is concentrated in northern and western Australia. The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Amytornis striatus striatus	Mukarrthippi Grasswren	E4A,P	CE	0	This species is widely distributed through the arid and semi-arid regions of mainland Australia, with three subspecies currently recognised. In NSW, the race striatus was formerly distributed from the Namoi Valley area through the southern half of the Murray-Darling Basin. It is now currently known from only two disjunct localities. In central NSW, populations remain extant in Yathong Nature Reserve and surrounding areas of leasehold land. A second population occurs in south-western NSW in the Scotia Mallee west of the Darling River, including Tarawi NR, Scotia Sanctuary and adjoining properties. This population is contiguous with populations in adjoining mallee country in South Australia. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Aphelocephala leucopsis	Southern Whiteface	V,P	V	2	Prefers the drier habitats of southern Australia. Commonly found in dry open forests and woodland, mallee, mulga and saltbush. Prefers sites with fallen timber or dead trees and stumps **Present – Subject site is within the species known geographic distribution, and two records occur within 10 km. A further four individuals of this species were seen during the field survey. This species was also recorded by SM4s placed at both Trevor's and Jan's dams.**	Yes
Apus pacificus	Fork-tailed Swift	P	C,J,K	0	In NSW, the Fork-tailed Swift is recorded in all regions. Many records occur east of the Great Divide; however, a few populations have been	No

					found west of the Great Divide. These are widespread but scattered further west of the line joining Bourke and Dareton. Sightings have been recorded at Milparinka, the Bulloo River and Thurloo Downs (Higgins 1999). The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	
Ardeotis australis	Australian Bustard	E1,P		0	The Australian Bustard mainly occurs in inland Australia and is now scarce or absent from southern and south-eastern Australia. In NSW, they are mainly found in the north-west corner and less often recorded in the lower western and central west plains regions. Occasional vagrants are still seen as far east as the western slopes and Riverine plain. Breeding now only occurs in the north-west region of NSW. Mainly inhabits tussock and hummock grasslands, though prefers tussock grasses to hummock grasses; also occurs in low shrublands and low open grassy woodlands; occasionally seen in pastoral and cropping country, golf courses and near dams. Breeds on bare ground on low sandy ridges or stony rises in ecotones between grassland and protective shrubland cover; roosts on ground among shrubs and long grasses or under trees. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 105, 108, 119, 143, 174, 207, and 229) are present. However, no records occur within 10 km.**	Yes
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		0	Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Botaurus poiciloptilus	Australasian Bittern	E1,P	E	0	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense	No

					vegetation, particularly bullrushes (*Typha* spp.) and spikerushes (*Eleocharis* spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. Breeding occurs in summer from October to January; nests are built in secluded places in densely-vegetated wetlands on a platform of reeds; there are usually six olive-brown eggs to a clutch. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	
Burhinus grallarius	Bush Stone-curlew	E1,P		0	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (57, 72, 103, 105, 108, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Calidris acuminata	Sharp-tailed Sandpiper	P	C,J,K	0	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands.	No

					Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.	
Calidris ferruginea	Curlew Sandpiper	E4A,P	CE,C,J,K	0	In Australia, Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Records occur in all states during the non-breeding period, and also during the breeding season when many non-breeding one-year old birds remain in Australia rather than migrating north. In NSW, they are widespread east of the Great Divide, especially in coastal regions. They are occasionally recorded in the Tablelands and are widespread in the Riverina and south-west NSW, with scattered records elsewhere. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Calidris melanotos	Pectoral Sandpiper	P	J,K	0	The Pectoral Sandpiper breeds in northern Russia and North America. Within Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. In New South Wales (NSW), the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No

Calidris ruficollis	Red-necked Stint	P	C,J,K	0	In Australasia, the Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in salt flats. They sometimes use flooded paddocks or damp grasslands. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	V,P,2		0	The Red-tailed Black-Cockatoo (inland subspecies) is known to occur around watercourses and overflows of the Darling, Paroo, Bogan, Macquarie and Barwon Rivers extending in an arc along the Darling River from Wentworth (though rare south of Menindee) in the south to Bourke and thence through to Brewarrina in the north. It extends east to Walgett and perhaps Boggabilla on the Barwon and south through to the Macquarie Marshes. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 105, 108, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V,P,2	V	0	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, *A. diminuta*, and *A. gymnathera*. Belah is also utilised and may be a critical food source for some populations. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	No

Certhionyx variegatus	Pied Honeyeater	V,P		0	Pied Honeyeater is widespread throughout acacia, mallee and spinifex scrubs of arid and semi-arid Australia. Occasionally occurs further east, on the slopes and plains and the Hunter Valley, typically during periods of drought. Inhabits wattle shrub, primarily Mulga (*Acacia aneura*), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering; feeds on nectar, predominantly from various species of emu-bushes (*Eremophila* spp.); also from mistletoes and various other shrubs (e.g. *Grevillea* spp.); also eats saltbush fruit, berries, seed, flowers and insects. Highly nomadic, following the erratic flowering of shrubs; can be locally common at times. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Chthonicola sagittata	Speckled Warbler	V,P		0	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. Pairs are sedentary and occupy a breeding territory of about ten hectares, with a slightly larger home-range when not breeding. The rounded, domed, roughly built nest of dry grass and strips of bark is located in a slight hollow in the ground or the base of a low dense plant, often among fallen branches and other litter. A side entrance allows the bird to walk directly inside. A clutch of 3-4 eggs is laid, between August and January, and both parents feed the nestlings. The species may act as host to the Black-eared Cuckoo. Speckled Warblers often join mixed species feeding flocks in winter, with other species such as Yellow-rumped, Buff-rumped, Brown and Striated Thornbills. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 103, 104, 105, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Cinclosoma castanotum	Chestnut Quail-thrush	V,P		0	Throughout its distribution it occurs in a wide range of arid and semi-arid habitats; mainly in the low shrubs and undergrowth of mallee scrub, but	Yes

					also in *Acacia* scrubs, dry sclerophyll woodland, heath, and native pine. However, in NSW it seems to occur almost exclusively in mallee habitats, with understorey dominated by spinifex, chenopods or other shrubs including Acacia species. Only rarely, such as in Cocoparra NP, is it recorded in other types of woodland, and in these areas a dense understorey may be a prerequisite. Occupies vegetation with a wide range of fire histories, though appears to occur at highest densities in areas two to fifteen years post fire. There is some evidence from the Victorian mallee that if the interval between fires is too short (less than fifteen years) local declines may occur. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (103, 171, 173, and 174) are present. However, no records occur within 10 km.**	
Circus assimilis	Spotted Harrier	V,P		0	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Climacteris affinis	White-browed Treecreeper population in Carrathool local government area south of the Lachlan River and Griffith local government area	E2,P		0	In NSW, occupies a broad area of western NSW, west from a line from Balranald to Lake Cargelligo then Lightning Ridge. The species appears absent in the far north west of the state with no records occurring west of a line from Broughams Gate, 100km northwest of Broken Hill to Hungerford. A small population, now recognised as isolated, occurs in Carrathool local government area south of the Lachlan River and Griffith local government areas. Occurs in a range of semi-arid and arid tall shrublands and woodlands across the southern half of Australia. In NSW, the species occupies a variety of habitats including Mulga, Brigalow, Gidgee, Belah, Buloke and White Cypress. The species may also occur in habitats adjacent to those detailed above, including Coolibah, River Red Gum and Black Box. **Absent – Subject site does not occur within the Carrathool or Griffith LGA.**	No

Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P	V	1	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of *Climacteris picumnus victoriae* runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper *Climacteris picumnus picumnus* which then occupies the remaining parts of the state. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, that have been isolated or fragmented for more than 50 years. **Absent – The subject site does not occur in eastern NSW.**	No
Daphoenositta chrysoptera	Varied Sittella	V,P		0	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 103, 104, 105, 108, 119, 171, 173, 174, and 207) are present. However, no records occur within 10 km.**	Yes
Drymodes brunneopygia	Southern Scrub-robin	V,P		0	This species is restricted to mallees and shrublands across southern Australia and in NSW is confined to two main areas. The first is in central NSW and is centred on Round Hill and Nombinnie Nature Reserves, though suitable habitat probably exists on adjoining leasehold lands. This population once extended south and east to near Griffith and West Wyalong, but clearing appears to have led to its local extinction in most of this region. The final record from The Charcoal Tank NR was in 1993, while in Pulletop NR it has not been observed since 1982. The other population occurs in the far south west of NSW, mainly within the Scotia mallee centred on Tarawi NR and Scotia Sanctuary. Records east of the Darling River are more scattered, with recent confirmation in Mallee Cliffs NP, and a new population recently detected on leasehold land to the north	Yes

					of Euston. Other populations may still occur in other areas of mallee, particularly those with a well-developed shrub layer in the south west corner of the state. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171 and 173) are present. However, no records occur within 10 km.**	
Epthianura albifrons	White-fronted Chat	V,P		0	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (229) is present. However, no records occur within 10 km.**	Yes
Falco hypoleucos	Grey Falcon	V,P,2	V	0	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes

Falco subniger	Black Falcon	V,P		0	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Some reports of 'Black Falcons' on the tablelands and coast of New South Wales are likely to be referable to the Brown Falcon. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. The Black Falcon occurs as solitary individuals, in pairs, or in family groups of parents and offspring. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 105, 119, 143, 171, 173, 174, 207, and 229) are present. However, no records occur within 10 km.**	Yes
Gallinago hardwickii	Latham's Snipe	P	J,K	0	Latham's Snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia (i.e. it travels through northern Australia to reach non-breeding areas located further south). The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia (including the Adelaide plains and Mount Lofty Ranges, and the Eyre Peninsula). The range extends inland over the eastern tablelands in south-eastern Queensland (and occasionally from Rockhampton in the north), and to west of the Great Dividing Range in New South. The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west. Most birds spend the non-breeding period at sites located south of the Richmond River in New South Wales. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Gelochelidon nilotica	Gull-billed Tern	P	C	0	The Gull-billed Tern occurs on all continents except Antarctica. Gull-billed Terns are found in freshwater swamps, brackish and salt lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands. They are only rarely found over the ocean. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No

Glossopsitta pusilla	Little Lorikeet	V,P		0	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic' movements are suspected of breeding pairs. Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	No
Grantiella picta	Painted Honeyeater	V,P	V	0	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall (Acacia pendula), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Grus rubicunda	Brolga	V,P		0	The Brolga was formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. It is still abundant in the northern tropics, but very sparse across the southern part of its range. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. They feed using their heavy straight bill as a 'crowbar' to probe the ground or turn it over, primarily on sedge roots and tubers. They will also take large insects, crustaceans, molluscs and frogs. **Moderate – Subject site is within the species known geographic distribution and an associated PCT (207) is present. However, no records occur within 10 km.**	Yes
Haliaeetus leucogaster	White-bellied Sea-Eagle	V,P		0	The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin. In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including	Yes

					larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Hunts its prey from a perch or whilst in flight (by circling slowly, or by sailing along 10–20 m above the shore). Prey is usually carried to a feeding platform or (if small) consumed in flight, but some items are eaten on the ground. May be solitary, or live in pairs or small family groups consisting of a pair of adults and dependent young. Typically lays two eggs between June and September with young birds remaining in the nest for 65-70 days. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 105, 143, 171, 173, and 174) are present. However, no records occur within 10 km.**	
Hamirostra melanosternon	Black-breasted Buzzard	V,P,3		0	The Black-breasted Buzzard is found sparsely in areas of less than 500mm rainfall, from north-western NSW and north-eastern South Australia to the east coast at about Rockhampton, then across northern Australia south almost to Perth, avoiding only the Western Australian deserts. Lives in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat. Also hunts over grasslands and sparsely timbered woodlands. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 105, 119, 143, and 171) are present. However, no records occur within 10 km.**	Yes
Hieraaetus morphnoides	Little Eagle	V,P		0	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes

Hirundapus caudacutus	White-throated Needletail	V,P	V,C,J,K	0	The White-throated Needletail is widespread in eastern and south-eastern. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (207) is present. However, no records occur within 10 km.**	Yes
Hydroprogne caspia	Caspian Tern	P	J	0	Within Australia, the Caspian Tern has a widespread occurrence and can be found in both coastal and inland habitat (Higgins & Davies 1996). The following table presents the distribution and breeding sites of the Caspian Tern in Australia. Widespread east of the Great Divide, mainly in coastal regions, and also in the Riverina and Lower and Upper Western Regions, with occasional records elsewhere (Higgins & Davis 1996). The Caspian Tern is mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Hylacola cautus	Shy Heathwren	V,P		0	Occurs across southern Australia extending from the wheatbelt in southern Western Australia east to central NSW, including Kangaroo Island. Two subspecies occur in NSW. The first (*macrorhyncha*) is confined to central NSW between Griffith, Roto, Nymagee and West Wyalong, with most records within OEH managed reserves (including Yathong, Nombinnie, Round Hill and The Charcoal Tank Nature Reserves and Cocoparra National Park). The nominate subspecies (*cautus*) occurs in the far south west between Balranald and Trentham Cliffs (including Mallee Cliffs National Park), north into the Scotia Mallee (including Tarawi Nature Reserve and Scotia Sanctuary). This subspecies also occurs in	Yes

					north west Victoria and eastern South Australia (as far west as the Flinders Ranges). Inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. The central NSW population (for example in Cocoparra NP) also occurs at low densities in rocky hilltop vegetation with a thick shrub layer such as Broombush or Tea-tree. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171, 173, and 174) are present. However, no records occur within 10 km.**	
Lathamus discolor	Swift Parrot	E1,P	CE	0	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 104, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Leipoa ocellata	Malleefowl	E1,P	V	2	The stronghold for this species in NSW is the mallee in the south west centred on Mallee Cliffs NP and extending east to near Balranald and scattered records as far north as Mungo NP. West of the Darling River a population also occurs in the Scotia mallee including Tarawi NR and Scotia Sanctuary and is part of a larger population north of the Murray River in South Australia. The population in central NSW has been significantly reduced through land clearance and fox predation and now occurs chiefly in Yathong, Nombinnie and Round Hill NRs and surrounding areas, though birds continue to survive in Loughnan NR. To the south of this area the species is probably locally extinct in such reserves as Pulletop NR (last recorded 1989), Ingalba NR (1982) and Buddigower NR (1990) and the intensely studied population at Yalgogrin was still known to have at least one active mound in 2017. Further east, a population continues to persist in the Goonoo forest near Dubbo, though the size of this population is unknown. Outside these areas, occasional records have been made in the Pilliga forests (most recently 1999), around Cobar (1991) and Goulburn River NP (1989) though the extent and status of populations in these areas are unknown. Predominantly inhabit mallee communities, preferring the tall, dense and floristically rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities	Yes

					than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species. **High – Subject site is within the species known geographic distribution, associated PCTs (171, 173, and 174) are present, and two records occur within 10 km.**	
Limosa lapponica	Bar-tailed Godwit	P	C,J,K	0	Bar-tailed Godwits arrive in Australia each year in August from breeding grounds in the northern hemisphere. Birds are more numerous in northern Australia. Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	No
Limosa limosa	Black-tailed Godwit	V,P	E,C,J,K	0	The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the coast, and inland. Records in western NSW indicate that a regular inland passage is used by the species, as it may occur around any of the large lakes in the western areas during summer, when the muddy shores are exposed. The species has been recorded within the Murray-Darling Basin, on the western slopes of the Northern Tablelands and in the far north-western corner of the state. Primarily a coastal species. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Lophochroa leadbeateri	Pink Cockatoo	V,P,2	E	3	Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree	Yes

					hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres. **Present – Subject site is within the species known geographic distribution, associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present, and three records occur within 10 km. A further 26 individuals of this species were recorded during the field survey.**	
Lophoictinia isura	Square-tailed Kite	V,P,3		0	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 105, 108, 174, and 207) are present. However, no records occur within 10 km.**	Yes
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E1,P	E	0	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies *cucullata*) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies *picata*. Two other subspecies occur outside NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. **Present – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, and 245) are present. Although, no previous records occur within 10 km, two individuals of this species were recorded during the field survey.**	Yes
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V,P		0	The Black-chinned Honeyeater has two subspecies, with only the nominate (*gularis*) occurring in NSW. he eastern subspecies extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the	Yes

