View of sandstone pagodas adjacent to the proposed trail.

BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

LITHGOW MOUNTAIN BIKE PARK

CITY OF LITHGOW LOCAL GOVERNMENT AREA

AUGUST 2025

Report prepared by

OzArk Environment & Heritage

for Central Tablelands Mountain Bike Club

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Document controls

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Client	Central Tablelands Mountain Bike Club		
Document description	Lithgow Mountain Bike Park BDAR		
	Name	**Signed**	**Date**
Client's reviewing officer			

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S:\OzArk EHM Data\Clients\Central Tablelands Mountain Bike Club\State Mine Gully Bike Track July 2024\Ecology	#4470

Document status: Final	**Version**	**Date**	**Action**
Internal Draft Series	V1.0 V1.1 V1.2 V1.3	13/05/2025 14/05/2025 15/05/2025 15/05/2025	DO to CG CG to DO DO to CG CG to DO
First Draft for Client Review	V2.0	15/05/2025	DO to Client
Final Report for Client	V3.0 V3.1	08/08/2025 19/08/2025	DO to Client DO to Client

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CERTIFICATION

I certify that I have prepared this BDAR and, to the best of my knowledge, it is in accordance with the NSW *Biodiversity Conservation Act* 2016 and the Biodiversity Assessment Method 2020 (BAM 2020). The information it contains is neither false nor misleading. It addresses, to the fullest extent possible, all matters affecting or likely to affect biodiversity as a result of the proposed activity.

BDAR prepared by	**Dr David Orchard**
Signed	
Date	19 August 2025
Organisation	OzArk Environment & Heritage
Position	Senior Ecologist
Qualification	Doctor of Philosophy
Accreditation number	BAAS21028

Executive summary

The Central Tablelands Mountain Bike Club (CTMBC) proposes to develop 25 km of single-track mountain bike path on Lot 11 DP1240259, Lot 1 DP1110346, Lot 2 DP1110346, Lot 3 DP1110346, Lot 1 DP965231, Lot 2 DP787403, and Lot 2 DP876025, adjacent to State Mine Gully in Lithgow, New South Wales. OzArk Environment & Heritage (OzArk) was engaged to prepare the biodiversity assessment for the proposal. The proposal would occupy up to 2.92 ha, of which 2.36 ha possesses remnant native vegetation. The remaining extent of the subject land consists primarily of existing tracks and other infrastructure. The proposal triggers entry into the NSW Biodiversity Offsets Scheme (BOS) under the NSW *Biodiversity Conservation Act* 2016 (BC Act) by virtue of exceeding the maximum allowable clearing threshold for the relevant lots and by impacting areas included in the Biodiversity Values (BV) Map. Therefore, a Biodiversity Development Assessment Report (BDAR) must be prepared for this proposal and the proponent must offset impacts to biodiversity. This report documents this assessment, which has been completed in accordance with the Biodiversity Assessment Method 2020 (BAM 2020) and details the proponent's biodiversity offset requirement (measured by the number of ecosystem and species credits). Owing to the small area of impact to native vegetation, the proposal has been assessed using the streamlined small-area module.

The native vegetation present in the disturbance footprint consists of four Plant Community Types (PCTs):

- 3687 – Newnes Plateau Peppermint-Ash Tall Forest.
- 3688 – Newnes Plateau Silvertop Ash Woodland.
- 3696 – Western Blue Mountains Rocky Scribbly Gum Woodland.
- 3862 – Newnes Plateau Rockplate Heath.

The small-area module requires only the dominant PCT to be assessed. In this case, PCT 3687 was identified as dominant and assigned to two vegetation zones: 3687_Good and 3687_Moderate. Up to 1.77 ha of this PCT would be impacted by the proposal, chiefly through the removal of understorey vegetation and immature trees. CTMBC has indicated that the project funding does not allow for the removal of trees; therefore, mature trees shall be retained and the bike trails shall work around the existing large trees.

Zones 3687_Good and 3687_Moderate did not meet the thresholds to be considered an example of any Threatened Ecological Community (TEC) listed under the BC Act or the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act).

In total, 25 ecosystem credit species were generated by the Biodiversity Assessment Method Calculator (BAM-C). The habitat suitability of the subject land for these species was assessed.

Three species were removed from the list due to habitat constraints; consequently, 22 species were assumed present as ecosystem credit species, generating a total of 35 Ecosystem Credits.

Application of the small-area assessment module in the BAM-C returned five species credit species considered to be at risk of a Serious and Irreversible Impact (SAII). One species – the Swift Parrot (*Lathamus discolor*) – could be excluded from consideration as the site does not fall within the area mapped as important habitat for the species. Three further species were eliminated by targeted surveys. The Large-eared Pied Bat (*Chalinolobus dwyeri*) was detected during targeted surveys and is considered present for the purposes of determining offsets. One additional non-SAII species – the Southern Greater Glider (*Petauroides volans*) – was detected during surveys and was added to the offset calculations for the proposal. These two species would generate a total of 115 species credits, comprising 69 credits for the Large-eared Pied Bat and 46 credits for the Southern Greater Glider.

The proponent intends to satisfy their offset obligations by buying and retiring the necessary credits from the open market or, if appropriate credits are not available, by paying directly into the Biodiversity Conservation Fund.

The significance of the proposed impact to EPBC Act-listed threatened, migratory, wetland and marine species, populations and communities predicted to occur within a 10 km search area was assessed. No significant impact to any threatened entity likely to result in the extinction of a local population was identified. The residual ecological impacts of the proposal would be adequately mitigated and offset using the management actions recommended and the offset requirements detailed within this BDAR. Therefore, a referral of the proposal to the Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) for these matters is not considered necessary.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment.

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Abbreviations

Term	Description
^{0}C	Degrees Celsius
AOBV	Areas of Outstanding Biodiversity Value
ASL	Above Sea Level
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
DPE	Department of Planning and Environment
DPI	NSW Department of Primary Industries
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ESCP	Erosion and Sediment Control Plan
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.

Term	Description
JAMBA	Japan-Australia Migratory Bird Agreement
KFH	Key Fish Habitat
KTP	Key Threatening Process
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
mm/cm/m/m^2/km	Millimetre/centimetre/metre/square metre/kilometre
MNES	Matters of National Environmental Significance
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
PRL	Protected Riparian Land
PW	Priority Weed
RAMSAR	Convention on Wetlands of International Importance
REF	Review of Environmental Factors
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
SSD	State Significant Development
TECs	Threatened Ecological Communities
TSPD	Threatened Species Profile Database
VIS	Vegetation Information System
VRZ	Vegetated Riparian Zone
WoNS	Weeds of National Significance

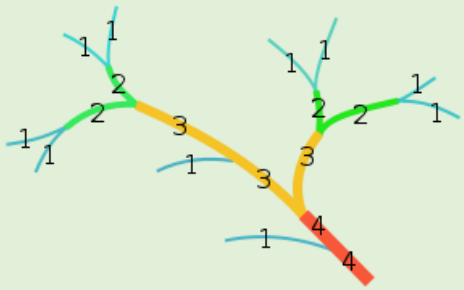
Glossary of terms

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:
	  ○ multiple species or at least one threatened species or ecological community
	  ○ irreplaceable biological distinctiveness
	  ○ ecological processes or ecological integrity
	  ○ 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 assessment 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 (DE 2013).
Indirect impact	Occur when project-related activities affect species or ecological communities in a manner other than direct loss within the subject land. 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 (TEC)	The ecological community present within the assessment area. However, the local occurrence may include adjacent areas if the ecological community on the assessment 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 assessment area can be clearly demonstrated.

Term	Description
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 assessment 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 assessment area. The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the assessment 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 land 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 land 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 land.
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.

Term	Description
	
Assessment area	Means the subject land and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The assessment area should extend as far as is necessary to take all potential impacts into account (OEH 2018). In this instance, the assessment area extends 1,500 m from the site.
Subject land	Means the area directly affected by the proposal. The subject land 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

1.1 Background

The Central Tablelands Mountain Bike Club (CTMBC) proposes to develop 25 km of single-track mountain bike path adjacent to State Mine Gully in Lithgow, New South Wales (NSW; **Figure 1-1**). These tracks would connect to a trail network within Gardens of Stone State Conservation Area (GOSSCA). The GOSSCA network is planned to be constructed by NSW National Parks and Wildlife Services, with their proposed trail network to be self determined, as part of a separate assessment. The project assessed by this report is titled the Lithgow Mountain Bike Park (LMBP). The LMBP proposal would occupy up to 2.92 ha of land, of which 2.36 ha contains native vegetation communities. The remaining area consists largely of existing cleared trails and similar infrastructure. The proposal takes place in the City of Lithgow Local Government Area. The regional context of the proposal is shown in **Figure 1-2**.

OzArk Environment & Heritage (OzArk) was engaged by CTMBC to prepare the biodiversity assessment for the proposal. The proposal triggers entry into the NSW Biodiversity Offsets Scheme (BOS) under the NSW *Biodiversity Conservation Act* 2016 (BC Act) by virtue of exceeding the maximum allowable clearing threshold for the relevant lots and by impacting areas included in the Biodiversity Values (BV) Map. Therefore, a Biodiversity Development Assessment Report (BDAR) must be prepared for this proposal. This report documents the assessment, which has been completed in accordance with the Biodiversity Assessment Method 2020 (BAM 2020) and details the proponent's biodiversity offset requirement (measured by the number of ecosystem and species credits). As the impact to native vegetation falls below the 3-ha threshold for implementation of the streamlined small-area assessment module on the relevant lots, this method has been adopted.

Figure 1-1. Proposed disturbance footprint for the LMBTP.

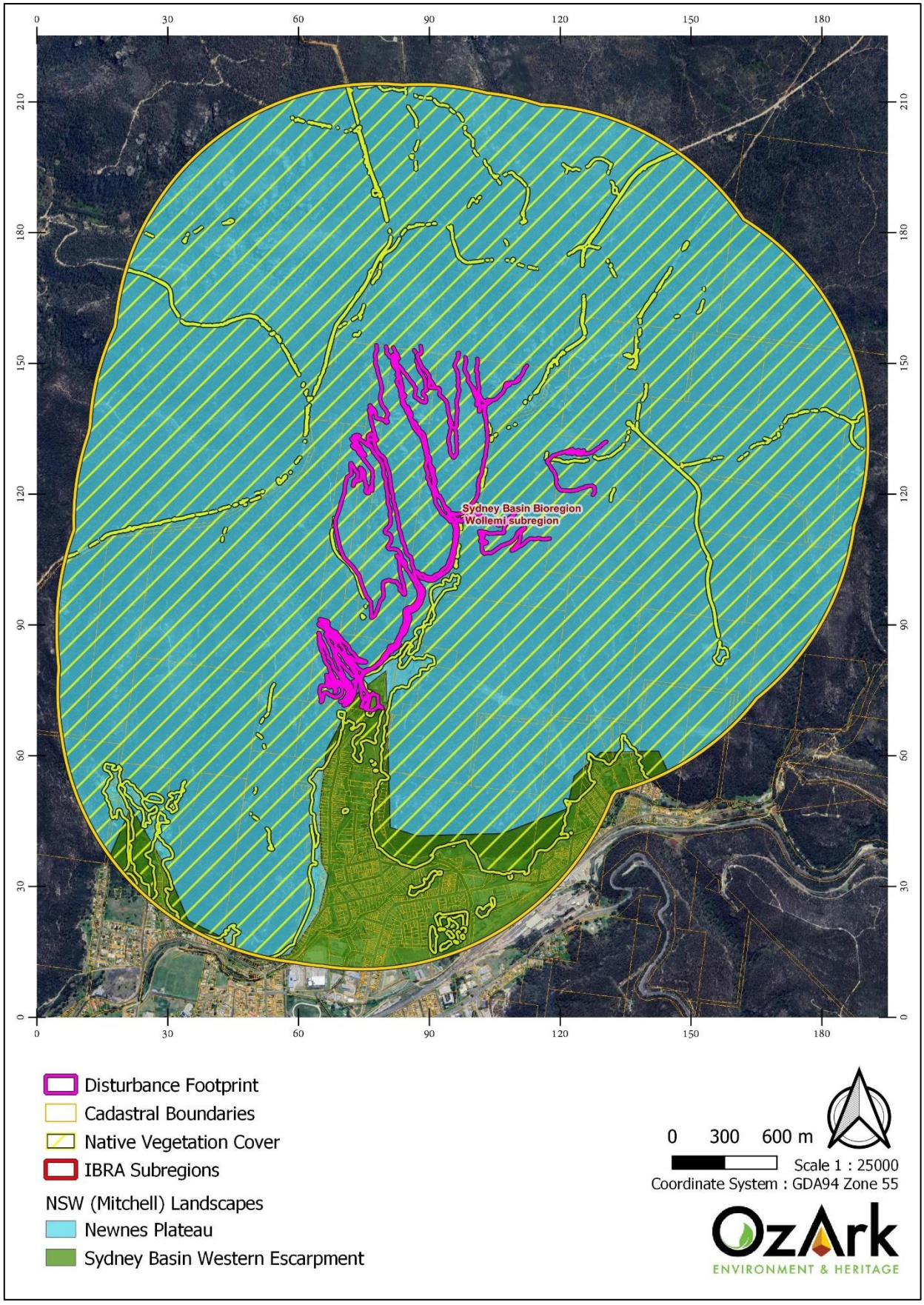


Figure 1-2. Location map showing the disturbance footprint, subject land, assessment area and key features required by the BAM (2020).

1.2 Relevant Terms

The following terms and definitions are used to describe the land assessed in this study.

Subject land – In a development assessment, the land proposed for development and related activities.

Disturbance footprint – The area of land that is directly impacted by the proposed development (including access tracks and construction compound/stockpile/laydown areas).

Assessment area – Land within a 1,500 m buffer from the outside edge of the subject land. The assessment area is assessed for the purpose of establishing landscape context including native vegetation cover and associated threatened species.

10 km search area – The area within a 10 km radius of the subject land. This 10 km buffer has been used to search information sources, including the Protected Matters Search Tool (Commonwealth Department of Climate Change, Energy, the Environment and Water, 2025) and BioNet Atlas (NSW Department of Climate Change, Energy, the Environment and Water, 2025) threatened species sightings.

1.3 Site Identification

The site is identified under the *Lithgow Local Environment Plan* 2014 and on the NSW Planning Portal as follows.

- **Lot/Section/Plan No:** 11/-/DP1240259, 1/-/DP1110346, 2/-/DP1110346, 3/-/DP1110346, 1/-/DP965231, 2/-/DP787403, 2/-/DP876025 and State Mine Gully Road.
- **Land Zoning:** C3 Environmental Management.
- **Minimum Lot Size:** 40 ha
- **Terrestrial Biodiversity:** The majority of the site is mapped as environmentally sensitive due to biodiversity (see figure in **Appendix A**).

The location of the proposal is shown on the location map (**Figure 1-2**).

1.4 Regulatory Context

The Proposal does not constitute a State Significant Development (SSD) and consequently entry into the BOS is not automatic. The proposal is being assessed as a Part 4 Development. It has been determined that the BOS applies to this proposal as the clearing of up to 2.36 ha of native vegetation would exceed the clearing threshold (1 ha) for the relevant lot (**Table 1-1**).

The subject land was identified as occurring on bushfire prone land, according to mapping provided by the NSW Rural Fire Service. As the proposal consists primarily of a cleared, dirt trails, the proposal

does not require additional clearing for Asset Protection Zones (APZs) or similar bushfire containment measures as confirmed in the LMBP Bushfire Assessment Report (May 2025).

Table 1-1. Clearing thresholds for entry into the NSW Biodiversity Offsets Scheme (BOS).

Minimum lot size associated with the property	Clearing threshold, beyond which the BAM applies
<1 ha	0.25 ha or more
1 ha to <40 ha	0.50 ha or more
40 ha to <1000 ha	**1.00 ha or more**
1000 ha or more	2.00 ha or more

The streamlined small-area module has been applied to this assessment as the proposed impacts to native vegetation are below the 3 ha threshold for application of the module (**Table 1-2**).

Table 1-2. Area clearing limits for application of the small area development module.

Minimum lot size associated with the property	Clearing limit for application of the small area module
<1 ha	≤1 ha
1 ha to <40 ha	≤2 ha
40 ha to <1000 ha	**≤3 ha**
1000 ha or more	≤5 ha

1.5 Report Purpose

The purpose of the BDAR is to determine the biodiversity assets, including flora, fauna, threatened species, threatened communities and habitat values, of the subject land.

The BDAR also identifies any constraints on the proposal according to relevant Federal and NSW environmental legislations and includes the calculation of ecosystem and/or species credits requiring offset.

1.6 Legislation

1.6.1 International legislation

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

1.6.2 Commonwealth legislation

- *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act), including EPBC Act Environmental Offsets Policy and Significant Impact Guidelines Version 1.1, 2013.

1.6.3 NSW legislation

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act provides the legal framework for the assessment and approval of the proposed activities. Part 4 of the EP&A Act requires the proponent to examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Biodiversity Conservation Act 2016 (BC Act)

Under the BC Act, the proponent has an obligation to consider impacts to all threatened species, populations and ecological communities listed in NSW, as well as ensuring the proposal does not exacerbate a Key Threatening Process (KTP).

Biodiversity Conservation Regulation 2017 (BCR)

The BCR defines the triggers and entry thresholds for the BOS. It also provides the rules for meeting offset obligations, triggers for authorities to refuse development applications and compliance provisions.

Biosecurity Act 2015

Schedule 1 of the *Biosecurity Act* 2015 contains the special provisions relating to weeds and duty to control weeds which pose a biosecurity risk. The Department of Primary Industries (DPI) maintains a list of 'Priority Weeds' (previously referred to as noxious weeds) in NSW for the State and each region which impose an obligation on landholders to prevent, eliminate or minimise, so far as is reasonably practicable, any biosecurity risk they may pose. In addition, Local Government Areas may include their own priority weeds.

Fisheries Management Act 1994 (FM Act)

The objects of the FM Act are to:

- Conserve fish stocks and key fish habitats.
- Conserve threatened species, populations and ecological communities of fish and marine vegetation.
- Promote ecologically sustainable development, including the conservation of biological diversity.

Section 201 of the FM Act states that a person other than a government authority must seek a permit from NSW Department of Primary Industries – Fisheries (DPI – Fisheries) for dredging or reclamation in a waterway. Dredging work means any work that involves excavating water land. Reclamation work

means any work that involves depositing any material on water land. Consultation with DPI – Fisheries has indicated that the proposed use of the existing creek bed, without modification, will not require a permit. Matters relating to watercourses are discussed in detail in **Section 3.10** of this report.

***State Environmental Planning Policy (Biodiversity and Conservation)* 2021**

The *SEPP (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 City of Lithgow LGA is listed in Schedule 2 of the *SEPP (Biodiversity and Conservation)* 2021; consequently, the provisions of Chapter 4 apply to the subject land, which is zoned C3.

Assessment of the subject land according to the provisions of Chapter 4 of the SEPP determined that there is a requirement to consider whether impacts to the Koala are likely to result from the proposed activities. Under Section 4.9 of the SEPP, a council may grant consent to a development if it is satisfied that a proposal is likely to have "low or no impact on koalas or koala habitat." This does not require a formal Koala Assessment Report. Several Koala use trees do occur within or near the site, namely Mountain Gum (*Eucalyptus dalrympleana*), Sydney Peppermint (*E. piperita*), Narrow-leaved Peppermint (*E. radiata*), Inland Scribbly Gum (*E. rossii*), Scribbly Gum (*E. sclerophylla* = *E. racemosa*), and Ribbon Gum (*E. viminalis*). In the present case, as no mature trees are expected to be removed as a result of this proposal, impacts to Koala habitat are likely to be minimal. Targeted surveys for the Koala did not detect the species within the site. No prior records of the Koala are known from the area, though one historical record, from 1985, occurs within 120 m of the site. The closest record from within the last 18 years is located c. 1.8 km from the site. On this basis, the site does not constitute core Koala habitat.

The proposal's potential impacts to Koalas have been further considered in this BDAR under the BC and EPBC Acts.

1.6.4 City of Lithgow Local Environmental Plan (2014)

A Local Environmental Plan (LEP) is a legal document prepared by Council and approved by the State Government to regulate 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 key aims of the Lithgow LEP (2014) are as follows:

(a) to encourage sustainable and planned development that complements the unique character and amenity of Lithgow and enhances its towns, villages and rural areas,

(b) to provide for a range of development opportunities that contribute to the social, economic and environmental resources of Lithgow in a way that allows the needs of present and future generations to be met by implementing the principles of ecologically sustainable development,

(c) to manage, facilitate and encourage sustainable growth and development that:

(i) promotes the efficient and effective delivery of utilities, infrastructure and service and minimises long-term costs to government, authorities and the community, and

(ii) protects, enhances and conserves mineral and extractive resources lands, forests and agricultural lands and the contributions they make to the local, regional and State economy, and

(iii) allows for the orderly growth of land uses while minimising conflict between land uses in a zone and land uses in adjoining zones, and

(iv) encourages a range of housing choices in planned urban and rural locations to meet population growth and the diverse needs of the community, and

(v) preserves and protects land that has been identified for future long term urban development from inappropriate fragmentation and development, and

(vi) protects and enhances environmentally sensitive areas, ecological systems, areas of high scenic, recreational, landscape or conservation value and areas that have the potential to contribute to improved environmental outcomes, and

(vii) protects and enhances places and items of environmental, archaeological, cultural or heritage significance, including Aboriginal relics and places, and

(viii) avoids or minimises the impact of development on drinking and environmental water catchments to protect and enhance water availability and safety for human consumption and the maintenance of environmental and recreational values, and

(ix) strengthens and promotes employment land opportunities and appropriate tourism development and growth, and

(x) creates resilience to natural hazards through local land use planning.

The majority of the site has been mapped as possessing terrestrial biodiversity values under the Lithgow LEP (see figure in **Appendix A**).

2 Methods

The ecological assessment was carried out in three stages:

1. Desktop searches and review of ecological databases and information to identify threatened species, populations or ecological communities listed in the BC Act, FM Act or the EPBC Act that have the potential to occur in the assessment area.
2. Field survey of the subject land to conduct BAM plots, identify vegetation communities and habitat features present and target predicted threatened species and ecological communities. Where a threatened species or community or habitat feature is identified, document the nature and extent of the protected matter and describe its 'viable local population' or occurrence.
3. Preparation of a BDAR 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. The BDAR also includes a biodiversity credit summary that identifies the number of ecosystem credits and species credits required to offset the development.

2.1 Personnel

OzArk operates under NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) 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 role and key details of personnel involved in the project are provided in **Table 2-1**.

Table 2-1. Summary of OzArk personnel qualifications and roles in the assessment.

Name	Position	Role	CV Details
Dr Crystal Graham	Senior Ecologist, Team Lead	Reporting, quality control, technical review, targeted fauna surveys, camera trap review.	• Accredited BAM assessor – Accreditation # BAAS22024 • Doctor of Philosophy – Biology – University of Sydney • Honours 1 – Biology – University of Sydney • Bachelor of Advanced Science – University of Sydney • 4WD training • First aid training • Worker on Foot training • Worker at Heights training • WH&S Induction Training for Construction Work
Dr David Orchard	Senior Ecologist	Initial survey, BAM plots, vegetation mapping, BAM calculations, targeted flora surveys, reporting.	• Accredited BAM assessor – Accreditation # BAAS21028 • Doctor of Philosophy – Charles Sturt University • Graduate Diploma in Science (Botany) – University of New England • Bachelor of Arts – Australian National University • 4WD Training • First aid training • WH&S Induction Training for Construction Work

Name	Position	Role	CV Details
			• Rail Industry Worker Card
Ian Griffith	Project Ecologist	Initial survey, targeted flora surveys.	• Honours (Genetics) – La Trobe University • Bachelor of Biological Sciences – La Trobe University • First Aid Training • WH&S Induction Training for Construction Work • Rail Industry Worker Card
Dr Alain Ngute	Project Ecologist	Targeted fauna surveys, targeted flora surveys.	• PhD (Landscape Ecology & Mgt) – University of the Sunshine Coast • Master of Research (Ecology & Wildlife Mgt) – University of Dschang • Master of Science (Ecology & Wildlife Mgt) – University of Dschang • Bachelor of Science (Zoology) – University of Dschang • First Aid & CPR Training • WH&S Induction Training for Construction Work • Worker on Foot • 4WD Training
Lauriane Citerne	Ecologist	Targeted fauna surveys, camera trap review, reporting.	• Masters in Conservation Biology – Macquarie University • Bachelor of Biodiversity and Conservation – Macquarie University • First Aid Training • WH&S Induction Training for Construction Work

2.2 Desktop Review

Existing information sources were reviewed to contextualise the assessment area, identify entities for targeted surveys, predict possible constraints, refine field survey methodology and assist with assessing the impacts of the proposal. Information sources consulted 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.dcceew.gov.au/environment/epbc/protected-matters-search-tool)
- NSW State Vegetation Type Map C2.0.M2.1 (https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map) and earlier versions.
- 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 (https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value/area-of-outstanding-biodiversity-value-register)
- PlantNET, NSW Flora Online (www.plantnet.rbgsyd.nsw.gov.au/)
- NSW Biodiversity Values Map and Threshold Tool (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)
- Australian Government 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)
- Important area mapping for Regent Honeyeater and draft important area mapping for Swift Parrot available from the Biodiversity Offsets and Agreement Management System (BOAMs).

All databases were searched prior to conducting initial fieldwork in July 2024 and reviewed (and updated where applicable) in April-May 2025 prior to finalising the draft BDAR. Results of the database searches are provided in **Appendix A** and summarised in **Table 3-1**.

2.3 Field Survey

2.3.1 BAM Survey Methodology

Vegetation communities are identified in accordance with the online NSW Master Plant Community Type Classification (OEH, 2018b), which is the current state-wide vegetation classification system for Plant Community Types (PCTs). 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).

In this study, PCTs were identified on the basis of the following inputs:

- NSW State Vegetation Map C2.0.M2.1 (NSW DCCEEW, 2024), which provides predictive mapping of PCTs in and around the subject land. 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 to conduct BAM plots, confirm the flora species present, vegetation structure, landscape position and soil type on the subject land and the extent and condition of native vegetation.
- The BioNet Vegetation Classification database, this being 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 Threatened Ecological Community (TEC), the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community present. These guidelines provide the identification criteria used to positively identify the community as being part of the TEC. The criteria include location, species present, overstory species, weed cover, number and type of native species including whether certain 'important' native species are present.

Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botanic Gardens and Domain Trust, 2025).

In total, seven BAM plots were completed between 16 and 18 July 2024. Following adoption of the streamlined small-area assessment module, only plots relevant to the dominant vegetation community (PCT 3687; see **Section 4.2**) were required in the final analysis, namely plots LI02, LI05, and LI06 (see **Figure 4-9** and **Appendix B**).

Initial plot locations were randomly selected to minimise bias in sampling while ensuring adequate survey effort within each vegetation zone (**Table 2-2**; **Figure 4-9**). According to the BAM (2020), one plot is required in each of the two vegetation zones, as both zones are <2 ha in size (see **Section 4.3.1** for zone descriptions).

Table 2-2. Minimum number of plots and transects required per zone area (DPIE, 2020b).

Vegetation zone area (ha)	Minimum number of plots/transects
<2	1 plot/transect

Vegetation zone area (ha)	Minimum number of plots/transects
>2 – 5	2 plots/transects
>5 – 20	3 plots/transects
>20 – 50	4 plots/transects
>50 – 100	5 plots/transects
>100 – 250	6 plots/transects
>250 – 1000	7 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone
>1000	8 plots/transects; more plots may be needed if the condition of the vegetation is variable across the zone

Plots were surveyed according to the BAM (2020) as follows:

- The plots were positioned within the subject land and their GPS locations were recorded (GDA 94 / MGA Zone 55).
- The survey plots consisted of nested 20 m x 50 m and 20 m x 20 m plots.
- Species composition and structure (species and percent cover) data were collected from within 20 m x 20 m plot.
- Vegetation function data (size and number of trees, presence of hollow-bearing trees and woody debris) were collected from within 20 m x 50 m plot.
- Percent litter cover data were collected within five 1 m x 1 m squares positioned at 5 m, 15 m, 25 m, 35 m and 45 m points of the 50 m plot.

The remainder of the subject land was traversed by foot to confirm the nature of vegetation (i.e. native or non-native) and search for habitat features such as hollow bearing trees, rock outcrops, caves and nests.

2.3.2 Incidental Surveys

Incidental flora and fauna sightings were recorded while undertaking the BAM plots and searching the subject land for hollow-bearing trees and other potential habitat features. Potential habitat such as rock, loose bark and coarse woody debris was recorded and examined for signs of cryptic species. Tracks and other areas of suitable substrate were searched for animal tracks. Other evidence of fauna presence on the subject land, such as scats, feathers and sloughed skins were also recorded.

2.3.3 Targeted Surveys

Targeted surveys were conducted for species credit flora species in October 2024, January 2025, and February 2025, while targeted surveys for species credit fauna species were conducted from September 2024 to January 2025 (**Table 2-3**). Note that surveys commenced prior to the adoption of the streamlined small-area assessment module and targeted many species that were ultimately excluded following the adoption of the module. Only species retained following the adoption of the small-area assessment module – namely SAII entities and species detected during earlier surveys – are considered in **Table 2-3**. Additional surveys conducted prior to the implementation of the small-area module – particularly surveys relevant to species regarded as Matters of National Environmental Significance (MNES) – are discussed in **Section 2.3.4**.

Table 2-3. Flora and fauna species subject to targeted surveys.

Species	Survey Window	Survey Timing	Detected
Persoonia hindii	All year	21-24 October 2024 21 January 2025 25 February 2025	No
Chalinolobus dwyeri / Large-eared Pied Bat	Nov-Jan	16-19 December 2024	Yes (foraging only)
Miniopterus orianae oceanensis / Large Bent-winged Bat	Dec-Feb	16-19 December 2024	Yes (foraging only)
Petauroides volans / Southern Greater Glider	All year	21-24 October 2024 19-24 January 2025	Yes
Petrogale penicillata / Brush-tailed Rock-wallaby	All year	16-20 September 2024 21-31 October 2024 1-30 November 2024 1-3 December 2024 19-24 January 2025	No

A summary of field survey methods is provided in **Table 2-4**, depicted in **Figure 2-1, Figure 2-2**, and **Figure 2-3**, and described in further detail in **Section 5.3.1** of this report.

Table 2-4. Summary of targeted survey methods and effort undertaken.

SPECIES	Jan	Feb	Sep	Oct	Nov	Dec	TOTAL
Persoonia hindii	5.28 km parallel flora transects (9.5 person hours)	9.96 km parallel flora transects (15.5 person hours)	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**56.5 km parallel flora transects (78.5 person hours)**
Chalinolobus dwyeri **Large-eared Pied Bat**	-	-	-	-	-	22 harp trap nights (4 nights) 11 nights of passive acoustic detection 33.61 km roost search (4 days)	**22 trap nights (4 nights)** **11 nights of passive acoustic detection** **33.61 km roost search (4 days**
Miniopterus orianae oceanensis **Large Bent-winged Bat**	-	-	-	-	-	22 harp trap nights (4 nights) 11 nights of passive acoustic detection 33.61 km roost search (4 days)	**22 harp trap nights (4 nights)** **11 nights of passive acoustic detection** **33.61 km roost search (4 days**
Petauroides volans **Southern Greater Glider**	4 hollow watches	-	-	4 nights of spotlighting (8.1 km, 7.5 person hours) 4 hollow watches	-	-	**4 nights of spotlighting (8.1 km, 7.5 person hours)** **8 hollow watches**
Petrogale penicillata **Brush-tailed Rock-wallaby**	6 nights of spotlighting (46.5 km, 31.72 person hours) 1 day of boulder scat search (2 locations total)	-	3 days of boulder scat search (12 locations total) 5 days of activity and/or suitable habitat search (64	4 nights of spotlighting (8.1 km, 7.5 person hours) 5 days of activity and/or suitable habitat habitat	90 camera trap nights	4 camera trap nights	**10 nights of spotlighting (54.6 km, 39.2 person hours)** **4 days of boulder scat search (14 locations total)** **16 days of activity and/or suitable habitat search**

	6 days of activity and/or suitable habitat search (32.3 km, 30.8 person hours) 8 camera trap nights		km, 42.25 person hours) 14 camera trap nights	search (29.9 km, 15.15 person hours) 47 camera trap nights			**(126.2 km, 88.2 person hours)** **162 camera trap nights**

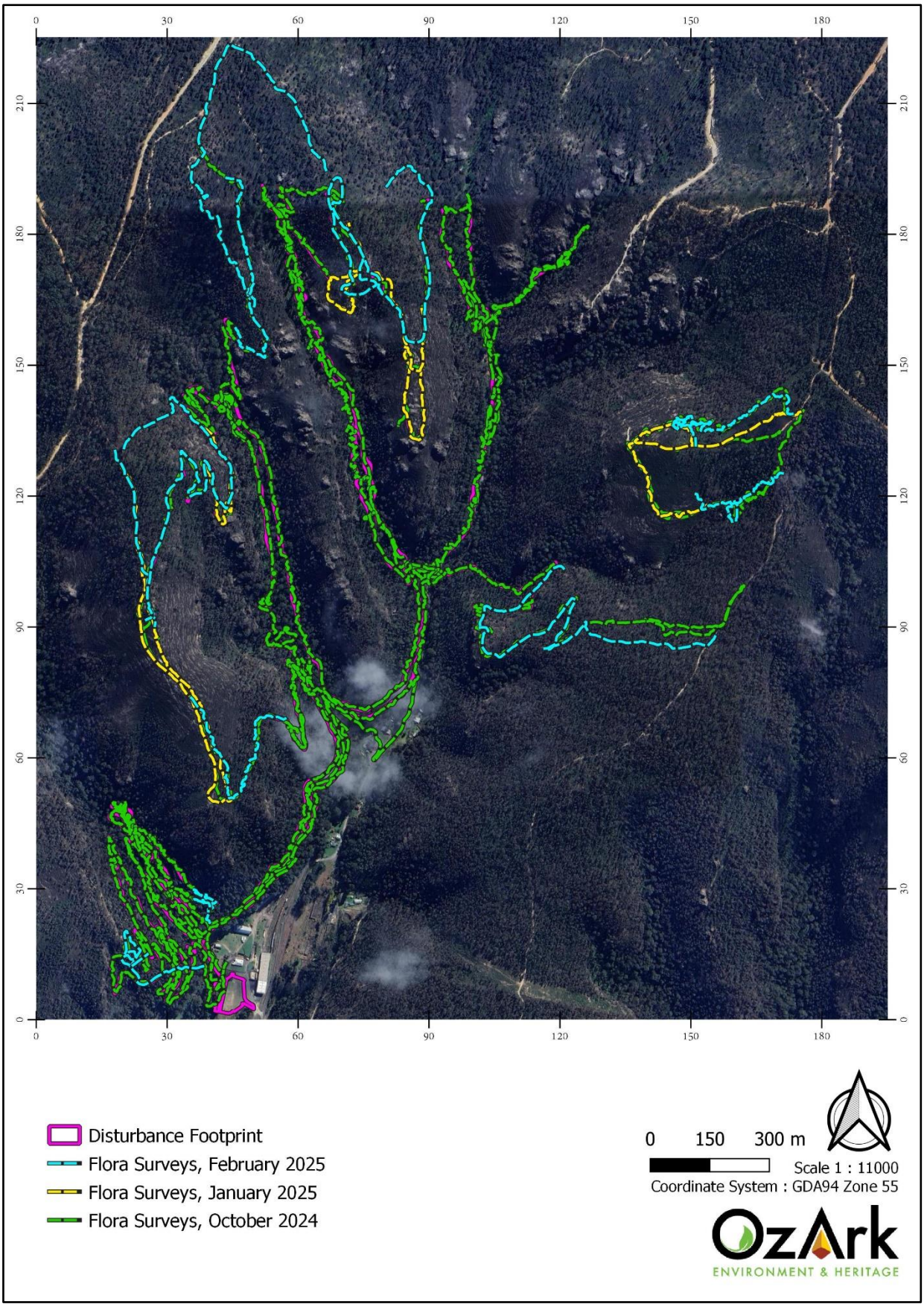


Figure 2-1. Targeted flora surveys: Parallel transects conducted for threatened flora.

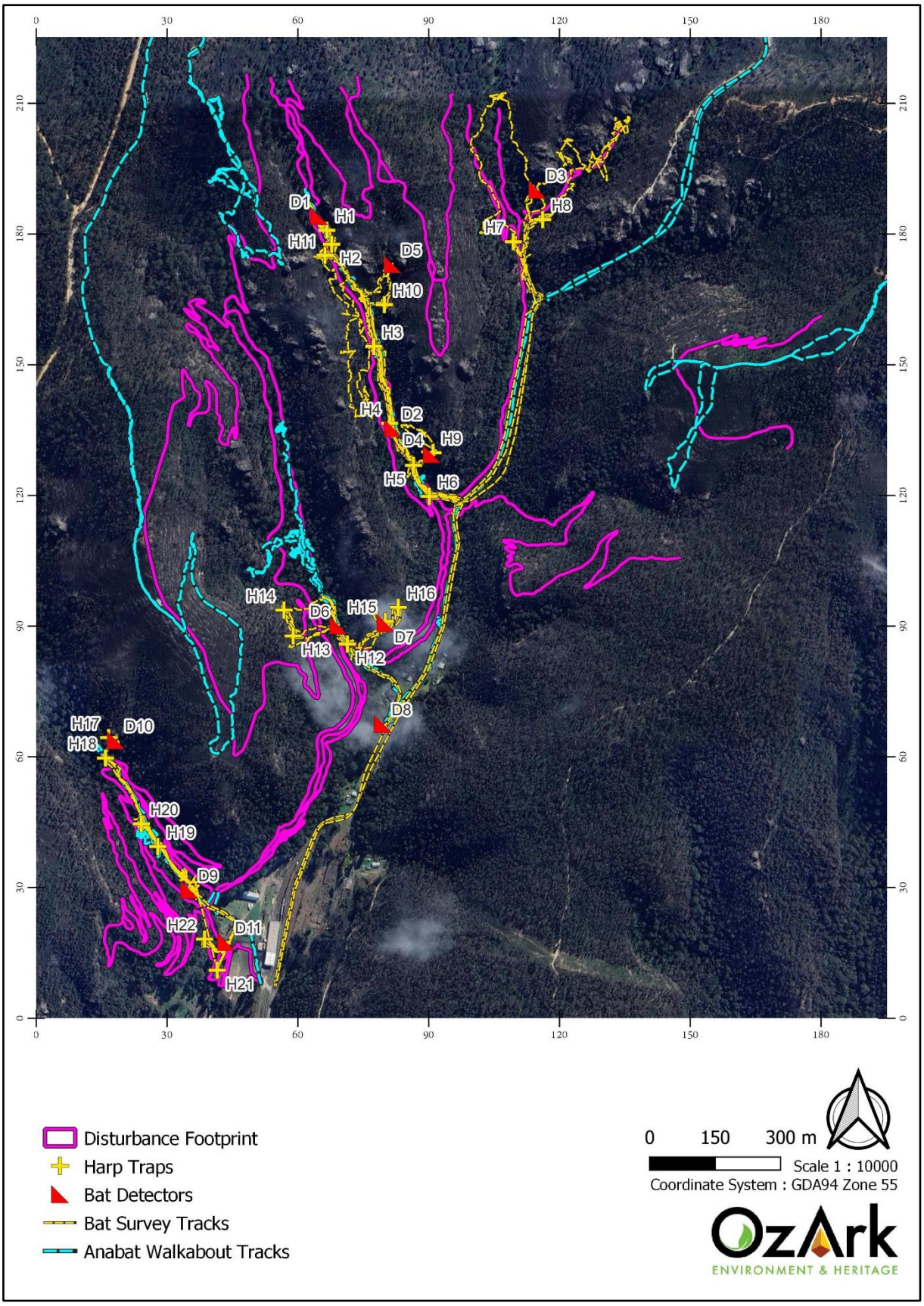


Figure 2-2. Targeted fauna surveys: Survey transects, bat detector locations, and harp trapping sites.

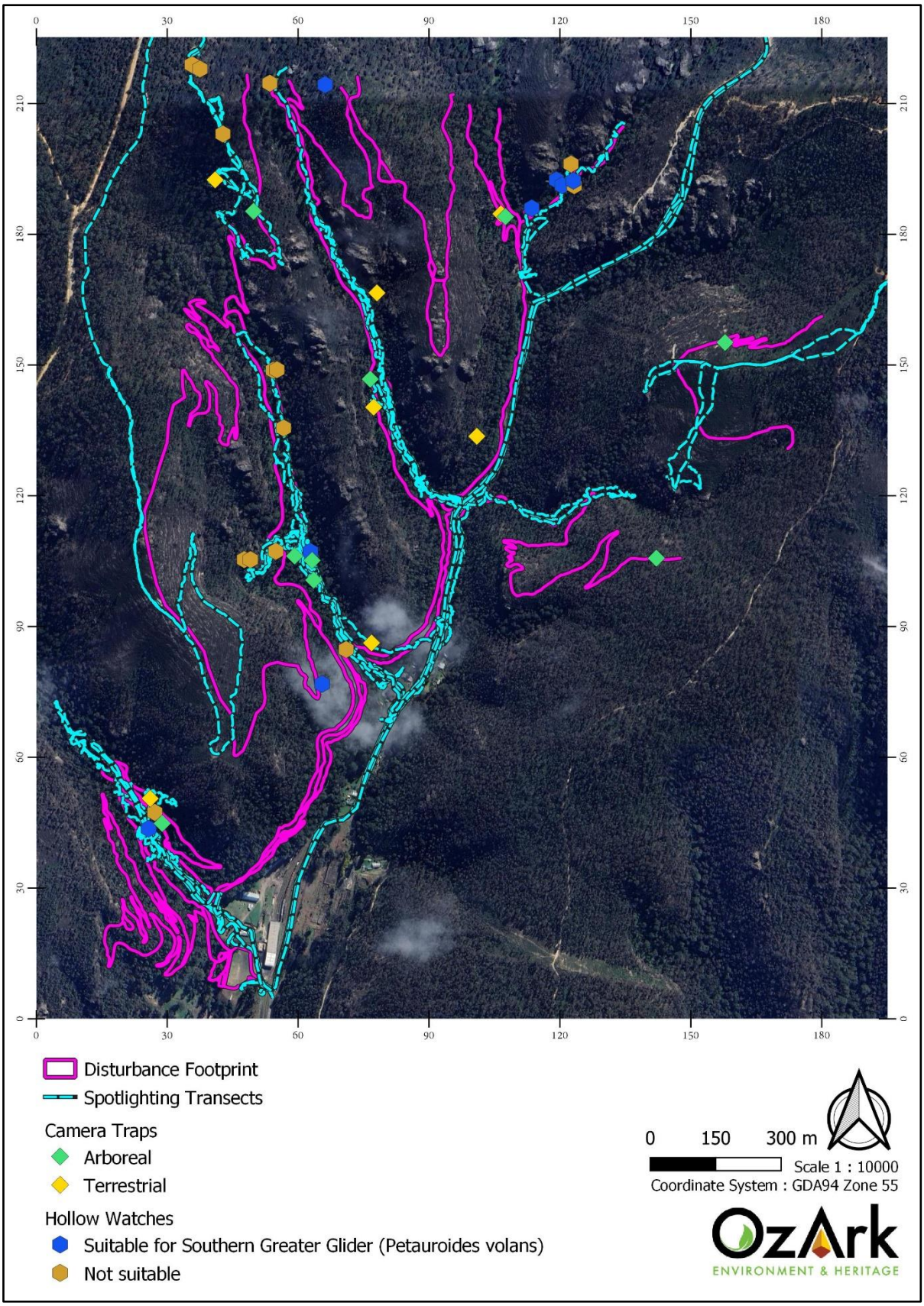


Figure 2-3. Targeted fauna surveys: Spotlighting transects, hollow watches, and camera trap locations.

2.3.4 Additional Targeted Surveys for MNES Entities

Targeted surveys conducted for MNES species prior to the adoption of the small-area BDAR method are described in **Table 2-5**. Additional survey methods are depicted in **Figure 2-1** (flora transects), **Figure 2-5** (Koala surveys), and **Figure 2-6** (surveys for *Hoplocephalus bungaroides*; see also spotlighting transects in **Figure 2-5**).

Table 2-5. Targeted surveys for MNES entities excluded from assessment via the BAM surveys.

SPECIES	Jan	Feb	Sep	Oct	Nov	Dec	TOTAL
Acacia meiantha	-	-	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**41.26 km parallel flora transects (53.5 person hours)**
Boronia deanei* subsp. *deanei	-	-	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**41.26 km parallel flora transects (53.5 person hours)**
Isopogon fletcheri	-	-	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**41.26 km parallel flora transects (53.5 person hours)**
Leionema lachnaeoides	-	-	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**41.26 km parallel flora transects (53.5 person hours)**
Persoonia acerosa	5.28 km parallel flora transects (9.5 person hours)	9.96 km parallel flora transects (15.5 person hours)	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**56.5 km parallel flora transects (78.5 person hours)**
Persoonia hindii	5.28 km parallel flora transects (9.5 person hours)	9.96 km parallel flora transects (15.5 person hours)	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**56.5 km parallel flora transects (78.5 person hours)**
Persoonia marginata	5.28 km parallel flora transects (9.5 person hours)	9.96 km parallel flora transects (15.5 person hours)	-	-	-	-	**15.24 km parallel flora transects (25 person hours)**

Velleia perfoliata	-	-	-	41.26 km parallel flora transects (53.5 person hours)	-	-	**41.26 km parallel flora transects (53.5 person hours)**
***Heleioporus australiacus australiacus*[1]**	-	-	-	4 nights of spotlighting/call playback transects along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)	-	-	**4 nights of spotlighting/call playbacks transect along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)**
Litoria booroolongensis	-	-	-	4 nights of spotlighting/call playback transects along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)	-	-	**4 nights of spotlighting/call playbacks transect along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)**
Litoria littlejohni	-	-	-	4 nights of spotlighting/call playback transects along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)	-	-	**4 nights of spotlighting/call playbacks transect along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)**
Mixophyes balbus	-	-	-	4 nights of spotlighting/call playback transects along creeks (9.8 kms, 14.32 person	-	-	**4 nights of spotlighting/call playbacks transect along creeks (9.8 kms, 14.32 person hours, 28 aural survey points)**

				hours, 28 aural survey points)			
Phascolarctos cinereus	6 nights of spotlighting (46.5 km, 31.72 person hours) 8 camera trap nights.	-	One Koala SAT 14 camera trap nights.	One Koala SAT 4 nights of spotlighting (8.1 km, 7.5 person hours) 47 camera trap nights.	90 camera trap nights.	4 camera trap nights.	**10 nights of spotlighting (54.6 km, 39.2 person hours)** **162 camera trap nights** **Two Koala SATs.**
Hoplocephalus bungaroides	6 nights of spotlighting (46.5 km, 31.72 person hours) 17 hollows/stags watched at dusk (5 nights, 2 pax)	1178 rocks turned (5 days)	-	-	-	-	**17 hollow/stag watch at dusk (5 nights, 2 pax)** **6 nights of spotlighting (46.5kms, 31.72 person hours)** **1178 rocks turned (5 days)**

[1]Note: Survey for this species does not meet NSW guidelines, as the small-area method was adopted before these surveys could be completed.

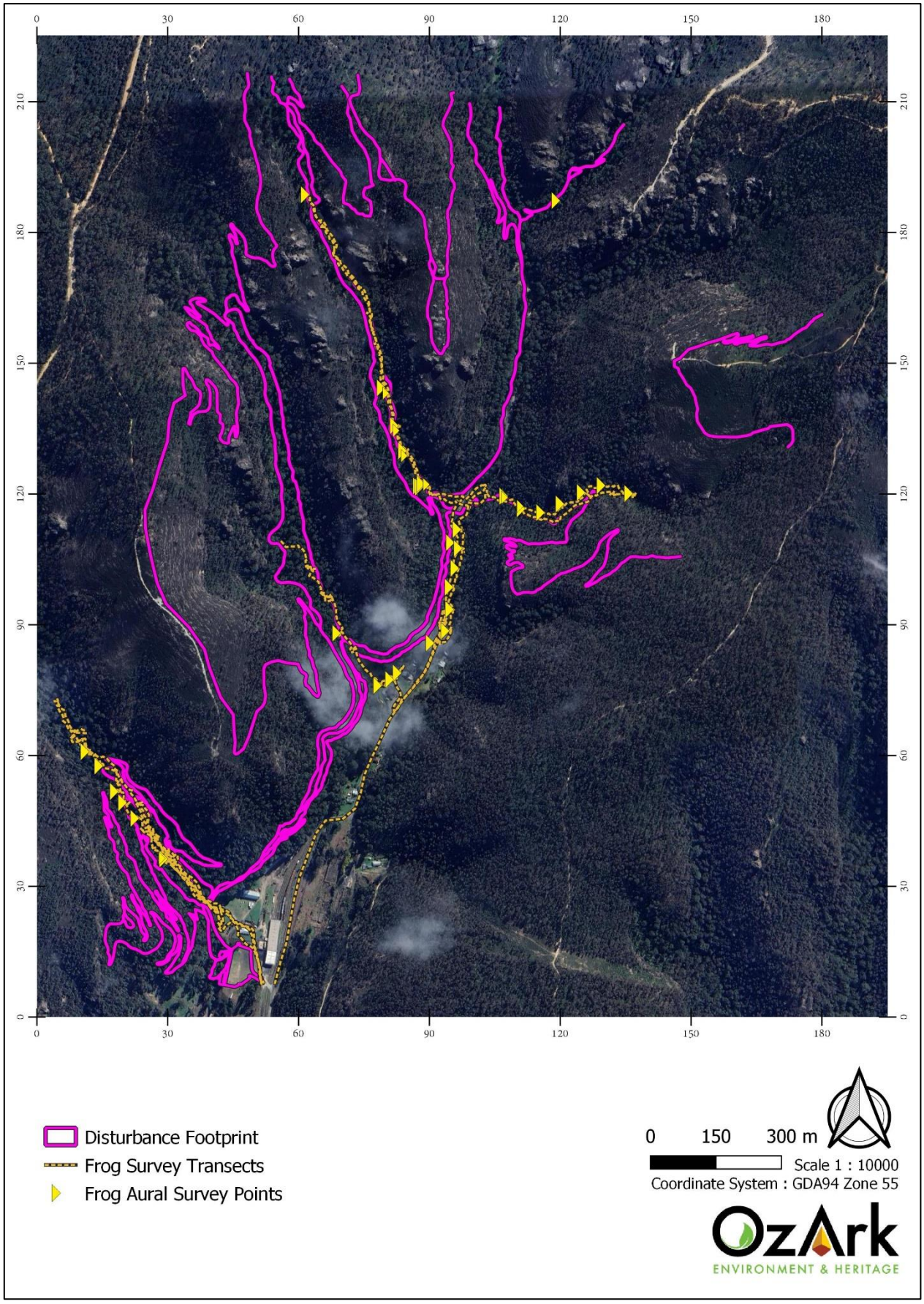


Figure 2-4. Targeted fauna surveys: Transects and aural survey points for MNES frogs.

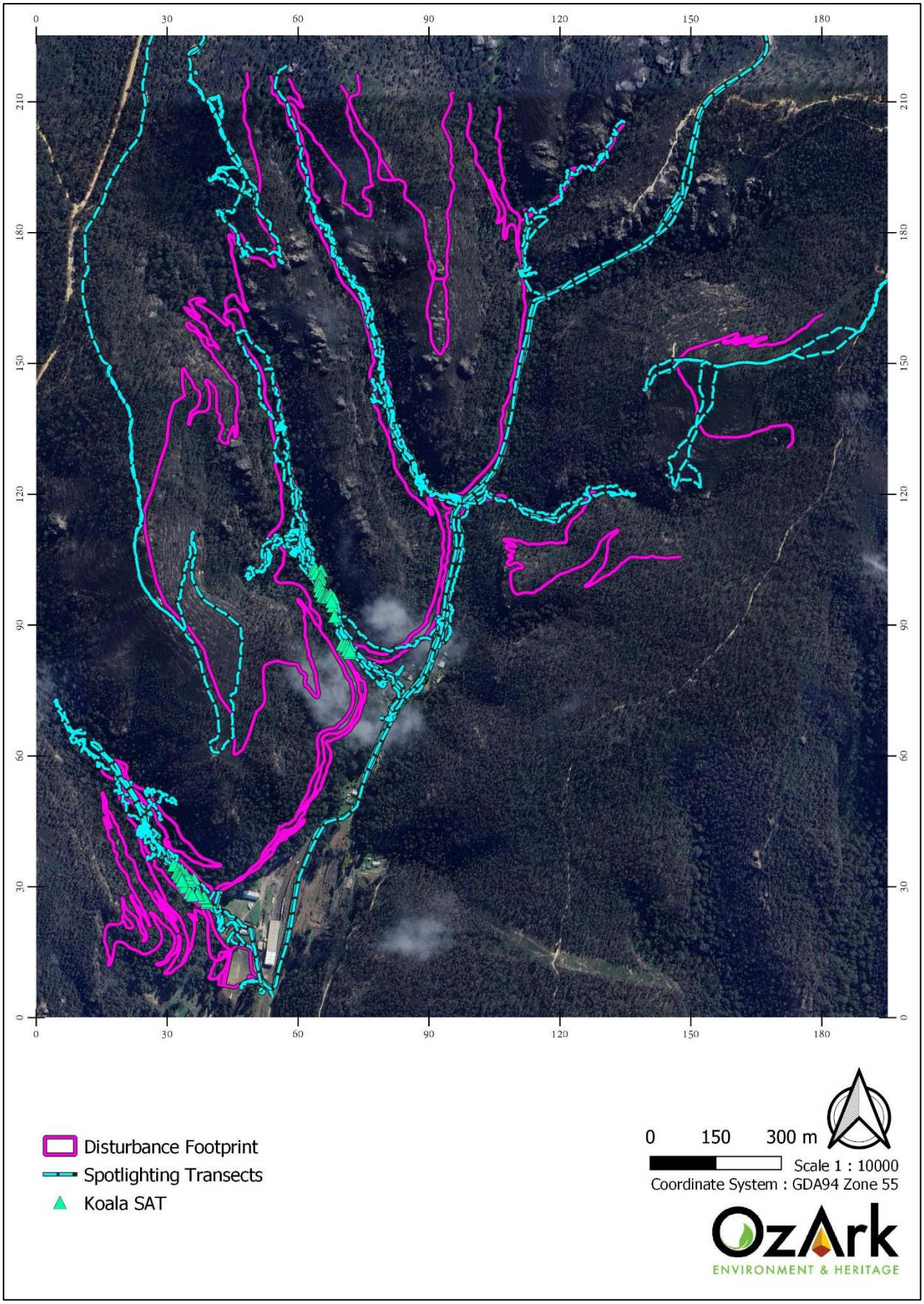


Figure 2-5. Targeted fauna surveys: Spotlighting transects and Koala Spot Assessment Technique (SAT) surveys.

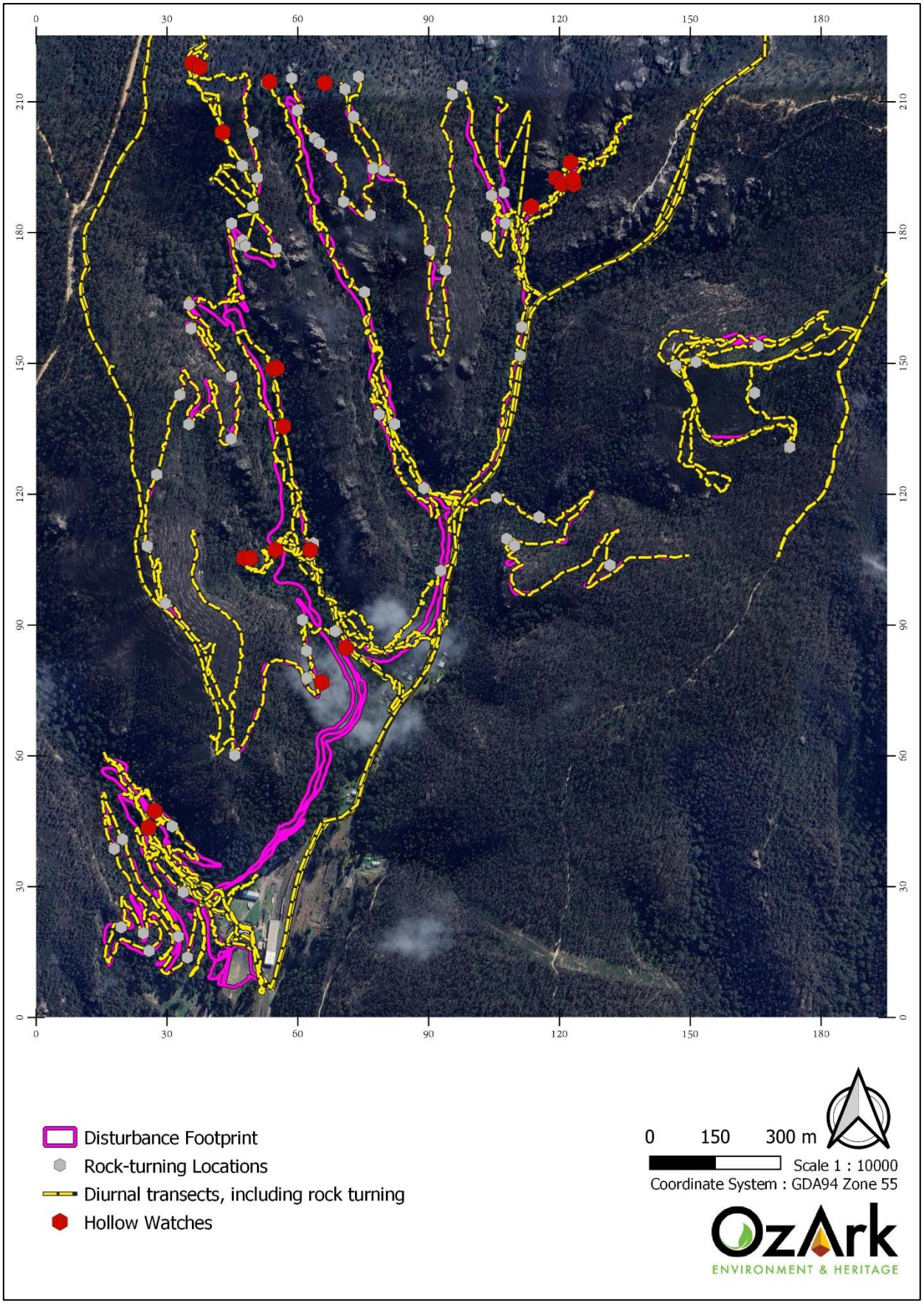


Figure 2-6. Targeted fauna surveys: Diurnal transects, hollow watches, and rock-turning locations for *Hoplocephalus bungaroides*.

2.4 Habitat Suitability

The suitability of the subject land as habitat for all species credit species generated by the BAM-C was assessed (**Appendix D**).

The presence / absence of threatened species was categorised as follows:

- 'Assumed present' – the species was predicted to occur by the BAM-C, suitable habitat features occur on the subject land for that species and no targeted survey or expert report was commissioned.
- 'Absent' constraint – None of the habitat constraints or geographic limitations are present, the habitat is degraded or the species is a vagrant.
- 'Absent' surveyed – Targeted surveys undertaken during the time period specified for the species in the Threatened Biodiversity Data Collection (TBDC) and following threatened species survey guidelines. Where no relevant published guidelines exist, the survey must be undertaken using best practice methods.

EPBC Act-listed fauna that were predicted to occur within 10 km of the subject land were also assessed for their presence or absence on site (**Appendix E**).

2.5 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 project for the field survey. Specific limitations on this study include the following:

- BAM plots were conducted in winter and may not have captured all species that would be present in a more favourable season (i.e. spring).
- BAM plot location was dictated in part by safety and accessibility of areas of the site. Extremely steep locations were deemed unsafe for sustained survey during wet conditions, for example.
- Likewise, areas within several hundred metres of the trails were not able to be inspected in detail due to the rugged terrain and the risk of rock fall and tree fall under often windy conditions.
- Targeted survey effort for certain species not at risk of a Serious and Irreversible Impact (SAII) may not meet NSW guidelines as these surveys were curtailed following the adoption of the small-area assessment module.

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

3 Landscape Features

3.1 Overview

A series of background searches were performed to comply with legislative requirements (**Table 3-1**).

Table 3-1. Environmental protection areas within the assessment area.

Environmental Protection Areas	Presence in the Assessment Area
Land identified on the Biodiversity Values Map under the NSW *BC Act* 2016	Yes (**Appendix A**).
Area of Outstanding Biodiversity Value (AOBV) under the NSW *BC Act* 2016	No.
Watercourse mapped as Key Fish Habitat (KFH) and/or within the extent of an aquatic Endangered Ecological Community, listed under the *Fisheries Management Act* 1994.	Yes.
An area reserved or dedicated under the *National Parks and Wildlife Act 1974* or *Wilderness Act 1987*.	Yes. (See **Section 3.10**)
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation or other environmental protection purposes?	Yes (Crown Land, zoned C3 Environmental Management).
A World Heritage Area.	No.
Environmental Protection Zones in environmental planning instruments.	Yes (C3).
Lands protected under *NSW State Environmental Planning Policy (Biodiversity and Conservation) 2021*	Yes. (See **Section 1.6.3**).
Aquatic reserves dedicated under the *Fisheries Management Act 1994.*	No.
Wetland areas dedicated under the Ramsar Wetlands Convention.	No.
Land subject to a conservation agreement under the *National Parks and Wildlife Act 1974.*	No.
Land identified as State Forest under the *Forestry Act 1916.*	No.
Acid sulphate area.	No.

3.2 Bioregion

The subject land falls within the Wollemi subregion of the Sydney Basin bioregion (**Figure 1-2**) as per the Interim Biogeographic Regionalisation of Australia (IBRA) (Thackway & Cresswell, 1995). The subregion is characterised by geology, landforms, soil types and vegetation as described in **Table 3-2**.

Table 3-2. Description of the Wollemi subregion (NSW NPWS 2003).

Bioregion	Sydney Basin
Subregion	Wollemi
Geology	Hawkesbury Sandstone and equivalent quartz sandstones of Narrabeen Group, sub-horizontal bedding, strong vertical joint patterns. A few volcanic necks.
Landforms	Highest part of the Blue Mountains. Sandstone plateau with benched rock outcrops. Creek directions controlled by jointing deep gorge of the Capertee and Wolgan Rivers.
Soils	Thin sands or deep yellow earths on plateau, thin texture contrast soils on shale benches. Organic sands in swamps and joint crevices, bouldery slope debris below cliffs, sandy alluvium in pockets along the streams. Red brown structured loams on basalts.
Vegetation	Red bloodwood, yellow bloodwood, rough-barked apple, smooth-barked apple, hard-leaved scribbly gum, and grey gum with diverse shrubs and heaths on plateau. Smooth-barked apple, Sydney peppermint, blue-leaved stringybark, and turpentine and gully rainforests in gullies and canyonheads. Ribbon gum and Blaxland's stringybark on basalt. River oak along main streams.

3.3 NSW (Mitchell) Landscapes

Landscapes with relatively homogenous geomorphology, soils and broad vegetation types in NSW have been classified and mapped at a 1:250,000 scale. These landscapes are referred to as NSW (Mitchell) Landscapes (Mitchell, 2002).

The subject land falls largely within the Newnes Plateau landscape, with the southern limit of the disturbance footprint extending into the Sydney Basin Western Escarpment landscape (**Figure 1-2**). The characteristics of these landscapes are described below.

Newnes Plateau

Undulating high level plateau with shallowly incises swampy streams and occasional relic sand dunes on horizontal Triassic quartz sandstones and shale, general elevation 1000m, local relief <100m. Thin stony yellow-red sands, deep yellow earths, podsols on dunes and yellow or grey texture-contrast soils on shale units. Woodland of stunted scribbly gum (*Eucalyptus sclerophylla*), snow gum (*Eucalyptus pauciflora*), Blue Mountains ash (*Eucalyptus oreades*), silvertop ash (*Eucalyptus sieberi*), grey ironbark (*Eucalyptus paniculata*), red bloodwood (*Corymbia gummifera*) and grass trees (*Xanthorrhoea* spp.) with numerous other shrubs. Patches of dwarf casuarina (*Allocasuarina nana*) heath on very exposed and eroded aspects, sedge swamps with marginal heath form linear patterns in open valleys.

Over-clearing status: Not over-cleared. In total, 4% of this landscape is estimated to have been cleared.

Sydney Basin Western Escarpment

Steep dissected slopes on the western margin of the Triassic rocks and descending into the Permian conglomerate, shale and sandstone. Cliffs and gorges to 100m, general elevation 250 to 1000m, local relief 150m. Brown loamy sands in rubbly soil on debris slopes, with deeper accumulations toward the valley floor. Dry aspects; open forest of Sydney peppermint (*Eucalyptus piperita*), smooth-barked apple (*Angophora costata*), grey gum (*Eucalyptus punctata*), broad-leaved ironbark (*Eucalyptus fibrosa* ssp. *fibrosa*) and rough-barked apple (*Angophora floribunda*). Moist aspects; tall open forest of round-leaved gum (*Eucalyptus deanei*), turpentine (*Syncarpia glomulifera*), Sydney blue gum (*Eucalyptus saligna*), blueleaved stringybark (*Eucalyptus agglomerata*), thin-leaved stringybark (*Eucalyptus eugenioides*) and narrow-leaved ironbark (*Eucalyptus crebra*). Coachwood (*Ceratopetalum apetalum*) and sassafras (*Doryphora sassafras*) in the gullies.

Over-clearing status: Not over-cleared. In total, 29% of this landscape is estimated to have been cleared.

3.4 Geology, Cave, Karst and Soil Features

The underlying geology and soil typical of the subject land and wider assessment area has been described in **Table 3-2** and above. The site is situated on and around a steep escarpment and traverses tall sandstone cliffs containing caves, crevices, overhangs and similar formations. Exposed areas of the plateau support rocky heath communities, containing both large, embedded boulders and loose surface rock, as well as eroded sandstone pagodas. Accumulated rocky debris occurs around the bases of some cliffs, and in drainage lines and creeks.

3.5 Climate and Weather Data

The nearest weather station is the Lithgow (Cooerwull) Weather Station (station 063226), located approximately 3.7 km from the subject land. Long-term averages are provided by the Lithgow (Birdwood St) Weather Station (station 063224), which commenced operation in 1889 for rainfall and 1912 for temperature and ceased operation in 2006. Long-term averages for the Cooerwull station are not available.

The area experiences mild summers, with the highest average maximum temperature of 25.5°C experienced in January (**Figure 3-1**). Temperatures in winter are cool to cold with the coldest temperatures being recorded in July, having an average minimum of 0.7°C and an average maximum of 10.4°C. Note that the weather station is located at 900 m ASL, whereas the site extends to more than 1100 m ASL. The site is likely to experience colder temperatures than data from Cooerwull indicates.

The average annual rainfall at the Birdwood St station is 858.5 mm. Rainfall is weakly summer led, with January recording the highest average rainfall of 94.3 mm, followed by March (83.9 mm), February (83.8 mm), and December (76.1 mm). The lowest monthly rainfall occurs in September (58.9 mm), followed by April (62.7 mm) and August (63.0 mm).

Rainfall over the survey period was highly variable. The initial survey in July 2024 followed two months of average rainfall and one month of well above average rainfall. This, however, followed two months of well below average rainfall. The targeted survey period was initially marked by dry conditions, with July-October 2024 recording approximately half of the long-term average for those months. Rainfall in November was well above average, however, and from December 2024 to February 2025 rainfall was close to or above average. Over the July 2024-February 2025 period, the Cooerwull station recorded 529.6 mm of rainfall, below the expected value of 581.8 mm.

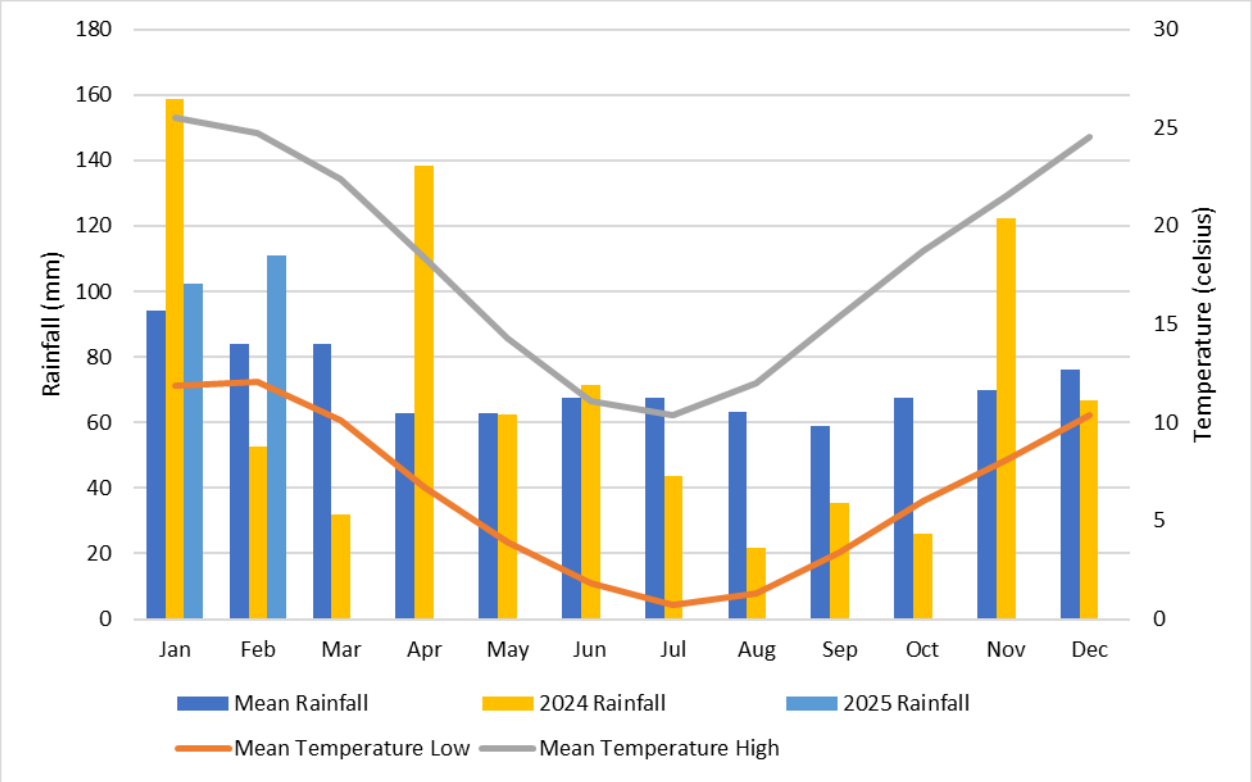


Figure 3-1. Climate statistics for Lithgow (Cooerwull) Weather Station (ID 063226) showing mean minimum and maximum temperatures, mean rainfall, and rainfall during the survey period in 2024 and 2025 (Bureau of Meteorology, 2025b).

3.6 Biodiversity Values Map

The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the BCR. The subject land contains land identified on the BV Map, namely biodiverse riparian land associated with State Mine Creek (**Appendix A**).

3.7 Areas of Outstanding Biodiversity Value

The site does not contain any currently listed Areas of Outstanding Biodiversity Value (AOBV).

3.8 *SEPP (Biodiversity and Conservation)* 2021

The City of Lithgow LGA is listed in Schedule 2 of the *SEPP (Biodiversity and Conservation)* 2021; consequently, Chapter 4 of the SEPP applies to the whole of the subject land (zoned C3).

The subject land contains food trees (as defined in Chapter 4 and Schedule 3 of the SEPP) but do not contain evidence of occupation by the species within the last 18 years. No further consideration should be required under this SEPP.

The potential impacts of the proposal to Koalas have been separately considered in this BDAR under the BC and EPBC Act. As these instruments define habitat suitability differently to the SEPP, the outcomes of these assessments may differ.

3.9 Native vegetation cover

Native vegetation cover, assessed as the proportion of the assessment area retaining native vegetation, was assessed by consulting aerial imagery of the surrounding landscape and ground-truthing this where possible to determine whether native vegetation persists. Native vegetation is defined to include woody vegetation and non-woody vegetation, including regrowth and plantations, comprised of plants native to NSW. Native cover is mapped in **Figure 1-1**, **Figure 1-2** and **Figure 3-2**. Areas excluded from the estimate of cover include built infrastructure (chiefly roads and residences) and cropped land. A summary of the vegetation cover estimate is provided in **Table 3-3**. For the purposes of the BAM, the native vegetation cover class has been determined as >70%.

Table 3-3. Native vegetation cover estimates in the assessment area.