					Great Dividing Range to the north-west and central-west plains and the Riverina. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. A gregarious species usually seen in pairs and small groups of up to 12 birds. Feeding territories are large making the species locally nomadic. Recent studies have found that the Black-chinned Honeyeater tends to occur in the largest woodland patches in the landscape as birds forage over large home ranges of at least 5 hectares. Moves quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects. Nectar is taken from flowers, and honeydew is gleaned from foliage. Breeds solitarily or co-operatively, with up to five or six adults, from June to December. The nest is placed high in the crown of a tree, in the uppermost lateral branches, hidden by foliage. It is a compact, suspended, cup-shaped nest. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (103) is present. However, no records occur within 10 km.**	
Motacilla flava	Yellow Wagtail	P	C,J,K,M		Widespread wagtail, favouring wet meadows, marshland, grassy and muddy lakeshores. Occurs in fields and often near livestock during migration. Like other wagtails, walks on ground and pumps its long, white-sided tail up and down. Plumage highly variable, but breeding male wholly bright yellow below, with greenish back. Male head pattern varies regionally: in U.K. has greenish head with yellow eyebrow; in northern Europe head slaty gray overall; in central and southwest Europe head blue-gray with white eyebrow. Individuals of several subspecies may winter together. Female and nonbreeding plumages drabber and paler, with ghosting of male patterns. Uncertainty exists regarding this species presence outside of northern Europe. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Neophema chrysostoma	Blue-winged Parrot	V,P	V	0	Blue-winged Parrots occur in range of habitats from coastal to semi-arid and favour grasslands and grassy woodlands. Mainly found in Tasmania and Victoria but some populations can be found in Western NSW and Eastern SA.	No

					Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.	
Neophema pulchella	Turquoise Parrot	V,P,3		0	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (72, 105, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Ninox connivens	Barking Owl	V,P,3		0	The Barking Owl is found throughout continental Australia except for the central arid regions. Although common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests. Many populations crashed as woodland on fertile soils was cleared over the past century, leaving linear riparian strips of remnant trees as the last inhabitable areas. Surveys in 2001 demonstrated that the Pilliga Forest supported the largest population in southern Australia. The owls sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey on these fertile riparian soils. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Oxyura australis	Blue-billed Duck	V,P		0	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No

Pachycephala inornata	Gilbert's Whistler	V,P		0	The Gilbert's Whistler is sparsely distributed over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW to the Western Australian wheatbelt. The species was probably once distributed almost continuously across the woodlands and mallee of southern NSW, but this range has been greatly reduced. The Gilbert's Whistler occurs in a range of habitats within NSW, though the shared feature appears to be a dense shrub layer. It is widely recorded in mallee shrublands, but also occurs in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests, though at this stage it is only known to use this habitat along the Murray, Edwards and Wakool Rivers. Within the mallee the species is often found in association with an understorey of spinifex and low shrubs including wattles, hakeas, sennas and hop-bushes. In woodland habitats, the understorey comprises dense patches of shrubs, particularly thickets of regrowth Callitris pine. Parasitic 'cherries' (*Exocarpus* species) appear to be an important habitat component in Belah and Red Gum communities, though in the latter case other dense shrubs, such as Lignum and wattles, are also utilised. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 108, 171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Pachycephala rufogularis	Red-lored Whistler	E4A,P	V	0	Occurs in and around Round Hill and Nombinnie Nature Reserves in central NSW. There are a small number of relatively old records from the of the Scotia Mallee and Tarawi Nature Reserve in the far southwest corner of the state. The current status of the species in this area is unknown. A third population at Pulletop Nature Reserve is now considered extinct at that locality. Found in mallee woodland with a shrub layer, usually of Broombush and native pine such as Mallee Pine (*Callitris verrucosa*), with occasional patches of spinifex and emergent mallee, forming a relatively dispersed canopy. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171 and 173) are present. However, no records occur within 10 km.**	Yes
Pedionomus torquatus	Plains-wanderer	E1,P,3	CE	0	Plains-wanderers live in semi-arid, lowland native grasslands that typically occur on hard red-brown soils. These grasslands support a high diversity of plant species, including a number of state and nationally threatened species. The Plains-wanderer has declined greatly since European settlement. Areas where the species was formerly common and is now so reduced in numbers that it is effectively extinct include eastern NSW, south-western Victoria, and south-eastern South Australia. Its current stronghold is the western Riverina of southern NSW. Areas of secondary importance include north-central Victoria and central-western Queensland. The bird was formerly fairly common until about 1920 on the	No

					Slopes and Tablelands, and there are two earlier records of birds near Sydney. The main reason for the decline in the numbers and distribution of Plains-wanderers in all eastern States has been the conversion of native grasslands to dense introduced pasture or croplands. If native grasslands are not overgrazed or cultivated then Plains-wanderers are largely sedentary, though there is some recent evidence to suggest that birds may not remain sedentary during prolonged drought conditions. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	
Petroica phoenicea	Flame Robin	V,P		0	The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to south east South Australia and also in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. Prefers clearings or areas with open understoreys. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains), in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Polytelis swainsonii	Superb Parrot	V,P,3	V	0	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. This species inhabits Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. May forage up to 10 km from nesting sites, and feed in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants.	Yes

					Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 103, 105, 108, 174, and 245) are present. However, no records occur within 10 km.	
Pomatostomus halli	Hall's Babbler	V,P		0	Hall's Babbler occurs in central-eastern Australia, from Cobar north into south-western Queensland, particularly along or west of the Warrego Rive. These birds have been recorded from the White Cliffs area through to the Culgoa River, Nocoleche Nature Reserve, Sturt National Park and Mutawintji National Park. Recently recorded in Mulga groves near Ledknapper Creek (1993) and near Mt Gunderbooka (1994). Inhabits dry Acacia scrub, mainly Mulga, with a grassy understorey including spinifex, on ridges and plains with either sandy or stony soils. Occasionally occurs in open dry *Eucalyptus* (Bimblebox) woodland, and mulga- or eucalypt-lined watercourses. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (104 and 119) are present. However, no records occur within 10 km.**	Yes
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V,P		1	The eastern subspecies (*temporalis*) occurs from Cape York south through Queensland, NSW and Victoria and formerly to the south east of South Australia. This subspecies also occurs in the Trans-Fly Region in southern New Guinea. In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Lives in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen individuals. Feed on invertebrates and nests in several conspicuous, dome-shaped stick structures that are about the size of a football. A nest is used as a dormitory for roosting each night. Nests are maintained year-round, and old nests are often dismantled to build new ones. **Present – Subject site is within the species known geographic distribution, associated PCTs (57, 72, 103, 104, 105, 108, 143, 173, 174, 207, and 245) are present, and a record occurs within 10 km. A further 18 individuals of this species were seen during the field survey. This species was also recorded by a SM4 placed at Trevor's dam.**	Yes
Pyrrholaemus brunneus	Redthroat	V,P		0	In NSW the species has been recorded mainly in chenopod shrublands including Old Man Saltbush, Black Bluebush and Dillon Bush shrublands. Around Broken Hill it appears to be associated with the denser vegetation,	No

					particularly Acacias, found in drainage lines that run from the rocky hills. In other locations it is known from Canegrass and Lignum swamps and depressions, particularly on floodplains. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	
Rostratula australis	Australian Painted Snipe	E1,P	E	0	The Australian Painted Snipe is restricted to Australia. Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Stagonopleura guttata	Diamond Firetail	V,P	V	0	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 173, 174, 207, and 245) are present. However, no records occur within 10 km.**	Yes
Stictonetta naevosa	Freckled Duck	V,P		0	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the	No

					Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally, rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting usually occurs between October and December but can take place at other times when conditions are favourable. Nests are usually located in dense vegetation at or near water level. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	
Tringa nebularia	Common Greenshank	P	C,J,K	0	The Common Greenshank does not breed in Australia, however, the species occurs in all types of wetlands and has the widest distribution of any shorebird in Australia. The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. Habitats include embayments, harbours, river estuaries, deltas and lagoons and are recorded less often in round tidal pools, rock-flats and rock platforms. The species uses both permanent and ephemeral terrestrial wetlands, including swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans and saltflats. It will also use artificial wetlands, including sewage farms and saltworks dams, inundated rice crops and bores. The edges of the wetlands used are generally of mud or clay, occasionally of sand, and may be bare or with emergent or fringing vegetation, including short sedges and saltmarsh, mangroves, thickets of rushes, and dead or live trees. It was once recorded with Black-winged Stilts (*Himantopus himantopus*) in pasture, but are generally not found in dry grassland. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Tyto novaehollandiae	Masked Owl	V,P,3		0	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands	Yes

					from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (72, 104, 105, 108, and 207) are present. However, no records occur within 10 km.**	
Acacia curranii	Curly-bark Wattle	V	V	0	The majority of the species distribution lies within the Mt. Hope - Lake Cargelligo - Hillston region, including populations in the conservation areas of Yathong National Park, Nombinnie State Conservation Area and Round Hill Nature Reserve. There are about 20 populations with fewer than 5000 individuals each and one population with an estimated 150,000 individuals. Also known in Qld from two populations totalling several hundred individuals near Gurulmundi. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (72, 103, 104, 108, and 229) are present. However, no records occur within 10 km.**	Yes
Acacia petraea	Lancewood	E1		0	Recorded in NSW from the Hungerford and Bourke-Louth districts. Also occurs in several localities in south-western Queensland, confined to the Grey Range and its outliers in the Gregory South and Warrego districts. Lancewood grows in heath to woodland vegetation on rocky ridge tops, jump-ups and scarps with shallow to skeletal, gravely sandy soils. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Atriplex infrequens	A saltbush	V	V	0	*Atriplex infrequens* is confined to the NSW far western plains. North western records recorded from east of Tibooburra, south east of Brewarrina and near Wilcannia with isolated collections from the Pooncarie area in the south. Also recorded in 1917 in South Australia. Flowering time has not been recorded, however seeding is recorded in December. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (229) is present. However, no records occur within 10 km.**	Yes
Austrostipa metatoris	A spear-grass	V	V	0	Most records occur in the Murray Valley with sites including Cunninyeuk Station, Stony Crossing, Kyalite State Forest (now part of Murrumbidgee Valley Regional Park) and Lake Benanee. Scattered records also occur in central NSW including Lake Cargelligo, east of Goolgowi, Condobolin and south west of Nymagee. Otherwise only known from near Bordertown in south east South Australia, where it may be locally extinct. Grows in sandy areas of the Murray Valley; habitats include sandhills, sandridges,	Yes

					undulating plains and flat open mallee country, with red to red-brown clay-loam to sandy-loam soils. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (72, 103, and 174) are present. However, no records occur within 10 km.**	
Brachyscome papillosa	Mossgiel Daisy	V	V	0	The Mossgiel Daisy is endemic to NSW and chiefly occurs within the Riverina Bioregion, from Mossgiel in the north, Murrumbidgee Valley (Yanga) National Park in the south west to Urana in the south east. Sites are scattered across this Bioregion including the Jerilderie area, the Hay Plain (Maude and Oxley) and around Darlington Point. In addition, there are a number of records from the Willandra Lakes World Heritage Area (including Mungo National Park) with a north-western outlier at Byrnedale Station, north of Menindee. The only known site on South Western Slopes is Ganmain Reserve. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Dodonaea sinuolata subsp. acrodentata	A Hopbush	E1		0	In NSW, known from only two locations south-west plains: one near Hillston, and another north of Ivanhoe. The species is also known from central south-west Qld, in the Warrego and Maranoa districts. Grows on stony ridges and sandy 'jump-ups' in arid and semi-arid areas. Substrates are commonly stony red sandy-loams with limonite and quartzite pebbles. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (104, 108, and 143) are present. However, no records occur within 10 km.**	Yes
Dysphania plantaginella		E1		0	Found in both coastal and inland areas of Australia but confined to the south-western plains of NSW. It has been recorded there from Marlow Station NNW of Conoble railway siding. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Eleocharis obicis	Spike-Rush	V	V	0	Found near Condobolin and Hay, as well as being known from an old collection from the Barrier Range near Broken Hill. The later collection was made on the Lachlan River floodplain at Micabil, near Condobolin. Grows in ephemerally wet situations such as roadside mitre drains and depressions, usually in low-lying grasslands. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (207) is present. However, no records occur within 10 km.**	Yes

Goodenia occidentalis	Western Goodenia	E1		0	Recorded in NSW from Tundulya Station about 40 km SE of Louth. Extends across the drier parts of southern Australia, from near the central-western coast of WA, through SA to central-western NSW. Grows in a variety of drier communities, mainly in mallee and Acacia scrub, and mainly in sandy soils. Recorded in NSW growing in deep red sand to sandy-loam on a stabilised sand dune and in a depression amongst sandhills. Other habitats include gentle slopes, ridge tops, lateritic outcrops, sandy flats and pebbly to gravely sands. Associated species include *Acacia aneura* and *Triodia scariosa*. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (105, 108, 119, 171, and 245) are present. However, no records occur within 10 km.**	Yes
Grevillea ilicifolia subsp. ilicifolia	Holly-leaf Grevillea	E4A		0	*Grevillea ilicifolia*, commonly known as holly grevillea, is a species of the plant genus Grevillea. It is a shrub of variable form, growing to between 0.3 and 2 metres in height and 3 metres wide. Typically, leaves are lobed and holly like, but may also be unlobed. The flowers have perianths that have a base that is cream to green grading to grey-mauve. Styles may be pink, red, orange or yellow. The main flowering period in the species' native range is September to November. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Kippistia suaedifolia	Fleshy Minuria	E1		0	Recorded from several collections near Conoble in the Ivanhoe district. This locality is an open-cast gypsum mine (Marlow Gypsum Mine), located 22 km north of Conoble railway siding. Also reported from the Scotia area in far south-western NSW. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Lepidium monoplocoides	Winged Peppercress	E1	E	0	Widespread in the semi-arid western plains regions of NSW. Collected from widely scattered localities, with large numbers of historical records but few recent collections. There is a single collection from Broken Hill and only two collections since 1915, the most recent being 1950. Also previously recorded from Bourke, Cobar, Urana, Lake Cargelligo, Balranald, Wanganella and Deniliquin. Recorded more recently from the Hay Plain, south-eastern Riverina, and from near Pooncarie. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (105, 143, and 207) are present. However, no records occur within 10 km.**	Yes