Vegetation Cover Type	Description	Cover Within Assessment Area (ha)	Total Area of Assessment Area (ha)	Native Cover within Assessment Area (%)
Native vegetation	Remnant forest and heath, planted native species, derived grassland.	1654.42	1795.73	92.13

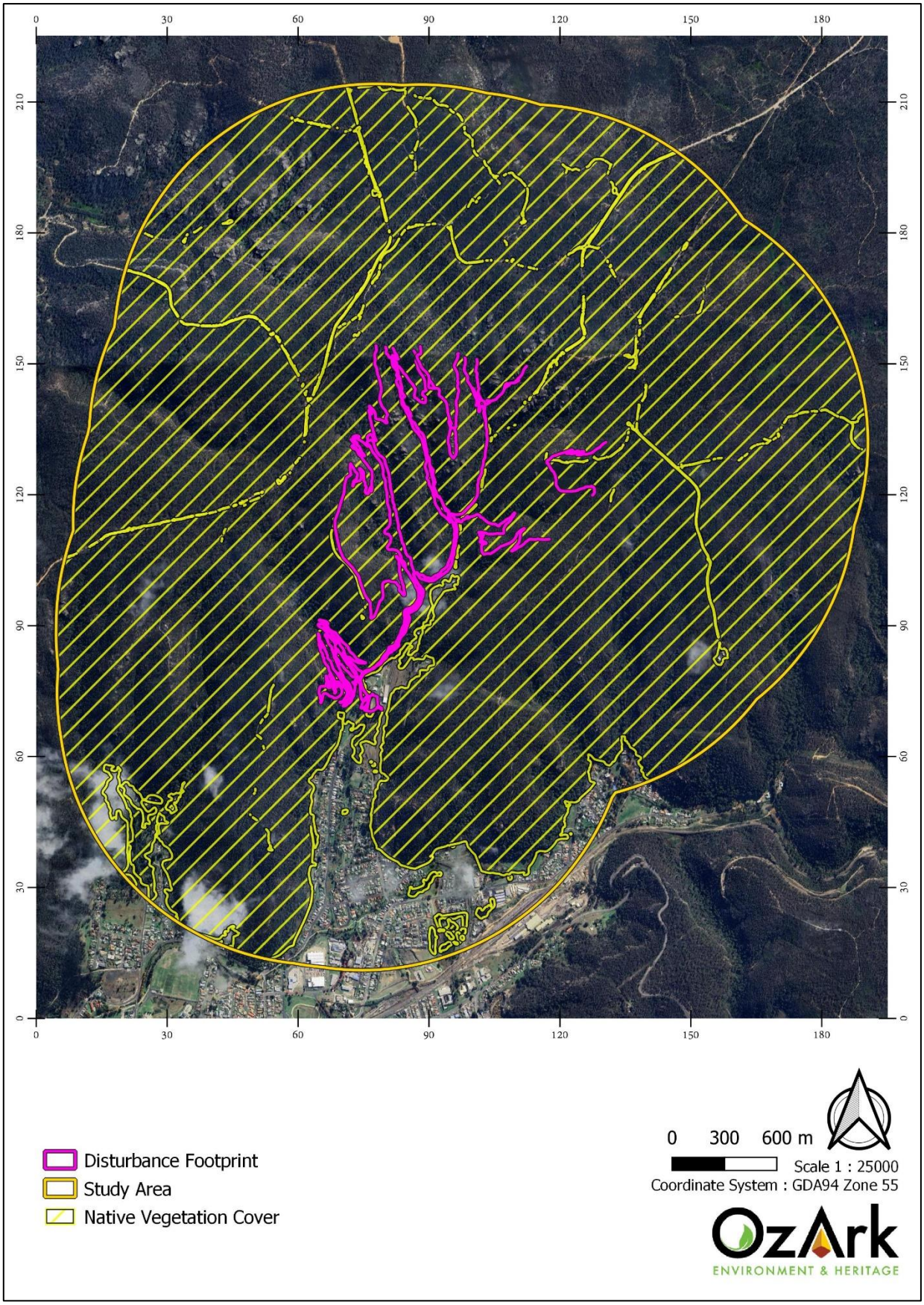


Figure 3-2. Native vegetation cover within the assessment area.

3.10 Rivers, Streams, Wetlands and Key Fish Habitat

Sixteen watercourses are mapped as intersecting with the proposed track alignment (**Figure 3-3**). Of these, 10 are Strahler 1st order minor, non-perennial streams; five are Strahler 2nd order minor, non-perennial streams; and one, State Mine Creek, is a Strahler 3rd order minor, non-perennial stream. State Mine Creek is mapped as Key Fish Habitat (KFH) by the Department of Primary Industries – Fisheries. Consultation with DPI – Fisheries has indicated that the proposed use of the existing creek bed, without modification, will not require a permit. The 10 km search area does not contain the mapped distributions of any threatened fish species.

3.11 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.

The available GDE mapping identifies the majority of the site as containing low-probability GDEs, with smaller areas of medium-probability GDEs along State Mine Gully Rd and near the easternmost limit of the site (**Figure 3-3**). It should be noted that this mapping is based on the SVTM, which incorrectly identifies these medium-probability areas as belonging to PCT 3691 (Upper Blue Mountains Fringing Swamp Woodland) or PCT 3226 (Western Blue Mountains Montane Wet Fern Forest), whereas the actual PCTs in these areas are considered to be low-probability GDEs. Where areas have been identified as non-native in the SVTM, these are not identified as GDEs in the mapping. In some cases, the mapping of non-native vegetation extends inappropriately into remnant vegetation, typically belonging to low-probability communities.

The proposal does not include the extraction of groundwater and is likely to have negligible impacts on GDEs. Mitigation measures to reduce the impacts of erosion and runoff, which may adversely affect groundwater, have been provided in **Section 6.7.**

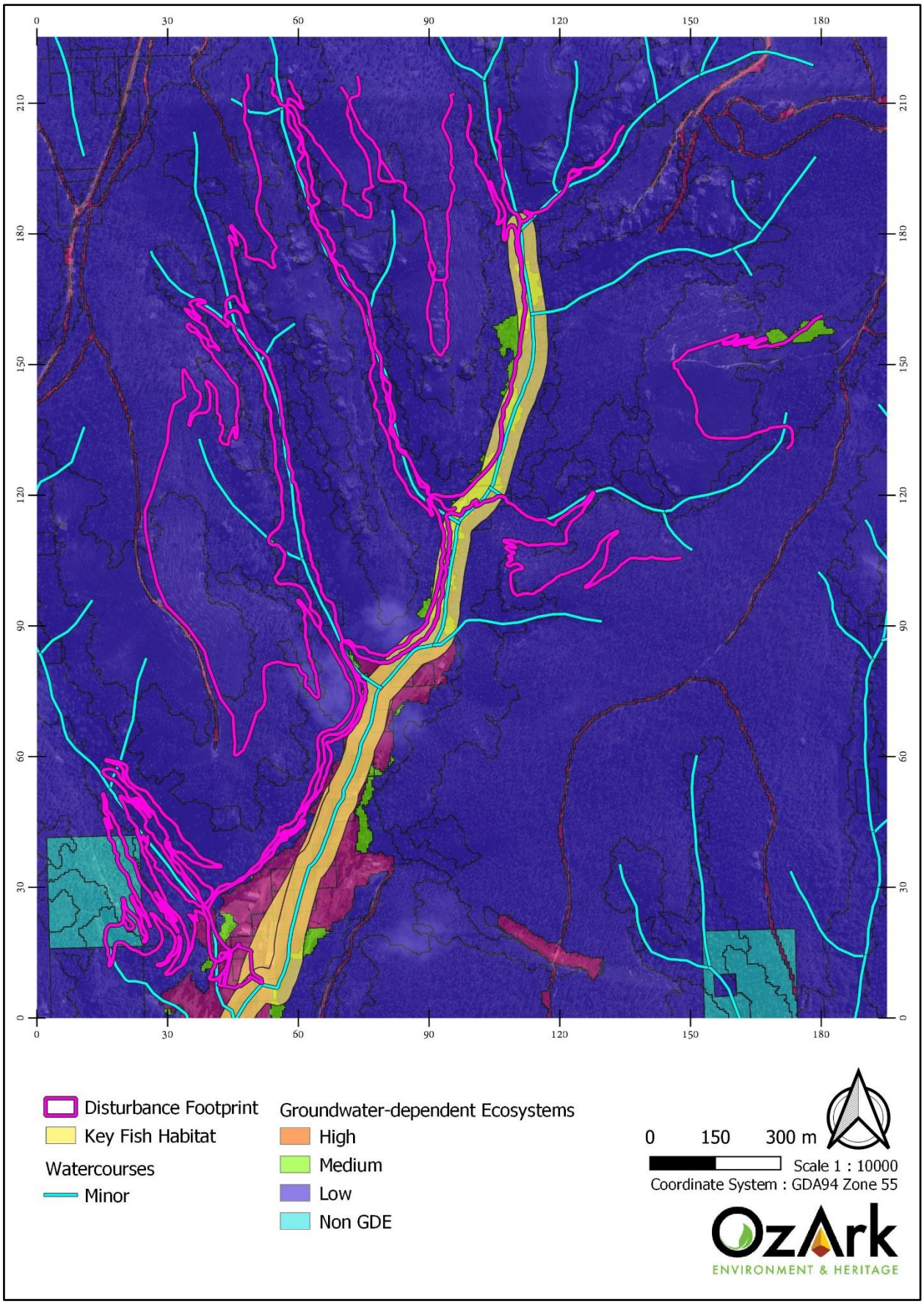


Figure 3-3. Watercourses and groundwater-dependent ecosystems within the subject land.

3.12 Connectivity Features

The subject land is situated within the Greater Blue Mountains area and forms part of a large, interconnected patch of forests, heaths, swamps, and other vegetation communities. Impacts associated with the proposal would occur largely at the interface between this patch and developed land in the City of Lithgow. Connectivity within the Greater Blue Mountains would not be significantly affected by the formation of additional trails close to the outer margin of the patch. Minor impacts to connectivity between urban vegetation and the Greater Blue Mountains patch may result from the proposal; however, as mature trees will be retained, these impacts are likely to be minimal. The construction of trails, along with their associated edge effects, has been implicated in the fragmentation of forested environments (Ballantyne et al. 2014), and localised impacts of this kind may result from proposal activities. The proposed trail widths (0.6-1.2 m) are generally narrow, however, and it is unlikely that isolation of habitat for species would result.

4 Native Vegetation

4.1 Land Category Assessment

According to section 6.8(3) of the BC Act, land defined as Category 1 – Exempt Land (within the meaning of Part 5A of the LLS Act) is to be excluded from assessment under the BAM. Category 1 exemption applies to rural land (zoned RU1, RU2, or RU3) that was cleared of native vegetation as of 1 January 1990 or lawfully cleared of vegetation between 1 January 1990 and 25 August 2017. At present, mapping of Category 1 land is available in a draft form, which identifies the site as excluded from land categorisation. The likely categorisation of land can be determined by consulting the following sources of information:

- Land zoning maps in the applicable Local Environment Plan.
- Public land use mapping (NSW DCCEEW, 2023).
- NSW woody vegetation extent mapping (NSW DCCEEW, 2015).
- The Draft Native Vegetation Regulatory Map (NSW DCCEEW, 2025g).
- Historical aerial photographs accessed via the NSW Government Spatial Services platform (NSW Spatial Services, 2025).
- Vegetation surveys conducted during the field assessment.
- Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme (DPE, 2023).

In the present case, the subject land is zoned C3 Environmental Management. As the site is not mapped as rural land, land categorisation does not apply.

4.2 Plant Community Types (PCTs)

The subject land spans the Newnes Plateau and escarpment and supports a mixture of tall forest and heath communities. The proposal has been designed to make use of existing trails and sparsely vegetated rocky terrain where possible. Despite this, however, construction of the proposed trail will result in impacts to native vegetation across much of its length. Vegetation within the site could be assigned to four PCTs:

- 3687 – Newnes Plateau Peppermint-Ash Tall Forest.
- 3688 – Newnes Plateau Silvertop Ash Woodland.
- 3696 – Western Blue Mountains Rocky Scribbly Gum Woodland.
- 3862 – Newnes Plateau Rockplate Heath.

A fifth PCT, PCT 3865 – Western Blue Mountains Pagoda Scrub, was recorded around the margins of the site in association with eroded sandstone pagodas but will not be impacted by the proposal.

For the purposes of the implementation of the small-area assessment module, PCT 3687 was identified as the dominant PCT across the site.

Areas were omitted from vegetation mapping and offset considerations where existing disturbance (e.g. trail formation) has resulted in the removal of all native vegetation.

Most PCTs occurred in a relatively uniform condition across the site and could be assigned to a single vegetation zone. In areas where PCT 3687 had been subjected to understorey disturbance, however, a second vegetation zone was adopted in this assessment. Five vegetation zones occur within the proposal footprint:

- 3687_Good
- 3687_Moderate
- 3688_Moderate
- 3696_Good
- 3862_Moderate

Vegetation zones within the assessed area are described in **Table 4-1** and mapped in **Figure 4-1** to **Figure 4-8**. The locations of supporting BAM plots are shown in **Figure 4-9**. Seven BAM plots were conducted during site surveys; however, only those relevant to PCT 3687 (LI02, LI05, LI06) were required in the final assessment. Plot data and site photographs are included in **Appendix B**.

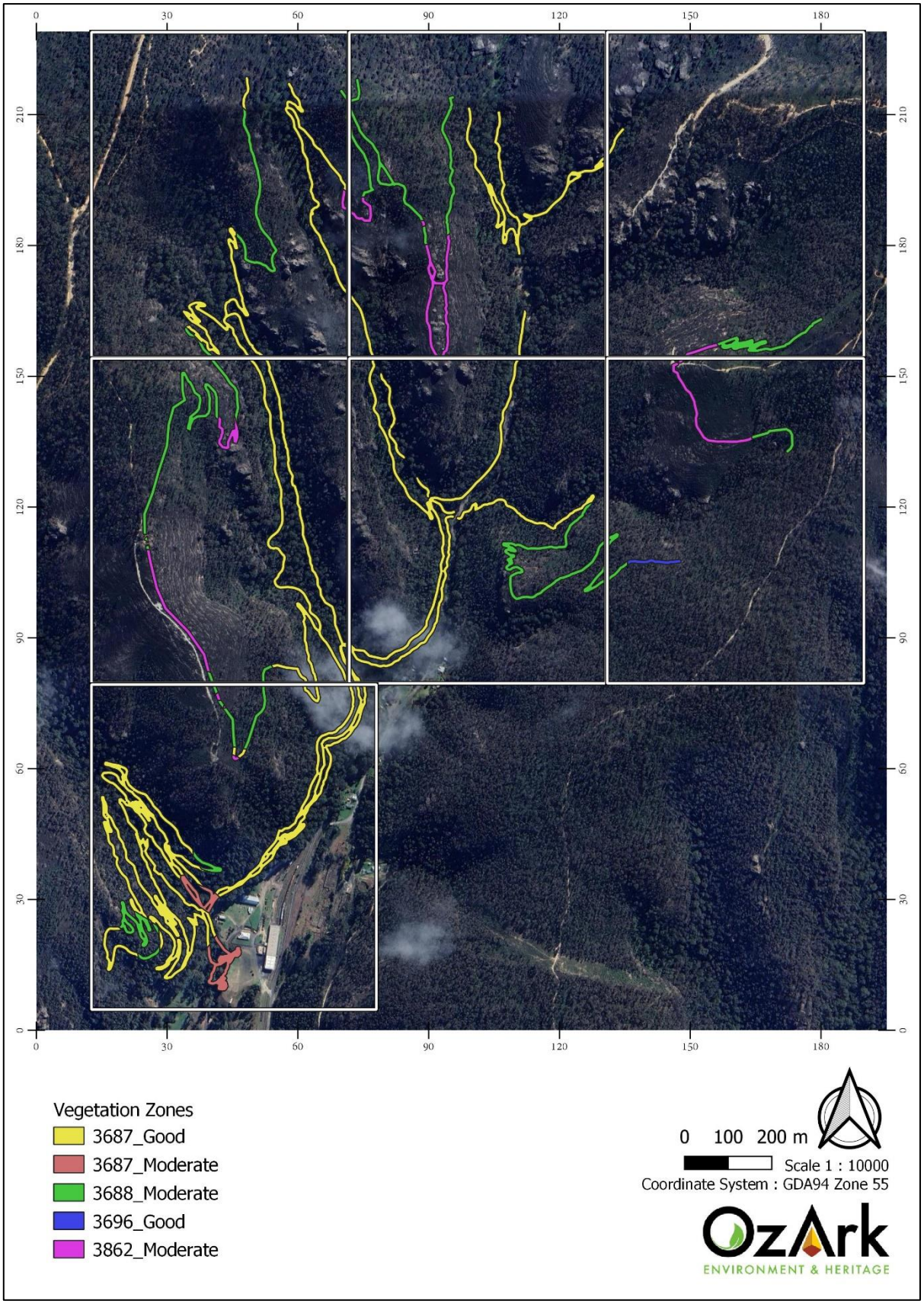


Figure 4-1. Vegetation zones along the proposed trail alignment.

The eight inset maps outlined in white are provided in **Figures 4-2** to **4-8**. Mapping of vegetation zones has been buffered for legibility.

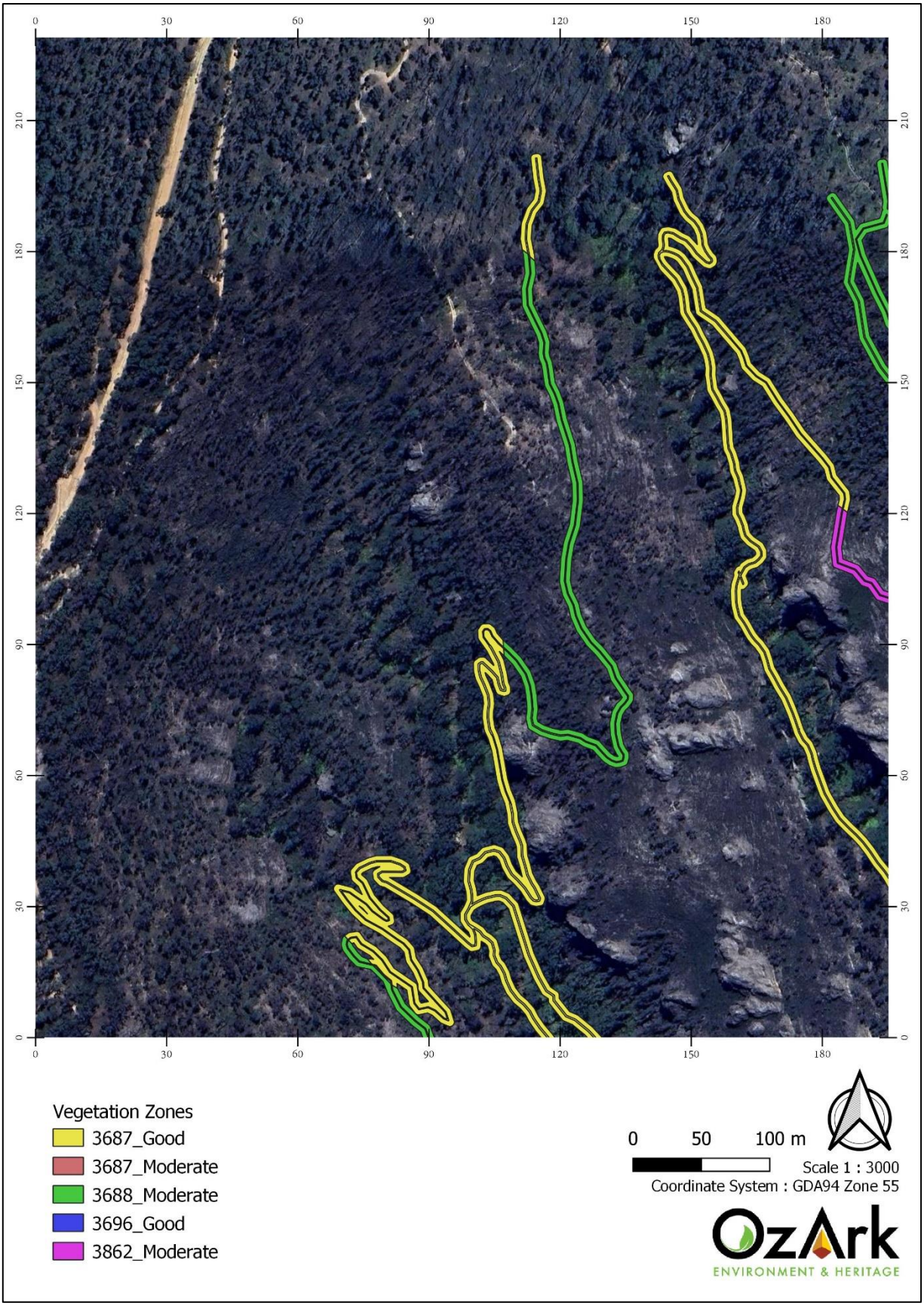


Figure 4-2. Vegetation zones within the proposed disturbance footprint (northwest).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

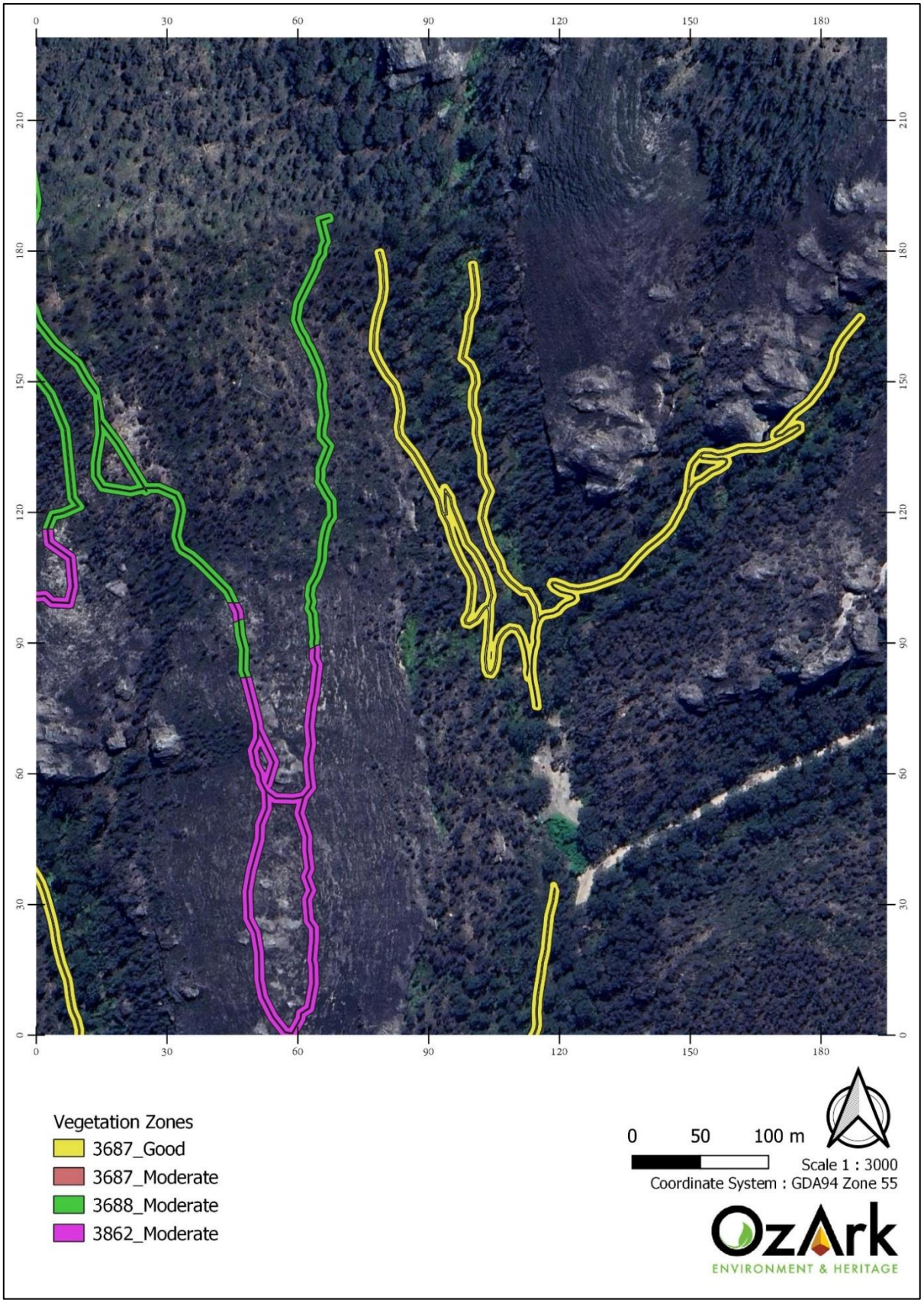


Figure 4-3. Vegetation zones within the proposed disturbance footprint (north).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

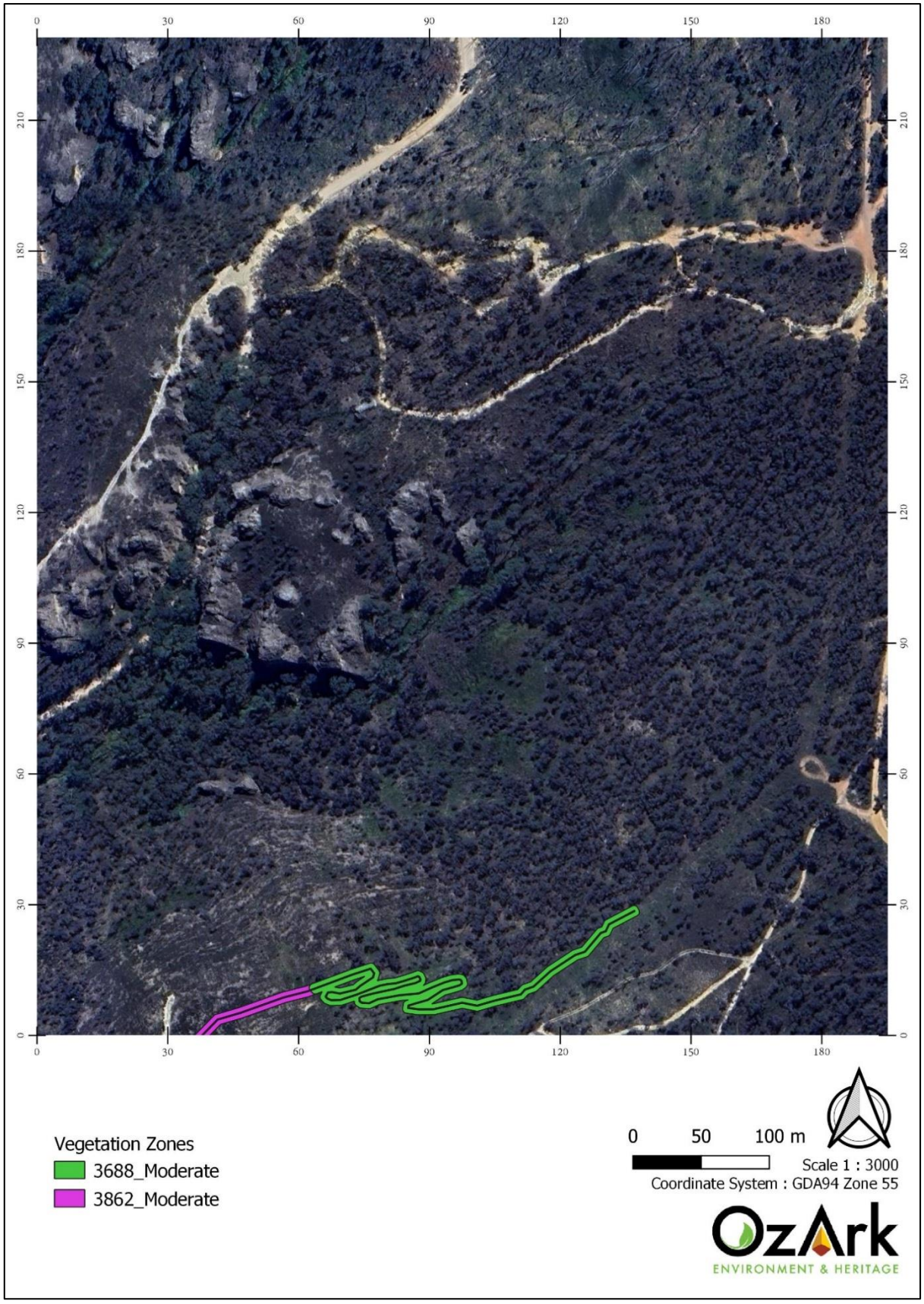


Figure 4-4. Vegetation zones within the proposed disturbance footprint (northeast).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

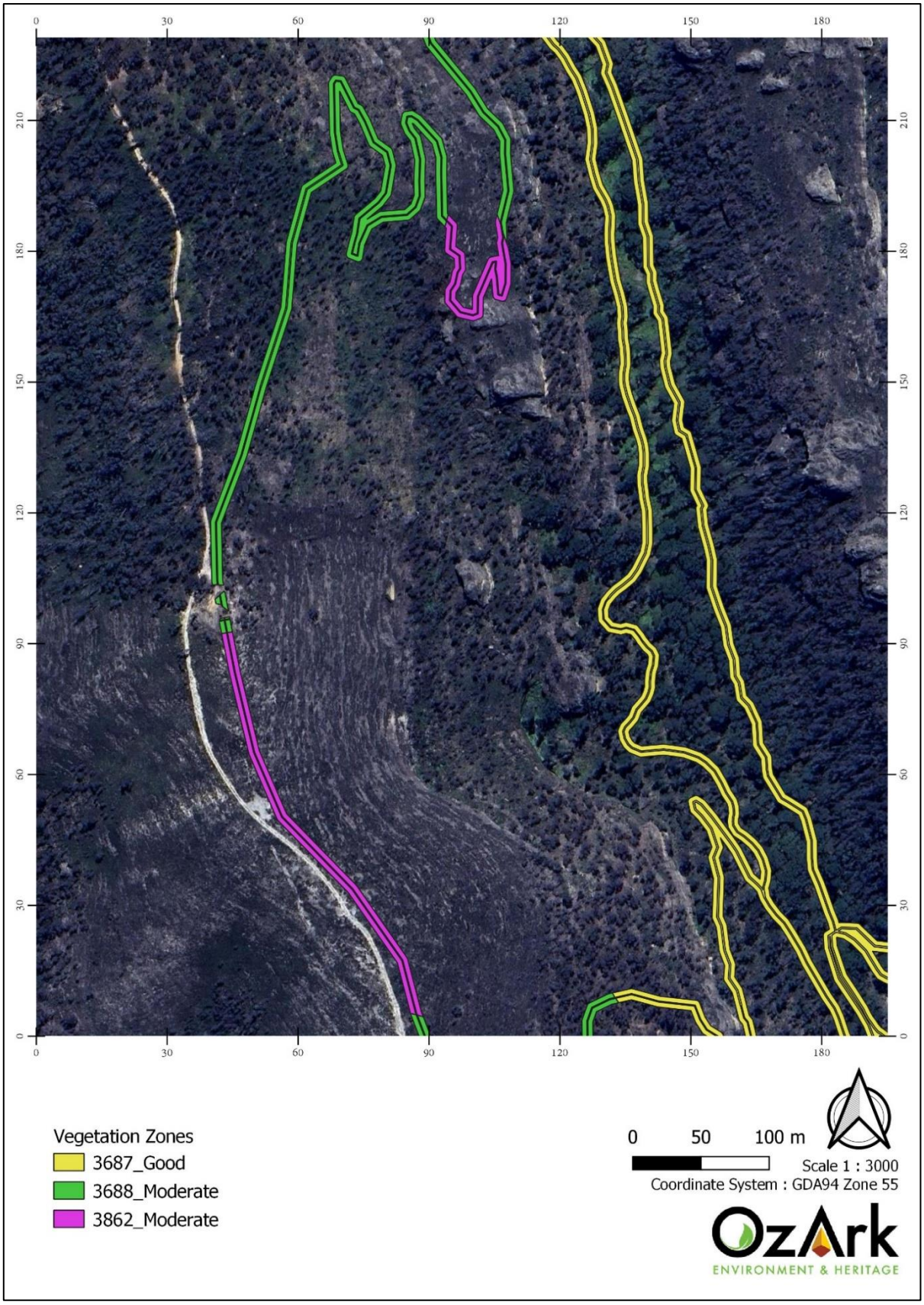


Figure 4-5. Vegetation zones within the proposed disturbance footprint (west).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

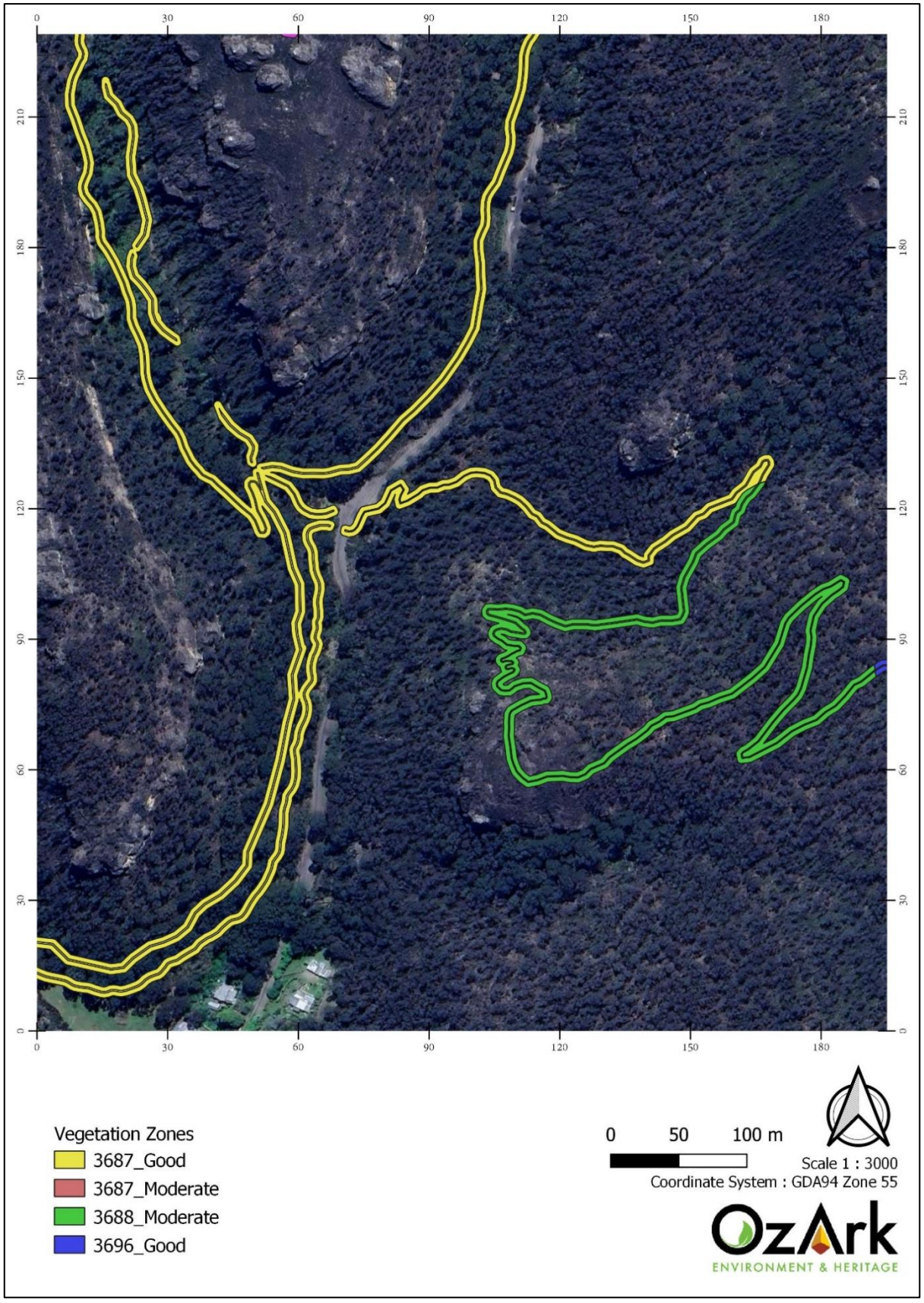


Figure 4-6. Vegetation zones within the proposed disturbance footprint (centre).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

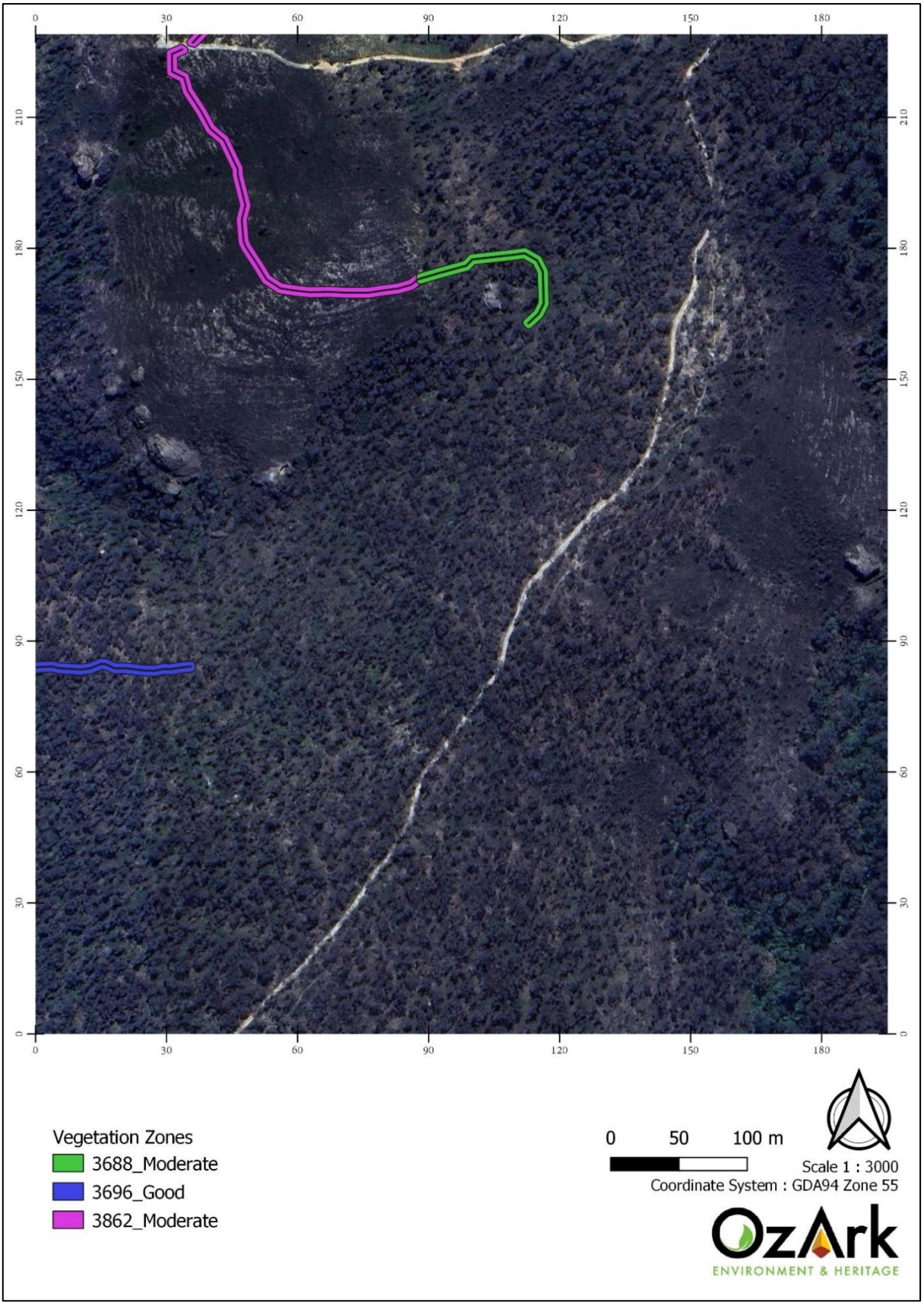


Figure 4-7. Vegetation zones within the proposed disturbance footprint (east).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

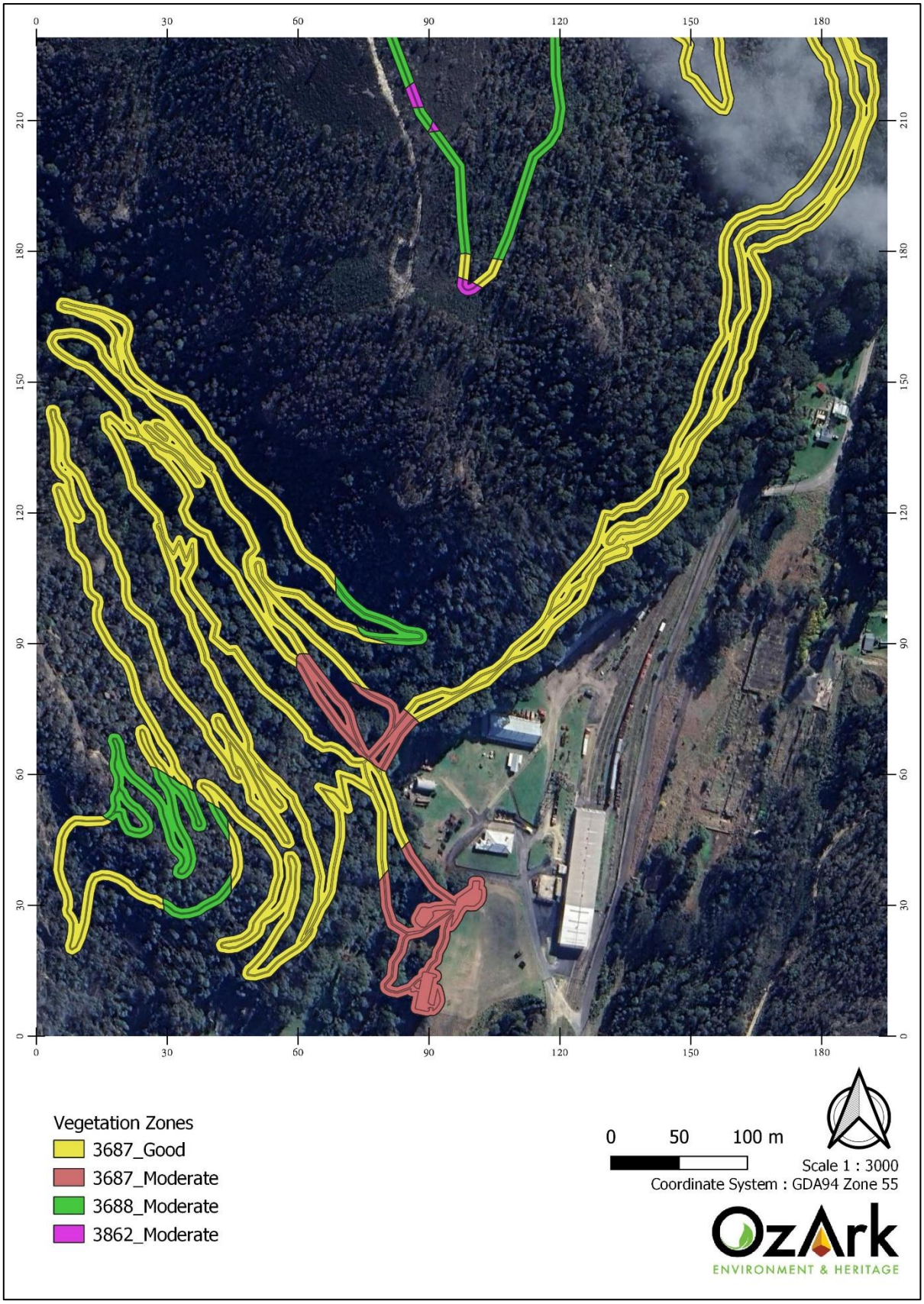


Figure 4-8. Vegetation zones within the proposed disturbance footprint (southwest).

Note: Mapping of vegetation zones has been buffered for legibility. Impacts are confined to the dark line representing the alignment of the proposed track at the centre of each vegetation zone.

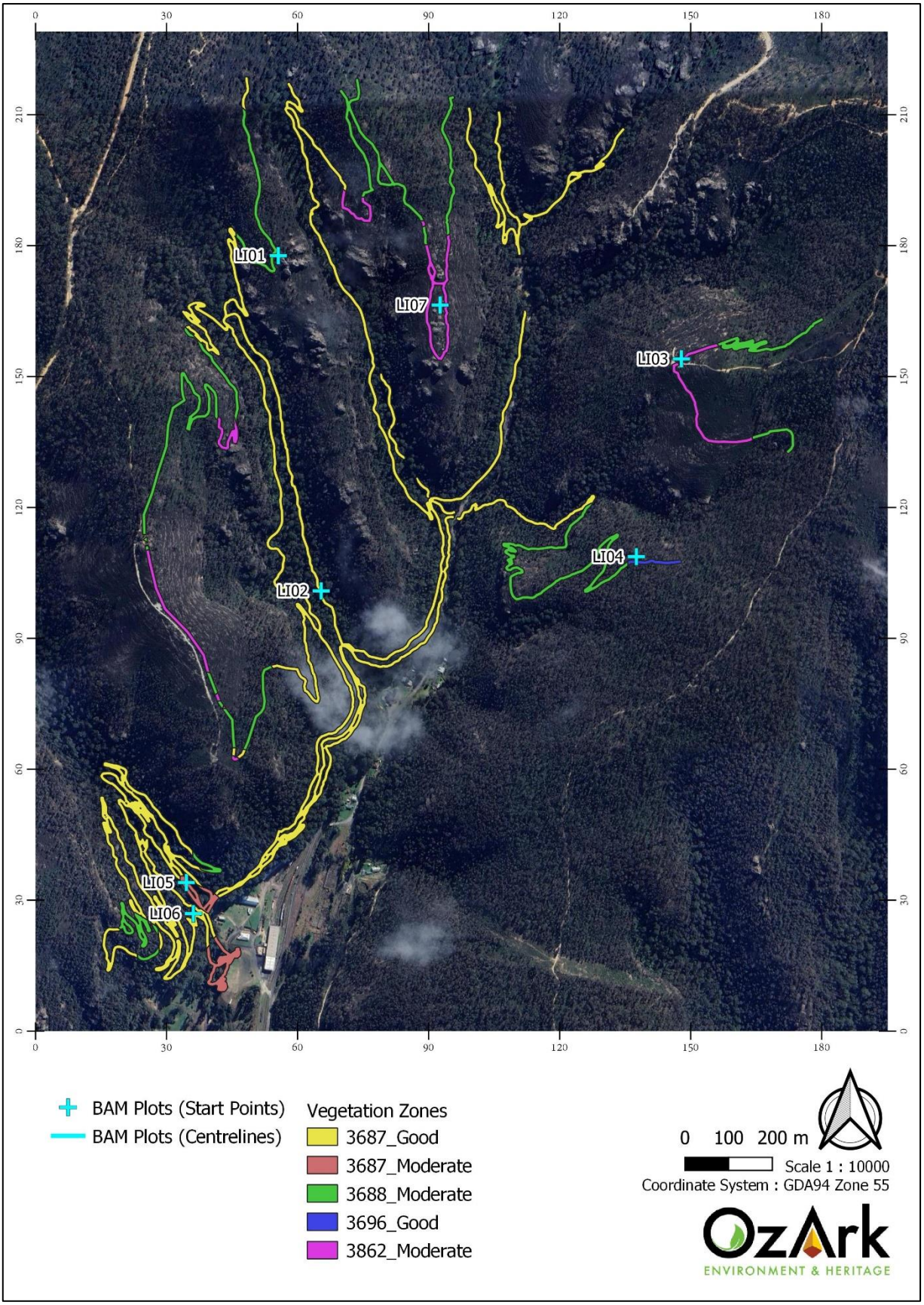


Figure 4-9. Locations of BAM Vegetation Integrity plots within the assessed area.

Table 4-1. Vegetation zones present within the disturbance footprint.

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
3687	Newnes Plateau Peppermint-Ash Tall Forest	Sydney Montane Dry Sclerophyll Forests	No TEC	No TEC	**"Good" condition:** • A tall forest of gullies and lower slopes in which the dominant species are stringybarks or peppermints, including Narrow-leaved Peppermint (*Eucalyptus radiata*), Brown Barrel (*E. fastigata*), and Sydney Peppermint (*E. piperita*). Mountain Gum (*E. dalrympleana*) and Blue Mountains Ash (*E. oreades*) are locally abundant, more often on slopes than in gullies. Silver Wattle (*Acacia dealbata*) and, rarely, Possumwood (*Quintinia sieberi*) form a subcanopy in parts of the site. • Mid-storey diversity and abundance is variable but often high, with as many as 18 shrub species recorded per plot in shrubbier sites. This diversity frequently includes Elderberry Panax (*Polyscias sambucifolia*) and a range of wattles (*Acacia longifolia*, *A. terminalis*, *A. ulicifolia*, *A. falciformis*), along with localised occurrences of Native Blackthorn (*Bursaria spinosa*), and species of the families Ericaceae (e.g. *Monotoca scoparia*, *Epacris longiflora*, *Leucopogon lanceolatus*), Proteaceae (e.g. *Lomatia silaifolia* and *L. myricoides*, *Persoonia myrtilloides*), Myrtaceae (chiefly *Leptospermum polygalifolium*), Asteraceae (*Ozothamnus diosmifolius*), Rubiaceae (*Coprosma hirtella*), and Fabaceae subfamily Faboideae (e.g. *Pultenaea scabra*, *Indigofera australis*). • The understorey in shadier or wetter sites is often dominated by a range of ferns, including Bracken (*Pteridium esculentum*), Fishbone Water Fern (*Blechnum nudum*), Pouched Coral Fern (*Gleichenia dicarpa*), and Spreading Shield Fern (*Sticherus lobatus*). Black Tree-Fern (*Cyathea australis*) is present but not common. These sites often possess a relatively dense and diverse forb layer and only sparse	11,673 ha 3.11%

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					grasses. Common forbs include flax lilies (e.g. *Dianella tasmanica*) and Ivy-leaved Violet (*Viola hederacea*). Orchid species - including *Caladenia carnea*, *C. dimorpha*, *C. fuscata*, *C. moschata*, and *Pterostylis pedunculata* – are sometimes abundant in these areas. • More exposed sites on slopes tend to lack the dense fern layer, instead possessed greater cover of native graminoids. These include Weeping Grass (*Microlaena stipoides*), Snowgrass (*Poa sieberiana*), and mat-rushes (chiefly *Lomandra longifolia*). • Twining plants – including Purple Coral-pea (*Hardenbergia violacea*), Hairy Apple Berry (*Billardiera scandens*), and Old Man's Beard (*Clematis aristata*) – are common throughout. • To determine the most likely PCT, the BioNet Vegetation Classification Database was filtered by the relevant IBRA subregion and the dominant species in each stratum: o Canopy: *Eucalyptus radiata*, *Eucalyptus fastigata*, *Eucalyptus piperita*, *Eucalyptus dalrympleana*, *Eucalyptus oreades*, *Acacia dealbata*. o Mid-storey: *Polyscias sambucifolia*, *Acacia longifolia, Acacia terminalis*, *Acacia ulicifolia*, *Acacia falciformis*, *Bursaria spinosa*, *Monotoca scoparia*, *Epacris longiflora*, *Leucopogon lanceolatus*, *Lomatia silaifolia*, *Lomatia myricoides*, *Persoonia myrtilloides*, *Coprosma hirtella*. o Groundcover: *Pteridium esculentum*, *Blechnum nudum*, *Gleichenia dicarpa*, *Dianella caerulea*, *Viola hederacea*, *Microlaena stipoides*, *Poa sieberiana*, *Lomandra longifolia*. o Twining plants: *Billardiera scandens*, *Clematis aristata*. This process identifed PCT 3687 as the strongest match (27/30), with PCT 3692 (26/30), PCT 3651 (25/30), PCT 3693 (25/30), PCT 3650	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					(23/30), PCT 3695 (23/30), and PCT 3495 (23/30) also relatively strong matches. PCTs 3651 and 3650 were subsequently excluded from consideration as they are not associated with the relevant IBRA subregion and as they do not produce stronger matches to the observed flora than alternative PCTs. PCTs 3687, 3692, 3693, 3695, and 3495 were retained for further assessment. • PCTs were excluded from consideration based primarily on species composition; however, distribution and landscape position were also considered. ○ PCT 3692: Dominated by *Eucalyptus piperita* (79% of plots), which was relatively uncommon within the zone, and featuring high cover of *Acacia elata* (49% of plots), which was not detected at all during the survey. Also often contains *Angophora costata* (38% of plots) which was similarly not detected during the survey. Common species within the zone, including *Eucalyptus radiata* and *Eucalyptus fastigata*, are relatively uncommon in this PCT (22% and 3% respectively), and *Eucalyptus dalrympleana* has not been recorded within this zone at all. This community allows for the presence of *Quintinia sieberi* (14% of plots), though it may overstate its abundance relative to the site. ○ PCT 3693: Likewise dominated by *Eucalyptus piperita* (83% of plots), though it also commonly includes *Eucalyptus radiata* (69% of plots). Sometimes contains *Eucalyptus oreades* (20% of plots) and *Eucalyptus fastigata* (9% of plots), but again is not known to contain *Eucalyptus dalrympleana*. This community allows for the presence of *Quintinia sieberi* (14% of plots), though it may	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					overstate its abundance given the scarcity of plants within the site. This community allows for the presence of *Quintinia sieberi* (6% of plots). ○ PCT 3695: Always contains *Eucalyptus piperita* (100% of plots), which was relatively uncommon within the zone, and rarely contains *Eucalyptus radiata* (4% of plots) or *Eucalyptus fastigata* (8% of plots), which were much more common. Also rarely contains *Eucalyptus dalrympleana* (8% of plots) and has not been known to contain *Eucalyptus oreades*, both of which were locally common within the zone. ○ PCT 3495: Dominated by *Eucalyptus cypellocarpa* (82% of plots), which was not recorded within the zone, and sometimes containing *Eucalyptus piperita* (30% of plots), a relatively minor component of the local canopy. Rarely containing any of the key species recorded during the survey, e.g. *Eucalyptus radiata* (12% of plots) or *Eucalyptus dalrympleana* (8% of plots), with *Eucalyptus fastigata* and *Eucalyptus oreades* not recorded from this community at all. ○ By contrast, PCT 3687 is dominated by *Eucalyptus radiata* (93% of plots) and commonly contains *Eucalyptus dalrympleana* (70% of plots), *Eucalyptus fastigata* (47% of plots), and *Eucalyptus oreades* (47% of plots). *Eucalyptus piperita* is present but less common (16% of plots). This aligns well with the observed abundance of each species during the survey, though *Eucalyptus dalrympleana* was perhaps more localised and *Eucalyptus blaxlandii* (47% of plots), though present, not as abundant as these figures	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					suggest. This PCT allows for the occasional presence of *Eucalyptus sieberi* (16% of plots), which was observed where this community graded into a Silvertop Ash community on plateaux. *Quintinia sieberi* has not been recorded in any plots in this PCT; however, given the rarity of this species within the site, which was largely confined to shaded locations against rock ledges, this should not be considered dispositive, especially as the species was not recorded within any plots in the present assessment. • The close alignment between the relative abundance of each species in PCT 3687 and the observed vegetation suggests that this is the appropriate PCT for this site. This is supported by the SVTM, which maps all gullies and lower slopes within the site to PCT 3687. For these reasons, PCT 3687 was adopted in this assessment. **"Moderate" condition:** • Canopy similar in composition to the "good" condition state, into which this zone grades, with *Eucalyptus radiata*, *Eucalyptus fastigata*, *Eucalyptus dalrympleana*, and *Eucalyptus piperita* the most abundant species. • Subject to greater disturbance in the mid-storey and groundcover than surrounding examples of the good condition state, resulting in low shrub diversity and abundance (one species per plot at 0.2% cover) and a highly degraded understorey in which the dominant species is the introduced grass *Anthoxathum odoratum*. Relative abundances of each species were difficult to determine as the site appears to be actively maintained and little material was available for identification; however, *Dichelachne inaequiglumis*, a moderately common species	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					in PCT 3687 (24% of plots), appeared most tolerant of disturbance among the native understorey species. • Given that this zone is continuous with PCT 3687 in good condition and features a similar canopy composition, this zone was assigned to the same PCT.	
3688	Newnes Plateau Silvertop Ash Woodland	Sydney Montane Dry Sclerophyll Forests	No TEC	No TEC	**"Moderate" condition:** • A moderately tall open forest on upper slopes, grading into a heathy woodland on the exposed plateau. Disturbance associated primarily with fire has produced a sparser community than would be expected in its climax state, with more exposed sites dominated by regrowth of the canopy species. Almost always contains Silvertop Ash (*Eucalyptus sieberi*), particularly on the exposed plateau, and often contains Blue Mountains Ash (*E. oreades*) on upper slopes. Also contains elements of PCT 3687 where the two communities meet, notably Narrow-leaved Peppermint (*Eucalyptus radiata*) and Sydney Peppermint (*E. piperita*). • A dense, heathy mid- and understorey has emerged in areas exposed to fire damage. This typically includes high cover of the spreading shrub *Platysace linearifolia* and the sedge *Caustis flexuosa*. The shrub layer contains a diverse assemblage of shrubs primarily in the Proteaceae (*Isopogon anemonifolius*, *Petrophile pulchella*, *Lomatia silaifolia*, *Banksia spinulosa*), Fabaceae subfamily Faboideae (*Dillwynia retorta*, *Pultenaea tuberculata*, *Phyllota squarrosa*), and Ericaceae (e.g. *Monotoca scoparia*, *Brachyloma daphnoides*). The wattles *Acacia terminalis* and *Acacia longifolia* are present in some sites, and Broom Spurge (*Amperea xiphoclada*) is locally common. Tea-trees (*Leptospermum polygalifolium*, *Leptospermum trinervium*) are present but common only in localised patches.	9,773 ha 12.21%

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					• In addition to *Caustis flexuosa,* the groundcover often contains the mat-rush *Lomandra glauca* and Variable Sword-sedge (*Lepidosperma laterale*). Grasses are comparatively scarce but include Snowgrass (*Poa sieberiana*) and Red-anther Wallaby Grass (*Rytidosperma pallidum*). The forbs *Patersonia sericea* and *Goodenia bellidifolia* are common. • To determine the most likely PCT, the BioNet Vegetation Classification Database was filtered by the relevant IBRA subregion and the dominant species in each stratum: o Canopy: *Eucalyptus sieberi*, *Eucalyptus oreades, Eucalyptus radiata*, *Eucalyptus piperita*. o Mid-storey: *Platysace linearifolia*, *Isopogon anemonifolius*, *Petrophile pulchella*, *Lomatia silaifolia*, *Banksia spinulosa, Dillwynia retorta*, *Pultenaea tuberculata, Phyllota squarrosa, Monotoca scoparia*, *Brachyloma daphnoides, Acacia longifolia, Acacia terminalis*, *Amperea xiphoclada, Leptospermum polygalifolium*, *Leptospermum trinervium*. o Groundcover: *Caustis flexuosa*, *Lomandra glauca*, *Lepidosperma laterale*, *Rytidosperma pallidum*, *Poa sieberiana*, *Patersonia sericea, Goodenia bellidifolia*. This process returned two perfect (27/27) matches, PCTs 3688 and 3694. Nine additional PCTs returned strong (≥24/27) matches and were retained for further assessment except where they were not known to occur within the relevant IBRA subregion. PCTs retained were 3688, 3694, 3578, 3617, 3579, 3616, 3619, 3863, and 3929. • PCTs were excluded from consideration based primarily on species composition; however, distribution and landscape position were also considered.	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					○ PCT 3694: Despite matching closely to the recorded vegetation, this PCT was discounted owing to the dominance of *Eucalyptus piperita* (87% of plots), which did not align with the vegetation recorded on site. This species was at most a minor component of the observed vegetation, less common than *Eucalyptus oreades*, which has been recorded in only 9% of plots in PCT 3694. ○ PCT 3578: A heathy community in which the most common trees are *Corymbia gummifera* (66% of plots; not recorded within the site), *Eucalyptus sclerophylla* (=*Eucalyptus racemosa*, 53% of plots; recorded only infrequently near the edges of the site), *Eucalyptus piperita* (45% of plots; infrequently recorded where this community grades into PCT 3687), *Angophora costata* and (45% of plots; not recorded within the site). *Eucalyptus sieberi*, the dominant species in this zone, occurs in only 37% of plots in PCT 3578 and *Eucalyptus oreades* in only 2%. This mismatch in species composition suggests that this is not the most appropriate PCT. ○ PCT 3617: Canopy composition in this PCT is strongly misaligned with the recorded vegetation, with *Eucalyptus sieberi* occurring in only 12% of plots and *Eucalyptus oreades* not recorded at all. Instead this PCT is dominated by species that are scarce within the zone (e.g. *Eucalyptus piperita*) or were not recorded at all (*Angophora costata*, *Corymbia gummifera*, *Syncarpia glomulifera*). ○ PCT 3579: A community mainly of peat swamps and dominated, in examples that contain a canopy, by Scribbly Gum (*Eucalypus racemosa*). This does not align with the	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					landform or species composition of the zone under assessment. ○ PCT 3616: Canopy composition in this PCT is strongly misaligned with the recorded vegetation, with *Eucalyptus sieberi* occurring in only 1% of plots and *Eucalyptus oreades* not recorded at all. Instead this PCT is dominated by species that were not recorded within the zone (*Eucalyptus punctata*, *Corymbia gummifera*, *Allocasuarina littoralis*, *Angophora bakeri*, *Syncarpia glomulifera*). ○ PCT 3619: Canopy composition in this PCT is strongly misaligned with the recorded vegetation, with *Eucalyptus sieberi* occurring in only 4% of plots and *Eucalyptus oreades* not recorded at all. Instead this PCT is dominated by species that were not recorded within the zone (*Corymbia gummifera*, *Eucalyptus punctata, Allocasuarina littoralis*, *Angophora costata*, *Eucalyptus oblonga*). ○ PCT 3683: A community in which the mallee species *Eucalyptus stricta* is often the only tree (76% of plots; not recorded within the site) and *Eucalyptus sieberi* is only infrequently encountered (13% of plots). *Eucalyptus oreades* has not been recorded in this community. This mismatch in species composition suggests that this is not the most appropriate PCT. ○ PCT 3929: A sparsely treed community mainly of hanging swamps in which *Eucalyptus stricta* is the most common tree (29% of plots; not recorded within the site) and *Eucalyptus sieberi* is only infrequently encountered (18%	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					of plots). *Eucalyptus oreades* has not been recorded in this community. This does not align with the landform or species composition of the zone under assessment. ○ By contrast, PCT 3688 is dominated by *Eucalyptus sieberi* (84% of plots) and commonly contains *Eucalyptus oreades* (37% of plots), *Eucalyptus piperita* (37% of plots), and *Eucalyptus radiata* (37% of plots). This aligns well with the observed abundance of each species during the survey, though it may slightly overstate the abundance of the two peppermint species. • The close alignment between the relative abundance of each species in PCT 3688 and the observed vegetation suggests that this is the appropriate PCT for this site. This is supported by the SVTM, which maps wooded areas on the plateau to this community. For these reasons, PCT 3688 was adopted in this assessment.	
3696	Western Blue Mountains Rocky Scribbly Gum Woodland	Sydney Montane Dry Sclerophyll Forests	No TEC	No TEC	**"Good" condition:** • A moderately tall open forest on elevated ridgelines, grading into PCT 3688 where it approaches the exposed ledges and cliffs of the escarpment. Restricted to the eastern limit of the site and not extensively sampled, likely leading to underestimation of its floristic diversity. Dominated by scribbly gums (mainly *Eucalyptus rossii*) and with a significant component of Silvertop Ash (*Eucalyptus sieberi*), particularly where ridgelines dip towards the edge of the escarpment. • A dense or moderately dense shrub layer was present, generally dominated by *Pomaderris andromedifolia* and *Acacia terminalis*, but with significant local occurrences of the proteaceous shrubs *Lomatia silaifolia*, *Isopogon anemonifolius*, and *Persoonia myrtilloides*; the	6,661 ha 2.49%

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					heath *Leucopogon muticus*; pea bushes (e.g. *Pultenaea scabra*, *Mirbelia platyloboides*); and the low, spreading species *Platysace linearifolia*. • The understorey species *Poa sieberiana*, *Caustis flexuosa*, and *Lomandra glauca* are common and sometimes abundant, though in many areas a dense litter layer has overwhelmed the groundcover. • To determine the most likely PCT, the BioNet Vegetation Classification Database was filtered by the relevant IBRA subregion and the dominant species in each stratum: ○ Canopy: *Eucalyptus rossii*, *Eucalyptus sieberi, Eucalyptus sclerophylla (=Eucalyptus racemosa)*. ○ Mid-storey: *Pomaderris andromedifolia*, *Acacia terminalis*, *Lomatia silaifolia*, *Isopogon anemonifolius, Persoonia myrtilloides*, *Pultenaea scabra, Mirbelia platyloboides, Platysace linearifolia*. ○ Groundcover: *Caustis flexuosa*, *Lomandra glauca*, *Poa sieberiana*. (Note that owing to inconsistencies in the use of the two names, *Eucalyptus sclerophylla* and *Eucalyptus racemosa* were both included in this search, though only one needed to be present to be considered a match and only one 'point' was assigned to a PCT even where both species were included in the species list for a PCT. These taxa are currently treated as synonymous by the National Herbarium of NSW). • When PCTs not known to occur within the Wollemi IBRA subregion were excluded, this process returned 11 relatively strong (≥12/15) matches; however, many of these did not allow for the presence of *Eucalyptus rossii*, the most commonly encountered canopy species	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					within the site. When the search was confined to exclude these PCTs, only four plausible matches were identified: 3688, 3579, 3601, and 3696. • PCTs were excluded from consideration based primarily on species composition; however, distribution and landscape position were also considered. ○ PCT 3688: As described above, PCT 3688 is a community dominated by *Eucalyptus sieberi*, which is present but not abundant within the patch under assessment. The community only rarely (6% of plots) contains *Eucalyptus rossii*, the dominant canopy species in the patch. While the patch under assessment overlaps floristically with and grades into PCT 3688, it was considered more appropriate to select a PCT in which *E. rossii* is a dominant species. ○ PCT 3579: A community mainly of peat swamps and dominated, in examples that contain a canopy, by *Eucalypus racemosa*. *Eucalyptus rossii* occurs in only 4% of plots. This does not align with the landform (shallow, rocky soils on ridgelines) or composition (*E. rossii*-dominant) of the zone under assessment. ○ PCT 3601: A community dominated by *Eucalyptus sclerophylla* (=*E. racemosa*; 75% of plots) and only rarely containing *Eucalyptus rossii* (4% of plots). Considered to be largely confined to the Burragorang Valley, which does not include the subject land. ○ PCT 3696: A community in which the dominant canopy species are *Eucalyptus sparsifolia* (84% of plots), *Eucalyptus rossii* (75% of plots), and *Eucalyptus sieberi* (50% of plots). While E. sparsifolia was not recorded	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					during the survey, this patch was not extensively sampled as it occurs only at the easternmost edge of the subject land. The high frequency of *Acacia terminalis* (92% of plots) and *Lomandra glauca* (84% of plots) suggest a strong affinity between this PCT and the observed patch. ○ PCT 3747 was also considered, as a *Eucalyptus rossii*-dominated community mapped in areas adjacent to the site. However, this community exhibited a much poorer match to the recorded vegetation (7/15). On the basis of the above, PCT 3696 the strongest affinity with the recorded vegetation and was adopted in this assessment. This aligns with the mapping given in the SVTM.	
3862	Newnes Plateau Rockplate Heath	Sydney Montane Heaths	No TEC	No TEC	**"Moderate" condition:** • A moderate or tall heath community of rocky habitats on the exposed areas of the Newnes Plateau. Emergent trees of *Eucalyptus sieberi* and *Eucalyptus gregsoniana* occur in places. • A diverse shrub layer is present in which *Allocasuarina nana*, *Banksia ericifolia*, *Brachyloma daphnoides*, *Calytrix tetragona*, *Leptospermum arachnoides*, *Leucopogon muticus*, *Philotheca obovalis*, and *Platysace linearifolia* are almost always present. • High cover of *Boronia microphylla*, *Leptospermum macrocarpum*, *Leptospermum parvifolium*, and *Petrophile pulchella* was noted in some areas. Numerous additional heaths, bush-peas, and other shrubs were also recorded. • The groundcover often contains high cover of *Lepidosperma laterale*. *Lomandra glauca*, *Patersonia sericea*, and *Stylidium lineare* are	3,550 ha 0.95%

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					common, and the sun orchid *Thelymitra ixioides* is abundant in its flowering season. • To determine the most likely PCT, the BioNet Vegetation Classification Database was filtered by the relevant IBRA subregion, the heathlands vegetation formation, and the dominant species in each stratum: ○ Canopy: *Eucalyptus sieberi, Eucalyptus gregsoniana*. ○ Mid-storey: *Allocasuarina nana, Banksia ericifolia, Brachyloma daphnoides, Calytrix tetragona, Leptospermum arachnoides, Leucopogon muticus, Philotheca obovalis, Platysace linearifolia, Boronia microphylla, Leptospermum macrocarpum, Leptospermum parvifolium, Petrophile pulchella.* ○ Groundcover: *Lepidosperma laterale, Lomandra glauca, Patersonia sericea, Stylidium lineare, Thelymitra ixioides* • When communities other than heathlands and PCTs not known to occur within the Wollemi IBRA subregion were excluded, this process returned five relatively strong (≥15/21) matches: 3862, 3863, 3857, 3866, and 3865. • PCTs were excluded from consideration based primarily on species composition; however, distribution and landscape position were also considered. While the candidate communities exhibit significant overlap in floristic composition, the following factors weigh in favour of the adoption of PCT 3862: ○ Three of the potential PCTs – 3857, 3866, and 3865 – are not known to contain *Eucalyptus gregsoniana*, one of the two emergent canopy species recorded in this patch. ○ PCT 3857 is also relatively likely to contain emergent trees of species that were not recorded within the site (e.g. *Banksia serrata*, *Corymbia gummifera*, and *Eucalyptus*	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					multicaulis, all occurring in ≥40% of plots). It only occasionally contains *Allocasuarina nana*, a ubiquitous and dominant species within the patch under assessment. ○ PCTs 3866 and 3865 are somewhat likely to contain *Callitris* species (>30% of plots), which were not recorded within or near the site. ○ PCT 3865 is associated with the largely bare rocky ground of the sandstone pagodas, which occur adjacent to but not within the footprint. ○ PCT 3866 is considered to be confined to the northern and central Wollemi plateau, whereas the site occurs on the southern edge of this plateau. ○ PCT 3863 commonly (76% of plots) contains *Eucalyptus stricta*, which was not recorded within or near this community. This community is considered to be replaced by PCT 3862 in the western Blue Mountains. While not precisely defined, the subject land is likely to be considered part of the western Blue Mountains (e.g. see NSW Department of Environment and Conservation, 2006). ○ PCT 3862: A heath community in which trees are rarely recorded (all species <20% of plots) but may include *Eucalyptus sieberi* and *Eucalyptus gregsoniana*, both of which occur within the patch under assessment. The community is described as almost always possessing high cover of *Allocasuarina nana*, with *Stylidium lineare* also being ubiquitous and *Lepidosperma laterale* and *Lomandra glauca* both common. This aligns closely with the recorded vegetation. The community is also described	

PCT ID	PCT Name	Vegetation Class	TEC Status BC Act	TEC Status EPBC Act	Justification of Identification	Current NSW Extent Percent Cleared
					as occurring as occurring around cliffs and escarpments overlooking incised gorges, which accurately describes the subject land, and is noted as forming a tessellated pattern among exposed pagodas and outcrops. This is clearly apparent on aerial imagery. On the basis of the above, PCT 3862 the strongest affinity with the recorded vegetation and was adopted in this assessment. This aligns with the mapping given in the SVTM.	

4.3 Vegetation Zones, Patch Size and Vegetation Integrity

4.3.1 Vegetation Zones

In order to be assessed under the BAM (2020), all native vegetation on the subject land must be assigned to a zone, based on its condition state and the patch to which it belongs.

The four PCTs occurring within the proposed disturbance footprint were assigned to five vegetation zones. Small areas of bare ground or non-native vegetation were also recorded and assigned to the non-native zone. A summary description of each vegetation zone within the disturbance footprint is provided below:

- **3687_Good** – A tall forest mainly of incised gullies and surrounding slopes in which the canopy is typically composed of some combination of Narrow-leaved Peppermint (*Eucalyptus radiata*), Brown Barrel (*E. fastigata*), Sydney Peppermint (*E. piperita*), Mountain Gum (*E. dalrympleana*) and/or Blue Mountains Ash (*E. oreades*). A diverse shrub layer is often present, though may be replaced by dense ferns or graminoids in certain areas.
- **3687_Moderate** – A tall gully forest adjacent to areas of human-made infrastructure and subject to significant disturbance. Canopy composition is as for 3687_Good but only a sparse shrub layer persists and the understorey is generally dominated by invasive species, typically including Sweet Vernal Grass (*Anthoxanthum odoratum*).
- **3688_Moderate** – A woodland or forest community located mainly on upper slopes and plateaux within the site, dominated by Silvertop Ash (*Eucalyptus sieberi*) and commonly with one or more of Blue Mountains Ash (*E. oreades*), Narrow-leaved Peppermint (*Eucalyptus radiata*), or Sydney Peppermint (*E. piperita*), in approximate order of abundance. Densely shrubby and often dominated by post-fire regrowth, which has resulted in the loss of many larger trees, particularly on exposed parts of the plateau.
- **3696_Good** – A woodland or forest in which Inland Scribbly Gum (*Eucalyptus rossii*) is the dominant species, often with Silvertop Ash (*E. sieberi*) and minor occurrences of other sandstone eucalypts. A moderately dense native shrub layer is often present. The understorey contains locally dense patches of native graminoids and forbs but these may be overwhelmed by the dense litter layer.
- **3862_Moderate** – A moderately tall heath forming a tessellated pattern with patches of exposed rock on the edge of the escarpment, typically overlooking deeply incised gullies. The emergent trees Silvertop Ash (*Eucalyptus sieberi*) and Mallee Snow Gum (*E. gregsoniana*) occur sparsely in this zone. The most common species are the shrubs *Allocasuarina nana*, *Banksia ericifolia*, *Brachyloma daphnoides*, *Calytrix tetragona*, *Leptospermum arachnoides*, *Leucopogon muticus*, *Philotheca obovalis*, and *Platysace linearifolia*, and the groundcover species *Lepidosperma laterale*, *Lomandra glauca*, *Patersonia sericea*, and *Stylidium lineare*.

- **Non-native** – Designation of vegetation as non-native was reserved for sealed roads, wholly bare existing trails, and small areas – typically on road verges and in similarly disturbed environments – where non-native species have excluded native vegetation.

Note that as the small-area method only assesses the dominant PCT, zones 3687_Good and 3687_Moderate are the only zones included in the assessment.

4.3.2 Patch Size and Vegetation Integrity Score

A patch is defined in the BAM operational manual – Stage 1 (2020) as an area of native vegetation that occurs on the subject land and includes native vegetation that has a gap of less than 100 metres from the next area of native vegetation (or ≤30 m for non-woody ecosystems). The patch may extend onto land adjoining the subject land. The patch size should include derived communities (i.e. where one or more of the structural components or strata layers is missing, modified or new) as these are likely to provide suitable habitat for at least some species. The extent of native vegetation was determined from a combination of satellite imagery, ground-truthing and the State Vegetation Type Map (see Native Vegetation Cover, **Figure 3-2**).