Leptorhynchos orientalis	Lanky Buttons	E1		0	Recorded from several Hay Plain and southern Riverina localities, including Willanthry east of Hillston, Zara-Wanganella via Hay, McKinley Road SW of Hillston, and "Morundah" navy land west of Buckingbong SF. A large population has most recently been recorded from Cowl Cowl Station SSW of Hillston along a TSR. Grows in woodland or grassland, sometimes on the margins of swamps. Communities include a Bimble Box plain in red-brown soil, dense Acacia pendula woodland with herbaceous understorey on red clay to clay-loam, open grassland areas on red soils, and red clay plains at the edge of a Canegrass swamp. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Osteocarpum pentapterum		E4		0	*Osteocarpum pentapterum* is an uncommon species now presumed to be extinct in NSW. Its current distribution is throughout Queensland, South Australia and the Northern Territory. **Absent – This species is presumed extinct in NSW.**	No
Phyllanthus maderaspatensis		E1		0	Recorded for the Brewarrina and Collarenebri districts in the north-western plains of NSW. Very widely distributed across the tropics of Qld, the NT, and WA, with additional records from SA. Grows in floodplain areas on heavy soils and may rely on appropriate and intermittent rainfall and flooding events for its survival. The species is described as being a summer-growing annual and is thus dependent on seasonal conditions. Often associated with open grasslands and eucalypt woodlands in or near creek beds, and grassy flats and levees near watercourses. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Pterostylis cobarensis	Greenhood Orchid	V,P,2		0	Recorded from Bourke, Nyngan, Cobar, Nymagee, Warren, Gilgandra, Narrabri, Coonabarabran districts. Recorded from a number of reserves and state forests including Mutawintji, Gundabooka, Culgoa, Warrumbungles National Parks, Quanda, Yathong Nature Reserves, Mt Grenfell Historic Site and Bimbilwindi and Pilliga East State Forests. There are also records from the Darling Downs district of Queensland. Habitats are eucalypt woodlands, open mallee or Callitris shrublands on low stony ridges and slopes in skeletal sandy-loam soils. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (72, 103, 104, 108, 171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Rutidosis leptorrhynchoides	Button Wrinklewort	E1	E	0	Local populations at Goulburn, the Canberra - Queanbeyan area and at Michelago. Other populations occur in Victoria. Occurs in Box-Gum	No

					Woodland, secondary grassland derived from Box-Gum Woodland or in Natural Temperate Grassland; and often in the ecotone between the two communities. Grows on soils that are usually shallow, stony red-brown clay loams; tends to occupy areas where there is relatively less competition from herbaceous species (either due to the shallow nature of the soils, or at some sites due to the competitive effect of woodland trees). Normally flowers between December to March; plants do not usually flower until their second year. Has regenerative buds at the surface of the soil but not below, so plants do not have the ability to resprout from underground structures; the stems usually die back in late summer or autumn and new basal leaves are evident by early winter. Apparently susceptible to grazing, being retained in only a small number of populations on roadsides, rail reserves and other un-grazed or very lightly grazed sites. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	
Solanum karsense	Menindee Nightshade	V	V	0	Menindee Nightshade is a species of Solanum endemic to NSW, restricted to the far south-western plains, extending up the Darling River to the Menindee and Wilcannia districts. Mainly restricted to the area between the Darling and Lachlan Rivers. Localities include Kars Station, Lake Tandou, Lake Cawndilla, Oxley area, between Broken Hill and Menindee, and the Darling River. It has been recorded from Kinchega National Park and Nearie Lake Nature Reserve. **Low – Subject site is within the species known geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Swainsona murrayana	Slender Darling Pea	V	V	0	Found throughout NSW, it has been recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. The species has been collected from clay-based soils, ranging from grey, red and brown cracking clays to red-brown earths and loams. **Low – Subject site is within the species predicted geographic distribution. However, no associated PCTs are present, and no records occur within 10 km.**	No
Antechinomys laniger	Kultarr	E1,P		0	Widespread across arid and semi-arid NSW but present in very low numbers. Records typically derive from captures by domestic cats or are collected after falling into steep-sided holes. Recent records have come primarily from the Cobar and Brewarrina region. A terrestrial insectivore	Yes

					that inhabits open country, especially claypans among *Acacia* woodlands. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	
Chalinolobus picatus	Little Pied Bat	V,P		1	The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria. Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest and mallee and Bimbil box woodlands. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. **Present – Subject site is within the species known geographic distribution, associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present, and a record occurs within 10 km. Furthermore, this species was recorded by bat loggers during the field survey.**	Yes
Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	0	The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	No
Macrotis lagotis	Bilby	E4,P	V	0	Bilbies were common in many habitats throughout Australia, from the dry interior to temperate coastal regions. Changes to the Bilby's habitat have seen their numbers greatly reduced and today the species is nationally listed as vulnerable, and is presumed extinct in NSW. They now occur in fragmented populations in mulga shrublands and spinifex grasslands in the Tanami Desert of the Northern Territory; in the Gibson and Great Sandy Deserts and the Pilbara and Kimberley regions of Western Australia; and the Mitchell Grasslands of southwest Queensland. Once widespread in arid, semi-arid and relatively fertile areas, the Bilby is now restricted to arid regions and remains a threatened species. The Bilby prefers arid habitats because of the spinifex grass and acacia shrub. **Absent – This species is presumed extinct in NSW.**	No

Ningaui yvonneae	Southern Ningaui	V,P		0	Recorded from scattered locations across southern Western Australia, South Australia, north western Victoria and south western New South Wales. Within this area it appears to be patchily distributed, but can be locally common (as is the case in some locations in NSW). In NSW most records are from the far south west, including the Scotia mallee (Tarawi Nature Reserve, Scotia Sanctuary and surrounding properties) and east of the Darling River (Mungo and Mallee Cliffs National Parks and many surrounding properties). An apparently isolated population occurs in central NSW mallee with most records from Nombinnie, Round Hill and western Yathong Nature Reserves and one single record from remnant mallee near Taleeban (south west of West Wyalong). **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Nyctophilus corbeni	Corben's Long-eared Bat	V,P	V	2	Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, bulloke *Allocasuarina leuhmanni* and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark. **High – Subject site is within the species known geographic distribution, associated PCTs (57, 72, 103, 104, 105, 108, 171, 173, 174, 207, and 245) are present, and two records occur within 10 km.**	Yes
Petrogale penicillata	Brush-tailed Rock-wallaby	E1,P	V	0	The range of the Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. Shelter or bask during the day in rock crevices, caves and overhangs and are most active at night when foraging. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees. Highly territorial and have strong site fidelity with an average home range size of about 15 ha. Males tend to have larger home ranges than females. The home range consists of a refuge area and a foraging range linked by habitually used commuting routes. Females settle in or near their mother's range, while males mainly	No

					disperse between female groups within colonies, and less commonly between colonies. **Low – Subject site is not within the species known geographic distribution, no associated PCTs are present, and no records occur within 10 km.**	
Phascolarctos cinereus	Koala	E1,P	E	0	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. Inhabit eucalypt woodlands and forests. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V,P		0	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 72, 103, 104, 105, 108, 143, 173, 174, 207, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Setirostris eleryi	Bristle-faced Free-tailed Bat	E1,P		0	Bristle-faced Free-tailed Bat is Distributed from the southern half of the Northern Territory to central Queensland and north-western NSW. In NSW, the species has been recently recorded from only three disjunct locations: thirteen individuals from Gundabooka National Park, south of Bourke; one individual from Dhinnia Dthinawan Nature Reserve (formerly Bebo State Forest), north of Warialda two individuals near	Yes

					Bonshaw. Knowledge of the ecology of the Hairy-nosed Freetail Bat is limited, however evidence suggests that the species depends on hollows and tree fissures for roosting sites. All other Australian species from the same family generally roost in tree hollows and fissures. Appears to be extremely rare throughout its range. Nationally, it has been recorded from only 15 locations. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (103, 104, 105, 108, 143, and 207) are present. However, no records occur within 10 km.**	
Sminthopsis macroura	Stripe-faced Dunnart	V,P		0	Throughout much of inland central and northern Australia, extending into central and northern NSW, western Queensland, Northern Territory, South Australia and Western Australia. They are rare on the NSW Central West Slopes and North West Slopes with the most easterly records of recent times located around Dubbo, Coonabarabran, Warialda and Ashford. Native dry grasslands and low dry shrublands, often along drainage lines where food and shelter resources tend to be better. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (119, 171, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Vespadelus baverstocki	Inland Forest Bat	V,P		2	Because of the difficulty of identification, the distribution of this species, particularly in NSW, is very poorly known. Believed to occur widely in all the mainland states, generally in areas with annual rainfall less than 400 millimetres. In Victoria it is confined to the extreme north west. In NSW it has been most regularly captured in the far south west, north from the Murray River to Menindee, and at least as far east as the Balranald-Ivanhoe Road. There is some evidence to suggest that this species also occurs in the central NSW mallee, centred on Nombinnie Nature Reserve, although there has been very little recent survey in this part of the state. There are also records just south of the Queensland border around the Culgoa River, though whether this connects with other NSW populations, or is the southern extent of a northern population is unknown. There are records further east in NSW but the identification of these records have not been confirmed. There are relatively few records of any *Vespadelus* species in the north west of NSW and so whether this species does occur here is unknown. Some of the gaps in knowledge on the distribution of this and other bat species in western NSW probably reflects the lack of survey effort in most of this region. **High – Subject site is within the species known geographic distribution, associated PCTs (57, 72, 103, 105, 108, 143, 171, 173, and 174) are present, and two records occur within 10 km.**	Yes

Antaresia stimsoni	Stimson's Python	V,P		0	Occurs in north-west NSW, from Bourke and Gundabooka National Park in the east to Broken Hill and Wilcannia in the south. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (119, 171, 229, and 245) are present. However, no records occur within 10 km.**	Yes
Delma australis	Marble-faced Delma	E1,P		0	This species is widely distributed from Western Australia, through much of South Australia extending in to the southern Northern Territory and in north western Victoria and south western NSW. In NSW, appears to be restricted to temperate mallee woodlands or spinifex grasslands but elsewhere is also found in chenopod shrublands, heathlands and buloke associated with mallee habitats or eucalypt lined watercourses. The species occupies areas with a sandy substrate but may also utilise cracking red loam soils, but has also recently been recorded in spinifex on rocky hillsides. Found in deep leaf litter, under rocks, logs, fallen timber or in grass clumps such as spinifex. They are considered to be terrestrial although they may climb into hummock grass and even sleep in the branches of small shrubs. They are generally active during the day but have been observed being active at night or around sunrise and sunset. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Lerista xanthura	Yellow-tailed Plain Slider	V,P		0	In NSW, the species is known from two disjunct populations. One population occurs between Tarawi Nature Reserve, Ivanhoe and Broken Hill, and the other in the north-west corner of the state. Since the 1970s, it has only been recorded from Kinchega, Sturt and Mutawintji National Parks, Tarawi Nature Reserve, and one record from Broken Hill. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (119, 143, and 171) are present. However, no records occur within 10 km.**	Yes
Pseudonaja modesta	Ringed Brown Snake	E1,P		0	Determined on the basis of only limited records until recently, it is thought to occupy the north-west portion of the state having been recorded from Tarawi Nature Reserve, 140km south of Broken Hill, Silverton, Tibooburra, Wanaaring and from Kilberoo, 140km north-west of Bourke. Recent surveys have identified a large population in the Scotia Sanctuary-Tarawi NR region. **Moderate – Subject site is within the species predicted geographic distribution and associated PCTs (119, 143, 171, and 207) are present. However, no records occur within 10 km.**	Yes

Simoselaps fasciolatus	Narrow-banded Snake	V,P		0	Determined on the basis of only limited records until recently, it is thought to occupy the north-west portion of the state having been recorded from Tarawi Nature Reserve, 140km south of Broken Hill, Silverton, Tibooburra, Wanaaring and from Kilberoo, 140km north-west of Bourke. Recent surveys have identified a large population in the Scotia Sanctuary-Tarawi NR region. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (119, 143, 171, and 174) are present. However, no records occur within 10 km.**	Yes
Strophurus elderi	Jewelled Gecko	V,P		0	The species is found in a range of habitats throughout the arid areas of central Australia, though all have Spinifex present as the ground layer. Extends east to the 'Murray Mallee' in South Australia and south west NSW where it occurs in spinifex mallee (and rarely in pine with spinifex understorey). In this region they have been recorded from near Menindee and Coombah in the north south to near the Murray River, and from the NSW-SA border east to near Hatfield. **Moderate – Subject site is within the species predicted geographic distribution and an associated PCT (171) is present. However, no records occur within 10 km.**	Yes
Tiliqua occipitalis	Western Blue-tongued Lizard	V,P		0	Scattered records across central western and western NSW. No observations from northwest NSW to date. Diurnally forages for insects, snails, native vegetation and carrion. Inhabits plains, swales, ranges and sometimes dunes of loamy or clayey/sandy soils vegetated by woodlands, especially mallee, shrublands (including chenopods), heaths or hummock grasslands. Preferred vegetation type appears to be mixed mallee/Triodia communities. **Moderate – Subject site is within the species known geographic distribution and associated PCTs (57, 171, 173, and 174) are present. However, no records occur within 10 km.**	Yes
Maccullochella macquariensis	Trout Cod	E,P	E	0	Trout Cod tend to occupy areas which have lots of large in-stream woody debris or 'snags', which provide complex habitats for each stage of the species' life cycle. They form pairs and spawn during spring and early summer when the water temperature is around 15ºC. Females produce 1,200 – 11,000 adhesive eggs (2.5 – 3.6 mm in diameter) that attach to hard substrates and are guarded by the male. **Absent – Suitable waterways do not occur within the subject site.**	No

*NSW Status: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

+Commonwealth Status: M=Marine, C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable.