The use of a single patch was appropriate for the present assessment. The subject land belongs to the Greater Blue Mountains area and forms part of a continuous patch that may reach or exceed one million ha. As the largest patch size class under the BAM is >100 ha, it was not considered necessary to map this full extent and mapping was terminated at the boundary of the 1.5 km assessment area. Patch size falls into this >100 ha size class for all vegetation zones. Patch size within the assessment area and vegetation integrity score (VIS) are displayed in **Table 4-2**. Patch size within the assessment area is depicted in **Figure 4-10**.

Table 4-2. Vegetation zones and patch sizes of native vegetation in the disturbance footprint.

BAM-C Zone No.	PCT ID	Condition State	VI Score	HBT[1]	Area Impacted (ha)	Patch Number	Patch Size (ha)	BAM Patch Size Class	Vegetation Zone	BAM Plots	Minimum No. Plots
1	3687	Good	73.7	Y	1.62	1	1654	>100 ha	3687_Good	LI02 LI06	1
2	3687	Moderate	50	N	0.15	1	1654	>100 ha	3687_Moderate	LI05	1
3	3688	Moderate	57.9	Y	0.45	1	1654	>100 ha	3688_Moderate	LI01	1
4	3696	Good	65.3	Y	0.01	1	1654	>100 ha	3696_Good	LI04	1
5	3862	Moderate	42.2	N	0.13	1	1654	>100 ha	3862_Moderate	LI03 LI07	1

[1]Hollow-bearing trees.

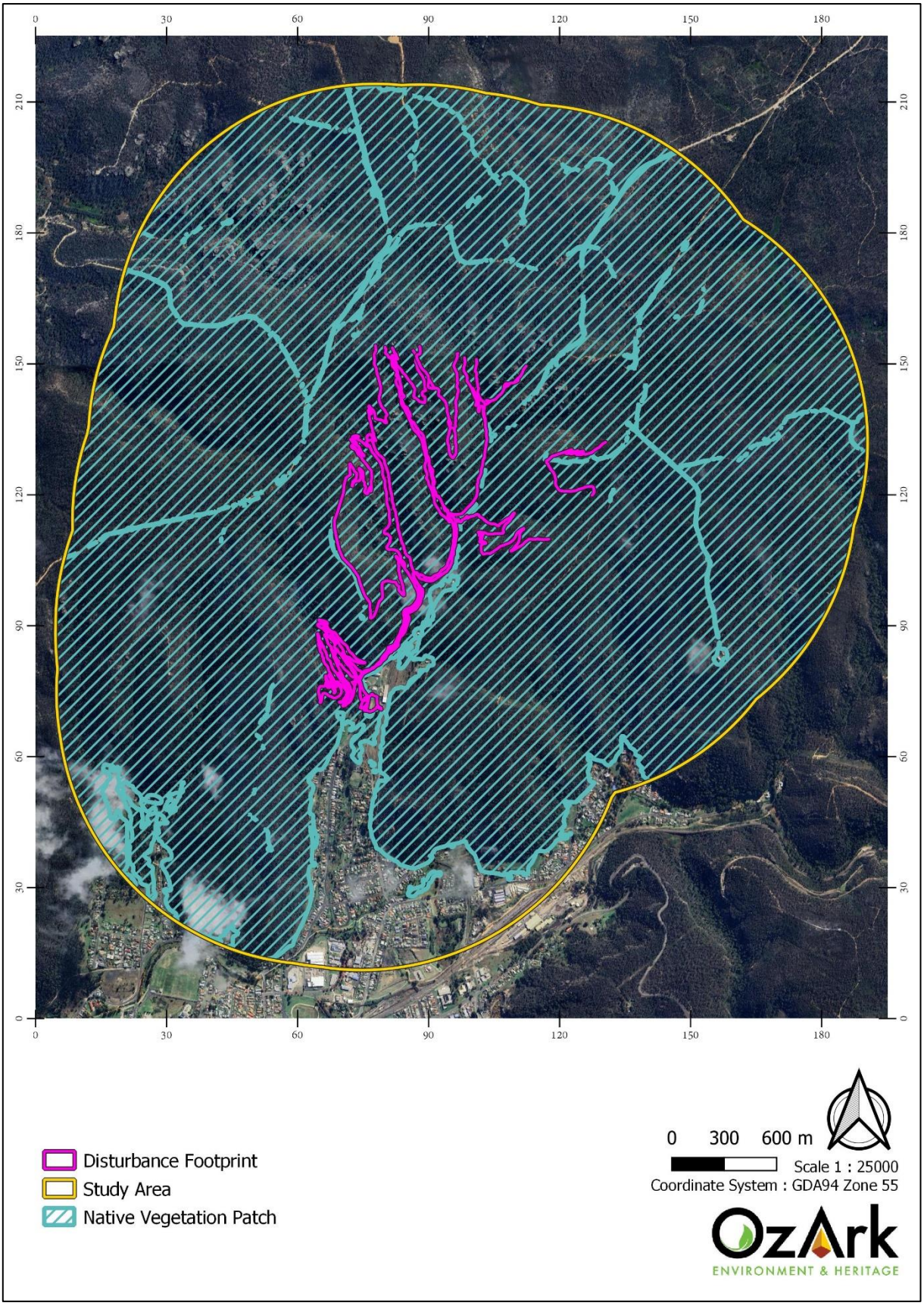


Figure 4-10. Native vegetation patch associated with the vegetation zones.

4.4 Flora Species Observed

The field surveys identified a total of 177 flora species within or near the proposal footprint (**Appendix C**). Of these, 161 species (90.96%) were native and 16 (9.04%) introduced. Five of the recorded introduced species are listed as High Threat Exotic (HTE) species under the BAM:

- Grey Poplar (*Populus* × *canescens*)
- Willow (*Salix* sp.)
- Scotch Broom (*Cytisus scoparius*)
- Blackberry (*Rubus fruticosus* species aggregate)
- St. John's Wort (*Hypericum perforatum*)

Scotch Broom and Blackberry are both listed as Weeds of National Significance (WoNS) and as Priority Weeds (PW) for the Central Tablelands LLS region, which includes the Lithgow LGA. Willows and St John's Wort are also PW species for the Central Tablelands.

No threatened flora species were recorded within the site during the surveys. BioNet records of the threatened species *Veronica blakelyi* that appear to fall within the proposed alignment were investigated during surveys, but the plants could not be located. Further, text associated with the records suggest that they have been improperly positioned; the locations are given as "Clarence Colliery Road between Brown Swamp and Dangar Swamp," and as "700 m from Bell's Line of Road on road to Clarence colliery (left hand side)," with the site described as a "disturbed roadside embankment." This does not accurately describe the locations of the records in BioNet, which are instead positioned on a steep slope of the escarpment in remnant bushland, not in close proximity to a road or road embankment.

Surveys of adjacent National Parks lands as part of a separate assessment of proposed trail upgrades and extensions recorded populations of the threatened Small Pale Grass-lily (*Caesia parviflora* var. *minor*) approximately 60 m from the proposed track alignment, along the margins of an existing trail. Survey of the alignment itself did not identify any population at risk of direct or indirect impacts from this proposal. A population of *Persoonia hindii* was detected by the same survey, further from the subject land. The locations of these recorded populations are given in **Figure 4-11**.

Plot data, plot photographs and a list of all flora species observed during the field assessment are provided in **Appendices B** and **C**.

4.5 Fauna Species Observed

The field surveys identified 97 fauna species within, or adjacent to, the disturbance footprint, comprising 52 birds, 24 mammals, eight insects, six reptiles, six amphibians, and one fish (**Appendix C**). Of these, 95 (97.94%) were native and two (2.06%) introduced. The introduced species are both mammals.

Twelve threatened fauna species were detected:

- Dusky Woodswallow (*Artamus cyanopterus cyanopterus*) – BC Act, Vulnerable.
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) – BC Act and EPBC Act, Endangered.
- South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) – BC Act and EPBC Act, Vulnerable.
- Varied Sittella (*Daphoenositta chrysoptera*) – BC Act, Vulnerable.
- Gilbert's Whistler (*Pachycephala inornata*) – BC Act, Vulnerable.
- Southern Greater Glider (*Petauroides volans*) – BC Act and EPBC Act, Endangered.
- Scarlet Robin (*Petroica boodang*) – BC Act, Vulnerable.
- Flame Robin (*Petroica phoenicea*) – BC Act, Vulnerable; EPBC Act, Marine.
- Pilotbird (*Pycnoptilus floccosus*) – BC Act and EPBC Act, Vulnerable.
- Large-eared Pied Bat (*Chalinolobus dwyeri*) – BC Act and EPBC Act, Endangered.
- Spotted-tailed Quoll (*Dasyurus maculatus*) – BC Act, Vulnerable; EPBC Act, Endangered.
- Large Bentwing Bat (*Miniopterus orianae oceanensis*) – BC Act, Vulnerable.
    - Probable record based on acoustic recordings.

The locations of threatened species sightings are given in **Figure 4-11.**

4.6 Threatened Ecological Communities

None of the recorded vegetation communities are associated with any Threatened Ecological Communities (TECs) and comparison of the recorded vegetation to TECs known to occur within the local landscape did not identify any TECs at risk of impacts from this proposal.

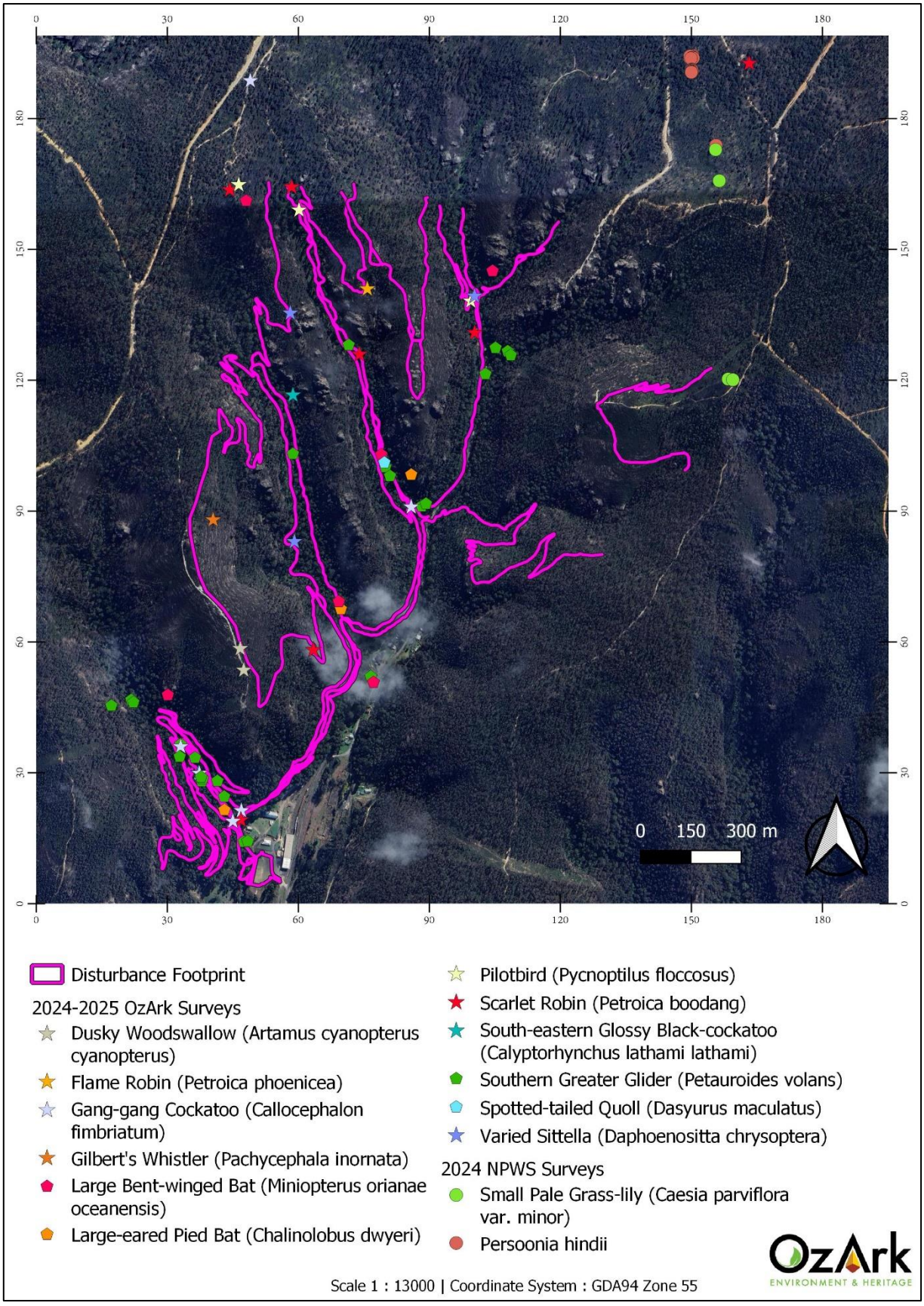


Figure 4-11. Threatened species recorded during OzArk (2024-2025) and NPWS (2024) surveys.

5 Threatened Species

For the purpose of credit calculations, threatened species are listed as either ecosystem credit species or species credit species:

- An ecosystem credit species is a species whose likelihood of occurrence can be predicted by vegetation surrogates and landscape features, or for which targeted survey has a low probability of detection. A targeted survey is not required for these species (DPIE, 2020b).
- A species credit species is a species whose likelihood of occurrence cannot be predicted by vegetation surrogates and/or landscape features and can be reliably detected by survey. A targeted survey or expert report is required to confirm presence/absence of these species (DPIE, 2020b).

5.1 Habitat Features Present

The subject land was assessed for its potential to provide habitat for threatened flora and fauna known or predicted to occur in the assessment area. Habitat features including but not limited to rock outcrops, caves, hollow-bearing trees, nests, wetlands (including dams), and watercourses were searched for and recorded, if present.

The subject land contains extensive areas of sandstone caves, crevices, and overhangs, as well as rock outcrops, large, embedded rocks, and loose surface rock of varying size. No hollow-bearing trees would be directly impacted by the proposal; however, live and dead hollow-bearing trees occur in areas immediately adjacent to the footprint of the proposal. Numerous wombat burrows were recorded, as were burrows thought to belong to smaller native mammals and some that could not be definitively attributed to a particular species. Several termite mounds occur within or adjacent to the site and provide habitat for a range of fauna species such as the threatened Rosenberg's Goanna (although this species was not observed during the surveys). The proposed track crosses multiple watercourses, with consequent potential for impacts to aquatic habitat, and is likely to impact small areas of *Sphagnum* moss, key habitat for many specialised flora and fauna species.

Certain habitat features relevant to this assessment are mapped in **Figure 5-1**.

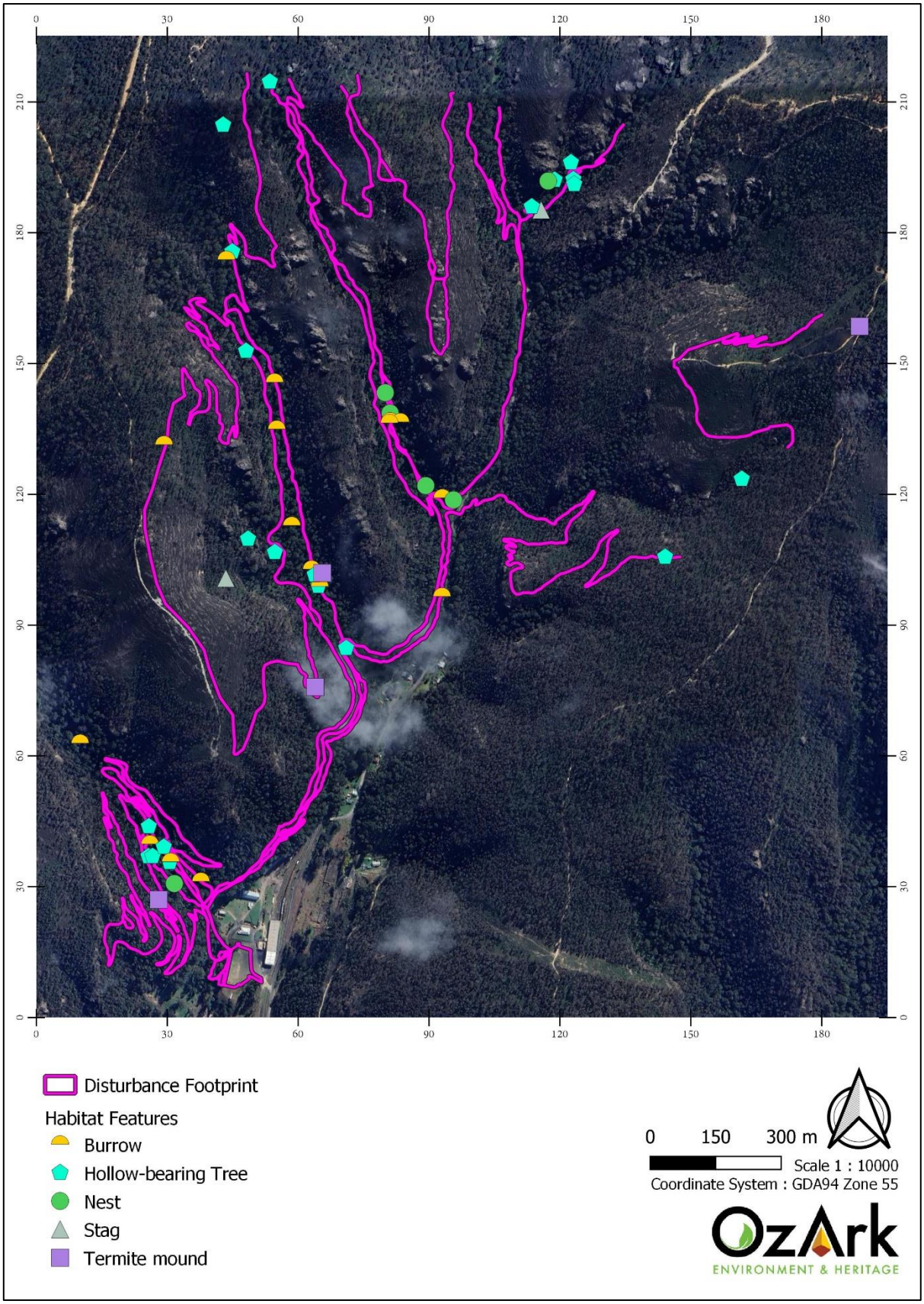


Figure 5-1. Habitat features recorded within the initial assessment area.

This mapping omits rocky habitat (caves, outcrops, loose surface rock and similar) as this would apply to the majority of the site. Sphagnum bogs are similarly omitted owing to their small size.

5.2 Ecosystem Credit Species

In total, 25 ecosystem credit species were generated by the BAM-C (**Table 5-1**). The habitat suitability of the subject land for these species was assessed. Three species were removed from the list due to habitat constraints:

- The South-eastern Glossy Black-cockatoo requires *Allocasuarina* or *Casuarina* species. *Allocasuarina nana* occurs extensively in plateau heaths, but no species of the Casuarinaceae were recorded within the dominant PCT (PCT 3687) selected for this assessment.
- According to the Threatened Biodiversity Data Collections, the Black-necked Stork (*Ephippiorhynchus asiaticus*) is confined to swamps ("Shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 300m of these swamps") or waterbodies ("Shallow lakes, lake margins and estuaries within 300m of these waterbodies") that do not align with the aquatic habitats – chiefly non-perennial streams and small *Sphagnum* patches – within the site.
- The Painted Honeyeater (*Grantiella picta*) requires mistletoes at a density of >5 per ha. Mistletoes were not detected during the initial survey or subsequent targeted surveys.

After the exclusion of these species, 22 ecosystem credit species were assumed present (see **Table 5-1**). A habitat assessment summary for each species listed below is detailed in **Appendix D**.

Table 5-1. Ecosystem credit species predicted to occur and the nature of their presence within, or absence from, the subject land.

Scientific Name	Common Name	Presence
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Present (recorded on site)
Callocephalon fimbriatum	Gang-gang Cockatoo	Present (recorded on site)
Calyptorhynchus lathami lathami	South-eastern Glossy Black-cockatoo (foraging)	Absent (constraint)
Chthonicola sagittata	Speckled Warbler	Assumed Present
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Assumed Present
Daphoenositta chrysoptera	Varied Sittella	Present (recorded on site)
Dasyurus maculatus	Spotted-tailed Quoll	Present (recorded on site)
Ephippiorhynchus asiaticus	Black-necked Stork	Absent (constraint)
Glossopsitta pusilla	Little Lorikeet	Assumed Present
Grantiella picta	Painted Honeyeater	Absent (constraint)
Haliaeetus leucogaster	White-bellied Sea-Eagle (foraging)	Assumed Present
Hamirostra melanosternon	Black-breasted Buzzard	Assumed Present
Hieraaetus morphnoides	Little Eagle	Assumed Present
Hirundapus caudacutus	White-throated Needletail	Assumed Present
Lathamus discolor	Swift Parrot (foraging)	Assumed Present
Lophoictinia isura	Square-tailed Kite (foraging)	Assumed Present

Scientific Name	Common Name	Presence
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Assumed Present
Melithreptus gularis gularis	Black-chinned Honeyeater	Assumed Present
Miniopterus orianae oceanensis	Large Bent-winged Bat	Present (recorded on site)
Petaurus australis	Yellow-bellied Glider	Present (recorded on site)
Petroica boodang	Scarlet Robin	Present (recorded on site)
Petroica phoenicea	Flame Robin	Present (recorded on site)
Pteropus poliocephalus	Grey-headed Flying-fox	Assumed Present
Pycnoptilus floccosus	Pilotbird	Present (recorded on site)
Varanus rosenbergi	Rosenberg's Goanna	Assumed Present

5.3 Species Credit Species

In total, five species credit species were generated by the BAM-C under the small-area assessment module. One species could be excluded from consideration due to geographical or habitat constraints:

1. The site is not included in important habitat mapping for the Swift Parrot (*Lathamus discolor*).

One additional species – the Southern Greater Glider (*Petauroides volans*) – was added to the BAM-C case as it was recorded during surveys.

Prior to the adoption of the small-area method, targeted surveys were conducted for a range of BC and EPBC-Act listed species that were ultimately excluded by the small-area method. These are discussed in **Section 2.3.3.**

Following the addition of one species and the exclusion of another, five species credit species were retained in the assessment. Surveys conducted for these species determined that the Southern Greater Glider and Large-eared Pied Bat should be considered present as a species credit species. The Large Bent-winged Bat is considered present for foraging only. Targeted surveys followed relevant and approved BAM survey methodologies (**Section 2.3.3.** and **Section 5.3.1**).

5.3.1 Species credit species targeted surveys

Targeted species surveys were conducted according to the methodologies outlined in **Table 2-4** and detailed further below, which were based on the BAM and its associated guidelines and documents. The BioNet species records from within 10 km of the subject land are also displayed in

Table 5-2 for site context.

1. ***Persoonia hindii*.** There are 2079 BioNet records of this species within 10 km. This species was targeted via transects across all associated PCTs (3687, 3688, 3696, and 3862). Owing to the narrow project alignment, a single transect was sufficient across most of the site. The survey window for this species allows for survey at any time of the year. The species was

primarily targeted in October, where 41.26 km of parallel flora transects were completed over 53.5 person hours. Additional partial surveys in were completed in January (5.28 km parallel flora transects over 9.5 person hours) and February (9.96 km parallel flora transects over 15.5 person hours) without detecting this species. Survey effort is described and depicted in **Figure 2-1**. This species is considered absent (surveyed).

2. **Large-eared Pied Bat (*Chalinolobus dwyeri*).** There are 151 BioNet records of this species within 10 km of the site. Survey effort entailed deployment of acoustic detectors at 11 locations for one night each and deployment of harp traps at 22 locations, all between December 16 and December 19, 2024. This survey work was conducted by Corymbia Ecology. One additional acoustic detector was placed on site by OzArk between January 20 and January 22, 2025, and a portable Anabat Walkabout detector was carried during nocturnal surveys on site between January 20 and January 24, 2025. This species was not captured in harp traps; however, 150 passes of this species were recorded in total on detectors D4 (113 passes), D6 (3 passes), D9 (31 passes), and the OzArk detector (3 passes). These passes were recorded between 212 and 0256, well after typical dusk roost exit times, suggesting that no roosts occur in close proximity to the site. Survey effort is depicted in **Figure 2-2**. The species is considered present (surveyed) for the purposes of credit generation. Harp trapping did not detect any breeding individuals, and, considering the timing and low abundance of passes, the site is not considered to support breeding habitat.
3. **Large Bent-winged Bat (*Miniopterus orianae oceanensis*)**. There are 342 BioNet records of this species within 10 km of the site. Survey effort entailed deployment of acoustic detectors at 11 locations for one night each and deployment of harp traps at 22 locations, all between December 16 and December 19, 2024. This survey work was conducted by Corymbia Ecology. One additional acoustic detector was placed on site by OzArk between January 20 and January 22, 2025, and a portable Anabat Walkabout detector was carried during surveys on site between January 20 and January 24, 2025. This species was not captured in harp traps; however, probably passes of this species were recorded on detectors D2, D3, D6, D8, D10, D11, and on the OzArk detector. This species cannot be identified with certainty based on calls alone. The survey also determined that there are no cave systems suitable for use as maternity roosts within the disturbance area and the low number of recorded passes suggests that no active maternity caves occur nearby (Corymbia Ecology, 2024). Survey effort is depicted in **Figure 2-2**. The species is considered present as an ecosystem credit species (foraging) but not as a species credit species (breeding).
4. **Southern Greater Glider (*Petauroides volans*)**. There are 1098 BioNet records of this species within 10 km of the site. This species was recorded incidentally during surveys for other species, including microbats. The species was detected during four nights of spotlighting and eight hollow watches, as well as incidentally during bat surveys. The species was detected

in at least 25 locations throughout the site. Survey effort is depicted in **Figure 2-3**. The species is considered to be present (surveyed).

5. **Brush-tailed Rock-wallaby (*Petrogale penicillata*)**. There are no BioNet records of this species within 10 km. Survey effort entailed 10 nights of spotlighting (54.6 km, 39.2 person hours), 4 days of boulder scat search (14 locations total), 16 days of activity and/or suitable habitat search (126.2 km, 88.2 person hours), and deployment of terrestrial camera traps for 162 nights. The species was not detected during the surveys and is considered to be absent (surveyed). Twenty-one candidate scats were analysed by Scats About, who did not identify any of the scats as belonging to this species. Survey effort is described and depicted in **Figure 2-3**.

In addition, the surveys did not detect the additional EPBC Act-listed species discussed in **Section 2.3.3**.

Table 5-2. BioNet records of threatened species within 10 km of the subject land.

Scientific Name	Common Name	*NSW Status	+Comm. Status	No. records
Acacia bynoeana	Bynoe's Wattle	E1	V	2
Acacia meiantha		E1	E	134
Anthochaera phrygia	Regent Honeyeater	E4A,2	CE	5
Apus pacificus	Fork-tailed Swift	P	C,J,K	4
Ardenna tenuirostris	Short-tailed Shearwater	P	C,J,K	1
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V		131
Asterolasia buxifolia		E4A	CE	805
Boronia deanei	Deane's Boronia	V	V	1867
Caesia parviflora* var. *minor	Small Pale Grass-lily	E1		334
Callocephalon fimbriatum	Gang-gang Cockatoo	E1,3	E	516
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V,2	V	36
Cercartetus nanus	Eastern Pygmy-possum	V		67
Chalinolobus dwyeri	Large-eared Pied Bat	E1	E	151
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	V	71
Daphoenositta chrysoptera	Varied Sittella	V		71
Dasyurus maculatus	Spotted-tailed Quoll	V	E	17
Dillwynia tenuifolia		V		2
Eucalyptus aggregata	Black Gum	V	V	271
Eucalyptus pulverulenta	Silver-leafed Gum	V	V	15
Eulamprus leuraensis	Blue Mountains Water Skink	E1	E	594
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		204
Gallinago hardwickii	Latham's Snipe	V	V,J,K	1
Genoplesium superbum	Superb Midge Orchid	E1,2		1

Scientific Name	Common Name	*NSW Status	+Comm. Status	No. records
Haliaeetus leucogaster	White-bellied Sea-Eagle	V		15
Heleioporus australiacus	Giant Burrowing Frog	V	V	1
Hieraaetus morphnoides	Little Eagle	V		13
Hirundapus caudacutus	White-throated Needletail	V	V,C,J,K	33
Lastreopsis hispida	Bristly Shield Fern	E1,3		1
Lathamus discolor	Swift Parrot	E1	CE	1
Litoria littlejohni	Littlejohn's Tree Frog	E1	E	1
Lophoictinia isura	Square-tailed Kite	V,3		3
Melanodryas cucullata cucullata	South-eastern Hooded Robin	E1	E	13
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V		2
Miniopterus australis	Little Bent-winged Bat	V		1
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		342
Mixophyes balbus	Stuttering Frog	E1,2	V	1
Myotis macropus	Southern Myotis	V		10
Neophema pulchella	Turquoise Parrot	V,3		6
Ninox connivens	Barking Owl	V,3		8
Ninox strenua	Powerful Owl	V,3		58
Oxyura australis	Blue-billed Duck	V		32
Paralucia spinifera	Purple Copper Butterfly, Bathurst Copper Butterfly	E1	V	164
Parvipsitta pusilla	Little Lorikeet	V		9
Persoonia acerosa	Needle Geebung	V	E	5
Persoonia hindii		E1	E	2079
Persoonia marginata	Clandulla Geebung	V	V	2
Persoonia oxycoccoides		E1	E	2
Petalura gigantea	Giant Dragonfly	E1		167
Petauroides volans	Southern Greater Glider	E1	E	1098
Petaurus australis	Yellow-bellied Glider	V	V	5
Petaurus norfolcensis	Squirrel Glider	V		15
Petroica boodang	Scarlet Robin	V		922
Petroica phoenicea	Flame Robin	V		778
Phascolarctos cinereus	Koala	E1	E	13
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V		3
Prasophyllum fuscum	Slaty Leek Orchid	E4A,2	V	1
Prasophyllum pallens	Musty Leek Orchid	V,2		101
Prostanthera cryptandroides* subsp. *cryptandroides	Wollemi Mint-bush	V	V	2
Pseudomys novaehollandiae	New Holland Mouse	V	V	1
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	15

Scientific Name	Common Name	*NSW Status	+Comm. Status	No. records
Pultenaea glabra	Smooth Bush-Pea	V	V	1
Pycnoptilus floccosus	Pilotbird	V	V	154
Pyrrholaemus sagittatus	Speckled Warbler	V		4
Rhodamnia rubescens	Scrub Turpentine	E4A	CE	1
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V		34
Scoteanax rueppellii	Greater Broad-nosed Bat	V		22
Stagonopleura guttata	Diamond Firetail	V	V	210
Stictonetta naevosa	Freckled Duck	V		8
Tyto novaehollandiae	Masked Owl	V,3		3
Tyto tenebricosa	Sooty Owl	V,3		2
Varanus rosenbergi	Rosenberg's Goanna	V		1
Velleia perfoliata		V	V	4
Veronica blakelyi		E1		826
Vespadelus troughtoni	Eastern Cave Bat	V		1

*V=Vulnerable, E1=Endangered, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species

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

5.3.2 Species credit species assumed present

Following targeted surveys, all species were considered to be either absent (surveyed) or present (surveyed). No species were assumed present.

6 Impact Summary

6.1 Impacts to Native Vegetation

Four PCTs (3687, 3688, 3696, and 3862) occur within the proposed disturbance footprint, with up to 2.36 ha of vegetation to be removed. As this proposal has been assessed under the small-area module, only impacts to the dominant PCT (1.77 ha of PCT 3687) are considered for the purposes of determining offsets; however, the full extent of the proposed impacts have been considered with regard to cumulative impacts and other considerations.

Impacts will be confined to understorey and midstorey species and trees under 10 cm dbh. Trees above this threshold will be retained.

No vegetation zones were found to meet the condition criteria for any BC Act- or EPBC Act-listed TEC. As such, no TECs will be impacted by the current proposal.

6.2 Serious and Irreversible Impacts

The Guidance to assist a decision-maker to determine a serious and irreversible impact (DPIE 2019) and the NSW threatened species data collection have been used to determine which threatened entities require further assessment for Serious and Irreversible Impacts (SAII). An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species (including endangered populations) or ecological community becoming extinct based on following 4 principles (set out in clause 6.7 of BCR):

- **Principle 1:** The impact will cause a further decline of a species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline
- **Principle 2:** The impact will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size
- **Principle 3:** The impact is made on the habitat of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution
- **Principle 4:** The impacted species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity, and therefore its members are not replaceable.

Two SAII entities are relevant to the proposal, namely the Large-eared Pied Bat (*Chalinolobus dwyeri*) and Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In both cases, however, the potential for an SAII relates to impacts to breeding habitat. As no breeding habitat occurs within the site, in line

with the survey guidelines for species credit bats (NSW OEH, 2018), the proposed impact is not considered an SAII. Impacts to these two species will be offset via species credits and ecosystem credits respectively.

6.3 Prescribed Impacts

The BCR lists certain impacts as prescribed impacts that must be avoided, minimised and mitigated. These prescribed impacts and their relevance to the proposal are described in **Table 6-1.**

Table 6-1. Prescribed impacts of the proposal.

Prescribed Impacts	Site Assessment	Mitigation Measure
Impacts on the habitat of threatened species or ecological communities associated with karst, caves, crevices, cliffs and other features of geological significance.	The area surrounding the subject land contains extensive areas of sandstone cave formations. While direct impacts to caves are unlikely, indirect impacts to fauna occupying these caves may result from disturbance associated with increased human use of the site. Species most likely to be impacted are microbat species, including: • Large-eared Pied Bat (*Chalinolobus dwyeri).* • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). Direct impacts to these species will be offset via species credits and ecosystem credits respectively.	**Table 6-3.**
Impacts of development on the habitat of threatened species or ecological communities associated with rocks.	Areas of large, embedded rock and loose surface rock occur throughout the site, most conspicuously on plateaux. One threatened species associated with rock crevices and similar habitats has been identified as being relevant to the proposal: • Rosenberg's Goanna (*Varanus rosenbergi*). Impacts to this species will be offset via ecosystem credits.	**Table 6-3.**
Impacts of development on the habitat of threatened species or ecological communities associated with human made structures.	No human-made structures exist within the footprint that would provide fauna habitat. It is not expected that any impacts to these structures would result from the proposal.	None required.
Impacts of development on the habitat of threatened species or ecological communities associated with non-native vegetation.	Excluding wholly cleared areas (roads, cleared trails etc), the site has been mapped to native vegetation communities.	None required.
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range.	The proposal is not expected to isolate any area of habitat or significantly impede the movement of any species.	None required.

Prescribed Impacts	Site Assessment	Mitigation Measure
Impacts of the development on movement of threatened species that maintains their life cycle.	The proposal is not expected to impede local or wider migration by any species, considering the narrow alignment of the trail.	None required.
Impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities.	Stream turbidity is expected to increase as a result of trail use and erosion. No strictly aquatic species have been identified as being relevant to the proposal; however, reduced water quality may indirectly impact a wide range of threatened species, including: • All ecosystem credit species assumed present or detected on site. • Large-eared Pied Bat (*Chalinolobus dwyeri).*	**Table 6-3.**
Impacts of wind turbine strikes on protected animals.	None associated with the proposal.	None required**.**
Impact of vehicle strikes on threatened species of animals or on animals that are part of a TEC.	An increase in overall traffic movement is anticipated due to construction and maintenance works associated with the proposal. In addition, during operation, significant additional traffic to parts of the site would result, if the trail draws the anticipated volume of recreational use. This would result in an increase in potential for vehicle strikes to the following entities: • All ecosystem credit species assumed present or detected on site. • Potentially the Large-eared Pied Bat (*Chalinolobus dwyeri*), though vehicle strikes are unlikely and are not considered a significant threat to this species. • Southern Greater Glider (*Petauroides volans).* Maintaining suitably low speed limits on site will help to mitigate impacts that arise from this increase.	**Table 6-3.**

6.4 Indirect Impacts

Potential indirect impacts associated with the proposal are explored further in

Table 6-2. While the main impacts of the proposal are expected to be contained within the disturbance footprint, increased recreational activity within the site raises the risk of disturbance beyond the limits of the constructed trail. Off-track cycling or walking may result in additional informal trails becoming established that are not accounted for in the assessment of direct impacts and whose ultimate impacts cannot be reliably quantified. Increased climbing and caving activity is also likely, given that climbers have already been observed to use areas closer to main roads, with consequent disturbance to cave-dwelling fauna and specialised flora. Disturbance from machinery and operational activities will occur,

such as noise and dust. However, these impacts will be minimised by following the environmental safeguards proposed in **Table 6-3**.