Likelihood of occurrence table for BC Act-listed Threatened Ecological Communities

Community	NSW Status	Likelihood of Occurrence	5-part test required (Yes / No)
Acacia loderi shrublands	E3	The *Acacia loderi* Shrublands are known from the Broken Hill Complex, Murray-Darling Depression, Cobar Peneplain, Riverina, Mulga Lands and Darling Riverine Plains Bioregions. Sites occur from south-western NSW to north-western Victoria and eastern South Australia. In NSW, the community is mainly confined to south-western NSW, extending east to Hillston and north to White Cliffs. The major stands occur between Broken Hill, Ivanhoe and Wilcannia, while isolated stands occur beyond these areas. **Absent – Community did not occur within the subject site**	No
Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions	E3	*Acacia melvillei* Shrubland is currently recorded from south-western portion of NSW in the Riverina and Murray-Darling Depression bioregions in the local government areas of Balranald, Carrathool, Central Darling, Conargo, Wakool and Wentworth and may occur in other local government areas within these bioregions. This community is not considered to occur outside of NSW, though small stands of *Acacia melvillei* are known to occur in north western Victoria (such as near Merbein). *Acacia melvillei* Shrubland is scattered over a relatively large distribution, with an estimated extent of occurrence in the order of 50000 km^2. However, throughout this distribution, *Acacia melvillei* Shrubland occurs in relatively small patches. This community has been recorded in a number of conservation reserves, with the largest area in Paroo-Darling National Park (565 hectares). Other reserves with smaller areas include Yanga State Conservation Area, Yanga National Park, Mungo National Park, Kajuligah Nature Reserve and Willandra National Park. **Absent – Community did not occur within the subject site**	No
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	E3	This ecological community is scattered across the eastern parts of the alluvial plains of the Murray-Darling river system. The community is also known as Boree particularly in the southern part of its distribution. Typically, it occurs on red-brown earths and heavy textured grey and brown alluvial soils within a climatic belt receiving between 375 and 500 mm mean annual rainfall. This EEC is known from parts of the Local Government Areas of Berrigan, Bland, Bogan, Carrathool, Conargo, Coolamon, Coonamble, Corowa, Forbes, Gilgandra, Griffith, Gwydir, Inverell, Jerilderee, Lachlan, Leeton, Lockhart, Moree Plains, Murray, Murrumbidgee, Narrabri, Narranderra, Narromine, Parkes, Urana, Wagga Wagga and Warren, and but may occur elsewhere in these bioregions.	No

Community	NSW Status	Likelihood of Occurrence	5-part test required (Yes / No)
		Absent – Community did not occur within the subject site	
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	E3	This community is dominated by *Callitris glaucophylla*, typically occupying red-brown loamy sands with alkaline sub-soils on the alluvial plain of the Murray River and its tributaries, and on parts of the sandplain in south-western NSW. In the Riverina bioregion and the far south-western portion of the NSW South Western Slopes bioregion, the community is typically associated with prior streams and aeolian source-bordering dunes, which are scattered within an extensive alluvial clay plain dominated by chenopod shrublands. In the Murray-Darling Depression bioregion, the community occurs as scattered patches on sandhills and lunettes within an extensive aeolian sandplain dominated by woodlands of mallee eucalypts or belah. **Present – This community occurs within the subject site**	Yes

+ NSW Status: E3=Endangered.

APPENDIX D – BC ACT 5-PART TEST OF SIGNIFICANCE

Biodiversity Conservation Act 2016 Test of significance

The threatened species 'test of significance' (or '5-part test') is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. The test of significance is set out in s.7.3 of the *Biodiversity Conservation Act 2016*, and is completed in accordance with the questions set out below:

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

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

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

   i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

   ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

c. in relation to the habitat of a threatened species or ecological community:

   i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

   ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

   iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

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

e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

BC Act Test of Significance for Threatened Ecological Communities

Community	a.	b.	c.	d.	e.	Impact Significance
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	N/A	i. The proposal will impact up to 0.94 ha of this EEC. All impacts will be confined to the boundary of Koonaburra NP. ii. The extent of clearing in the proposal will be confined to the boundary of Koonaburra NP. While any reduction in the extent of an EEC is discouraged, the retention of larger areas of this EEC in the study area suggests that this proposal alone is unlikely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	i. Only areas of PCT 245 within the Murray Darling Depression Bioregion were regarded as belonging to this EEC; therefore, up to 0.94 ha of this EEC will be removed or modified due to this proposal. Although PCT 245 is not predictively mapped to the study area, this community was seen to extend beyond the impact footprint. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape to a minor degree. This additional fragmentation, while undesirable, is unlikely to present a substantial impediment to the movement of fauna species or to gene flow among plants. iii Considering the small area (0.94 ha) of this TEC within the subject site, and the presence of similar habitat extending outside of the impact footprint, the proposal is not expected to impact the long-term survival of the ecological community in the locality.	No AOBV will be impacted.	A number of KTPs were assessed as likely to be exacerbated by this proposal (see **Appendix F**), including: • Clearing of native vegetation • Competition from feral honey bees, *Apis mellifera* L. • Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations • Loss of Hollow-bearing Trees • Removal of dead wood and dead trees.	No Significant Impact

BC Act Tests of Significance for Threatened Species.

Species Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Crinia sloanei	Sloane's Froglet	The Sloane's Froglet is strongly associated with periodically inundated areas of grassland and woodland. Although the site may be suitable for the species – given the presence of watercourses and drainage lines which cross the site – the relatively small amount of associated vegetation (0.60 ha) and lack of records within the search area, suggest it is unlikely that the subject site represents a critical component of habitat. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 105 within the subject site. Consequently, up to 0.60 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey, the small area of potentially suitable habitat, and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Amytornis striatus striatus	Mukarrthippi Grasswren	This species is confined to areas with well-developed Porcupine Grass (*Triodia irritans*), usually in association with mallee eucalypts and sandy soils. Nests are a substantial dome of interwoven grasses, bark and spinifex, well-hidden towards the top of a spinifex clump. The associated *Triodia irritans* does not occur within the subject site. The grass layer within the subject site has been heavily	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		degraded by goat herbivory. Furthermore, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Aphelocephala leucopsis	Southern Whiteface	Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. Birds build large bulky domed nest of grass, bark and roots, usually in a hollow or crevice, although sometimes in low bushes. The subject site contains broadly suitable foraging and breeding habitat for this species. Furthermore, four individuals were seen during the field survey – the majority of which were in close proximity to existing dams. Furthermore, this species was also recorded by SM4s placed at both Trevor's and Jan's dams. Of particular concern are the records observed adjacent to dams which will be decommissioned under the current proposal (Borri [n=1], Dingo [n=2], Jan's [SM4 recordings], and Trevor's dams [SM4 recordings]). The Southern Whiteface is considered sedentary. As such, the removal of these dams could be detrimental to the individuals which reside nearby.	N/A	i. This species is not associated with any PCTs within the subject site. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. Clearing of native vegetation along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. The proposal may isolate habitat for this species by removing access to some water sources. iii. Considering numerous water sources will be retained within the Koonaburra NP, and the large area of remnant vegetation within the surrounding landscape, the habitat to be modified or removed by this proposal is unlikely to be of critical importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		However, an additional Southern Whiteface recorded during the field survey was located over 4 km from the nearest known water source at the time (Rodney's Dam), indicating that this species can travel fair distances to access water. Further studies of species records also indicate that this species may move into wetter areas outside of their normal range during drought years (Higgins and Peter 2002). The proposal plans to retain three named manmade dams (Emu, Twin, and Harvey's), a further three unnamed dams (two near the Koonaburra Station and one a further 4 km southwest of the station), and the natural lake near the western boundary (Collins Lake). Numerous depressions within the landscape will also hold water following rainfall events. As such, suitable habitat (with access to water) for this species will remain within the Koonaburra NP. Therefore, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.					
Ardeotis australis	Australian Bustard	This species mainly inhabits tussock and hummock grasslands, though prefers tussock grasses to hummock grasses. It breeds on bare ground on low sandy ridges or stony rises in ecotones between grassland and	N/A	i. This species is associated with PCT 57, 105, 108, 119, 143, 174, 207, and 229 within the subject site. Consequently, up to 27.65 ha of associated PCT for this species will be	No, AOBV not present within or close to	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		protective shrubland cover; roosts on ground among shrubs and long grasses or under trees. The subject site contains habitat which may be suitable for breeding. However, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	the subject site.		the undertaking of the proposal.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	The Dusky Woodswallow inhabits dry, open eucalypt forests and woodlands. Nests are cup-shaped and constructed in the dense foliage of eucalypts. No evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Burhinus grallarius	Bush Stone-curlew	Nests on the ground in a scrape or small bare patch. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 105, 108, 207, 229, and 245 within the subject site. Consequently, up to 30.53 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Red-tailed Black-Cockatoos are found in a wide variety of habitats though they prefer *Eucalyptus* forest and woodlands, particularly river red gum and coolabah lined water courses. In the arid zone they usually occur near eucalypts along larger watercourses and associated *Acacia* and *Casuarina* woodlands nearby. Also utilise grasslands, scrublands, wetlands and vegetation on floodplains. Although suitable habitat for this species occurs within the subject site, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to	N/A	i. This species is associated with PCT 57, 103, 105, 119, 207, and 245 within the subject site. Consequently, up to 18.47 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		subject site is unlikely to be of importance to the long-term survival of this species.			
Certhionyx variegatus	Pied Honeyeater	This species builds a large cup twig nest in shrubs or small trees. Inhabits wattle shrub, mulga, mallee, spinifex and eucalyptus woodlands. Feeds on nectar of mistletoes, and various emu-bushes (*Eremophila* spp.) and Grevillea species. Will also eat salt bush fruit berries, seeds, insects and flowers. One potential nest was detected during the field survey. However, the species itself was not detected and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 72.29 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Chthonicola sagittata	Speckled Warbler	The Speckled Warbler typically requires a combination of scattered tussock grasses, a sparse shrub layer, eucalypt regrowth and an open canopy. They generally require relatively large undisturbed remnant habitat to persist. The subject site contains suitable foraging and breeding habitat. However, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have	N/A	i. This species is associated with PCT 72, 103, 104, 105, 173, and 174 within the subject site. Consequently, up to 43.44 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Cinclosoma castanotum	Chestnut Quail-thrush	In NSW, this species seems to occur almost exclusively in mallee habitats, with an understorey dominated by spinifex, chenopods or other shrubs including *Acacia* species. It nests within depressions in the ground lined with strips of bark, fine grass or sticks, placed near a mallee trunk, against a fallen branch, under a low bush or in a sparse tuft of grass. The subject site contains suitable mallee habitats. However, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 103, 171, 173, and 174 within the subject site. Consequently, up to 41.99 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Circus assimilis	Spotted Harrier	Spotted Harriers construct their nests in open and riparian woodlands. No evidence of the species and no potential nests were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		species such that a viable local population of the species is likely to be placed at risk of extinction.		landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Daphoenositta chrysoptera	Varied Sittella	The Varied Sittella inhabits eucalypt forests and woodlands and constructs a cup-shaped nest in an upright tree fork high in the living canopy, often reusing the same nest over successive years. No evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 72, 103, 104, 105, 108, 119, 171, 173, 174, and 207 within the subject site. Consequently, up to 60.43 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Drymodes brunneopygia	Southern Scrub-robin	This species inhabits mallee and *Acacia* scrub, particularly with dense sub-shrubs in the understorey, including Broombush and other dry shrubs. Forages around the base of mallee trees and on the ground	N/A	i. This species is associated with PCT 171 and 173 within the subject site. Consequently, up to 30.14 ha of associated PCT for this species will be removed or modified because of this proposal.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		beneath shrubs for ground- and litter-dwelling invertebrates, with certain ant species dominating. Constructs a shallow cup-shaped nest of twigs, bark and grass, which is normally located on the ground and usually concealed in the shelter of a tree, shrub or fallen branch. The subject site contains suitable habitat. However, no evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			the undertaking of the proposal.
Epthianura albifrons	White-fronted Chat	The White-fronted Chat constructs cup-shaped nests in dense, low vegetation. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. No evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 229 within the subject site. Consequently, up to 5.95 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. Clearing of native vegetation along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. The proposal may isolate habitat for this species by removing access to some water sources.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Falco hypoleucos	Grey Falcon	The Grey Falcon utilises the old nests of other birds of prey and ravens, generally close to waterways. One potential nest was detected during the field survey. However, the species was not detected and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Falco subniger	Black Falcon	The Black Falcon uses preestablished nests, created by other birds of prey and ravens, close to waterways. One potential nest was detected during the field survey. However, the species was not detected and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local	N/A	i. This species is associated with PCT 57, 72, 103, 105, 119, 143, 171, 173, 174, 207, and 229 within the subject site. Consequently, up to 62.79 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		population of the species is likely to be placed at risk of extinction.		to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Grantiella picta	Painted Honeyeater	Breeds in nests within Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes. Although one species of mistletoe was detected ruing the field survey (*Amyema quandang*), no evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 207, 229, and 245 within the subject site. Consequently, up to 42.04 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Grus rubicunda	Brolga	Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. The nest comprises a platform of grasses and sticks, augmented with mud, on an island or in the water. The most	N/A	i. This species is associated with PCT 207 within the subject site. Consequently, up to 0.87 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. Clearing of native vegetation	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		suitable dam for this species is Twin Dam (to be retained) as it contains shallow sections and aquatic vegetation, which could provide suitable foraging habitat. However, no brolgas or potential nests were detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. Considering this species is highly nomadic and can travel large distances to access suitable wetlands, and the most suitable dam for this species (twin dam) will be retained, the proposal is unlikely to isolate habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Haliaeetus leucogaster	White-bellied Sea-Eagle	The White-bellied Sea-Eagle breeds in large stick nests within 1 km of watercourses. Habitat is characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. No evidence of the species and no potential nests were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with 57, 72, 103, 105, 143, 171, 173, and 174 within the subject site. Consequently, up to 54.14 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the lack of large watercourses, the inability to detect the species or its nests during the field survey, and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Hamirostra melanosternon	Black-breasted Buzzard	The Black-breasted Buzzard constructs its large stick nests adjacent to watercourses in large, tall trees. No evidence of the species and no potential nests were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 105, 119, 143, and 171 within the subject site. Consequently, up to 30.00 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species or its nests during the field survey, and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Hieraaetus morphnoides	Little Eagle	Breeds in stick nests on open eucalypt forest, woodland or open woodland. Occurs throughout Australia, except in dense forests. No evidence of the species and no potential nests were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				species or its nests during the field survey, and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Hirundapus caudacutus	White-throated Needletail	This is a migratory species which is usually seen in eastern Australia from October to April. It breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. The species is more common in coastal areas, less so inland. As this species breeds exclusively outside of Australia, and they prefer coastal ecosystems, the subject site is unlikely to be critical to the lifecycle of the species. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to	N/A	i. This species is associated with PCT 207 within the subject site. Consequently, up to 0.87 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the lack of records within the 10 km search area and that the species prefers coastal ecosystems, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Hylacola cautus	Shy Heathwren	This species inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. The central NSW population (for example in Cocoparra NP) also occurs at low densities in rocky hilltop vegetation with a thick shrub layer such as Broombush or Tea-tree. Breeds late winter to early summer and builds a dome-shaped nest in a concealed location on the ground, using a variety of plant materials. The subject site contains suitable mallee woodland with a	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		dense shrub layer in places. However, no evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Lathamus discolor	Swift Parrot	Breeds exclusively in Tasmania. In mainland Australia they feed on winter flowering species including Yellow Gum (*E. leucoxylon*); Red Ironbark (*E. tricarpa*); Mugga Ironbark (*E. sideroxylon*); Grey Box (*E. microcarpa*); White Box (*E. albens*); Yellow Box (*E. melliodora*); Swamp Mahogany (*E. robusta*); Forest Red Gum (*E. tereticornis*); Blackbutt (*E. pilularis*); and Spotted Gum (*Corymbia maculata*). Of these associated species, none were recorded within or adjacent to the subject site. Furthermore, the Swift Parrot was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to place a local population at risk of extinction.	N/A	i. This species is associated with PCT 72, 104, 173, and 174 within the subject site. Consequently, up to 36.21 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of associated feed tree species, the inability to detect the species during the field survey, and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Leipoa ocellata	Malleefowl	Malleefowl are dependent on light sandy-to-sandy loam soils and dense/diverse herb and shrub layer. This soil, which is necessary for the construction of their conspicuous mounds, was present in sections of the subject site. Furthermore, two	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		records of this species occur within the 10 km search area. However, both records are over 40 years old, and no evidence of the species or its mounds was detected during the field survey. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the absence of recent records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			the undertaking of the proposal.
Lophochroa leadbeateri	Pink Cockatoo	The life cycle of this species is reliant on the presence of large tree hollows. In total, 19 hollow-bearing trees with suitably large hollows (>10 cm) occur within or directly adjacent to the subject site. Furthermore, 26 individuals of this species were recorded during the field survey. This species always occurs within easy reach of water. As such, construction of the manmade dams within Koonaburra NP are likely to have benefited this species. [redacted] Numerous depressions within the landscape will also hold water following rainfall	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. In addition, eight dams will be decommissioned. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. Clearing of native vegetation along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. The proposal may isolate habitat for this species by removing access to some water sources. iii. The habitat to be removed/modified is likely to be of critical importance to the long-term survival of this species in the locality. However, considering three manmade dams	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	Provided the recommended mitigation measures are employed, no significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		events. As such, suitable habitat for this species will remain within the Koonaburra NP. Therefore, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		(Emu, Twin, and Harvey's), three unnamed manmade dams, and the natural lake near the western boundary will be retained, and the overall positive impacts of the project with respect to vegetation regeneration, the proposal should not threaten the survival of this species in the area.			
Lophoictinia isura	Square-tailed Kite	This species is found in a variety of timbered habitats including dry woodlands and open forests. It breeds in stick nests generally along or near watercourses. No evidence of the species and no potential nests were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 105, 108, 174, and 207 within the subject site. Consequently, up to 20.43 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Melanodryas cucullata cucullata	South-eastern Hooded Robin	This species builds a cup-shaped nest in a tree fork or crevice. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, and 245 within the subject site. Consequently, up to 71.68 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		Two individuals of this species were recorded during the field survey. Both individuals were located > 2 km from the proposed boundary fence and any of the manmade dams. Although this species is considered sedentary, their distance from the manmade dams indicates that they can travel fair distances to access water. The proposal plans to retain three named manmade dams (Emu, Twin, and Harvey's), a further three unnamed dams (two near the Koonaburra Station and one a further 4 km southwest of the station), and the natural lake near the western boundary (Collins Lake). Numerous depressions within the landscape will also hold water following rainfall events. As such, a large area of suitable habitat (with access to water) for this species will remain within the Koonaburra NP. Therefore, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		Clearing of native vegetation along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between water sources. The proposal may isolate habitat for this species by removing access to some water sources. iii. Considering the large area of suitable habitat which will remain within Koonaburra NP and the surrounding landscape, the habitat to be removed by this proposal is unlikely to be of critical importance to the long-term survival of this species. Furthermore, the reduction in goat herbivory is expected to increase the structural diversity of habitat within Koonaburra NP, favouring this species.			
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	This species occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts. It breeds in cup shaped nests in the crown of a tree. No evidence of the species and no suitable nests were detected during the field survey (however, due to	N/A	i. This species is associated with PCT 103 within the subject site. Consequently, up to 6.34 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		time restrictions and the high density of vegetation, small nests may have been overlooked). Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			the undertaking of the proposal.
Neophema pulchella	Turquoise Parrot	This species lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. It nests in small-medium sized tree hollows. Eighty one small-medium sized tree hollows occur within the subject site. However, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 72, 105, 173, and 174 within the subject site. Consequently, up to 30.07 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Pachycephala inornata	Gilbert's Whistler	The Gilbert's Whistler requires a dense shrub-layer for foraging purposes. The species constructs their cup-shaped nest in the forks of dense foliage plants, such as large wattles and cypress pines. No evidence of the species was detected during the field survey.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 108, 171, 173, and 174 within the subject site. Consequently, up to 62.24 ha of associated PCT for this species will be removed or modified because of this proposal.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Pachycephala rufogularis	Red-lored Whistler	This species is found in mallee woodland with a shrub layer, usually of Broombush and native pine such as Mallee Pine (*Callitris verrucosa*), with occasional patches of spinifex and emergent mallee, forming a relatively dispersed canopy. A substantial cup nest is constructed by these birds, mainly of coarse bark and mallee leaves, located within low shrubs (e.g. Broombush). Although suitable habitat is present within the subject site, no evidence of the species was detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 171 and 173 within the subject site. Consequently, up to 30.14 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Polytelis swainsonii	Superb Parrot	The Superb Parrot inhabits Box-Gum, Box-Cypress-pine, and River Red Gum forests. Nesting occurs	N/A	i. This species is associated with PCT 72, 103, 105, 108, 174, and 245 within the subject site. Consequently, up to 23.82 ha of	No, AOBV not present within or	Yes. See **Appendix F**	No significant impact will arise to the local

		within small hollows, generally at least 8 cm in diameter. Eighty one small – medium sized hollows occur within the subject site; however, some of these may have been too small for the Superb Parrot. The species was not detected during the field survey and no records occur within the 10 km search area. Furthermore, the subject site is well outside of the key breeding areas for this species. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	close to the subject site.		viability of this species or its habitat due to the undertaking of the proposal.
Pomatostomus halli	Hall's Babbler	Inhabits dry *Acacia* scrub, mainly Mulga, with a grassy understorey including spinifex, on ridges and plains with either sandy or stony soils. Occasionally occurs in open dry *Eucalyptus* (Bimblebox) woodland, and mulga- or eucalypt-lined watercourses. Hall's Babblers construct neat spherical dome nests, each with a side entrance, from twigs within the outer branches of acacias, in the upright forks of mulgas and *Casuarina*, or in a horizontal eucalypt branch 3-10 m above the ground. No evidence of this species or its nests was detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local	N/A	i. This species is associated with PCT 104 and 119 within the subject site. Consequently, up to 8.80 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		population of the species is likely to be placed at risk of extinction.					
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	This conspicuous species lives in family groups and makes a dome-shaped stick nest which is used year-round for roosting. Four of these dome-shaped stick nests were detected during the field survey approximately 10 m from the subject site (see **Section 5.6**). Furthermore, 18 individuals of this species were seen during the field survey and the species was also recorded by a SM4 placed at Trevor's dam. A large area of remnant vegetation suitable for this species will remain within the surrounding landscape. Therefore, provided the mitigation measures proposed for the tree containing the four Grey-crowned Babbler nests are implemented, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 143, 173, 174, 207, and 245 within the subject site. Consequently, up to 60.23 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the large area of suitable habitat which will remain within Koonaburra NP and the surrounding landscape, the habitat to be removed by this proposal is unlikely to be of critical importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	Provided the recommended mitigation measures are employed, no significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Stagonopleura guttata	Diamond Firetail	This species builds a grass nest in trees or shrubs. Found in grassy eucalypt woodlands. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. No evidence of the species was detected during the field survey. Additionally, the grass layer is heavily degraded by goat herbivory. Furthermore, no records occur within the 10 km search area. As such, the	N/A	i. This species is associated with PCTs 57, 72, 103, 104, 105, 108, 173, 174, 207, and 245 within the subject site. Consequently, up to 57.52 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		to a minor degree. The proposal will not isolate any habitat for this species.. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Tyto novaehollandiae	Masked Owl	The Masked Owl inhabits dry eucalypt forests and woodlands. Although it nests within heavily forested areas, it often hunts along the edges of forests, such as roadsides and water margins. Nesting requires large – extra-large hollows, of which 14 were present. However, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 72, 104, 105, 108, and 207 within the subject site. Consequently, up to 16.61 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Acacia curranii	Curly-bark Wattle	Grows in *Acacia* shrubland and mallee. Prefers acidic, skeletal soils in rocky habitats and occupies specialised habitats comprising rocky ridges and deeply weathered sandstone. Associated species in NSW populations include *Eucalyptus dwyeri, E. populneus subsp. bimbil, E. intertexta, E. microcarpa, E. morrisii, Callitris glaucophylla, Acacia doratoxylon, A.*	N/A	i. This species is associated with PCT 72, 103, 104, 108, and 229 within the subject site. Consequently, up to 27.26 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		havilandiorum, A. aneura and *Eremophila* spp. flowers from August to September. This species can be surveyed for year-round. Although associated species were recorded during the field survey, *Acacia curranii* was not detected. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey, and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Atriplex infrequens	A saltbush	*Atriplex infrequens* is associated with broad drainage tracts, clay flats and possibly occasionally inundated habitats. Very little ecological information is available for this species so the critical habitat components can only be speculated as relatively undisturbed and ungrazed drainage lines and flats. Flowering time has not been recorded; however, seeding is recorded in December. The species was not detected during the field survey; however, this took place outside of the recommended survey period for this species (November – February). Considering the subject site has been heavily grazed by goats and that no records of the species occur within the 10 km search area, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species	N/A	i. This species is associated with PCT 229 within the subject site. Consequently, up to 5.95 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of records within the 10 km search area and the heavy goat grazing, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		is likely to be placed at risk of extinction.					
Austrostipa metatoris	A spear-grass	Grows in sandy areas of the Murray Valley; habitats include sandhills, sandridges, undulating plains and flat open mallee country, with red to red-brown clay-loam to sandy-loam soils. Associated species include *Eucalyptus populnea, E. intertexta, Callitris glaucophylla, Casuarina cristata, Santalum acuminatum* and *Dodonaea viscosa*. Flowers in response to rain. Although associated species were recorded during the field survey, *Austrostipa metatoris* was not detected. However, the field survey took place outside of the recommended survey period for this species (October – November). The subject site has been heavily grazed by goats and the grass layer is degraded accordingly. Considering this and that no records of the species occur within the 10 km search area, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 72, 103, and 174 within the subject site. Consequently, up to 15.12 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of records within the 10 km search area and the heavy goat grazing, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Dodonaea sinuolata subsp. acrodentata	A Hopbush	Grows on stony ridges and sandy 'jump-ups' in arid and semi-arid areas. Substrates are commonly stony red sandy-loams with limonite and quartzite pebbles. Common associated species include open woodlands of *Acacia aneura* (Mulga), *A. harpophylla, Eucalyptus*	N/A	i. This species is associated with PCT 104, 108, and 143 within the subject site. Consequently, up to 14.35 ha of associated PCT for this species will be removed or modified because of this proposal.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to

		melanophloia, and *E. populnea.* The nominate species *Dodonaea sinuolata* flowers during summer and autumn (January to May) and fruit matures from July to November. The field survey was conducted during the recommended survey period for this species (July – November). Although associated species were recorded during the field survey, *Dodonaea sinuolata subsp. acrodentata* was not detected. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey, and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			the undertaking of the proposal.
Eleocharis obicis	Spike-Rush	Found near Condobolin and Hay, as well as being known from an old collection from the Barrier Range near Broken Hill. The later collection was made on the Lachlan River floodplain at Micabil, near Condobolin. Grows in ephemerally wet situations such as roadside mitre drains and depressions, usually in low-lying grasslands. Of the dams to be decommissioned, six did not contain any aquatic vegetation and two did. The only dam where Spike Rushes occurred is Twin Dam – this dam will be fenced, therefore, if the species does occur here, it should not be impacted by the proposal. The species was not detected during the field survey; however, this took	N/A	i. This species is associated with PCT 207 within the subject site. Consequently, up to 0.87 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of records within the 10 km search area and that six of the eight dams to be decommissioned do not have aquatic vegetation, the subject site is	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		place outside of the recommended survey period for this species (October – November). Considering no records of the species occur within the 10 km search area, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		unlikely to be of importance to the long-term survival of this species.			
Goodenia occidentalis	Western Goodenia	Grows in a variety of drier communities, mainly in mallee and Acacia scrub, and mainly in sandy soils. Recorded in NSW growing in deep red sand to sandy-loam on a stabilised sand dune and in a depression amongst sandhills. Other habitats include gentle slopes, ridge tops, lateritic outcrops, sandy flats and pebbly to gravely sands. Associated species include *Acacia aneura* and *Triodia scariosa*. Flowers chiefly from July to October (recommended survey period). Although associated species were recorded during the field survey, *Goodenia occidentalis* was not detected. Furthermore, no records of the species occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 105, 108, 119, 171, and 245 within the subject site. Consequently, up to 20.15 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey, and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Grevillea ilicifolia subsp. *ilicifolia*	Holly-leaf Grevillea	This species occurs in dense sand mallee environments. Only three known plants remain in NSW from the Nombinnie Nature Reserve. This species can be surveyed for year-round. *Grevillea ilicifolia* subsp. *ilicifolia* was not detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey, and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Lepidium monoplocoides	Winged Peppercress	This species occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by *Allocasuarina luehmannii* (Bulloak) and/or eucalypts, particularly *Eucalyptus largiflorens* (Black Box) or *Eucalyptus populnea* (Poplar Box). Although associated species were recorded during the field survey, *Lepidium monoplocoides* was not detected. Though the field survey was conducted outside of the recommended survey period for this species (September – December). This species is intolerant to grazing	N/A	i. This species is associated with PCT 105, 143, and 207 within the subject site. Consequently, up to 4.41 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of records within the 10 km search area, and the intolerance of this species to grazing, the subject site is	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		and considering the high level of goat herbivory, it is unlikely to occur. No records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		unlikely to be of importance to the long-term survival of this species.			
Pterostylis cobarensis	Greenhood Orchid	Habitats are eucalypt woodlands, open mallee or Callitris shrublands on low stony ridges and slopes in skeletal sandy-loam soils. Associated species include *Eucalyptus morrisii, E. viridis, E. intertexta, E. vicina, Callitris glaucophylla, Geijera parviflora, Casuarina cristata, Acacia doratoxylon, Senna* spp. and *Eremophila* spp. This species flowers from September to November. Although associated species were recorded during the field survey, *Pterostylis cobarensis* was not detected. However, the field survey was conducted outside of the recommended survey period for this species (October). No records occur within the 10 km search area. Further, this species is vulnerable to trampling and soil compaction caused by feral herbivores. As such, it is unlikely that this species occurs in the subject site and the proposal is unlikely to have an adverse effect on the life cycle of the species.	N/A	i. This species is associated with PCT 72, 103, 104, 108, 171, 173, and 174 within the subject site. Consequently, up to 56.90 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of records within the 10 km search area and the high level of disturbance caused by feral herbivores, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Antechinomys laniger	Kultarr	A terrestrial insectivore that inhabits open country, especially claypans among *Acacia* woodlands. It is nocturnal, sheltering by day in hollow logs or tree-stumps, beneath saltbush and spinifex tussocks, in deep cracks in the soil and in the burrows of other animals. This species was not captured in Elliot traps during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Chalinolobus picatus	Little Pied Bat	The Little Pied Bat roosts in caves, rock outcrops, tunnels, and buildings, as well as small tree hollows. Seventy-five extra-small – small tree hollows occur within or directly adjacent to the subject site. Furthermore, this species was recorded by bat loggers during the field survey, indicating that a population of this species is present within the local area. As such, the numerous small hollows within the subject site may be utilised by this species. This species is known to tolerate high temperatures; however, it	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. In addition, eight dams will be decommissioned. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. Clearing of native vegetation along the boundary will exacerbate fragmentation within the landscape, but only to a minor degree. Decommissioning of eight dams will fragment habitat for those species unable to travel long distances between	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	Provided the recommended mitigation measures are employed, no significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		requires access to nearby open water. Recordings of this species captured during the field survey are located at both Jan's and Tom's Dam. Therefore, if these dams are to be decommissioned, any Little Pied Bat individuals which are currently roosting nearby will likely need to relocate to remain close to open water. This species is known to switch roosts almost daily and forage up to 17 km from their roosting site (Wilson & Mittermeier 2019). The nearest areas of open water to Jan's Dam, which will not be impacted by the proposal, are 2.3 km away. The nearest areas of open water to Tom's Dam, which will not be impacted by the proposal, are 4.1 km away. As such, it is likely that this species could relocate to alternate roosting sites if their current roosting sites become uninhabitable due to dam decommissioning. Considering waterbodies will remain within 4.1 km of where this species was recorded, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction. However, it is recommended to avoid decommissioning dams during this		water sources. The proposal may isolate habitat for this species by removing access to some water sources. iii. Considering the Little Pied Bat requires access to open water, Jan's Dam and Tom's Dam (where this species was recorded on bat loggers) are likely to be of importance to the long-term survival of this species. However, the ability of this species to fly large distances in a single night is likely to facilitate relocation if their current roosting sites become uninhabitable due to dam decommissioning.			