Table 6-2. Potential indirect impacts of the proposal

Nature of impact	Timing	Likelihood	PCTs, threatened species and/or TECs impacted	Consequence of impact on biodiversity
Inadvertent impacts on adjacent habitat or vegetation	Construction and operation phase	Medium	• Native vegetation surrounding the disturbance footprint • Threatened species assumed present	Increased edge effects, loss of foraging habitat, potential mortality to neighbouring fauna
Reduced viability of adjacent habitat due to edge effects	Construction and operation phase	High	• Native vegetation surrounding the disturbance footprint • Threatened species assumed present	Degradation of a small area of native vegetation and potential or known habitat for threatened flora and fauna.
Reduce viability of adjacent habitat due to noise, dust or light spill	Construction and operation phase	Medium	• Threatened species assumed present	Minor foraging and breeding habitat for fauna may be altered or removed.
Transport of weeds and pathogens from the site to adjacent vegetation	Construction and operation phase	High	• Native vegetation surrounding the disturbance footprint	Degradation (possibly temporary) of native vegetation.
Increased risk of starvation or exposure, and loss of shade or shelter	Construction phase	Low	• Threatened species assumed present	Minor loss of foraging and refuging habitat
Loss of breeding habitat	Construction and operation phase	Medium	• Threatened species assumed present	Minor potential loss of potential breeding habitat.
Trampling of threatened flora species outside the assessed impact area	Construction and operation phase	Low	• Threatened species assumed present	Possible minor loss of threatened flora
Inappropriate Waste Management	Construction and Operation phase	Medium	• Native vegetation surrounding the disturbance footprint • Threatened species assumed present	Degradation of native vegetation and habitat for threatened species.

6.5 Impacts to Wetlands, Watercourses, and Aquatic Habitat

The proposal would result in direct impacts to smaller watercourses via trail formation and indirect impacts to these and larger watercourses via sedimentation, potentially resulting in increased turbidity. Most local watercourses are non-perennial and were found to consist chiefly of small, unlinked ponds during the survey period. However, impacts to areas of mapped Key Fish Habitat are also anticipated. Direct impacts will be averted through the construction of bridges, where possible, though where rock armouring is employed instead, the potential for direct impacts to the stream bed is greater. Indirect impacts via sedimentation are difficult to quantify; however, erosion control measures should be implemented to reduce any risk to water quality and habitat value. A permit from DPI – Fisheries is typically required for any activities deemed to constitute dredging or reclamation in KFH. In the present case, consultation with DPI – Fisheries has indicated that the proposed use of the existing creek bed, without modification, will not require a permit.

6.6 Cumulative Impacts

The potential impacts of this proposal must be regarded as a contribution to the wider loss of biodiversity in the local area and across NSW. The incremental effects of multiple impacts – past, present, and future – are referred to as cumulative impacts. This BDAR provides an opportunity to consider the impacts associated with this proposal within a wider context.

The subject land is situated at the interface between urban development (Lithgow) and the extensive area of remnant native vegetation that forms the Greater Blue Mountains area. The site shows evidence of the encroachment of human-induced disturbance in the form of invasive species, cleared trails, camp fires, graffiti, dirt bike wheel tracks, powerlines, litter, and similar sources of degradation. In general, however, the vegetation communities that make up the site are well preserved, relative to communities in the surrounding lowlands. Only 3.11% of PCT 3687 is thought to have been cleared since European colonisation of Australia, for example. No major developments in the region have resulted in the substantial loss of similar habitat, though some encroachment by mining, past and present, was associated with the State Mine itself, along with its associated infrastructure.

The most common source of impacts to habitat of this kind is likely to be trail formation. Management trails and public roads extend through the State Mine Gully site and into the adjacent Gardens of Stone Conservation Area (formerly Newnes State Forest). A separate (yet to be approved) proposal to construct approximately 37 km of trails in Gardens of Stone represents the most substantial future impact to similar local habitat currently known, along with ongoing works to upgrade the road network within the reserve. While impacts associated with the future proposed trail network are not currently known, it is likely that they will, at least in part, encroach on the same or similar communities to those impacted by the current proposal.

These proposals are not expected to result in the wholesale loss of large areas of habitat or to cause significant fragmentation. However, through a combination of direct impacts (removal of vegetation) and indirect impacts (edge effects, soil compaction, introduction of seeds and pathogens, altered hydrology, and similar) they would contribute to the loss of biodiversity value in the area. Considered individually, the present proposal is highly unlikely to result in significant adverse impacts to biodiversity at either local or state level. Nevertheless, the impacts of this and other local development activities contribute to the ongoing decline in biodiversity values across the state.

6.7 Avoidance, Minimisation and Mitigation

The following avoidance measures have been integrated into the design and/or are suggested for the implementation of the project:

- The proposed track width has been minimised by adopting, where possible, manual rather than machine-based methods of construction. This has reduced the overall anticipated impact from 4.60 ha of native vegetation (assuming a 2 m clearing width across the full alignment) to 2.36 ha, a reduction of >50%.
- The proposed alignment has been designed to make use of bare or sparsely vegetated rock where possible, reducing direct impacts to native vegetation. This particularly applies to PCT 3862 and parts of PCT 3688.
- Trees above 10 cm dbh will be retained, which includes all hollow-bearing trees within or near the proposed alignment.
- The proposed alignment adopts existing trails where these exist. Little or no additional construction is required in these areas.
- Where practical, the proposal would avoid direct impacts to stream beds by constructing bridges across watercourses.
- In addition, minimisation and mitigation methods will be implemented, as per **Table 6-3**.

Table 6-3 outlines recommended environmental safeguards to reduce impacts on vegetation, soil and biodiversity.

Table 6-3. Recommended Environmental Safeguards

Environmental Safeguards	Timing	Frequency	Risk of Failure	Consequences of Failure
Clearing and prevention of over-clearing				
1. No new areas to be cleared without further assessment.	Pre-disturbance	Continuous	Moderate Breaches may result where the below measures are not successfully implemented.	Impacts to unassessed vegetation, which may include threatened species.
2. All personnel are to be inducted to be aware that disturbance of any stand of native vegetation outside the disturbance footprint, or otherwise unauthorised disturbance, could have legislative consequences. Evidence of all personnel receiving an induction would be kept on file (signed induction sheets).	Pre-disturbance	Continuous	Moderate Breaches may result where induction materials are poorly designed or are disregarded, or where personnel are not inducted.	Impacts to unassessed vegetation, which may include threatened species.
3. Before start of work, clearly identify the extent of permitted vegetation clearing and areas to be retained as native vegetation. Fencing or bunting installed to demarcate 'no go zones' where vegetation is to be retained.	Pre-disturbance	Continuous	Low If fencing is properly implemented, risk of breaches is low.	Impacts to unassessed vegetation, which may include threatened species.
4. Vegetation will be removed in such a way to avoid unnecessary damage to surrounding vegetation.	During construction	Continuous	Low Impacts may result where vegetation removal is carried out without regard to surrounding vegetation.	Impacts to unassessed vegetation, which may include threatened species.
5. Signage is to be installed directing cyclists to remain on the track.	During construction	One-off (installation of signage) Continuous (maintenance of signage)	Moderate Where signage is unclear or is disregarded, breaches are likely.	Impacts to unassessed vegetation via trampling or disease, which may include threatened species.

6. Toilets and wash stations (for shoes and/or bikes) are to be installed at the trailhead to minimise depositing of waste and transmission of disease.	During construction	One-off (installation of facilities) Continuous (maintenance of facilities)	Moderate Where facilities are not used or are poorly located or maintained, breaches are likely.	Impacts to unassessed vegetation via spread of disease or deposition of waste, which may include threatened species.
7. Signage is to be erected excluding the use of motorized trail bikes, motor bikes, or similar within the site. If a feasible system of physically barring entry to users of these vehicles can be devised, this should be implemented.	During construction	One-off (installation of signage) Continuous (maintenance of signage)	Moderate Where signage is unclear or is disregarded, breaches are likely.	Impacts to unassessed vegetation via trampling or disease, which may include threatened species.
Impacts to threatened species during their breeding season				
8. Construction impacts are to be avoided during the period August-January, when the Pilotbird (*Pycnoptilus floccosus*) is likely to be breeding on site.	During construction	Continuous	Low Where this mitigation measure is followed, potential for direct impacts to breeding activity is low.	Reduction in local viability of Pilotbird population due to disrupted breeding.
Bushfire protection				
9. The subject land is on bushfire-prone land. The proponent must ensure that any requirements under the relevant legislation are met.	Pre-disturbance	Identification of requirements: One-off, prior to disturbance.	Low As the site consists primarily of a cleared trail with limited built infrastructure, risks associated with the proposal are low.	Requirement for additional impacts and hence additional assessment.
Soil management				

			Moderate	
10. An erosion and sediment control plan will be developed and implemented within a Construction Environmental Management Plan (CEMP)	Pre-disturbance / During construction	Development of plan: Prior to disturbance for construction and for operational activities. Implementation of plan: Continuous.	Should the plan not satisfactorily address the risks of erosion and runoff, adverse environmental impacts may result. Failure to induct workers in the requirements of the plan, failure to emphasise the importance of avoiding environmental impacts associated with runoff, and poor maintenance of controls may lead to breaches.	Impacts to unassessed vegetation, which may include threatened species.
Damage to native vegetation outside of impact zone				
			Moderate	
11. Stockpile and compound sites are to be located within the assessed disturbance footprint and preferentially according to the following criteria: (i) At least 40 m away from the nearest waterway. (ii) In areas of low ecological conservation significance (i.e. previously disturbed land). (iii) On relatively level ground. The CEMP must ensure that stockpiling of materials and equipment and parking of vehicles does not occur outside disturbance footprint, and that native vegetation outside the footprint is not otherwise disturbed.	Pre-disturbance / During construction	Identification of sites: One-off, prior to disturbance. Development of CEMP: One-off, prior to disturbance. Use of sites: Continuous. Implementation of plan: Continuous	Should the CEMP not satisfactorily account for the compound or stockpile requirements of the proposal, adverse environmental impacts may result. Failure to induct workers in the requirement to confine all stockpiling of materials to designated sites or to emphasise the importance of avoiding environmental impacts associated may lead to breaches.	Impacts to unassessed vegetation, which may include threatened species.
Introduction and spread of significant weeds and pathogens				
			Moderate	
12. Construction machinery must be clean and free from soil or weeds before entry to the work site.	Pre-disturbance / During construction	Continuous	Inadequate cleaning of machinery may result from failure to provide appropriate facilities or failure to emphasise the requirement for proper biosecurity hygiene.	Proliferation of weeds, which may include High-threat Exotic species

13. Weed-free fill only to be used for on-site earthwork, if required.	During construction	Continuous	Low It is likely that displaced material will be available for use as fill. If this material proves inadequate, it is possible that alternative material may carry weed propagules.	Proliferation of weeds, which may include High-threat Exotic species
14. Any herbicide use is to be in accordance with the requirements on the label. Any person carrying out herbicide application would be appropriately trained and competent in its use.	During construction / During operation	Continuous	Low It is not anticipated that major herbicide application will be required; however, minor amounts will be required, and as such breaches may result where the importance of adequate training is not properly emphasised.	Impacts to unassessed vegetation, which may include threatened species. Chemical spills and consequent environmental damage.
Disturbance to fallen timber, dead wood, bush rock and anthropogenic habitat				
15. Any bush rock, dead wood, or hollow logs encountered on site is to be left in situ, or where necessary, relocated to the edge of the disturbance area.	During construction	Continuous	Low Negligible quantities of bush rock occur on site. Fallen timber is confined to remnant woodland areas and is unlikely to be impacted by the proposal.	Impacts to fauna habitat, including habitat for threatened species.
16. If fauna is detected within the work site, work must stop immediately and the fauna should be permitted to leave on their own accord or suitably qualified personnel should be engaged to facilitate their removal.	During construction	Continuous	Moderate Risks to fauna may result where the stop-work procedure is inadequately communicated to workers.	Impacts to fauna, which may include threatened species.
Additional impacts				
17. Emergency spill procedures are to be developed in order to prevent environmental damage associated with chemicals, including fuel and herbicides.	Pre-disturbance / During construction	Development of procedures: One-off, prior to disturbance. Implementation of plan: Continuous	Moderate Uncontained chemical spills may occur where procedures are inadequate or poorly implemented.	Impacts to flora and fauna, which may include threatened species.

6.8 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.

The EPBC Act protected matters search has identified four TECs, 74 threatened species, nine migratory species and 20 marine species that could possibly occur in the 10 km search area (**Appendix A**). Of these, 19 species, comprising 17 threatened species, one migratory species, and one both threatened and migratory species, were assessed as potentially occurring on the subject land, based on available habitat within the site (**Table 6-4**; **Appendix E**). An assessment of impact significance has been undertaken for each of these threatened and migratory species following EPBC guidelines, as detailed in **Appendix E**.

A summary of these matters and whether the proposal is likely to impact them is provided in **Table 6-5**. It is concluded that no MNES will be significantly impacted by the proposal.

Table 6-4. EPBC-listed threatened or migratory species detected, or with moderate-high likelihood of occurring on the subject land.

Scientific Name	Common Name	+Comm. Status	# BioNet Records <10 km	Likelihood of Occurrence
Anthochaera phrygia	Regent Honeyeater	CE	5	Moderate
Asterolasia buxifolia		CE	805	Moderate
Lathamus discolor	Swift Parrot	CE	1	High
Callocephalon fimbriatum	Gang-gang Cockatoo	E	516	Present
Chalinolobus dwyeri	Large-eared Pied Bat	E	151	Present
Dasyurus maculatus maculatus	Spotted-tailed Quoll (SE Mainland Population)	E	17	Present
Eulamprus leuraensis	Blue Mountains Water Skink	E	594	Moderate
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E	13	High
Petauroides volans	Southern Greater Glider	E	1098	Present
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	36	Present
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern subspecies)	V	71	High
Eucalyptus aggregata	Black Gum	V	271	Moderate
Eucalyptus pulverulenta	Silver-leaved Mountain Gum	V	15	Moderate
Hirundapus caudacutus	White-throated Needletail	V,C,J,K	33	High
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	5	Present
Pteropus poliocephalus	Grey-headed Flying-fox	V	15	High
Pycnoptilus floccosus	Pilotbird	V	154	Present

Scientific Name	Common Name	+Comm. Status	# BioNet Records <10 km	Likelihood of Occurrence
Stagonopleura guttata	Diamond Firetail	V	210	Moderate
Apus pacificus	Fork-tailed Swift	C,J,K	4	Moderate

+V=Vulnerable, C=CAMBA, J=JAMBA, K= ROKAMBA E=Endangered, CE=Critically Endangered

Table 6-5. 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

7 Biodiversity Credit and Offset Report

7.1 Management Zones

The BAM considers future vegetation condition of different areas of the disturbance footprint when calculating biodiversity credits and offsets. It has been assumed that all vegetation within the disturbance footprint will be treated similarly, namely that the understorey, midstorey, and trees <10 cm in diameter will be removed and that trees above this size will be retained. Therefore, offset requirements have been assessed assuming only one management zone.

7.2 Vegetation Integrity Assessment

VI Scores have been calculated for each vegetation zone based on patch size, area to be impacted, vegetation composition, structure and function, as defined below.

Patch size – Area in hectares of total vegetation zone patch (i.e. the connected woody and non-woody vegetation). See **Section 4.3.2**.

Area – Area within the property that will be subject to clearing, modification or other treatment by the Proposal. There is only one management zone as described above.

Composition (Comp.) – Score calculated based on species richness, i.e. the number of native species present.

Structure (Struct.) – Score calculated based on the cover (%) of each native species growth form.

Function (Funct.) – Score calculated based on habitat features, i.e. presence of tree sizes, hollow trees, coarse woody debris, litter cover (%) and high threat weed cover (%). The function score does not apply to grassland PCTs.

Future VI scores were modified based on the anticipated retention of trees in the 10-19 cm, 20-29 cm, 30-49 cm, and large tree size classes, as. Only trees <10 cm in diameter will be removed by the proposal. Future tree cover of 25% has been assumed, based on an estimate of the cover likely to persist following removal of these size classes.

Benchmark data for the PCTs is also used in this calculation.

Data required for the calculation was collected in the field using the methodology specified in the BAM, as described above. The VI score for the two vegetation zones included in this assessment, including the loss of VI due to the proposal, is shown in **Table 7-1**. Note that zones belonging to PCTs other than PCT 3687 were removed from the assessment in line with the requirements of the small-area assessment module. Figures for areas included in this table are the rounded values utilised by the BAM-C.

Table 7-1. Vegetation Integrity (VI) assessment.

Vegetation Zone	PCT	Area	Comp.	Struct.	Funct.	Current VIS	Management Zone	Future VIS	Change in VIS
3687_Good	3687	1.6	69.5	58.1	99.2	73.7	Disturbance footprint	19.2	-54.5
3687_Moderate	3687	0.15	38.4	39.4	82.3	50	Disturbance footprint	19.2	-30.8

7.3 Ecosystem Credit Summary

Based on the VI score and area of PCT impacted, 35 ecosystem credits are required to be offset for the proposal. The ecosystem credits required for the proposal are summarised in **Table 7-2**. The full biodiversity credit summary report is provided in **Appendix F**.

7.4 Species Credit Summary

Once habitat constraints, geographical limitations, and targeted surveys were taken into consideration (see **Section 2.3.3.** and **Section 5.3.1.**), two species credit species were considered present within the site:

- Large-eared Pied Bat (*Chalinolobus dwyeri*)
- Southern Greater Glider (*Petauroides volans*)

The Southern Greater Glider is arboreal and dependent on large, hollow-bearing trees. While all mature trees will be retained by the proposal, this dependency is not regarded as a formal habitat constraint and therefore cannot be used to justify excluding the species from offset calculations. Some impacts to the species are likely, as the loss of immature trees will reduce future canopy recruitment and hence decrease the quality and abundance of suitable habitat for the species. The adjustment of future VI scores to reflect the retention of tree species (**Section 7.2**) has reduced the overall species credit obligation for this species. Species credits are identified in **Table 7-3**. Species polygons for the two species considered to be present are shown in **Figure 7-1**.

Table 7-2. Ecosystem credits requiring offsetting (copied from BAM-C).

Vegetation zone name	BAM-C Zone	Current VIS	Change in VIS	Area (ha)	BC Act listing status	EPBC Act listing status	TEC name	Species sensitivity to gain class	Biodiversity risk weighting	Potential SAII	Ecosystem credits
3687_Good	1	73.7	-54.5	1.6	Not a TEC	Not a TEC	Not a TEC	High Sensitivity to Gain	1.5	False	33
3687_Moderate	2	50	-30.8	0.15	Not a TEC	Not a TEC	Not a TEC	High Sensitivity to Gain	1.5	False	2
TOTAL											**35**

Table 7-3. Species credits requiring offsetting (copied from BAM-C).

Vegetation zone name	BAM-C Zone	Current VIS	Change in VIS	Area (ha)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Species credits
***Chalinolobus dwyeri* / Large-eared Pied Bat (Fauna)**											
3687_Good	1	73.7	-54.5	1.6	*Biodiversity Conservation Act* listing status	Species dependent on habitat attributes	Endangered	Endangered	3.00	False	66
3687_Moderate	2	50	-30.8	0.15	*Biodiversity Conservation Act* listing status	Species dependent on habitat attributes	Endangered	Endangered	3.00	False	3

***Petauroides volans* / Southern Greater Glider (Fauna)**											
3687_Good	1	73.7	-54.5	1.6	*Biodiversity Conservation Act* listing status	Species dependent on habitat attributes	Endangered	Endangered	2.00	False	44
3687_Moderate	2	50	-30.8	0.15	*Biodiversity Conservation Act* listing status	Species dependent on habitat attributes	Endangered	Endangered	2.00	False	2
TOTAL											**115**

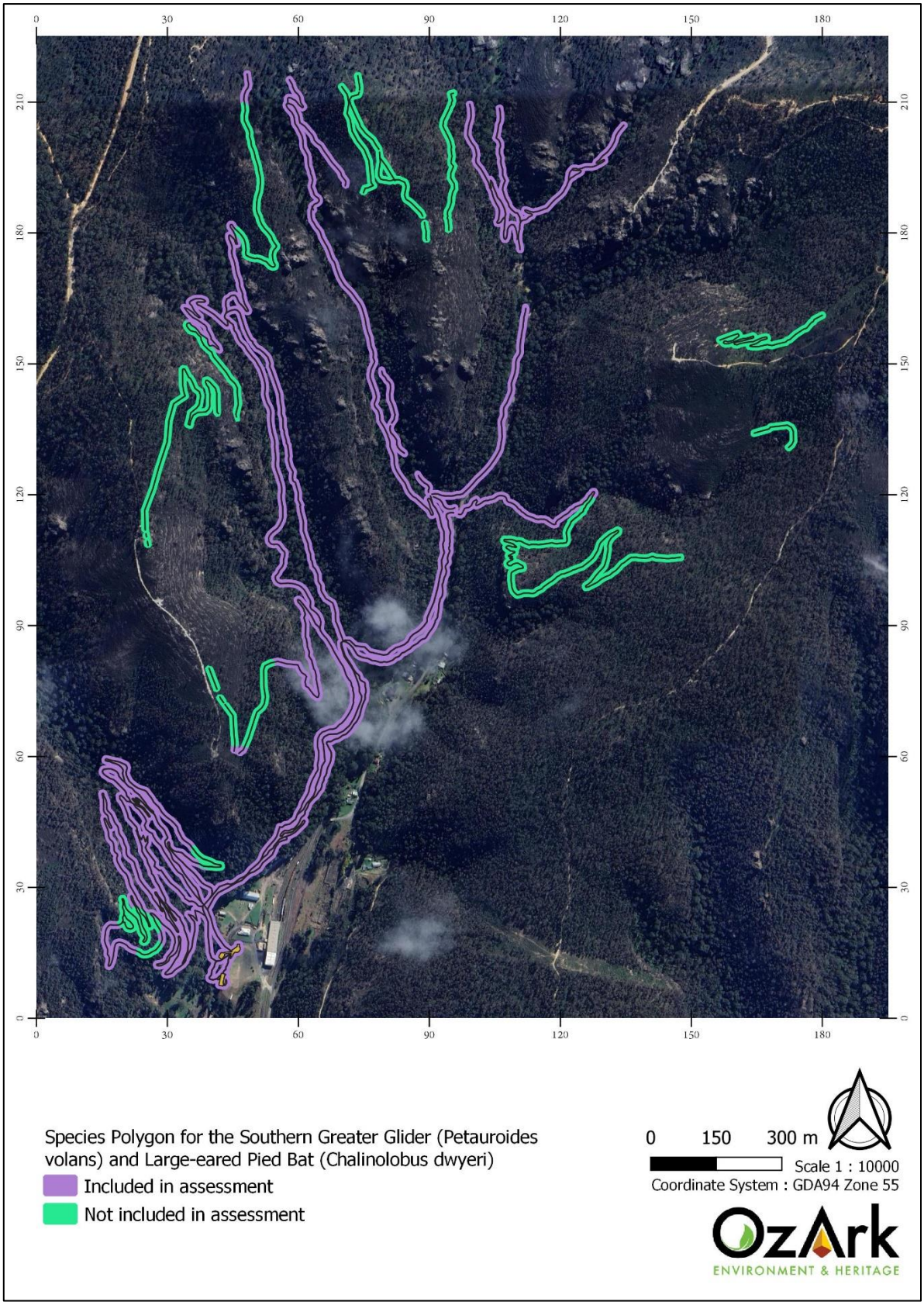


Figure 7-1. Combined species polygon for two species detected on site.

Note: Species polygons have been buffered for legibility. Impacts are confined to the central line/polygon representing the alignment of the proposed track at the centre of the buffered polygon. Areas omitted from assessment represent non-dominant PCTs excluded by the small-area assessment method.

7.5 Offset Requirement

Offsetting is required for the 35 ecosystem credits and 115 species credits listed above.

The proponent intends to purchase and retire the necessary number of credits on the open market or, if not available, offset credits through a direct payment into the Biodiversity Conservation Fund.

8 Summary and Conclusions

This BDAR assesses a proposal by the Central Tablelands Mountain Bike Club to develop 25 km of single-track mountain bike path on Lot 11 DP1240259, Lot 1 DP1110346, Lot 2 DP1110346, Lot 3 DP1110346, Lot 1 DP965231, Lot 2 DP787403, and Lot 2 DP876025, adjacent to State Mine Gully in Lithgow, New South Wales. The proposal would occupy up to 2.92 ha, of which 2.36 ha possesses remnant native vegetation. The proposal triggers entry into the BOS by virtue of exceeding the maximum allowable clearing threshold for the relevant lots and by impacting mapped Biodiversity Values; however, the relatively small scale of the clearing allows for the implementation of the small-area assessment module. This report documents this assessment, which has been completed in accordance with the BAM and details the proponent's biodiversity offset requirement (measured by the number of ecosystem and species credits).

Four PCTs were recorded along the proposed alignment:

- 3687 – Newnes Plateau Peppermint-Ash Tall Forest.
- 3688 – Newnes Plateau Silvertop Ash Woodland.
- 3696 – Western Blue Mountains Rocky Scribbly Gum Woodland.
- 3862 – Newnes Plateau Rockplate Heath.

The dominant PCT and the only PCT retained in this assessment was PCT 3687, which occurs in two condition states, designated 3687_Good and 3687_Moderate. No PCTs recorded during the survey belong to any TEC listed under state or federal legislation. Up to 1.77 ha of PCT 3687 would be impacted by the proposal, chiefly through the removal of understorey vegetation and immature trees. Mature trees would be retained.

In total, 25 ecosystem credit species were generated by the BAM-C. The habitat suitability of the subject land for these species was assessed. Three species were removed from the list due to habitat constraints; consequently, 22 species were assumed present as ecosystem credit species, generating a total of 35 Ecosystem Credits.

Application of the small-area assessment module in the BAM-C returned five species credit species considered to be at risk of a Serious and Irreversible Impact (SAII). One species – the Swift Parrot (*Lathamus discolor*) – could be excluded from consideration as the site does not fall within the area mapped as important habitat for the species. Three further species were eliminated by targeted surveys. The Large-eared Pied Bat (*Chalinolobus dwyeri*) was detected during targeted surveys and is considered present for the purposes of determining offsets. One additional non-SAII species – the Southern Greater Glider (*Petauroides volans*) – was detected during surveys and was added to the offset calculations for the proposal. These two species would generate a total of 115 species credits, comprising 69 credits for the Large-eared Pied Bat and 46 credits for the Southern Greater Glider.

The proponent intends to satisfy their offset obligations by buying and retiring the necessary credits from the open market or, if appropriate credits are not available, by paying directly into the Biodiversity Conservation Fund.

The significance of the proposed impact to EPBC Act-listed threatened, migratory, wetland and marine species, populations and communities predicted to occur within a 10 km search area was assessed. No significant impact to any threatened entity likely to result in the extinction of a local population was identified. The residual ecological impacts of the proposal would be adequately mitigated and offset using the management actions recommended and the offset requirements detailed within this BDAR. Therefore, a referral of the proposal to the Commonwealth DCCEEW for these matters is not considered necessary.

This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment.

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Appendix A: Database Search Results

NSW Biodiversity Values Map

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		23/04/2025 2:39 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**	22,328.4 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	22,266.0 sqm
2.3	**Method for determining Minimum Lot Size**	LEP
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	400,000 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	10,000 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**

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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)

23/04/2025 02:39 PM

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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.

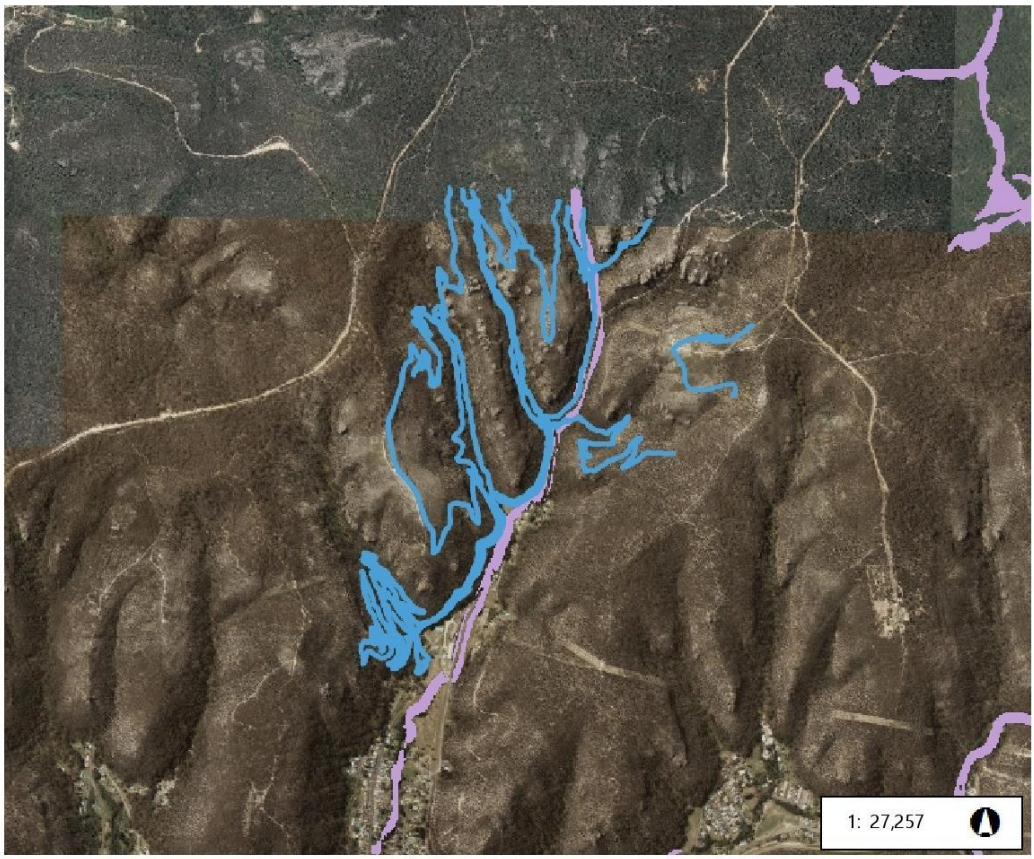
This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

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.

Biodiversity Values Map



1,384.6 0 692.32 1,384.6 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

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Imagery © Airbus DS/Spot Image 2016

© NSW Department of Customer Service, Basemaps 2019

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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.

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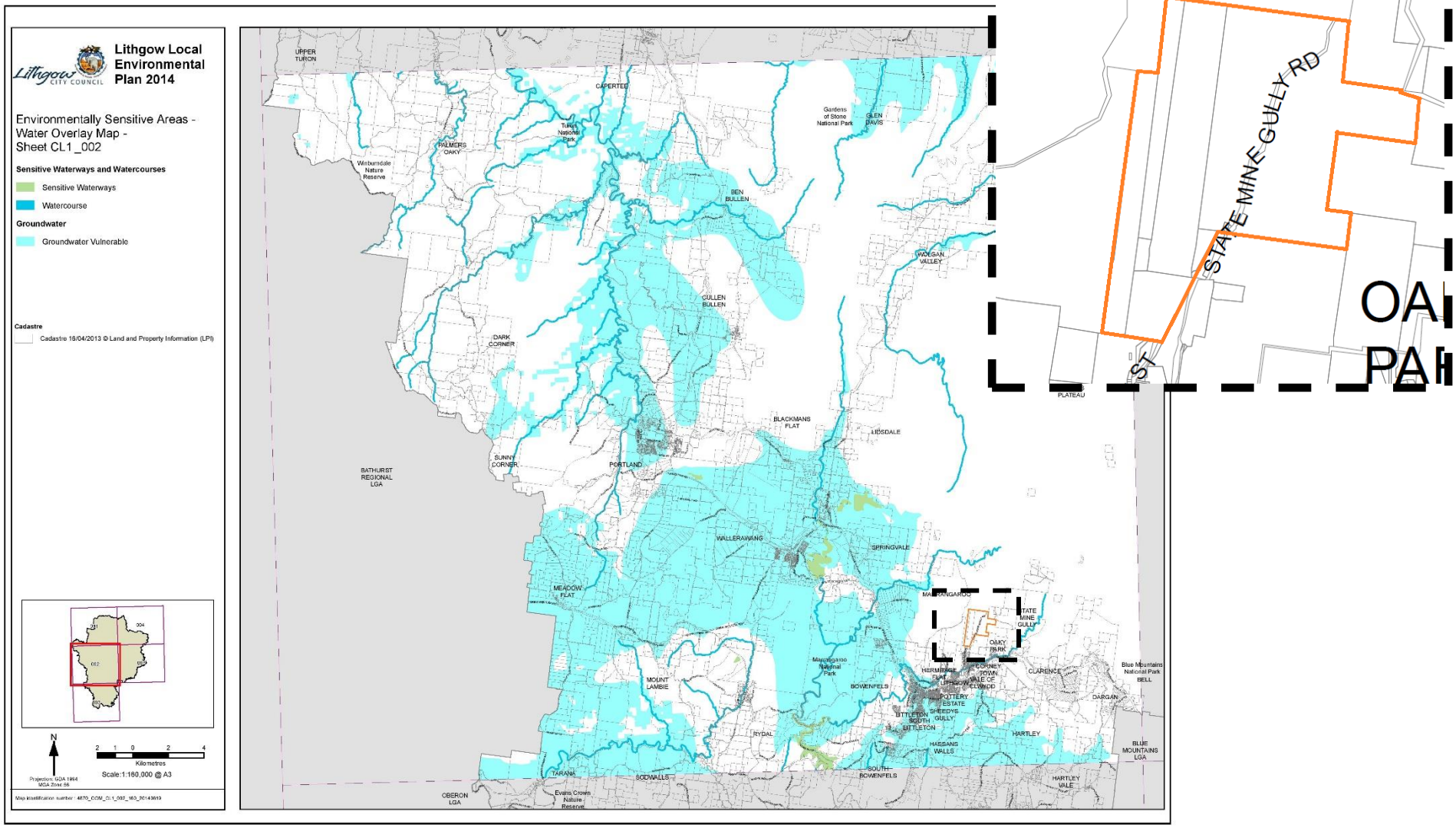
City of Lithgow Local Environmental Plan 2014 – Terrestrial Biodiversity Values Mapping.

The yellow polygon outlines the lots relevant to this proposal.

City of Lithgow Local Environmental Plan 2014 – Groundwater Vulnerability.

The orange polygon outlines the lots relevant to this proposal.



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: 08-Aug-2025

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:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	74
Listed Migratory Species:	9

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:	39
Commonwealth Heritage Places:	None
Listed Marine Species:	20
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:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	30
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Legal Status	Buffer Status
Greater Blue Mountains Area	NSW	Declared property	In buffer area only

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Natural			
The Greater Blue Mountains Area	NSW	Listed place	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community may occur within area	In feature area
Temperate Highland Peat Swamps on Sandstone	Endangered	Community known to occur within area	In feature area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat known to occur within area	In feature area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area	In feature area
FROG			
Heleioporus australiacus australiacus Giant Burrowing Frog, Eastern Owl Frog [92013]	Endangered	Species or species habitat likely to occur within area	In feature area
Litoria booroolongensis Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area	In feature area
Litoria littlejohni Northern Heath Frog, Littlejohn's Tree Frog [64733]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mixophyes balbus			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Paralucia spinifera			
Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Notamacropus parma			
Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Nyctophilus corbeni			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In feature area
Acacia flocktoniae Flockton Wattle [3134]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Acacia meiantha [55608]	Endangered	Species or species habitat known to occur within area	In buffer area only
Asterolasia buxifolia [51321]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Astrotricha crassifolia Thick-leaf Star-hair [10352]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Banksia penicillata a banksia [91058]	Endangered	Species or species habitat known to occur within area	In feature area
Boronia deanei subsp. deanei [78947]	Endangered	Species or species habitat known to occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eucalyptus pulverulenta Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat known to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Haloragodendron lucasii Hal [6480]	Endangered	Species or species habitat may occur within area	In feature area
Hibbertia acaulothrix [87409]	Endangered	Species or species habitat may occur within area	In buffer area only
Hibbertia cistiflora subsp. quadristaminea [91164]	Endangered	Species or species habitat known to occur within area	In feature area
Isopogon fletcheri Fletcher's Drumsticks [19980]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Kunzea cambagei [11420]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leionema lachnaeoides [64924]	Endangered	Species or species habitat may occur within area	In buffer area only
Leptospermum petraeum [21810]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In buffer area only
Leucopogon exolasius Woronora Beard-heath [14251]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Persoonia acerosa Needle Geebung [7232]	Endangered	Species or species habitat known to occur within area	In feature area
Persoonia hindii [65950]	Endangered	Species or species habitat known to occur within area	In feature area
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat may occur within area	In feature area
Persoonia marginata Clandulla Geebung [10852]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In feature area
Pomaderris cotoneaster Cotoneaster Pomaderris [2043]	Endangered	Species or species habitat likely to occur within area	In feature area
Prasophyllum fuscum Tawny Leek-orchid, Slaty Leek-orchid [19455]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In buffer area only
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Pultenaea glabra Smooth Bush-pea, Swamp Bush-pea [11887]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pultenaea parrisiae [56699]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Velleia perfoliata [17190]	Vulnerable	Species or species habitat known to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eulamprus leuraensis Blue Mountains Water Skink [59199]	Endangered	Species or species habitat known to occur within area	In feature area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Endangered	Species or species habitat known to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [12459]	NSW	In buffer area only
Commonwealth Land - Commonwealth Bank of Australia [12454]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12452]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12405]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12453]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12477]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - LITHGOW TRAINING DEPOT - SPDU FOR DISPOSAL [10060]	NSW	In buffer area only
Defence - MARRANGAROO [10102]	NSW	In buffer area only
Defence - MARRANGAROO [10101]	NSW	In buffer area only
Defence - MARRANGAROO [10100]	NSW	In buffer area only
Defence - MARRANGAROO [10107]	NSW	In feature area
Defence - MARRANGAROO [10108]	NSW	In feature area
Defence - MARRANGAROO [10105]	NSW	In buffer area only
Defence - MARRANGAROO [10106]	NSW	In buffer area only
Defence - MARRANGAROO [10103]	NSW	In buffer area only
Defence - MARRANGAROO [10104]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Director of War Service Homes [12451]	NSW	In buffer area only
Unknown		
Commonwealth Land - [12457]	NSW	In buffer area only
Commonwealth Land - [12470]	NSW	In buffer area only
Commonwealth Land - [12455]	NSW	In buffer area only
Commonwealth Land - [12472]	NSW	In buffer area only
Commonwealth Land - [12475]	NSW	In buffer area only
Commonwealth Land - [12450]	NSW	In buffer area only
Commonwealth Land - [12448]	NSW	In buffer area only
Commonwealth Land - [12458]	NSW	In buffer area only
Commonwealth Land - [12449]	NSW	In buffer area only
Commonwealth Land - [12456]	NSW	In buffer area only
Commonwealth Land - [12473]	NSW	In buffer area only
Commonwealth Land - [12461]	NSW	In buffer area only
Commonwealth Land - [12460]	NSW	In buffer area only
Commonwealth Land - [12466]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [12469]	NSW	In buffer area only
Commonwealth Land - [12468]	NSW	In buffer area only
Commonwealth Land - [12471]	NSW	In buffer area only
Commonwealth Land - [12462]	NSW	In buffer area only
Commonwealth Land - [12465]	NSW	In buffer area only
Commonwealth Land - [12464]	NSW	In buffer area only
Commonwealth Land - [12467]	NSW	In buffer area only
Commonwealth Land - [12463]	NSW	In buffer area only

Listed Marine Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans			
Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster			
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor			
Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus			
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis			
Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Blue Mountains	National Park	NSW	In buffer area only
Gardens of Stone	State Conservation Area	NSW	In feature area
Marrangaroo	National Park	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Angus Place West	2022/09270		Assessment	In buffer area only
Clarence Colliery - Secondary Extraction of the 918 and 920 Panels using Partial Extraction Mining Methods	2024/09856		Assessment	In buffer area only
Lake Lyell Pumped Hydro Energy Storage Project	2022/09445		Assessment	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Mount Piper to Wallerawang Transmission Line Upgrade Project	2024/09855		Assessment	In buffer area only
Controlled action				
Angus Place Mine Extension Project, New South Wales	2013/6889	Controlled Action	Completed	In buffer area only
Great Western Highway Upgrade - Mount Victoria to Lithgow	2013/6804	Controlled Action	Post-Approval	In buffer area only
Kables Sand Quarry Depth Extension	2003/934	Controlled Action	Post-Approval	In buffer area only
Longwall mining of longwalls 415, 416, 417 at the existing Springvale Colliery	2011/5949	Controlled Action	Post-Approval	In buffer area only
Longwall mining of Longwalls 910 & 900 W at Angus Place Colliery	2011/5952	Controlled Action	Post-Approval	In buffer area only
Newnes Kaolin Friable Sandstone Mine Project	2002/620	Controlled Action	Post-Approval	In buffer area only
Springvale Longwall Mine Extension Project, NSW	2013/6881	Controlled Action	Post-Approval	In buffer area only
Stage 2 Extension of the Pine Dale Coal Mine	2012/6326	Controlled Action	Completed	In buffer area only
Not controlled action				
Angus Place Ventilation Facility Project, NSW	2012/6414	Not Controlled Action	Completed	In buffer area only
Clarence Colliery Reject Emplacement Area VI, Clarence, NSW	2014/7230	Not Controlled Action	Completed	In buffer area only
Clarence Water Transfer Scheme	2011/6165	Not Controlled Action	Completed	In buffer area only
Environmental monitoring activities at the Angus Place Colliery	2011/6018	Not Controlled Action	Completed	In buffer area only
Environmental Monitoring Activities at the exisitng Springvale Colliery	2009/5258	Not Controlled Action	Completed	In buffer area only
Environmental monitoring activities at the Springvale Colliery	2011/6017	Not Controlled Action	Completed	In buffer area only
Expansion of the existing underground Clarence Colliery to include partial extra	2009/4882	Not Controlled Action	Completed	In buffer area only
Hard rock quarry	2002/814	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Marrangaroo Quarry extraction extension, 4km NW Lthgow, NSW	2014/7297	Not Controlled Action	Completed	In buffer area only
Piezometer Installation at the Existing Clarence Colliery	2009/5147	Not Controlled Action	Completed	In buffer area only
Remediation and Restoration Works within East Wolgan Swamp, NSW	2012/6517	Not Controlled Action	Completed	In buffer area only
Remediation and Restoration Works within Narrow Swamp, NSW	2012/6516	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Constitution Hill Quarry	2011/6151	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Partial Extraction Mining Operations in ML 1583 at the existing Clarence Colliery, NSW	2012/6446	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Clarence Colliery Coal Mining Lease Extension	2001/238	Referral Decision	Completed	In feature area
Partial extraction mining operations	2011/5983	Referral Decision	Completed	In buffer area only

Bioregional Assessments [Resource Information]

SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

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

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BioNET Atlas search – threatened species predicted to occur within the Wollemi subregion of the Sydney Basin bioregion

*NSW Status: P=Protected, P13=Protected native plant, 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: Number of records, P = predicted to occur, K = known to occur.

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Amphibia	^^*Mixophyes balbus*	Stuttering Frog	E1,P,2	V	5
Amphibia	^^*Mixophyes iteratus*	Giant Barred Frog	V,P,2	V	P
Amphibia	*Pseudophryne australis*	Red-crowned Toadlet	V,P		389
Amphibia	*Heleioporus australiacus*	Giant Burrowing Frog	V,P	V	63
Amphibia	*Litoria aurea*	Green and Golden Bell Frog	E1,P	V	P
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	P
Amphibia	*Litoria littlejohni*	Littlejohn's Tree Frog	E1,P	E	34
Reptilia	*Aprasia parapulchella*	Pink-tailed Legless Lizard	V,P	V	P
Reptilia	*Eulamprus leuraensis*	Blue Mountains Water Skink	E1,P	E	974
Reptilia	*Varanus rosenbergi*	Rosenberg's Goanna	V,P		20
Reptilia	^^*Hoplocephalus bungaroides*	Broad-headed Snake	E1,P,2	E	83
Reptilia	*Hoplocephalus stephensii*	Stephens' Banded Snake	V,P		3
Aves	*Oxyura australis*	Blue-billed Duck	V,P		13
Aves	*Apus pacificus*	Fork-tailed Swift	P	C,J,K	10
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K	149
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P		1
Aves	*Botaurus poiciloptilus*	Australasian Bittern	E1,P	E	P
Aves	*Ixobrychus flavicollis*	Black Bittern	V,P		1
Aves	*Circus assimilis*	Spotted Harrier	V,P		3
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P		33
Aves	*Hamirostra melanosternon*	Black-breasted Buzzard	V,P,3		2
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P		42
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3		53
Aves	*Falco subniger*	Black Falcon	V,P		1
Aves	*Pluvialis fulva*	Pacific Golden Plover	P	C,J,K	1
Aves	*Actitis hypoleucos*	Common Sandpiper	P	C,J,K	2
Aves	*Limosa limosa*	Black-tailed Godwit	V,P	E,C,J,K	P
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	E1,P,3	E	1782

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Aves	^^*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	568
Aves	*Lathamus discolor*	Swift Parrot	E1,P	CE	28
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3		70
Aves	*Parvipsitta pusilla*	Little Lorikeet	V,P		144
Aves	*Cuculus optatus*	Oriental Cuckoo	P	C,J,K	6
Aves	*Ninox connivens*	Barking Owl	V,P,3		20
Aves	*Ninox strenua*	Powerful Owl	V,P,3		795
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3		25
Aves	*Tyto tenebricosa*	Sooty Owl	V,P,3		97
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	272
Aves	*Pycnoptilus floccosus*	Pilotbird	V,P	V	1166
Aves	*Aphelocephala leucopsis*	Southern Whiteface	V,P	V	1
Aves	*Pyrrholaemus sagittatus*	Speckled Warbler	V,P		70
Aves	^^*Anthochaera phrygia*	Regent Honeyeater	E4A,P,2	CE	108
Aves	*Epthianura albifrons*	White-fronted Chat	V,P		3
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	9
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		58
Aves	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P		18
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		413
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		241
Aves	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	E1,P	E	27
Aves	*Petroica boodang*	Scarlet Robin	V,P		1405
Aves	*Petroica phoenicea*	Flame Robin	V,P		1013
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	28
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	539
Mammalia	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		1
Mammalia	*Isoodon obesulus obesulus*	Southern Brown Bandicoot (eastern)	E1,P	E	2
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	605
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		230
Mammalia	*Petaurus australis*	Yellow-bellied Glider	V,P	V	1213
Mammalia	*Petaurus norfolcensis*	Squirrel Glider	V,P		32
Mammalia	*Petauroides volans*	Southern Greater Glider	E1,P	E	2074

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	‘Records
Mammalia	*Notamacropus parma*	Parma Wallaby	V,P	V	5
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	249
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	317
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		51
Mammalia	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat	V,P		70
Mammalia	*Chalinolobus dwyeri*	Large-eared Pied Bat	E1,P	E	466
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		374
Mammalia	*Myotis macropus*	Southern Myotis	V,P		29
Mammalia	*Nyctophilus corbeni*	Corben's Long-eared Bat	V,P	V	P
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		79
Mammalia	*Vespadelus troughtoni*	Eastern Cave Bat	V,P		31
Mammalia	*Miniopterus australis*	Little Bent-winged Bat	V,P		13
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		625
Mammalia	*Pseudomys novaehollandiae*	New Holland Mouse	V,P	V	7
Insecta	*Paralucia spinifera*	Purple Copper Butterfly, Bathurst Copper Butterfly	E1	V	51
Insecta	*Petalura gigantea*	Giant Dragonfly	E1		535
Gastropoda	*Meridolum corneovirens*	Cumberland Plain Land Snail	E1		5
Gastropoda	*Pommerhelix duralensis*	Dural Land Snail	E1	E	2
Flora	*Caesia parviflora* var. *minor*	Small Pale Grass-lily	E1		343
Flora	*Cynanchum elegans*	White-flowered Wax Plant	E1	E	5
Flora	*Astrotricha crassifolia*	Thick-leaf Star-hair	V	V	P
Flora	*Leucochrysum albicans subsp. tricolor*	Hoary Sunray	E1	E	1
Flora	*Olearia cordata*		V	V	16
Flora	*Ozothamnus tesselatus*		V	V	1
Flora	*Calomnion complanatum*		E1		P
Flora	*Isotoma fluviatilis* subsp. *fluviatilis*		3	X	1
Flora	*Acrophyllum australe*		V	V	112
Flora	*Carex klaphakei*	Klaphake's Sedge	E1		27
Flora	*Lepidosperma evansianum*	Evans Sedge	V		35
Flora	*Hibbertia puberula*		E1		2
Flora	*Hibbertia superans*		E1		1

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	‘Records
Flora	*Lastreopsis hispida*	Bristly Shield Fern	E1,3		5
Flora	*Tetratheca glandulosa*		V		5
Flora	*Epacris hamiltonii*		E1	E	154
Flora	*Epacris purpurascens var. purpurascens*		V		2
Flora	*Epacris sparsa*	Sparse Heath	V	E	109
Flora	*Leucopogon exolasius*	Woronora Beard-heath	V	V	3
Flora	*Leucopogon fletcheri* subsp. *fletcheri*		V		3445
Flora	*Bertya mollissima*		E1	E	P
Flora	*Senna acclinis*	Rainforest Cassia	E1		1
Flora	*Dillwynia tenuifolia*		V		15
Flora	*Pultenaea aculeata*	Olinda Bush-pea	E1,3	E	53
Flora	*Pultenaea glabra*	Smooth Bush-Pea	V	V	529
Flora	*Pultenaea villifera*	Pultenaea villifera Sieber ex DC. population in the Blue Mountains local government area	E2		575
Flora	*Swainsona recta*	Small Purple-pea	E1	E	2
Flora	*Acacia ausfeldii*	Ausfeld's Wattle	V		12
Flora	*Acacia baueri* subsp. *aspera*		E1	E	23
Flora	*Acacia bynoeana*	Bynoe's Wattle	E1	V	47
Flora	*Acacia flocktoniae*	Flockton Wattle	V	V	K
Flora	*Acacia gordonii*		E1	E	2295
Flora	*Acacia meiantha*		E1	E	135
Flora	*Acacia pubescens*	Downy Wattle	V	V	34
Flora	*Velleia perfoliata*		V	V	9
Flora	*Grammitis stenophylla*	Narrow-leaf Finger Fern	E1,3		16
Flora	*Hygrocybe anomala* var. *ianthinomarginata*		V		P
Flora	*Hygrocybe aurantipes*		V		2
Flora	*Hygrocybe reesiae*		V		P
Flora	*Prostanthera cryptandroides* subsp. *cryptandroides*	Wollemi Mint-bush	V	V	7
Flora	*Prostanthera discolor*		V	V	1
Flora	*Seringia denticulata*	Seringia denticulata in the Hawkesbury local government area	E2		1
Flora	*Baeckea kandos*		E1,3	E	23
Flora	*Callistemon megalongensis*	Megalong Valley Bottlebrush	E4A	CE	2

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	'Records
Flora	*Callistemon purpurascens*		E4A	CE	51
Flora	*Darwinia peduncularis*		V		414
Flora	*Eucalyptus aggregata*	Black Gum	V	V	231
Flora	*Eucalyptus benthamii*	Camden White Gum	E4A	CE	P
Flora	*Eucalyptus cannonii*	Capertee Stringybark	V		190
Flora	*Eucalyptus copulans*		E1,3	E	24
Flora	*Eucalyptus corticosa*	Creswick Apple Box	V		182
Flora	*Eucalyptus pulverulenta*	Silver-leafed Gum	V	V	2
Flora	*Kunzea cambagei*	Cambage Kunzea	V	V	21
Flora	*Melaleuca biconvexa*	Biconvex Paperbark	V	V	1
Flora	*Melaleuca deanei*	Deane's Paperbark	V	V	9
Flora	*Melaleuca groveana*	Grove's Paperbark	V		1
Flora	*Micromyrtus minutiflora*		E1	V	2
Flora	*Rhodamnia rubescens*	Scrub Turpentine	E4A	CE	17
Flora	*Syzygium paniculatum*	Magenta Lilly Pilly	V	V	3
Flora	^^*Cryptostylis hunteriana*	Leafless Tongue Orchid	V,P,2	V	P
Flora	^^*Cymbidium canaliculatum*	Cymbidium canaliculatum population in the Hunter Catchment	E2,P,2		P
Flora	^^*Diuris aequalis*	Buttercup Doubletail	E1,P,2	E	1
Flora	^^*Diuris tricolor*	Pine Donkey Orchid	V,P,2		P
Flora	^^*Genoplesium superbum*	Superb Midge Orchid	E1,P,2		5
Flora	^^*Prasophyllum fuscum*	Slaty Leek Orchid	E4A,P,2	V	6
Flora	^^*Prasophyllum pallens*	Musty Leek Orchid	V,P,2		111
Flora	^^*Pterostylis chaetophora*		V,P,2		1
Flora	^^*Rhizanthella slateri*	Eastern Australian Underground Orchid	V,P,2	E	1
Flora	*Euphrasia bowdeniae*	Blue Mountains Cliff Eyebright	V	V	1400
Flora	*Veronica blakelyi*		E1		3062
Flora	*Veronica lithophila*		E1	E	5
Flora	*Pherosphaera fitzgeraldii*	Dwarf Mountain Pine	E1	E	131
Flora	*Grevillea evansiana*	Evans Grevillea	V	V	317
Flora	*Grevillea juniperina* subsp. *juniperina*	Juniper-leaved Grevillea	V		2
Flora	*Grevillea obtusiflora*		E1	E	1
Flora	*Grevillea parviflora* subsp. *parviflora*	Small-flower Grevillea	V	V	982
Flora	*Isopogon fletcheri*	Fletcher's Drumsticks	V,P	V	335
Flora	*Persoonia acerosa*	Needle Geebung	V,P	E	437

Clade	Scientific Name	Common Name	*NSW status	+Comm. status	‘Records
Flora	*Persoonia hindii*		E1,P	E	2136
Flora	*Persoonia hirsuta*	Hairy Geebung	E1,P,3	E	12
Flora	*Persoonia marginata*	Clandulla Geebung	V,P	V	6
Flora	*Persoonia mollis* subsp. *revoluta*		V,P	V	2
Flora	*Persoonia oxycoccoides*		E1,P	E	2
Flora	*Pomaderris brunnea*	Brown Pomaderris	E1	V	6
Flora	*Pomaderris cotoneaster*	Cotoneaster Pomaderris	E1	E	P
Flora	*Pomaderris sericea*	Silky Pomaderris	E1	CE	P
Flora	*Asterolasia buxifolia*		E4A	CE	1
Flora	*Boronia deanei*	Deane's Boronia	V,P	V	2151
Flora	*Leionema lachnaeoides*		E1	E	62
Flora	^^*Leionema lamprophyllum* subsp. *fractum*		E4A,2	CE	P
Flora	*Leionema scopulinum*		E1		48
Flora	*Leionema sympetalum*	Rylstone Bell	V	V	54
Flora	*Phebalium bifidum*		E1,P		801
Flora	*Zieria involucrata*		E1	V	1088
Flora	*Zieria murphyi*	Velvet Zieria	V	V	9

BioNET Atlas search – threatened species predicted to occur within the Wollemi subregion of the Sydney Basin bioregion

*NSW Status: E3=Endangered Ecological Community, E4B= Critically Endangered Ecological Community

+Comm. Status: CE=Critically Endangered, E=Endangered.

[1]Records: K = known, P= predicted.

TEC	*NSW status	+Comm. status	[1]Records
Blue Mountains Basalt Forest in the Sydney Basin Bioregion	E3		K
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	E3		K
Blue Mountains Swamps in the Sydney Basin Bioregion	V2		K
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion		E	K
Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion	V2		K
Castlereagh Swamp Woodland Community	E3		K
Central Hunter Valley eucalypt forest and woodland		CE	K
Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community		E	K
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland		E	K
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion	E3		K
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion		CE	K
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest		CE	K
Cumberland Plain Woodland in the Sydney Basin Bioregion	E4B		K
Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion		CE	K
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia		E	K
Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	V2		P
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3		K
Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion	E3		K
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria		CE	K
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K
Shale Gravel Transition Forest in the Sydney Basin Bioregion	E3		K
Shale Sandstone Transition Forest in the Sydney Basin Bioregion	E4B		K
Shale Sandstone Transition Forest of the Sydney Basin Bioregion		CE	K
Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion	E3		P
Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	E4B		K
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		P
Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion	E4B		K
Temperate Highland Peat Swamps on Sandstone		E	K

TEC	*NSW status	+Comm. status	[1]Records
Turpentine-Ironbark Forest of the Sydney Basin Bioregion		CE	K
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion		E	K
Western Sydney Dry Rainforest and Moist Woodland on Shale		CE	K
Western Sydney Dry Rainforest in the Sydney Basin Bioregion	E3		K
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B		K
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		CE	K

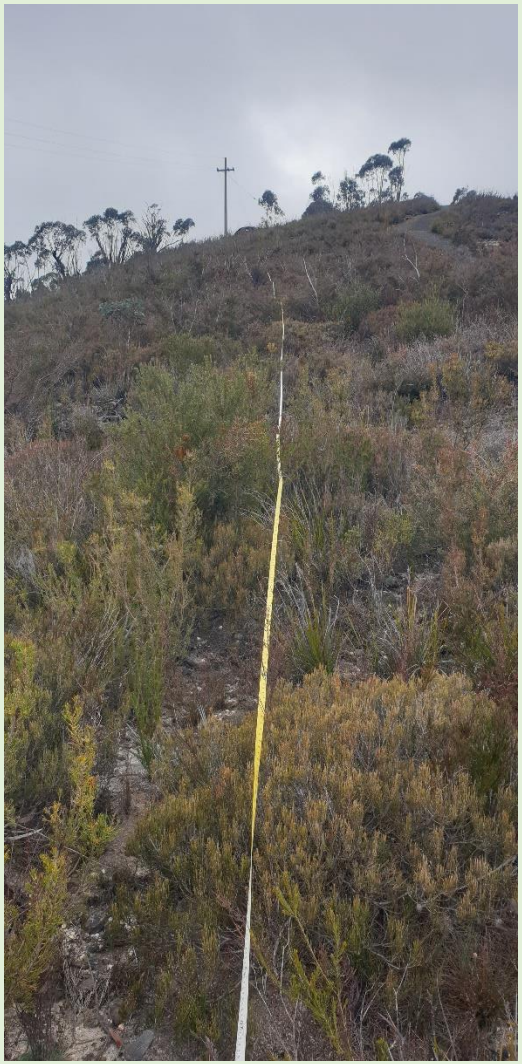
BioNET Atlas search – key threatening processes (KTPs) predicted to occur within the Wollemi subregion of the Sydney Basin bioregion

Common Name	NSW status	Comm status	Records
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)	KTP	KTP	P
Alteration of habitat following subsidence due to longwall mining	KTP		P
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		P
Anthropogenic Climate Change	KTP	KTP	P
Bushrock removal	KTP		P
Clearing of native vegetation	KTP	KTP	P
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)	KTP	KTP	P
Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758	KTP	KTP	P
Competition from feral honey bees, *Apis mellifera* L.	KTP		P
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		P
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758	KTP		P
Herbivory and environmental degradation caused by feral deer	KTP		P
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		P
Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972	KTP	KTP	P
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	P
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	KTP		P
Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)	KTP		P
Invasion and establishment of exotic vines and scramblers	KTP		P
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP		P
Invasion and establishment of the Cane Toad (Bufo marinus)	KTP	KTP	P
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.	KTP		P
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP		P
Invasion of native plant communities by exotic perennial grasses	KTP		P
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW	KTP		P
Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)	KTP		P
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P
Loss of Hollow-bearing Trees	KTP		P
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		P
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP		P
Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		P
Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)	KTP	KTP	P
Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)	KTP	KTP	P
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758	KTP	KTP	P
Removal of dead wood and dead trees	KTP		P

Appendix B: BAM Plot Locations and Photographs

Plot Name	PCT	Condition	Easting (Zone 56)	Northing (Zone 56)	Photographs	
LI01	3688	Moderate	236917	6295600		

LI02	3687	Good	236753	6294092		

LI03	3862	Moderate	237840	6295364		

LI04	3696	Good	237737	6294910		

LI05	3687	Moderate	236707	6294163		

LI06	3687	Good	236722	6294092		

LI07	3862	Moderate	237288	6295487		

Appendix C: Field Survey Results

Fauna species list

In total, 97 fauna species were detected during the field surveys. Of these, 95 (97.94%) were native and two (2.06%) introduced. Twelve fauna species listed as threatened under the BC Act and/or EPBC Act were recorded during site surveys (**Section 4.5**). Detected fauna species are given in the table below.

Class	Scientific name	Common name	Status[1]	BC Act Status	EPBC Act Status
Actinopterygii	*Galaxias olidus*	Mountain Galaxias	N	-	-
Amphibia	*Crinia signifera*	Common Eastern Froglet	N	-	-
Amphibia	*Crinia parinsignifera*	Eastern Sign-bearing Froglet	N	-	-
Amphibia	*Limnodynastes dumerilii*	Eastern Banjo Frog	N	-	-
Amphibia	*Litoria citropa*	Blue Mountains Tree Frog	N	-	-
Amphibia	*Litoria jervisiensis*	Jervis Bay Tree Frog	N	-	-
Amphibia	*Uperoleia laevigata*	Smooth Toadlet	N	-	-
Aves	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	N	-	-
Aves	*Acanthiza lineata*	Striated Thornbill	N	-	-
Aves	*Acanthiza pusilla*	Brown Thornbill	N	-	-
Aves	*Acanthiza reguloides*	Buff-rumped Thornbill	N	-	-
Aves	*Acanthorhynchus tenuirostris*	Eastern Spinebill	N	-	-
Aves	*Alisterus scapularis*	Australian King-Parrot	N	-	-
Aves	*Anthochaera carunculata*	Red Wattlebird	N	-	-
Aves	*Aquila audax*	Wedge-tailed Eagle	N	-	-
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	N	V	-
Aves	*Cacatua galerita*	Sulphur-crested Cockatoo	N	-	-
Aves	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	N	-	-
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	N	E	E
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	N	V	V
Aves	*Calyptorhynchus funereus*	Yellow-tailed Black Cockatoo	N	-	-
Aves	*Colluricincla harmonica*	Grey Shrike-thrush	N	-	-

Class	Scientific name	Common name	Status[1]	BC Act Status	EPBC Act Status
Aves	*Cormobates leucophaea*	White-throated Treecreeper	N	-	-
Aves	*Corvus coronoides*	Australian Raven	N	-	-
Aves	*Dacelo novaeguineae*	Laughing Kookaburra	N	-	-
Aves	*Daphoenositta chrysoptera*	Varied Sittella	N	V	-
Aves	*Eolophus roseicapilla*	Galah	N	-	-
Aves	*Eopsaltria australis*	Eastern Yellow Robin	N	-	-
Aves	*Eurostopodus mystacalis*	White-throated Nightjar	N	-	-
Aves	*Falco cenchroides*	Nankeen Kestrel	N	-	-
Aves	*Gymnorhina tibicen*	Australian Magpie	N	-	-
Aves	*Lichenostomus chrysops*	Yellow-faced Honeyeater	N	-	-
Aves	*Malurus cyaneus*	Superb Fairy-wren	N	-	-
Aves	*Menura novaehollandiae*	Superb Lyrebird	N	-	-
Aves	*Neochmia temporalis*	Red-browed Finch	N	-	-
Aves	*Nesoptilotis leucotis*	White-eared Honeyeater	N	-	-
Aves	*Ninox novaeseelandiae*	Southern Boobook	N	-	-
Aves	*Ocyphaps lophotes*	Crested Pigeon	N	-	-
Aves	*Origma solitaria*	Rock Warbler	N	-	-
Aves	*Pachycephala inornata*	Gilbert's Whistler	N	V	-
Aves	*Pachycephala pectoralis*	Golden Whistler	N	-	-
Aves	*Pachycephala rufiventris*	Rufous Whistler	N	-	-
Aves	*Pardalotus punctatus*	Spotted Pardalote	N	-	-
Aves	*Pardalotus striatus*	Striated Pardalote	N	-	-
Aves	*Petroica boodang*	Scarlet Robin	N	V	-
Aves	*Petroica phoenicea*	Flame Robin	N	V	Marine
Aves	*Petroica rosea*	Rose Robin	N	-	-
Aves	*Philemon citreogularis*	Little Friarbird	N	-	-
Aves	*Phylidonyris pyrrhopterus*	Crescent Honeyeater	N	-	-
Aves	*Platycercus elegans*	Crimson Rosella	N	-	-
Aves	*Platycercus eximius*	Eastern Rosella	N	-	-
Aves	*Podargus strigoides*	Tawny Frogmouth	N	-	-
Aves	*Psophodes olivaceus*	Eastern Whipbird	N	-	-
Aves	*Pycnoptilus floccosus*	Pilotbird	N	V	V
Aves	*Rhipidura albiscapa*	Grey Fantail	N	-	-

Class	Scientific name	Common name	Status[1]	BC Act Status	EPBC Act Status
Aves	*Sericornis frontalis*	White-browed Scrubwren	N	-	-
Aves	*Stagonopleura bella*	Beautiful Firetail	N	-	-
Aves	*Strepera graculina*	Pied Currawong	N	-	-
Aves	*Zosterops lateralis*	Silvereye	N	-	-
Insecta	*Belenois java*	Caper White	N	-	-
Insecta	*Delias harpalyce*	Imperial Jezebel Butterfly	N	-	-
Insecta	*Heteronympha merope*	Common Brown Butterfly	N	-	-
Insecta	*Junonia villida*	Meadow Argus	N	-	-
Insecta	*Ocybadistes walkeri*	Greenish Grass-dart	N	-	-
Insecta	*Tisiphone abeona*	Swordgrass Brown	N	-	-
Insecta	*Vanessa itea*	Yellow Admiral	N	-	-
Insecta	*Vanessa kershawi*	Australian Painted Lady	N	-	-
Mammalia	*Antechinus* sp.	Antechinus	N	-	-
Mammalia	*Austronomus australis*	White-striped Free-tailed Bat	N	-	-
Mammalia	*Chalinolobus dwyeri*	Large-eared Pied Bat	N	E	E
Mammalia	*Chalinolobus gouldii*	Gould's Wattled Bat	N	-	-
Mammalia	*Chalinolobus morio*	Chocolate Wattled Bat	N	-	-
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	N	V	E
Mammalia	*Felis catus*	Feral Cat	I	-	-
Mammalia	*Macropus giganteus*	Eastern Grey Kangaroo	N	-	-
Mammalia	*Miniopterus orianae oceanensis*	Large Bentwing Bat	N	V	-
Mammalia	*Nyctophilus geoffroyi*	Lesser Long-eared Bat	N	-	-
Mammalia	*Nyctophilus gouldi*	Gould's Long-eared Bat	N	-	-
Mammalia	*Oryctolagus cuniculus*	European Rabbit	I	-	-
Mammalia	*Osphranter robustus*	Common Wallaroo	N	-	-
Mammalia	*Perameles nasuta*	Long-nosed Bandicoot	N	-	-
Mammalia	*Petauroides volans*	Southern Greater Glider	N	E	E
Mammalia	*Petaurus notatus*	Krefft's Glider	N	-	-
Mammalia	*Pseudocheirus peregrinus*	Common Ringtail Possum	N	-	-
Mammalia	*Rattus lutreolus*	Eastern Swamp Rat	N	-	-
Mammalia	*Rhinolophus megaphyllus*	Eastern Horseshoe Bat	N	-	-
Mammalia	*Trichosurus vulpecula*	Brushtail Possum	N	-	-

Class	Scientific name	Common name	Status[1]	BC Act Status	EPBC Act Status
Mammalia	*Vespadelus darlingtoni*	Large Forest Bat	N	-	-
Mammalia	*Vespadelus regulus*	Southern Forest Bat	N	-	-
Mammalia	*Vombatus ursinus*	Common Wombat	N	-	-
Mammalia	*Wallabia bicolor*	Swamp Wallaby	N	-	-
Reptilia	*Ctenotus taeniolatus*	Copper-tailed Skink	N	-	-
Reptilia	*Egernia saxatilis*	Black Rock Skink	N	-	-
Reptilia	*Intellagama lesueurii*	Australian Water Dragon	N	-	-
Reptilia	*Rankinia diemensis*	Mountain Dragon	N	-	-
Reptilia	*Tiliqua nigrolutea*	Blotched Blue-tongue	N	-	-
Reptilia	*Tiliqua scincoides*	Eastern Blue-tongue	N	-	-

[1]N=Native, I=Introduced.

Flora Species List

In total, 177 plant species were detected during the site surveys; these species are given in the table below. Of this number, 161 (90.96%) are native and 16 (9.04%) are introduced. Five are listed as High-threat Exotic species (HTE) under the BAM. Two HTE species – Scotch Broom (*Cytisus scoparius*) and Blackberry (*Rubus fruticosus* species aggregate) – are also listed as Weeds of National Significance (WoNS). These species, along with St John's Wort (*Hypericum perforatum*) and an unidentified willow (*Salix* sp.), are also listed as Priority Weeds (PW) for the Central Tablelands LLS region.

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
TG	*Acacia dealbata*	Silver Wattle	N	No	No	No
TG	*Eucalyptus blaxlandii*	Blaxland's Stringybark	N	No	No	No
TG	*Eucalyptus dalrympleana*	Mountain Gum	N	No	No	No
TG	*Eucalyptus dives*	Broad-Leaved Peppermint	N	No	No	No
TG	*Eucalyptus fastigata*	Brown Barrel	N	No	No	No
TG	*Eucalyptus gregsoniana*	Mallee Snow Gum	N	No	No	No
TG	*Eucalyptus oreades*	Blue Mountains Ash	N	No	No	No
TG	*Eucalyptus piperita*	Sydney Peppermint	N	No	No	No
TG	*Eucalyptus racemosa*	Narrow-Leaved Scribbly Gum	N	No	No	No
TG	*Eucalyptus radiata*	Narrow-Leaved Peppermint	N	No	No	No
TG	*Eucalyptus rossii*	Inland Scribbly Gum	N	No	No	No
TG	*Eucalyptus sieberi*	Silvertop Ash	N	No	No	No
TG	*Quintinia sieberi*	Possumwood	N	No	No	No
SG	*Acacia asparagoides*	Wattle	N	No	No	No
SG	*Acacia falciformis*	Broad-Leaved Hickory	N	No	No	No
SG	*Acacia longifolia*	Sydney Golden Wattle	N	No	No	No
SG	*Acacia terminalis*	Sunshine Wattle	N	No	No	No
SG	*Acacia ulicifolia*	Prickly Moses	N	No	No	No
SG	*Allocasuarina nana*	Dwarf She-Oak	N	No	No	No
SG	*Amperea xiphoclada*	Broom Spurge	N	No	No	No
SG	*Banksia ericifolia*	Heath-Leaved Banksia	N	No	No	No
SG	*Banksia spinulosa*	Hairpin Banksia	N	No	No	No
SG	*Boronia microphylla*	Small Leaved Boronia	N	No	No	No
SG	*Boronia rigens*	Stiff Boronia	N	No	No	No
SG	*Brachyloma daphnoides*	Daphne Heath	N	No	No	No

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
SG	*Bursaria spinosa*	Blackthorn	N	No	No	No
SG	*Calytrix tetragona*	Common Fringe-Myrtle	N	No	No	No
SG	*Cassinia aculeata*	Dolly Bush	N	No	No	No
SG	*Comesperma ericinum*	Pyramid Flower	N	No	No	No
SG	*Conospermum taxifolium*	Variable Smoke-Bush	N	No	No	No
SG	*Coprosma hirtella*	Coffee-Berry	N	No	No	No
SG	*Cryptandra amara*	Bitter Cryptandra	N	No	No	No
SG	*Cryptandra propinqua*	Cryptandra	N	No	No	No
SG	*Daviesia latifolia*	Hop Bitter-Pea	N	No	No	No
SG	*Dillwynia acicularis*	Parrot-pea	N	No	No	No
SG	*Dillwynia floribunda*	Parrot-pea	N	No	No	No
SG	*Dillwynia retorta*	Parrot-pea	N	No	No	No
SG	*Dracophyllum secundum*	Dracophyllum	N	No	No	No
SG	*Epacris longiflora*	Fuchsia Heath	N	No	No	No
SG	*Epacris microphylla*	Coral Heath	N	No	No	No
SG	*Epacris obtusifolia*	Blunt-Leaf Heath	N	No	No	No
SG	*Epacris paludosa*	Swamp Heath	N	No	No	No
SG	*Epacris purpurascens*	Heath	N	No	No	No
SG	*Gompholobium uncinatum*	Red Wedge Pea	N	No	No	No
SG	*Grevillea laurifolia*	Laurel-Leaf Grevillea	N	No	No	No
SG	*Hakea dactyloides*	Finger Hakea	N	No	No	No
SG	*Hakea laevipes*	Hakea	N	No	No	No
SG	*Hakea pachyphylla*	Hakea	N	No	No	No
SG	*Indigofera australis*	Australian Indigo	N	No	No	No
SG	*Isopogon anemonifolius*	Broad-Leaf Drumsticks	N	No	No	No
SG	*Leptospermum arachnoides*	Tea-tree	N	No	No	No
SG	*Leptospermum macrocarpum*	Tea-tree	N	No	No	No
SG	*Leptospermum parvifolium*	Tea-tree	N	No	No	No
SG	*Leptospermum polygalifolium*	Tantoon	N	No	No	No
SG	*Leptospermum trinervium*	Flaky-Barked Tea-Tree	N	No	No	No
SG	*Leucopogon ericoides*	Pink Beard-Heath	N	No	No	No
SG	*Leucopogon lanceolatus*	Beard-heath	N	No	No	No
SG	*Leucopogon microphyllus*	Beard-heath	N	No	No	No
SG	*Leucopogon muticus*	Blunt Beard-Heath	N	No	No	No