		species' breeding season (September–December) to minimize stress and reduce the risk of young mortality.					
Ningaui yvonneae	Southern Ningaui	This species is nocturnal and shelters in spinifex clumps, beneath logs, and in dense vegetation, but may also dig its own burrows. Most movements are relatively localised, but males will regularly move more than 200 m, particularly during the breeding season, and movements of up to 2 kilometres have been recorded. This species was not captured in Elliot traps during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Nyctophilus corbeni	Corben's Long-eared Bat	Inhabits a variety of vegetation types, including mallee, bulloke *Allocasuarina leuhmanni* and box eucalypt dominated communities. Roosts in tree hollows, crevices, and under loose bark. Seventy-five extra-small – small tree hollows occur within or directly adjacent to the subject site. Furthermore, three records occur within the 10 km search area. However, these records are from 26 years ago and the species has not been recorded in the 10 km search area since (including during the field survey).	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 171, 173, 174, 207, and 245 within the subject site. Consequently, up to 67.14 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		Considering the small area of suitable habitat within the subject site, relative to the large expanse of remnant vegetation in the wider landscape, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		iii. Considering the absence of recent records within the 10 km search area, the inability to record the species during the field survey, and the small area of suitable habitat within the subject site, relative to the large expanse of remnant vegetation in the wider landscape, the subject site is unlikely to be of importance to the long-term survival of this species.			
Phascolarctos cinereus	Koala	The Koala is highly dependent on the presence of food tree species, with their distribution strongly associated with that of their food. The subject site occurs within the Western Slopes and Plains Koala Management Area. Therefore, three 'high use' tree species (*Eucalyptus coolabah, E. largiflorens,* and *E. populnea*), one 'significant use' tree species (*Callitris glaucophylla*), and two 'occasional use' tree species (*Eucalyptus intertexta* and *Geijera parviflora*) occur within or adjacent to the subject site. Of the above species, *E. largiflorens* was only detected occasionally, the other species were common. No evidence of Koala habitation was detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 77.63 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. Furthermore, habitat within the NP may become isolated from the surrounding landscape for koalas which are unlikely to be able to pass over or under the boundary fence. However, considering the scarcity of records of koalas this far inland, fragmentation for this species is unlikely to be significant. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, and more generally, this far inland, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Roosts singly or in groups of up to six, in tree hollows and buildings. Forages in most habitats across its very wide range, with and without trees. Seventy-five extra-small – small tree hollows occur within or directly adjacent to the subject site. However, no records occur within the 10 km search area and the species was not recorded during the field survey. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 143, 173, 174, 207, 229, and 245 within the subject site. Consequently, up to 65.31 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the lack of records within the 10 km search area and the inability to record the species during the field survey, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Setirostris eleryi	Bristle-faced Free-tailed Bat	Knowledge of the ecology of this species is limited, however evidence suggests that the species depends on hollows and tree fissures for roosting sites. All other Australian species from the same family generally roost in tree hollows and fissures. Seventy-five extra-small – small tree hollows occur within or directly adjacent to the subject site. However, no records occur within the 10 km search area and the species was not recorded during the field survey. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 103, 104, 105, 108, 143, and 207 within the subject site. Consequently, up to 22.45 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the lack of records within the 10 km search area and the inability to record the species during the field survey, the	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

				subject site is unlikely to be of importance to the long-term survival of this species.			
Sminthopsis macroura	Stripe-faced Dunnart	This species occurs in native dry grasslands and low dry shrublands, often along drainage lines where food and shelter resources tend to be better. They shelter in cracks in the soil, in grass tussocks or under rocks and logs. This species was not captured in Elliot traps during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 119, 171, 229, and 245 within the subject site. Consequently, up to 20.60 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Vespadelus baverstocki	Inland Forest Bat	This species breeds in tree hollows and abandoned buildings in variety of Mallee, Mulga and River Red Gum woodlands. It forages over large areas on flying insects. Seventy-five extra-small – small tree hollows occur within or directly adjacent to the subject site. Furthermore, two records occur within the 10 km search area. However, these records are from 26 years ago and the species has not been definitively recorded in the 10 km search area since (although bat recordings from the 2024 field survey contained 'probable' recordings of this species).	N/A	i. This species is associated with PCT 57, 72, 103, 105, 108, 143, 171, 173, and 174 within the subject site. Consequently, up to 57.43 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the absence of recent records within the 10 km search area and the	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		Considering the small area of suitable habitat within the subject site, relative to the large expanse of remnant vegetation in the wider landscape, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		small area of suitable habitat within the subject site, relative to the large expanse of remnant vegetation in the wider landscape, the subject site is unlikely to be of importance to the long-term survival of this species.			
Antaresia stimsoni	Stimson's Python	A terrestrial and semi-arboreal species that inhabits a wide range of arid and semi-arid environments including rock outcrops, sandy plains and dunefields where it is associated with larger trees and termite mounds. The species occupies a broad spectrum of habitats includes woodlands, shrublands (including *Acacia* and chenopods) and hummock grasslands, where rocky outcrops provide caves and deep crevices and where tree-lined watercourses provide numerous low hollows and fallen trees. While numerous hollows occur within the subject site, no rocky outcrops are present. Furthermore, the species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 57, 72, 103, 104, 105, 108, 119, 143, 171, 173, 207, and 245 within the subject site. Consequently, up to 66.23 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Delma australis	Marble-faced Delma	In NSW, appears to be restricted to temperate mallee woodlands or spinifex grasslands. The species occupies areas with a sandy substrate but may also utilise cracking red loam soils. It has also recently been recorded in spinifex on rocky hillsides. Found in deep leaf litter, under rocks, logs, fallen timber or in grass clumps such as spinifex. They are considered to be terrestrial although they may climb into hummock grass and even sleep in the branches of small shrubs. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 171, 173, and 174 within the subject site. Consequently, up to 35.59 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Lerista xanthura	Yellow-tailed Plain Slider	This species occurs in a variety of semi-arid and arid habitats. It occurs on grassed alluvial sands and sand dunes, including dry open woodlands and spinifex-dominated red sand plains. The species is fossorial and usually found in loose soil or sand beneath stones, logs and other surface debris. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the	N/A	i. This species is associated with PCT 119, 143, and 171 within the subject site. Consequently, up to 14.16 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		species is likely to be placed at risk of extinction.		iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Pseudonaja modesta	Ringed Brown Snake	A terrestrial species that inhabits drier areas including rocky outcrops and dry watercourses. Occurs in a variety of vegetation types including woodlands, shrublands, mallee and grasslands. By night it shelters in ground debris or abandoned animal burrows. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 119, 143, 171, and 207 within the subject site. Consequently, up to 15.03 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Simoselaps fasciolatus	Narrow-banded Snake	A nocturnal burrowing snake that shelters under well embedded fallen timber and stumps, in associated soil cracks and holes within litter, or under grass hummocks. Prefers open woodland or shrubland, sometimes with a hummock grass understorey. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the	N/A	i. This species is associated with PCT 119, 143, 171, and 174 within the subject site. Consequently, up to 19.61 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		species is likely to be placed at risk of extinction.		iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Strophurus elderi	Jewelled Gecko	Restricted to habitats containing spinifex on red sandy plains or dunes and to a lesser extent stony hills. Spinifex may occur as a dominant groundcover with little to no overstorey vegetation or in association with mallee, cypress pine or acacia woodlands. The species is nocturnal, foraging at night within or on the exterior portion of a clump of spinifex. They are also observed in the matrix between spinifex clumps, especially during stormy conditions, presumably seeking new refuge. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	N/A	i. This species is associated with PCT 171 within the subject site. Consequently, up to 9.62 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Tiliqua occipitalis	Western Blue-tongued Lizard	This species inhabits plains, swales, ranges and sometimes dunes of loamy or clayey/sandy soils vegetated by woodlands, especially mallee, shrublands (including chenopods), heaths or hummock grasslands. Preferred vegetation type appears to be mixed mallee/Triodia communities. The	N/A	i. This species is associated with PCT 57, 171, 173, and 174 within the subject site. Consequently, up to 40.93 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

		species is terrestrial, and known to utilise rabbit warrens for shelter. The species was not detected during the field survey and no records occur within the 10 km search area. As such, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.		fragmentation within the landscape, but only to a minor degree. The proposal will not isolate any habitat for this species. iii. Considering the inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			

APPENDIX E – MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as matters of national environmental significance. The EPBC Act policy Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE, 2013) forms the basis of determining if impact to protected matters is significant.

A Protected Matters Search identified three Wetlands of International Importance, two threatened ecological communities, 17 threatened species, seven migratory species, and 13 marine species as potentially occurring within 10 km of the subject site.

The following tables give an overview of the assessments of these threatened entities and shows that the Proposed activity:

1. Is not likely to have a significant impact on a matter of national environmental significance. The matters of national environmental significance are:
    i. World heritage properties.
    ii. National heritage places.
    iii. Wetlands of international importance.
    iv. Threatened species and ecological communities.
    v. Migratory species.
    vi. Commonwealth marine areas.
    vii. The Great Barrier Reef Marine Park. And;
    viii. Nuclear actions (including uranium mines).
    ix. A water resource, in relation to coal seam gas development and large coal mining development.
2. Is not likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land).

Notes:

Important Population as determined by the *Environment Protection and Biodiversity Conservation Act 1999*, is one that for a vulnerable species:

a) is likely to be key source populations either for breeding or dispersal
b) is likely to be necessary for maintaining genetic diversity
c) is at or near the limit of the species range.

A ‘significant impact’ is an impact which is important, notable, or of consequence, having regard to its context or intensity (DoE, 2013).

Wetlands of International Importance

Name	Proximity	Assessment of significance required (Yes / No)
Banrock station wetland complex	400 – 500 km upstream	No, the proposal does not occur close to the wetland.
Riverland	300 – 400 km upstream	No, the proposal does not occur close to the wetland.
The Coorong, and Lakes Alexandrina and Albert Wetland	500 – 600 km upstream	No, the proposal does not occur close to the wetland.

Listed Threatened Ecological Communities

Name	Status	Assessment of significance required (Yes / No)
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	No, this community does not occur within the subject site.
Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	No, this community does not occur within the subject site.

EPBC Act-listed Critically Endangered and Endangered Species

Crinia sloanei – Sloane's Froglet	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.60 ha of potential habitat for this species. The subject site is not within a priority management area for the species. The site may be suitable for the species – given the presence of watercourses and drainage lines which cross the site, and the presence of dams. However, the species was not detected during the field survey and no records occur within the 10 km search area. Further, of the dams that were inspected, Twin Dam was deemed most suitable for this species – this dam will be retained. As such, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	The proposal will impact up to 0.60 ha of associated PCT for this species.
Fragment an existing population into two or more populations	The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not split any population of this species into two.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	Sloane's froglet lives and breeds in temporary and permanent waterbodies including oxbows off creeks and rivers, farm dams, large and small natural wetlands, constructed frog ponds and temporary puddles. It prefers wetlands that contain riparian and aquatic vegetation, particularly small-stemmed vegetation such as Juncus. Of the dams to be decommissioned, only two contained aquatic vegetation. Further, Twin Dam, considered most suitable for this species, will be retained. Considering the above, the proposal is unlikely to disrupt the breeding cycle of a population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.60 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the subject site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Fragmentation and degradation of habitat; reduction of water quality; drought and climate change; and susceptibility to the amphibian chytrid fungus are the main threats to this species. Although this proposal will exacerbate the fragmentation and degradation of habitat, due to the clearing/modifying of up to 0.60 ha of suitable habitat, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Amytornis striatus striatus – Mukarrthippi Grasswren	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 35.59 ha of potential habitat for this species. The subject site is not within a priority management area for the species. Confined to areas with well-developed Porcupine Grass (*Triodia irritans*), usually in association with mallee eucalypts and sandy soils. Is known to reoccupy burnt vegetation 6 to 8 years following fire and prefers areas with large hummocks of spinifex which is greatest 25 to 40 years post-fire. The associated *Triodia irritans* does not occur within the subject site. Further, the subject site has been heavily grazed by goats, making it less likely to support rare grassland birds. Furthermore, the species was not detected during the field survey and no records occur within the 10 km search area. As such, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	The proposal will impact up to 35.59 ha of potential habitat for this species. However, as indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not split any population of this species into two.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the absence of the associated *Triodia irritans* and the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site. The proposal is not expected to disrupt the breeding cycle of a population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 35.59 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the subject site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss, fragmentation, and degradation of habitat; fire; predation by foxes and cats; and human-induced climate change are the main threats to this species. Although this proposal will exacerbate the impacts of habitat clearing, due to the clearing/modifying of up to 35.59 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Lathamus discolor – Swift Parrot	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 36.21 ha of potential habitat for this species. The subject site is not within a priority management area for the species. This species' life cycle revolves around the seasonal migration between the Australian mainland and Tasmania. As breeding habitat occurs exclusively in Tasmania, only marginal foraging habitat could occur within the subject site. However, no associated feed tree species were present. Furthermore, the species was not detected during the field survey and no records occur within the 10 km search area. As such, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not split any population of this species into two.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival for the Swift Parrot includes breeding and foraging habitat in Tasmania, and foraging habitat on the Australian mainland. All preferred foraging species within known and likely foraging habitat on the mainland including Yellow Gum (*E. leucoxylon*); Red Ironbark (*E. tricarpa*); Mugga Ironbark (*E. sideroxylon*); Grey Box (*E. microcarpa*); White Box (*E. albens*); Yellow Box (*E. melliodora*); Swamp Mahogany (*E. robusta*); Forest Red Gum (*E. tereticornis*); Blackbutt (*E. pilularis*); and Spotted Gum (*Corymbia maculata*). As no preferred feed tree species were recorded during the field survey, the subject site is unlikely to contain critical habitat for this species.
Disrupt the breeding cycle of a population	Considering this species breeds exclusively in Tasmania, this proposal will not disrupt the breeding cycle for any population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 36.21 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Habitat loss and fragmentation from forest harvesting, residential/ industrial development, agricultural clearing, senescence and dieback are the main threats to the species. Although this proposal will exacerbate the impacts of habitat loss, due to the clearing/modifying of up to 36.21 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Lophochroa leadbeateri – Pink Cockatoo	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 77.63 ha of potential habitat for this species. The subject site is not within a priority management area for the species. In total, 19 hollow-bearing trees with suitably large hollows occur within or directly adjacent to the subject site. Furthermore, 26 individuals of this species were recorded during the field survey. This species always occurs within easy reach of water. As such, construction of the manmade dams within Koonaburra NP are likely to have benefited this species. [redacted] Numerous depressions within the landscape will also hold water following rainfall events. As such, suitable habitat for this species will remain within Koonaburra NP. Considering the above, this proposal is unlikely to lead to the long-term decrease in the size of a population of this species.
Reduce the area of occupancy of the species	As indicated above an established population exists at the site. By removing water sources (i.e., decommissioning dams), this proposal is likely to reduce the area of occupancy of this species within Koonaburra NP.
Fragment an existing population into two or more populations	Considering the narrow strip of vegetation to be cleared by the proposal (up to 10 m) relative to the large area of remnant vegetation within the wider landscape, and the numerous waterbodies which will remain within the Koonaburra NP, the proposal is unlikely to fragment the existing population into two or more populations.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the eastern Pink Cockatoo consist of: • Arid and semi-arid woodlands dominated by mulga (*Acacia aneura*), mallee and box eucalypts, slender cypress pine (*Callitris gracilis*) or belah (*Casuarina cristata*). • Known habitat containing suitable attributes, especially where there are large mature trees with suitable hollows; and • Surrounding matrix of these areas for the role of providing movement corridors for dispersal across the landscape. Arid and semi-arid woodlands dominated by mulga (*Acacia aneura*), mallee and box eucalypts, or belah (*Casuarina cristata*), occurs within the subject site. Furthermore, 15 suitably sized tree hollows were recorded within or adjacent to the subject site and the species was observed during the field survey. As such, the subject site does contain habitat critical to the survival of the species. However, considering the narrow strip of vegetation to be impacted, and the overall positive impact of reducing goat herbivory, this should not be considered an adverse impact on habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above, an established population exists at the site. Furthermore, 15 suitably sized tree hollows occur within or directly adjacent to the subject site. However, providing no hollow-bearing trees are removed during the Pink Cockatoo breeding season (August – November), the proposal is unlikely to disrupt the breeding cycle for any population of this species. This is due to the large area of remnant vegetation containing suitable hollows, which will remain within Koonaburra NP and the surrounding landscape.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 77.63 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing of woodlands, heavy grazing of feeding areas resulting in the removal of seeding grasses and preventing regeneration of food plants, loss of existing and future hollow-bearing trees, and illegal nest-robbing and trapping are the main threats to this species. Although this proposal will exacerbate the impacts of habitat loss, due to the clearing/modifying of up to 77.63 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Furthermore, the overall goal of the project – to reduce feral herbivores within the NP – should benefit this species in the long term.
Conclusion	**No significant impact, provided recommended mitigation measures are adhered to.**

Melanodryas cucullata cucullata – South-eastern Hooded Robin	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 71.68 ha of potential habitat for this species. The subject site is not within a priority management area for the species. Two individuals of this species were recorded during the field survey. Both individuals were located > 2 km from the proposed boundary fence and any of the manmade dams. Although this species is considered sedentary, their distance from the manmade dams indicates that they can travel fair distances to access water. The proposal plans to retain three named manmade dams (Emu, Twin, and Harvey's); a further three unnamed dams (two near the Koonaburra Station and one a further 4 km southwest of the station), and the natural lake near the western boundary (Collins Lake) will be retained. Numerous depressions within the landscape will also hold water following rainfall events. As such, a large area of suitable habitat (with access to water) for this species will remain within the Koonaburra NP. Considering the above, this proposal is unlikely to lead to the long-term decrease in the size of a population of this species.
Reduce the area of occupancy of the species	As indicated above an established population exists at the site. By removing water sources (i.e., decommissioning dams), this proposal may reduce the area of occupancy of this species, however, detected individuals were observed some distance from water sources.
Fragment an existing population into two or more populations	Considering the narrow strip of vegetation to be cleared by the proposal (up to 10 m) relative to the large area of remnant vegetation within the wider landscape, and the numerous waterbodies which will remain within the Koonaburra NP, the proposal is unlikely to fragment the existing population into two or more populations.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the South-eastern Hooded Robin include areas of dry eucalypt and acacia woodlands and shrublands remnants with an open understorey, some grassy areas and a complex ground layer, often in or near clearings or open areas; structurally diverse habitats featuring: mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses; standing dead or live trees and tree stumps are also essential for nesting, roosting and foraging; and moderately deep to deep soils, rocks and fallen timber which provides essential foraging habitat. A large area of habitat within the subject site fits this description although the grass layer was significantly degraded by goat herbivory. Nonetheless, much of the subject site does contain habitat critical to the survival of the species. However, considering the narrow strip of vegetation to be impacted, and the overall positive impact of reducing goat herbivory, this should not be considered an adverse impact on habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above, an established population exists at the site Considering the large area of remnant vegetation containing suitable breeding habitat, which will remain within Koonaburra NP and the surrounding landscape, and the overall positive effects of reducing goat herbivory, the proposal is unlikely to disrupt the breeding cycle for any population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 71.68 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity

established in the endangered or critically endangered species' habitat	risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing of woodlands, loss and fragmentation of habitat, modification/destruction of ground habitat from stock, removal of fallen timber, introduction of exotic pasture grasses and habitat loss and degradation are the main threats to the species. Although this proposal will exacerbate the impacts of habitat loss, due to the clearing/modifying of up to 71.68 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Lepidium monoplocoides – Winged Peppercress	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 4.41 ha of potential habitat for this species. The subject site is not within a priority management area for the species. The required habitat for this species (periodically flooded and waterlogged habitats) is very limited within the subject site. This species is intolerant to grazing and considering the high level of goat herbivory, it is unlikely to occur. Furthermore, no records occur within the 10 km search area. As such, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. The proposal will not split any population of this species into two.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, the Winged Peppercress occurs in open, sparsely vegetated sites in a range of habitats on heavy clay or clay-loam soils, usually on sites that are seasonally flooded or prone to waterlogging. This habitat is very limited within the subject site. Furthermore, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site. Therefore, the proposal would not disrupt the breeding cycle of a population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 4.41 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the subject site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Agricultural development, habitat removal, and grazing are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 4.41 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Further, the overall goals of the project should reduce goat herbivory, which is a threat to this species and its recovery.
Conclusion	**No significant impact**

Phascolarctos cinereus - Koala	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 77.63 ha of potential habitat for this species. The subject site is not within a priority management area for the species. The subject site occurs within the Western Slopes and Plains Koala Management Area. Therefore, three 'high use' tree species (*Eucalyptus coolabah, E. largiflorens,* and *E. populnea*), one 'significant use' tree species (*Callitris glaucophylla*), and two 'occasional use' tree species (*Eucalyptus intertexta* and *Geijera parviflora*) occur within or adjacent to the subject site. Of the above species, *E. largiflorens* was only detected occasionally, the other species were common. No evidence of Koala habitation was detected during the field survey and no records occur within the 10 km search area. As such, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The subject site and surrounding landscape contains large areas of remnant vegetation. The proposal will exacerbate fragmentation within the landscape, but only to a minor degree. Furthermore, habitat within the NP may become isolated from the surrounding landscape for koalas which are unlikely to be able to pass over or under the boundary fence. However, considering the scarcity of records of koalas this far inland, fragmentation for this species is unlikely to be significant.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Koala include any habitat used by Koalas for feeding, resting, dispersing, and refuge during extreme events (e.g., heatwaves, drought, fires, and floods). Considering the lack of nearby records, it is unlikely that the subject site is critical habitat for this species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site. Therefore, the proposal would not disrupt the breeding cycle of a population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 77.63 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss, modification and fragmentation of habitat, vehicle strike, predation by dogs, intense wildfires and droughts are the key threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 77.63 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

EPBC Act-listed Vulnerable Species

Aphelocephala leucopsis - Southern Whiteface	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCTs within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses and/or shrubs. The subject site contains broadly suitable foraging and breeding habitat. Furthermore, four individuals were detected during the field survey. Of particular concern are the records observed adjacent to dams which will be decommissioned under the current proposal (Borri [n=1], Dingo [n=2], Jan's [SM4 recordings], and Trevor's dams [SM4 recordings]). The Southern Whiteface is considered sedentary. As such, the removal of these dams could be detrimental to the individuals which reside nearby. However, an additional Southern Whiteface recorded during the field survey was located over 4 km from the nearest known water source at the time (Rodney's Dam), indicating that this species can travel fair distances to access water. Further studies of species records also indicate that this species may move into wetter areas outside of their normal range during drought years (Higgins and Peter 2002). The proposal plans to retain three named manmade dams (Emu, Twin, and Harvey's), a further three unnamed dams (two near the Koonaburra Station and one a further 4 km southwest of the station), and the natural lake near the western boundary (Collins Lake). Numerous depressions within the landscape will also hold water following rainfall events. As such, suitable habitat (with access to water) for this species will remain within the Koonaburra NP. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Southern Whiteface includes areas of: • relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both; • habitat with low tree densities and an herbaceous understory litter cover which provides essential foraging habitat; • living and dead trees with hollows and crevices which are essential for roosting and nesting. Areas of habitat within the subject site fit the latter two points, however, the subject site has been disturbed by agriculture, clearing for the existing fenceline and dams, and goat herbivory. Considering the narrow strip of vegetation to be impacted, and the overall positive impact of reducing goat herbivory, this should not be considered an adverse impact on habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	This species is not associated with any PCTs within the subject site. Nevertheless, broadly suitable foraging and breeding habitat is present. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Habitat loss, degradation, fragmentation and removal, climate change, predation from invasive species, invasive weeds, firewood collection and competition with noisy miners (*Manorina melanocephala*) are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of suitable habitat and the removal of water sources, this should not significantly interfere with the recovery of the species within the region. Further, the overall goals of the project should reduce goat herbivory, which would benefit this species and its recovery.
Conclusion	**No significant impact**

Falco hypoleucos – Grey Falcon	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 77.63 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. One potential nest was detected during the field survey. However, the species itself was not detected and no records occur within the 10 km search area. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 77.63 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Grazing and clearing of arid and semi-arid zone rangelands, secondary poisoning through mouse and locust control programs, and the taking of eggs and young for collections and falconry are the main threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 77.63 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Grantiella picta – Painted Honeyeater	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 42.04 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species is a specialist feeder on the fruits of mistletoes. Although one species of mistletoe was detected during the field survey (*Amyema quandang*), no evidence of the species or its nests were detected during the field survey (however, due to time restrictions and the high density of vegetation, small nests may have been overlooked). Furthermore, no records occur within the 10 km search area. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Painted Honeyeater includes: • Known or likely breeding habitat in Boree/Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) woodlands, box-gum woodlands and box-ironbark forests on the inland slopes of the Great Dividing Range in New South Wales, Victoria and southern Queensland. • All preferred foraging species within known and likely foraging habitat particularly mistletoes of the genus *Amyema* growing on forest and woodland eucalypts and acacias. Although Grey Mistletoe (*Amyema miquelii*) was observed within or adjacent to the site, it was not in significant quantities and no Painted Honeyeater records occur within the 10 km search area. As such, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 42.04 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing of woodlands and open forests, removal of trees with mistletoe infestations, degradation of open forest and woodland remnants, weed infestation, increase of noisy miner populations and inappropriate fire regimes are the key threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 42.04 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.

Conclusion	**No significant impact**

Hirundapus caudacutus – White-throated Needletail	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.87 ha of potential habitat for this species. The subject site is not within a priority management area for the species; however, it does occur at the edge of the species distribution. Therefore, if a population were present, it would be considered an important population under the EPBC Act. The White-throated Needletail is a migratory species seen along eastern Australia, commonly in coastal areas and less often inland. No records occur within the 10 km search area. As such, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	It is unlikely that an important population exists at the site, see above.
Fragment an existing important population into two or more populations	It is unlikely that an important population exists at the site, see above.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	No, this species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan from June-August.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Considering this species is almost exclusively aerial, it is unlikely that the proposal will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Aerial collision with wires, windows and lighthouses are the biggest threats for this species while it resides in Australia. Though the reduction in invertebrate prey due to the loss of woodland habitat is also a threat. It Is unlikely that the proposal will interfere with the recovery of this species.
Conclusion	**No significant impact**

Leipoa ocellata – Malleefowl	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 35.59 ha of potential habitat for this species. The subject site is not within a priority management area for the species. However, it does occur at the edge of the species' known distribution. Therefore, if a population were to occur within the subject site, it would be considered an important population. Malleefowl are dependent on light sandy-to-sandy loam soils and dense/diverse herb and shrub layer. This soil, which is necessary for the construction of their conspicuous mounds, was present in sections of the subject site. Furthermore, two records of this species occur within the 10 km search area. However, both records are over 40 years old, and no evidence of the species or its mounds was detected during the field survey. As such, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	It is unlikely that an important population exists at the site, see above.
Fragment an existing important population into two or more populations	It is unlikely that an important population exists at the site, see above.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the species has not been recorded within 10 km of the subject site in the last 40 years, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	It is unlikely that an important population exists at the site, see above.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 35.59 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the subject site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Habitat loss and fragmentation; intensive grazing by livestock; predation by introduced species; disturbance to nesting mounds; and changes to fire regimes are the main threats for this species. The proposal is unlikely to significantly interfere with the recovery of the species within the region. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 35.59 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Pachycephala rufogularis – Red-lored Whistler	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 30.14 ha of potential habitat for this species. The subject site is not within a priority management area for the species. However, it does occur at the edge of the species' known distribution. Therefore, if a population were to occur within the subject site, it would be considered an important population. Although suitable habitat is present within the subject site, no evidence of the species were detected during the field survey. Furthermore, no records occur within the 10 km search area. As such, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	It is unlikely that an important population exists at the site, see above.
Fragment an existing important population into two or more populations	It is unlikely that an important population exists at the site, see above.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	It is unlikely that an important population exists at the site, see above.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 30.14 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss or degradation of habitat, population fragmentation, inappropriate fire regimes, predation by foxes and cats, anthropogenic climate change, and the change of understorey structure via goat browsing are the main identified threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 30.14 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Furthermore, the proposal may have a positive effect on this species by reducing the impact of goat browsing.
Conclusion	**No significant impact**

Polytelis swainsonii – Superb Parrot	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 23.82 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. The Superb Parrot inhabits Box-Gum, Box-Cypress-pine, and River Red Gum forests. Nesting occurs within small hollows, generally at least 8 cm in diameter. Eighty one small – medium sized hollows occur within the subject site; however, some of these may have been too small for the Superb Parrot. The species was not detected during the field survey and no records occur within the 10 km search area. Further, the subject site is outside of the key breeding range for this species. Further still, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	The habitat critical to the survival of the Superb Parrot can be divided into breeding and foraging habitat, as described below: The Superb Parrot usually nests in hollow limbs or holes in the trunk of large eucalypts, mainly near water. In the inland slopes, most nests are in large Blakely's Red Gums, with many nest trees either dead or suffering from dieback. After breeding, Superb Parrots generally move away from their breeding habitat in mid-January. Superb Parrots' foraging habitats vary throughout the year. After the breeding season, which ends in mid-January, some birds move to Boree *Acacia pendula* woodlands between the Murrumbidgee and Murray Rivers. However, the precise distribution and habitat use of others during mid-January to early April is not well documented. From April to August, they inhabit River Red Gum forests and box-pine woodlands in north-central NSW and similar habitats in the Riverina region. Between May and August, they return to riverine forests and nearby woodlands, forming large flocks of adults and immature birds that roam extensively for food. During winter, they are rarely found on the inland slopes, with sightings mostly limited to breeding pairs. The majority of the breeding population shifts to eucalypt-pine woodlands in west-central and north-central NSW. Considering the lack of records within the 10 km search area, the subject site is unlikely to contain critical habitat for the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 23.82 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).

Interfere with the recovery of the species.	Loss or degradation of habitat, loss of or competition for hollows, road kills, illegal collection of wild birds, psittacine beak and feather disease, and climate change are the main identified threats to this species. Although this proposal will exacerbate the loss of habitat and tree hollows, due to the clearing/modifying of up to 23.82 ha of associated PCT and the removal of up to 81 small – medium hollows, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Stagonopleura guttata – Diamond Firetail	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 57.52 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. Found in grassy eucalypt woodlands. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. No evidence of the species were detected during the field survey. Furthermore, no records occur within the 10 km search area. If a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the diamond firetail includes areas of eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding; and Drooping She-oak (*Allocasuarina verticillata*) within the Mt Lofty Ranges. Although some areas of the subject site fit this definition, it is not considered habitat critical to the survival of a species as the species was not detected during the field survey, and no records occur within the 10 km search area.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 57.52 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing and fragmentation of woodland, open forest, grassland and mallee habitat for agriculture and residential development, and firewood collection; poor regeneration of open forest and woodland habitats; and the invasion of weeds, resulting in the loss of important food plants are the main threats facing this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 57.52 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

Acacia curranii – Curly-bark Wattle	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 27.26 ha of potential habitat for this species. The subject site is not within a priority management area for the species; however, it does occur at the edge of the species' distribution. As such, if a population of this species were to occur within the subject site, it would be considered an important population. This species can be surveyed for year-round. Although associated species were recorded during the field survey, *Acacia curranii* was not detected. Furthermore, no records occur within the 10 km search area. As such, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Fragment an existing important population into two or more populations	As indicated above, the subject site is unlikely to contain an important population of this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering inability to detect the species during the field survey and the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 27.26 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Feral goats causing erosion and grazing, browsing and horning of adult plants and seedlings; clearing during fire trail widening; insect seed predation; inappropriate fire regime (lack of suitable disturbance for seedling establishment); and other grazing; stock (e.g., rabbits and kangaroos) are the key threats to this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 27.26 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Further, the overall aim of the project is to reduce feral goat impacts, which would ultimately benefit this species.
Conclusion	**No significant impact**

Atriplex infrequens – A saltbush	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 5.95 ha of potential habitat for this species. The subject site is not within a priority management area for the species; however, it does occur at the edge of the species' distribution. As such, if a population of this species were to occur within the subject site, it would be considered an important population. The species was not detected during the field survey; however, this took place outside of the recommended survey period for this species (November – February). Considering no records of the species occur within the 10 km search area, the historic use of the site for grazing, and the ongoing goat herbivory, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Fragment an existing important population into two or more populations	As indicated above, the subject site is unlikely to contain an important population of this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 5.95 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Habitat clearing, disturbances from rabbits in sandy and scalded soils, and grazing (stock, rabbits, native herbivores) are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 5.95 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Further, the overall aim of the project is to reduce feral goat impacts, which would ultimately benefit this species.
Conclusion	**No significant impact**

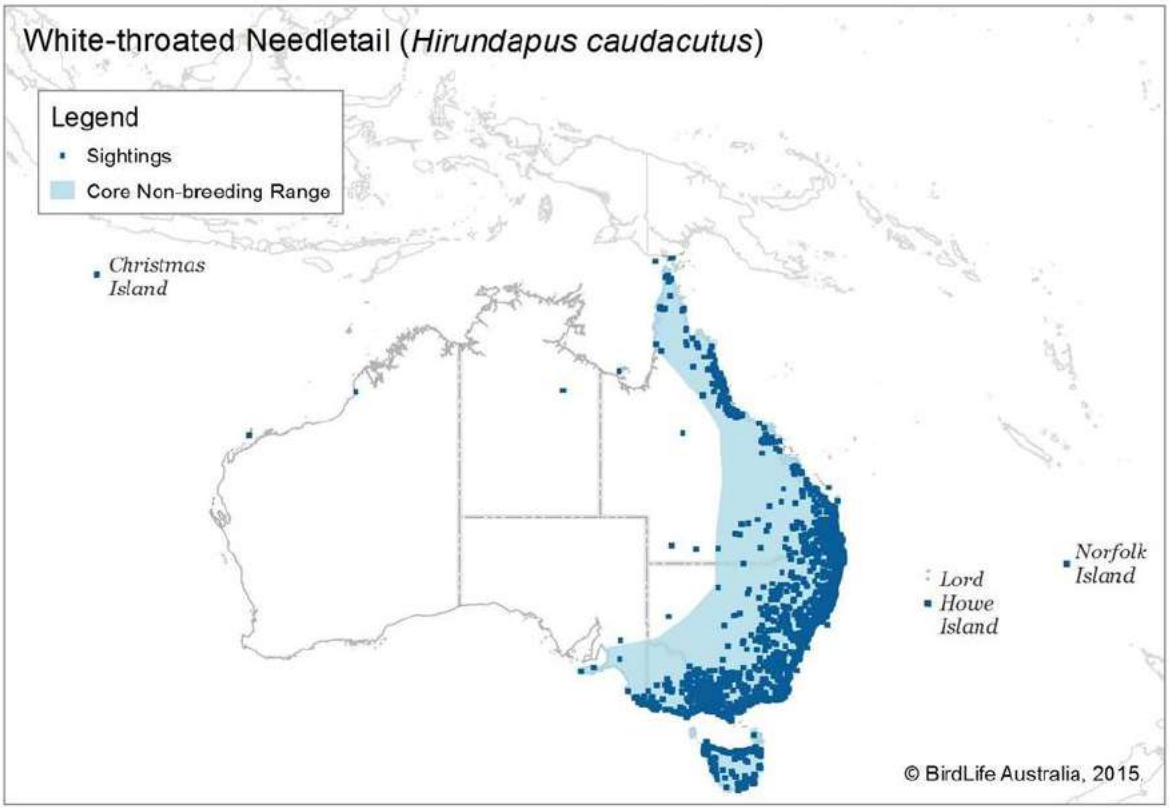
Austrostipa metatoris – A spear-grass	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 15.12 ha of potential habitat for this species. The subject site is not within a priority management area for the species; however, it does occur at the edge of the species' distribution. As such, if a population of this species were to occur within the subject site, it would be considered an important population. *Austrostipa metatoris* was not detected during the field survey. However, the field survey took place outside of the recommended survey period for this species (October – November). Considering no records of the species occur within the 10 km search area, , the historic use of the site for grazing, and the ongoing goat herbivory, the subject site is unlikely to contain an important population of this species.
Reduce the area of occupancy of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Fragment an existing important population into two or more populations	As indicated above, the subject site is unlikely to contain an important population of this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 15.12 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Grazing pressure from rabbits, habitat degradation, drought and insufficient understanding of species are the main threats to the species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 15.12 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Further, the overall aim of the project is to reduce feral goat impacts, which would ultimately benefit this species.
Conclusion	**No significant impact**

Eleocharis obicis – Spike-Rush	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.87 ha of potential habitat for this species. The subject site is not within a priority management area for the species; however, it does occur at the edge of the species' distribution. As such, if a population of this species were to occur within the subject site, it would be considered an important population. However, there are no records of this species within 10 km. *Eleocharis obicis* was not detected during the field survey. However, the field survey took place outside of the recommended survey period for this species (October – November). Spike Rushes were only observed at Twin Dam – as this dam will be retained, it is unlikely that the project would lead to a long-term decrease in the size of an important population of this species.
Reduce the area of occupancy of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Fragment an existing important population into two or more populations	As indicated above, the subject site is unlikely to contain an important population of this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, the subject site is unlikely to contain an important population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.87 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Habitat clearing and modification (for agriculture and sheep grazing); grazing, trampling and pugging (stock particularly sheep); weed invasion and competition; and feral animals (pigs, rabbits) are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.87 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region. Further, the overall aim of the project is to reduce feral goat impacts, which would ultimately benefit this species.
Conclusion	**No significant impact**

Nyctophilus corbeni – Corben's Long-eared Bat	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 67.14 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species roosts mainly in tree hollows but will also roost under bark or in human-made structures. Suitable habitat occurs within the subject site, and 74 extra-small – small tree hollows occur within or directly adjacent to the subject site. Furthermore, three records occur within the 10 km search area. However, these records are from 26 years ago and the species has not been recorded in the 10 km search area since (including on the bat loggers deployed by OzArk). Nonetheless, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the species has not been recorded within 10 km of the subject site in the last 26 years, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 67.14 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss of remnant semi-arid woodland and mallee habitat, loss of hollow bearing trees, application of pesticides, inappropriate fire regimes, disturbance of breeding sites and winter roosting and loss of habitat are the biggest threats to this species. Although this proposal will exacerbate the loss of habitat and tree hollows, due to the clearing/modifying of up to 67.14 ha of associated PCT and the removal of up to 74 potentially suitable tree hollows, considering the narrow nature of the impact footprint, and that substantial similar habitat will remain within the study area, the proposal should not significantly interfere with the recovery of the species within the region.
Conclusion	**No significant impact**

EPBC Act-listed Migratory Species

Hirundapus caudacutus - White-throated Needletail	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	This species migrates to eastern Australia from October to April where it feeds on insects aerially before storms and low-pressure troughs. The subject site occurs within the core non-breeding range of the White-throated Needletail (see figure below). As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat relative to the large area of remnant vegetation in the surrounding landscape, the proposal is unlikely to substantially modify, destroy or isolate any area of important habitat for this migratory species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is highly unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan from June-August. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**No significant impact**



White-throated Needletail Core Non-breeding Range

APPENDIX F – KEY THREATENING PROCESSES

Key Threatening Processes (KTP) predicted as acting on the study area that may be exacerbated by the proposal.

Name	NSW status	Comm status	Likelihood of Occurrence	Exacerbated by Proposal
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		**Unlikely**	**No** The breaking of dams should restore the natural flow regimes of rivers and streams and their floodplains and wetlands.
Anthropogenic Climate Change	KTP	KTP	**Unlikely**	**No** Some unavoidable emissions will occur from construction machinery and the removal of native vegetation will diminish the carbon storing capacity of the subject site. However, the long term goal is to reduce goat herbivory, and regenerate the vegetation, which will have positive impacts.
Bushrock removal	KTP		**Unlikely**	**No** Bushrock occurs within the subject site. However, any bushrock encountered on site would be left in situ (where possible) or relocated to a suitable place nearby.
Clearing of native vegetation	KTP	KTP	**Very Likely**	**Yes** Up to 77.63 ha of native vegetation may be cleared by the current proposal.
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat. The fencing of Koonaburra NP and staged removal of Feral Goats from the subject site will reduce the impact of this KTP.
Competition from feral honey bees, *Apis mellifera* L.	KTP		**Likely**	**Yes** The removal of hollow-bearing trees will exacerbate this threat.
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		**Unlikely**	**No** The modification of woodland structure, for example by edge effects, is known to encourage occupancy by Bell Miners; however, this species is not known to occur nearby.
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758	KTP		**Unlikely**	**No** This species is not known to occur nearby.
Herbivory and environmental degradation caused by feral deer	KTP		**Unlikely**	**No** The proposal will not increase occupancy by this species.

Name	NSW status	Comm status	Likelihood of Occurrence	Exacerbated by Proposal
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		**Unlikely**	**No** Fire frequency will not increase due to activities undertaken as part of the proposal. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972	KTP	KTP	**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks, however, this species is not known to occur nearby. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	**Likely**	**Yes** The removal of hollow-bearing trees will exacerbate this threat.
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)	KTP		**Unlikely**	**No** This species only occurs in Tasmania. It is highly unlikely that the proposal will result in the importation of this species to the mainland.
Invasion and establishment of exotic vines and scramblers	KTP		**Unlikely**	**Potentially** Exotic vine species may occur in the wider landscape and machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks, however, this species is not known to occur nearby. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks, however, this species is not known to occur nearby. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.	KTP		**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks,

Name	NSW status	Comm status	Likelihood of Occurrence	Exacerbated by Proposal
				however, this species is not known to occur nearby. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks, however, this species is not known to occur nearby.
Invasion of native plant communities by exotic perennial grasses	KTP		**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW	KTP		**Unlikely**	**No** Machinery used on site can potentially act as a transport for biosecurity risks, however, this species is not known to occur nearby. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)	KTP		**Unlikely**	**No** This species is not known within the area, however machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks. Implementation of the mitigation measures in **Section 7** should reduce this risk.
Loss of Hollow-bearing Trees	KTP		**Very Likely**	**Yes** Up to 47 hollow-bearing trees will be impacted by this proposal.
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		**Unlikely**	**No** No sites known or suspected to be present.
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		**Unlikely**	**No** The proposed works will not increase the likelihood of this threat.
Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		**Unlikely**	**No** The proposed works will not increase the likelihood of this threat.
Predation by the European Red Fox *Vulpes Vulpes* (Linnaeus, 1758)	KTP	KTP	**Unlikely**	**No** Ease of access for feral foxes will not be increased by the proposal.
Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)	KTP	KTP	**Unlikely**	**No** Ease of access for feral cats will not be increased by the proposal.
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758	KTP	KTP	**Unlikely**	**No** Ease of access for feral pigs will be reduced by the proposal.

Name	NSW status	Comm status	Likelihood of Occurrence	Exacerbated by Proposal
Removal of dead wood and dead trees	KTP		**Very Likely**	**Yes** Some dead trees growing on the boundary fences will be removed. However, any dead wood encountered on site would be left in situ (where possible) or relocated to a suitable place nearby to avoid exacerbating this KTP.