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
SG	*Lissanthe strigosa*	Peach Heath	N	No	No	No
SG	*Lomatia myricoides*	River Lomatia	N	No	No	No
SG	*Lomatia silaifolia*	Crinkle Bush	N	No	No	No
SG	*Mirbelia platylobioides*	Mirbelia	N	No	No	No
SG	*Monotoca scoparia*	Monotoca	N	No	No	No
SG	*Ozothamnus diosmifolius*	Rice Flower	N	No	No	No
SG	*Persoonia chamaepitys*	Prostrate Geebung	N	No	No	No
SG	*Persoonia linearis*	Narrow-Leaved Geebung	N	No	No	No
SG	*Persoonia myrtilloides*	Geebung	N	No	No	No
SG	*Petrophile pulchella*	Conesticks	N	No	No	No
SG	*Philotheca obovalis*	Philotheca	N	No	No	No
SG	*Phyllanthus hirtellus*	Thyme Spurge	N	No	No	No
SG	*Phyllota squarrosa*	Dense Phyllota	N	No	No	No
SG	*Pimelea linifolia*	Slender Rice Flower	N	No	No	No
SG	*Platysace lanceolata*	Shrubby Platysace	N	No	No	No
SG	*Platysace linearifolia*	Platysace	N	No	No	No
SG	*Podolobium ilicifolium*	Prickly Shaggy Pea	N	No	No	No
SG	*Polyscias sambucifolia*	Elderberry Panax	N	No	No	No
SG	*Pomaderris andromedifolia*	Pomaderris	N	No	No	No
SG	*Pultenaea scabra*	Rough Bush-Pea	N	No	No	No
SG	*Pultenaea tuberculata*	Wreath Bush-Pea	N	No	No	No
SG	*Rubus parvifolius*	Native Raspberry	N	No	No	No
SG	*Sphaerolobium minus*	Sphaerolobium	N	No	No	No
SG	*Tetratheca rubioides*	Tetratheca	N	No	No	No
GG	*Caustis flexuosa*	Curly Wig	N	No	No	No
GG	*Cynodon dactylon*	Couch	N	No	No	No
GG	*Cyperus sphaeroideus*	Rush	N	No	No	No
GG	*Dichelachne inaequiglumis*	Plumegrass	N	No	No	No
GG	*Gahnia clarkei*	Tall Saw-Sedge	N	No	No	No
GG	*Gahnia sieberiana*	Red-Fruit Saw-Sedge	N	No	No	No
GG	*Lepidosperma laterale*	Variable Sword-Sedge	N	No	No	No
GG	*Lomandra glauca*	Pale Mat-Rush	N	No	No	No
GG	*Lomandra longifolia*	Spiny-Headed Mat-Rush	N	No	No	No
GG	*Lomandra multiflora*	Many-Flowered Mat-Rush	N	No	No	No

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
GG	*Luzula flaccida*	Woodrush	N	No	No	No
GG	*Microlaena stipoides*	Weeping Grass	N	No	No	No
GG	*Poa sieberiana*	Snowgrass	N	No	No	No
GG	*Ptilothrix deusta*	Rush	N	No	No	No
GG	*Rytidosperma pallidum*	Red-anther Wallaby Grass	N	No	No	No
GG	*Schoenus ericetorum*	Heath Bog-Rush	N	No	No	No
FG	*Acaena agnipila*	Sheep's Burr	N	No	No	No
FG	*Arrhenechthites mixtus*	Purple Fireweed	N	No	No	No
FG	*Caladenia carnea*	Pink Fingers	N	No	No	No
FG	*Caladenia dimorpha*	Caladenia	N	No	No	No
FG	*Caladenia fuscata*	Dusky Fingers	N	No	No	No
FG	*Caladenia moschata*	Musky Caladenia	N	No	No	No
FG	*Caladenia transitoria*	Bronze Caladenia	N	No	No	No
FG	*Coronidium scorpioides*	Button Everlasting	N	No	No	No
FG	*Craspedia variabilis*	Common Billy Buttons	N	No	No	No
FG	*Dampiera stricta*	Dampiera	N	No	No	No
FG	*Dianella caerulea*	Blue Flax-Lily	N	No	No	No
FG	*Dianella revoluta*	Black-anther Flax-Lily	N	No	No	No
FG	*Dianella tasmanica*	Tasman Flax-Lily	N	No	No	No
FG	*Dichondra repens*	Kidney Weed	N	No	No	No
FG	*Drosera binata*	Forked Sundew	N	No	No	No
FG	*Drosera hookeri*	Sundew	N	No	No	No
FG	*Euchiton japonicus*	Creeping Cudweed	N	No	No	No
FG	*Galium binifolium*	Galium	N	No	No	No
FG	*Geranium solanderi*	Native Geranium	N	No	No	No
FG	*Gonocarpus humilis*	Raspwort	N	No	No	No
FG	*Gonocarpus teucrioides*	Raspwort	N	No	No	No
FG	*Goodenia bellidifolia*	Goodenia	N	No	No	No
FG	*Haemodorum planifolium*	Bloodroot	N	No	No	No
FG	*Hydrocotyle laxiflora*	Stinking Pennywort	N	No	No	No
FG	*Hydrocotyle sibthorpioides*	Pennywort	N	No	No	No
FG	*Microtis unifolia*	Common Onion Orchid	N	No	No	No
FG	*Mitrasacme pilosa*	Mitrasacme	N	No	No	No
FG	*Patersonia sericea*	Silky Purple-Flag	N	No	No	No
FG	*Pomax umbellata*	Pomax	N	No	No	No

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
FG	*Pterostylis bicolor*	Black-Tip Greenhood	N	No	No	No
FG	*Pterostylis parviflora*	Tiny Greenhood	N	No	No	No
FG	*Pterostylis pedunculata*	Maroonhood	N	No	No	No
FG	*Senecio velleioides*	Groundsel	N	No	No	No
FG	*Solenogyne bellioides*	Solenogyne	N	No	No	No
FG	*Sowerbaea juncea*	Rush Lily	N	No	No	No
FG	*Stackhousia monogyna*	Creamy Candles	N	No	No	No
FG	*Stellaria pungens*	Prickly Starwort	N	No	No	No
FG	*Stylidium lineare*	Narrow-Leaved Triggerplant	N	No	No	No
FG	*Thelionema caespitosum*	Tufted Blue Lily	N	No	No	No
FG	*Thelymitra ixioides*	Dotted Sun Orchid	N	No	No	No
FG	*Thelymitra pauciflora*	Slender Sun Orchid	N	No	No	No
FG	*Veronica calycina*	Hairy Speedwell	N	No	No	No
FG	*Veronica derwentiana* subsp. *subglauca*	Speedwell	N	No	No	No
FG	*Veronica serpyllifolia*	Thyme Speedwell	N	No	No	No
FG	*Viola hederacea*	Ivy-Leaved Violet	N	No	No	No
FG	*Xanthosia pilosa*	Woolly Xanthosia	N	No	No	No
EG	*Asplenium flabellifolium*	Necklace Fern	N	No	No	No
EG	*Blechnum nudum*	Fishbone Water Fern	N	No	No	No
EG	*Gleichenia dicarpa*	Pouched Coral Fern	N	No	No	No
EG	*Lycopodium deuterodensum*	Bushy Clubmoss	N	No	No	No
EG	*Pteridium esculentum*	Common Bracken	N	No	No	No
EG	*Sticherus flabellatus* var. *flabellatus*	Umbrella Fern	N	No	No	No
EG	*Sticherus lobatus*	Spreading Shield Fern	N	No	No	No
OG	*Amyema pendula*	Mistletoe	N	No	No	No
OG	*Billardiera scandens*	Hairy Apple Berry	N	No	No	No
OG	*Cassytha pubescens*	Devil's Twine	N	No	No	No
OG	*Clematis aristata*	Old Man's Beard	N	No	No	No
OG	*Clematis glycinoides*	Headache Vine	N	No	No	No
OG	*Comesperma volubile*	Love Creeper	N	No	No	No
OG	*Cyathea australis*	Black Tree-Fern	N	No	No	No
OG	*Glycine microphylla*	Small-Leaf Glycine	N	No	No	No
OG	*Hardenbergia violacea*	Purple Coral Pea	N	No	No	No

[1]Growth Form	Scientific Name	Common Name	[2]Status	[3]HTE	[4]WoNS	[5]PW
TG	*Populus* × *canescens*	Grey Poplar	I	Yes	No	No
TG	*Salix* sp.	Willow	I	Yes	No	Yes
SG	*Buddleja davidii*	Buddleja	I	No	No	No
SG	*Cytisus scoparius*	Scotch Broom	I	Yes	Yes	Yes
SG	*Rubus fruticosus* species aggregate	Blackberry	I	Yes	Yes	Yes
GG	*Anthoxanthum odoratum*	Sweet Vernal Grass	I	No	No	No
FG	*Centaurium erythraea*	Common Centaury	I	No	No	No
FG	*Cirsium vulgare*	Spear Thistle	I	No	No	No
FG	*Conyza sumatrensis*	Tall Fleabane	I	No	No	No
FG	*Echium vulgare*	Vipers Bugloss	I	No	No	No
FG	*Hypericum perforatum*	St. John's Wort	I	Yes	No	Yes
FG	*Hypochaeris radicata*	Flatweed	I	No	No	No
FG	*Lysimachia arvensis*	Scarlet Pimpernel, Blue Pimpernel	I	No	No	No
FG	*Medicago arabica*	Spotted Burr Medic	I	No	No	No
FG	*Rumex acetosella*	Sheep Sorrel	I	No	No	No
FG	*Verbena bonariensis*	Purpletop	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, E = exotic. [3]High-threat exotic species (Yes/No). [4]Weed of National Significance (Yes/No). [5]Priority weed for the Central Tablelands (Yes/No).

BAM Data Sheets

BAM Plot - Field Survey Sheet

Date	16/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI01	**Zone ID**	3688_Mod.
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			329
Easting	236917	**Northing**	6295600	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Dry Sclerophyll Forests
Plant Community Type	3688 — **Condition state** Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	2
	Shrubs	16
	Grasses etc	3
	Forbs	2
	Ferns	0
	Other	0
Cover (sum of cover of natives species)	**Trees**	16
	Shrubs	61.3
	Grasses etc	17.2
	Forbs	0.2
	Ferns	0
	Other	0
High threat weed cover		0

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	+	For multistemmed trees, record only the largest stem
20 - 29	+	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	1
Length of logs		Total (m)
		81

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	25	25	50	10	10	24
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Page 2 of (2)

Date	16/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI01	Zone ID	3688_Mod.
GF code	*Genus species* (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
TG	*Eucalyptus sieberi*		15		N	
TG	*Eucalyptus oreades*		1		N	
SG	*Leptospermum polygalifolium*		2		N	
SG	*Acacia terminalis*		1		N	
SG	*Banksia spinulosa*		0.3	1	N	
SG	*Platysace linearifolia*		35		N	
SG	*Boronia microphylla*		0.1	20	N	
GG	*Caustis flexuosa*		15		N	
SG	*Monotoca scoparia*		1		N	
FG	*Patersonia sericea*		0.1	4	N	
SG	*Acacia ulicifolia*		0.2	8	N	
SG	*Lomatia silaifolia*		0.2	20	N	
SG	*Petrophile pulchella*		1		N	
SG	*Isopogon anemonifolius*		18		N	
GG	*Lomandra glauca*		2		N	
SG	*Dillwynia retorta*		0.2	2	N	
SG	*Brachyloma daphnoides*		1		N	
SG	*Acacia longifolia*		0.1	10	N	
GG	*Lepidosperma laterale*		0.2	1	N	
SG	*Pultenaea tuberculata*		1		N	
FG	*Goodenia bellidifolia*		0.1	40	N	
SG	*Platysace lanceolata*		0.1	3	N	
SG	*Amperea xiphoclada*		0.1	5	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Date	16/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI02	**Zone ID**	3687_Good
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			323
Easting	236753	**Northing**	6294092	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Dry Sclerophyll Forests
Plant Community Type	3687 **Condition state** Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	2
	Shrubs	18
	Grasses etc	1
	Forbs	9
	Ferns	3
	Other	2
Cover (sum of cover of natives species)	**Trees**	25
	Shrubs	39
	Grasses etc	1
	Forbs	25.7
	Ferns	23.2
	Other	0.2
High threat weed cover		0

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	2	Stem size class records # large trees (cf. benchmark)
50 - 79	2	Record stems for living trees only, and for all species
30 - 49	+	For multistemmed trees, record only the largest stem
20 - 29	+	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	+	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	1
Length of logs		Total (m) 41

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	90	90	50	75	75	76
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Date	16/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI02	Zone ID	3687_Good
GF code	***Genus species*** (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
TG	*Eucalyptus fastigata*		15		N	
EG	*Pteridium esculentum*		20		N	
SG	*Lomatia silaifolia*		10		N	
SG	*Acacia ulicifolia*		1		N	
SG	*Acacia longifolia*		3		N	
SG	*Bursaria spinosa*		10		N	
EG	*Sticherus lobatus*		0.2	30	N	
SG	*Monotoca scoparia*		1		N	
SG	*Acacia falciformis*		10		N	
SG	*Daviesia latifolia*		1		N	
FG	*Galium binifolium*		0.1	20	N	
FG	*Xanthosia pilosa*		0.1	20	N	
FG	*Dianella caerulea*		15		N	
SG	*Acacia terminalis*		0.2	4	N	
OG	*Billardiera scandens*		0.1	5	N	
SG	*Coprosma hirtella*		0.1	1	N	
SG	*Comesperma ericinum*		0.1	5	N	
FG	*Hydrocotyle sibthorpioides*		0.1	10	N	
SG	*Amperea xiphoclada*		0.1	10	N	
GG	*Dichelachne inaequiglumis*		1		N	
EG	*Blechnum nudum*		3		N	
FG	*Geranium solanderi*		0.1	20	N	
SG	*Epacris longiflora*		0.1	8	N	
SG	*Pultenaea scabra*		0.1	8	N	
SG	*Leucopogon lanceolatus*		0.1	4	N	
SG	*Persoonia myrtilloides*		0.1	1	N	
FG	*Hypochaeris radicata*		0.1	1	E	
TG	*Eucalyptus radiata*		10		N	
FG	*Coronidium scorpioides*		0.1	20	N	
OG	*Clematis aristata*		0.1	1	N	
SG	*Leptospermum polygalifolium*		1		N	
SG	*Lomatia myricoides*		1		N	
SG	*Ozothamnus diosmifolius*		0.1	1	N	
FG	*Gonocarpus humilis*		0.1	8	N	
FG	*Arrhenechthites mixtus*		0.1	4	N	
FG	*Viola hederacea*		10		N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Page 1 of (2)

Date	17/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI03	**Zone ID**	3862_Mod.
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			92
Easting	237840	**Northing**	6295364	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Heaths
Plant Community Type	3862
Condition state	Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	1
	Shrubs	16
	Grasses etc	3
	Forbs	4
	Ferns	0
	Other	1
Cover (sum of cover of natives species)	**Trees**	0.1
	Shrubs	64.8
	Grasses etc	31
	Forbs	0.6
	Ferns	0
	Other	0.1
High threat weed cover		0

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	-	For multistemmed trees, record only the largest stem
20 - 29	-	Presence of <5cm stems records regeneration
10 - 19	-	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)

# Trees with hollows	<20cm	Total #
	>20cm**	0
Length of logs		Total (m) 0.2

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	2	10	50	5	1	14.2
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Page 2 of (2)

Date	17/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI03	Zone ID	3862_Mod.
GF code	Genus species (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
SG	*Leptospermum arachnoides*		22		N	
SG	*Allocasuarina nana*		20		N	
SG	*Petrophile pulchella*		2		N	
SG	*Platysace linearifolia*		2		N	
GG	*Lepidosperma laterale*		25		N	
SG	*Banksia ericifolia*		8		N	
FG	*Patersonia sericea*		0.1	8	N	
GG	*Schoenus ericetorum*		1		N	
SG	*Brachyloma daphnoides*		1		N	
SG	*Hakea pachyphylla*		4		N	
GG	*Lomandra glauca*		5		N	
SG	*Boronia microphylla*		2		N	
SG	*Leptospermum parvifolium*		2		N	
SG	*Conospermum taxifolium*		0.1	1	N	
SG	*Calytrix tetragona*		0.1	3	N	
FG	*Stylidium lineare*		0.2	300	N	
SG	*Epacris obtusifolia*		0.1	1	N	
FG	*Pterostylis* sp. (rosette)		0.1	1	N	
SG	*Isopogon anemonifolius*		0.2	5	N	
SG	*Dillwynia acicularis*		0.1	1	N	
TG	*Eucalyptus sieberi*		0.1	1	N	
OG	*Cassytha pubescens*		0.1	1	N	
SG	*Leucopogon muticus*		1		N	
SG	*Philotheca obovalis*		0.2	6	N	
FG	*Thelionema caespitosum*		0.2	6	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Page 1 of (2)

Date	17/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI04	**Zone ID**	3696_Good
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			112
Easting	237737	**Northing**	6294910	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Dry Sclerophyll Forests
Plant Community Type	3696 **Condition state** Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	2
	Shrubs	17
	Grasses etc	3
	Forbs	3
	Ferns	0
	Other	0
Cover (sum of cover of natives species)	**Trees**	30
	Shrubs	40.7
	Grasses etc	21
	Forbs	0.3
	Ferns	0
	Other	0
High threat weed cover		0

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	1	Record stems for living trees only, and for all species
30 - 49	+	For multistemmed trees, record only the largest stem
20 - 29	+	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	+	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	3
Length of logs		Total (m) 52

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	90	80	80	50	50	70
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Date	17/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI04	Zone ID	3696_Good
GF code	Genus species (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
TG	*Eucalyptus rossii*		28		N	
TG	*Eucalyptus sieberi*		2		N	
SG	*Leucopogon muticus*		1		N	
SG	*Acacia terminalis*		8		N	
SG	*Pultenaea scabra*		8		N	
SG	*Acacia longifolia*		1		N	
SG	*Lomatia silaifolia*		8		N	
GG	*Lomandra glauca*		1		N	
GG	*Poa sieberiana*		15		N	
SG	*Pomaderris andromedifolia*		10		N	
SG	*Phyllanthus hirtellus*		0.1	3	N	
SG	*Platysace linearifolia*		1		N	
SG	*Petrophile pulchella*		0.1	4	N	
GG	*Caustis flexuosa*		5		N	
SG	*Phyllota squarrosa*		0.1	2	N	
SG	*Isopogon anemonifolius*		1		N	
SG	*Persoonia myrtilloides*		0.1	1	N	
SG	*Boronia microphylla*		0.1	1	N	
FG	*Patersonia sericea*		0.1	20	N	
SG	*Mirbelia platylobioides*		1		N	
FG	*Pomax umbellata*		0.1	10	N	
SG	*Cryptandra amara*		0.1	2	N	
SG	*Leptospermum parvifolium*		1		N	
FG	*Xanthosia pilosa*		0.1	4	N	
SG	*Acacia asparagoides*		0.1	2	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Date	17/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI05	**Zone ID**	3687_Mod.
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			162
Easting	236707	**Northing**	6294163	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Dry Sclerophyll Forests
Plant Community Type	3687 **Condition state** Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	3
	Shrubs	1
	Grasses etc	4
	Forbs	7
	Ferns	0
	Other	1
Cover (sum of cover of natives species)	**Trees**	37
	Shrubs	0.2
	Grasses etc	32.2
	Forbs	0.7
	Ferns	0
	Other	0.1
High threat weed cover		0.2

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	1	Stem size class records # large trees (cf. benchmark)
50 - 79	3	Record stems for living trees only, and for all species
30 - 49	+	For multistemmed trees, record only the largest stem
20 - 29	+	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	+	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	0
Length of logs		Total (m) 10.2

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	60	40	65	85	100	70
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Date	17/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI05	Zone ID	3687_Mod.
GF code	*Genus species* (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
TG	*Eucalyptus ?fastigata*		20		N	
TG	*Eucalyptus dalrympleana*		15		N	
TG	*Eucalyptus piperita*		2		N	
GG	*Anthoxanthum odoratum*		50		E	
FG	*Conyza sumatrensis*		0.1	30	E	
FG	*Geranium solanderi*		0.1	30	N	
FG	*Verbena bonariensis*		0.1	20	E	
FG	*Lysimachia arvensis*		0.1	100	E	
FG	*Centaurium erythraea*		0.1	30	E	
FG	*Hypericum perforatum*		0.1	10	HTE	
FG	*Echium vulgare*		0.1	8	E	
FG	*Hydrocotyle sibthorpioides*		0.1	30	N	
FG	*Hypochaeris radicata*		0.1	80	E	
FG	*Veronica calycina*		0.1	20	N	
FG	*Acaena* sp.		0.1	10	N	
SG	*Coprosma hirtella*		0.2	20	N	
SG	*Rubus fruticosus* species aggregate		0.1	1	HTE	
GG	*Dichelachne inaequiglumis*		30		N	
FG	*Rumex acetosella*		0.1	10	E	
FG	*Euchiton japonicus*		0.1	20	N	
GG	*Cynodon dactylon*		1		N	
GG	*Poa sieberiana*		1		N	
GG	*Microlaena stipoides*		0.2	50	N	
OG	*Billardiera scandens*		0.1	1	N	
FG	*Coronidium scorpioides*		0.1	6	N	
FG	*Solenogyne bellioides*		0.1	20	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Page 1 of (2)

Date	17/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI06	**Zone ID**	3687_Good
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			323
Easting	236722	**Northing**	6294092	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Dry Sclerophyll Forests
Plant Community Type	3687 — **Condition state** Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	4
	Shrubs	6
	Grasses etc	4
	Forbs	7
	Ferns	1
	Other	4
Cover (sum of cover of natives species)	**Trees**	38
	Shrubs	32.6
	Grasses etc	16.1
	Forbs	11.4
	Ferns	8
	Other	0.4
High threat weed cover		0.2

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	1	Stem size class records # large trees (cf. benchmark)
50 - 79	2	Record stems for living trees only, and for all species
30 - 49	+	For multistemmed trees, record only the largest stem
20 - 29	+	Presence of <5cm stems records regeneration
10 - 19	+	Record # trees with hollows, not number of hollows
5 - 9	+	Count as one stem where tree is multistemmed
< 5	+	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	2
Length of logs		Total (m) 80

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	25	50	25	15	25	28
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Page 2 of (2)

Date	17/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI06	Zone ID	3687_Good
GF code	*Genus species* (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
TG	*Eucalyptus fastigata*		10		N	
TG	*Eucalyptus dalrympleana*		25		N	
TG	*Eucalyptus radiata*		1		N	
EG	*Pteridium esculentum*		8		N	
TG	*Acacia dealbata*		2		N	
SG	*Coprosma hirtella*		1		N	
SG	*Ozothamnus diosmifolius*		20		N	
FG	*Hydrocotyle sibthorpioides*		8		N	
FG	*Hydrocotyle laxiflora*		2		N	
FG	*Cirsium vulgare*		0.1	10	E	
SG	*Indigofera australis*		0.5	10	N	
SG	*Bursaria spinosa*		10		N	
SG	*Polyscias sambucifolia*		1		N	
SG	*Buddleja davidii*		5		E	
GG	*Lomandra longifolia*		5		N	
GG	*Anthoxanthum odoratum*		5		E	
GG	*Microlaena stipoides*		10		N	
GG	*Poa sieberiana*		1		N	
OG	*Hardenbergia violacea*		0.1	3	N	
GG	*Lomandra multiflora*		0.1	20	N	
FG	*Geranium solanderi*		0.1	30	N	
FG	*Conyza sumatrensis*		0.1	8	E	
FG	*Dianella caerulea*		0.1	1	N	
OG	*Billardiera scandens*		0.1	5	N	
OG	*Clematis aristata*		0.1	3	N	
FG	*Dichondra repens*		1		N	
SG	*Rubus parvifolius*		0.1	3	N	
FG	*Hypericum perforatum*		0.1	20	HTE	
SG	*Rubus fruticosus species aggregate*		0.1	2	HTE	
FG	*Solenogyne bellioides*		0.1	8	N	
FG	*Medicago* sp.		0.1	3	E	
FG	*Coronidium scorpioides*		0.1	2	N	
OG	*Cyathea australis*		0.1	1	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

BAM Plot - Field Survey Sheet

Date	18/07/2024	**Survey Name**	State Mine Gully Mountain Bike Park				
Recorders	David Orchard, Ian Griffith			**Plot ID #**	LI07	**Zone ID**	3862_Mod.
Photo #				**Plot dimensions**			20 x 50
Datum	GDA94	**Zone**	56	**Plot bearing along midline**			347
Easting	237288	**Northing**	6295487	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region	Sydney Basin
Subregion	Wollemi
Likely Vegetation Class	Sydney Montane Heaths
Plant Community Type	3862
Condition state	Moderate

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m^2)		
Dimensions (circle applicable size)		
20 x 20 m	~~10 x 40 m~~	**Sum values***
Native Richness (count of native species)	**Trees**	0
	Shrubs	16
	Grasses etc	5
	Forbs	2
	Ferns	0
	Other	0
Cover (sum of cover of natives species)	**Trees**	0
	Shrubs	57.2
	Grasses etc	32.2
	Forbs	0.3
	Ferns	0
	Other	0
High threat weed cover		0

*These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m^2)		
Dimensions (circle applicable size)		
20 x 50 m	~~10 x 100 m~~	
Tree stem DBH (cm)		Notes on function attributes:
>80	0	Stem size class records # large trees (cf. benchmark)
50 - 79	0	Record stems for living trees only, and for all species
30 - 49	-	For multistemmed trees, record only the largest stem
20 - 29	-	Presence of <5cm stems records regeneration
10 - 19	-	Record # trees with hollows, not number of hollows
5 - 9	-	Count as one stem where tree is multistemmed
< 5	-	Hollow bearing stem may be a dead stem (incl. stag)
# Trees with hollows	<20cm	Total #
	>20cm**	0
Length of logs		Total (m)
		0

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general

		1	2	3	4	5	Average
Sub-plot score (% cover)	**Litter**	1	10	50	5	10	15.2
	Bare ground						
	Cryptogam						
	Rock						

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

BAM Plot - Field Survey Sheet

Date	18/07/2024	Survey Name	State Mine Gully Mountain Bike Park			
Recorders	David Orchard, Ian Griffith		Plot ID #	LI07	Zone ID	3862_Mod.
GF code	*Genus species* (tick if photographed or sample taken)		Cover %	Abund (count)	N, E, HTE	Stratum
SG	*Allocasuarina nana*		5		N	
GG	*Lepidosperma laterale*		25		N	
SG	*Calytrix tetragona*		12		N	
SG	*Leptospermum macrocarpum*		2		N	
SG	*Platysace linearifolia*		35		N	
SG	*Banksia ericifolia*		1		N	
SG	*Leucopogon muticus*		0.2	10	N	
SG	*Leptospermum arachnoides*		1		N	
GG	*Ptilothrix deusta*		0.1	8	N	
SG	*Boronia rigens*		0.1	20	N	
GG	*Lomandra glauca*		5		N	
GG	*Schoenus ericetorum*		2		N	
SG	*Platysace lanceolata*		0.2	30	N	
SG	*Philotheca obovalis*		0.1	3	N	
SG	*Leucopogon microphyllus*		0.1	20	N	
SG	*Epacris microphylla*		0.1	9	N	
FG	*Stylidium lineare*		0.2	200	N	
SG	*Lissanthe strigosa*		0.1	1	N	
FG	*Haemodorum planifolium*		0.1	1	N	
SG	*Brachyloma daphnoides*		0.1	4	N	
GG	*Caustis flexuosa*		0.1	10	N	
SG	*Amperea xiphoclada*		0.1	3	N	
SG	*Cryptandra propinqua*		0.1	6	N	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)
Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).
Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems
N=native, E=exotic, HTE=high threat exotic
All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. *Genus* sp1, *Genus* sp2 etc
Identify top 3 dominants in each stratum (use own stratum definitions) Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

Appendix D: BAM-C Habitat Suitability Assessment

The habitat suitability of the subject land was assessed for all ecosystem credit species and species credit species generated by the BAM-C. Unless otherwise indicated, species background information has been sourced from NSW DCCEEW Threatened Biodiversity Profiles, available at https://www.environment.nsw.gov.au/threatenedSpeciesApp/.

Ecosystem Credit Species

*NSW Status: P=Protected, P13=Protected native plant, 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

Class	Scientific Name	Common Name	*NSW status	+Comm status	Habitat Assessment
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		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. **Detected on site during surveys – present.**
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo (Foraging)	E1,P,3	E	The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. **Detected on site during surveys – present.**
Aves	*Calyptorhynchus lathami*	Glossy Black-Cockatoo (Foraging)	V,P,2	V	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. 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, *Allocasuarina 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. **While the species was detected flying over the site during surveys, the dominant vegetation community does not contain suitable food plants (*Casuarina* or *Allocasuarina* species) – Absent (constraint).**
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P		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. 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. **No records within 10 km but habitat suitable for this species – assumed present.**
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper	V,P	V	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of *Climacteris picumnus victoriae* runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper *Climacteris picumnus picumnus* which then occupies the remaining parts of the state. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, which have been isolated or fragmented for more than 50 years. **Recorded 71 times within 10 km and known or assumed to make use of PCTs 3687 and PCT 3688 – assumed present.**
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		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. **Detected on site during surveys – present.**
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	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. **Detected on site (via scat) during surveys – present.**
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P		In Australia, Black-necked Storks are widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW (although vagrants may occur further south or inland, well away from breeding areas). In NSW, the species becomes increasingly uncommon south of the Clarence Valley and rarely occurs south of Sydney. Since 1995, breeding has been recorded as far south as Bulahdelah. Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor

					floodplains, coastal sandplain wetlands and estuaries. Black-necked Storks build large nests high in tall trees close to water. Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). **Requires shallow freshwater or saline swamps, the shallow margins of deeper swamps, lakes, lake margins, or estuaries, none of which occurs within or near the dominant PCT – absent (constraint).**
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P		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. **No records within 10 km and habitat at most marginally suitable; however, no specific constraints identified in the TBDC – assumed present.**
Aves	*Grantiella picta*	Painted Honeyeater	V, P	V	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. **Site lacks a key habitat feature (mistletoes at a density of >5/ha) – absent (constraint).**
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle (Foraging)	V,P,3		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 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. **Recorded 15 times within 10 km and some suitable waterbodies present in the wider landscape – assumed present.**

Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K	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. **Recorded 33 times within 10 km and habitat broadly appropriate for this species – assumed present.**
Aves	*Lathamus discolor*	Swift Parrot (Foraging)	E1,P	CE	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. 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*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana* and Blackbutt *E. pilularis*. Return to some foraging sites on a cyclic basis depending on food availability. Following winter, they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum *Eucalyptus globulus*. **One record within 10 km, though no favoured feed trees present. Habitat may see some limited use by this species – assumed present.**
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P		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. **Three records within 10 km and habitat broadly appropriate for this species – assumed present.**
Aves	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	E,P	E	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. **Recorded 13 times within 10 km. Habitat at most marginally appropriate for this species; however, no formal habitat constraints identified – assumed present.**
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater	V,P		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 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. **Two records within 10 km and habitat broadly appropriate for this species – assumed present.**
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. **Recorded 342 times within 10 km, probable acoustic recordings collected during surveys, and habitat appropriate for this species – assumed present.**
Mammalia	*Petaurus australis*	Yellow-bellied Glider	V,P	V	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. **Recorded five times previously within 10 km and suitable habitat present – assumed present.**
Aves	*Petroica boodang*	Scarlet Robin	V,P		The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its

					habitat. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude. The Scarlet Robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees. The Scarlet Robin is a quiet and unobtrusive species which is often quite tame and easily approached. Birds forage from low perches, fenceposts or on the ground, from where they pounce on small insects and other invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer. **Detected on site during surveys – present.**
Aves	*Petroica phoenicea*	Flame Robin	V,P		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. **Detected on site during surveys – present.**
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops. **Recorded 15 times within 10 km and some potential foraging habitat available – assumed present.**
Aves	*Pycnoptilus floccosus*	Pilotbird	V	V	Pilotbirds are endemic to south-east Australia, can occur above 600 m in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains throughout New South Wales and north-east Victoria. Also occur in forests in the Blue Mountains and around the wetter forests of eastern Australia, to Dandenong near Melbourne. **Detected on site during surveys – present.**

Reptilia	*Varanus rosenbergi*	Rosenberg's Goanna	V		Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. There are records from the South West Slopes near Khancoban and Tooma River. Also occurs in South Australia and Western Australia. Found in heath, open forest and woodland. **One record within 10 km and habitat broadly suitable for this species – assumed present.**

Species credit species

V = Vulnerable, E = Endangered, CE = Critically Endangered

Scientific Name	Common Name	NSW status	Comm. Status	Habitat Assessment	Species presence
Chalinolobus dwyeri	Large-eared Pied Bat	E	E	This species was detected during bat surveys; however, the timing and low frequency of calls indicated that no breeding activity took place within the site.	Present (surveyed)
Lathamus discolor	Swift Parrot	E	CE	This species could be eliminated on the grounds of habitat or geographical constraints (subject land is not included in important habitat mapping).	Absent (habitat constraints)
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		Probable calls of this species were recorded during bat surveys; however, no suitable breeding caves were detected within the disturbance footprint, and frequency of calls was low. Considered present for foraging as an ecosystem credit species.	Absent (surveyed)
Persoonia hindii		E	E	This species was eliminated by targeted flora surveys.	Absent (surveyed)
Petauroides volans	Southern Greater Glider	E	E	Added to BAM-C. This species was detected while surveying for other species.	Present (surveyed)
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	This species was eliminated by targeted fauna surveys.	Absent (surveyed)

Appendix E: EPBC Act Habitat Suitability Assessment and 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.

The EPBC Act protected matters search has identified four TECs, 74 threatened species, eight migratory species and 19 marine species that could possibly occur in the 10 km search area (**Appendix A**).

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.
    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

No wetlands of international importance were identified by the Protected Matters search.

EPBC Act-Listed Threatened Ecological Communities

Name	Status	Assessment of significance required (Yes / No)
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	No. Community does not occur within or near the disturbance footprint.
Temperate Highland Peat Swamps on Sandstone	Endangered	No. Community does not occur within or near the disturbance footprint.
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	No. Community does not occur within or near the disturbance footprint.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	No. Community does not occur within or near the disturbance footprint.

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
THREATENED BIRDS					
Anthochaera phrygia	Regent Honeyeater	CE	5	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. For example, the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events. Flowering of associated species such as Thin-leaved Stringybark *Eucalyptus eugenioides* and other Stringybark species, and Broad-leaved Ironbark *E. fibrosa* can also contribute important nectar flows at times. Nectar and fruit from the mistletoes *Amyema miquelii*, A. pendula and *A. cambagei* are also utilised. When nectar is scarce lerp and honeydew can comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings. Colour-banding of Regent Honeyeater has shown that the species can undertake large-scale nomadic movements in the order of hundreds of kilometres. It is likely that movements are dependent on spatial and temporal flowering and other resource patterns. There are three known key breeding areas, two of them in NSW - Capertee Valley and Bundarra-Barraba regions. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest dominated by River Sheoak. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria. **Moderate – Recorded five times within 10 km but not known to occur in association with any of the vegetation communities recorded within the site.**	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Aphelocephala leucopsis	Southern Whiteface	V	0	The southern whiteface typically inhabits arid open woodlands with a shrubby or grassy understory, as well as grass plains throughout much of southern Australia. It prefers *Acacia* woodlands, particularly those dominated by mulga and drought-resistant chenopod shrub species, including saltbush and bluebush. **Low – Not recorded within 10 km and not known to occur in association with any of the vegetation communities recorded within the site.**	No
Botaurus poiciloptilus	Australasian Bittern	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 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 – Not recorded within 10 km and not known to occur in association with any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Calidris acuminata	Sharp-tailed Sandpiper	V,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. **Low – Not recorded within 10 km and not known to occur in association with any of the vegetation communities recorded within the site.**	No
Calidris ferruginea	Curlew Sandpiper	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. **Low – Not recorded within 10 km and not known to occur in association with any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Callocephalon fimbriatum	Gang-gang Cockatoo	E	516	The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. **Present – Recorded on site in multiple locations during surveys. Previously recorded 516 times within 10 km of the site and known or assumed to make use of all recorded vegetation communities.**	Yes
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	36	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, *Allocasuarina diminuta*, and *A. gymnanthera*. 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. **Present – Recorded on site in two locations during surveys. Previously recorded 36 times within 10 km of the site and known or assumed to make use of all recorded vegetation communities.**	Yes
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	71	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	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, which have been isolated or fragmented for more than 50 years. **High – Recorded 71 times within 10 km and known or assumed to make use of PCTs 3687 and PCT 3688.**	
Falco hypoleucos	Grey Falcon	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. Also occurs near wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons, using high-speed chases and stoops; reptiles and mammals are also taken. Like other falcons it utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring; two or three eggs are laid. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Gallinago hardwickii	Latham's Snipe	V,J,K	1	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	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				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 – Recorded only once within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	
Grantiella picta	Painted Honeyeater	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. **Low – Not recorded within 10 km. Known or assumed to make use of all recorded vegetation communities; however, a key habitat feature (mistletoes at relatively high densities) is lacking.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Hirundapus caudacutus	White-throated Needletail	V	33	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. **High – Recorded 33 times within 10 km and known or assumed to make use of all recorded vegetation communities.**	Yes
Lathamus discolor	Swift Parrot	CE	1	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. 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*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana* and Blackbutt *E. pilularis*. Return to some foraging sites on a cyclic basis depending on food availability. Following winter, they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum *Eucalyptus globulus*. **High – Recorded once within 10 km and known or assumed to make use of PCTs 3687, 3688, and 3696.**	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	E	13	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. **High – Recorded 13 times within 10 km and known or assumed to make use of all recorded vegetation communities.**	Yes
Neophema chrysostoma	Blue-winged Parrot	V	0	The main populations of Blue-winged Parrots are in Tasmania and Victoria, particularly in southern Victoria and the midlands and eastern areas of Tasmania. Sparser populations are found in western New South Wales and eastern South Australia, extending to south-west Queensland and occasionally into the Northern Territory. The species is a partial migrant, with variable numbers of birds migrating across the Bass Strait in winter. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Polytelis swainsonii	Superb Parrot	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. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Pycnoptilus floccosus	Pilotbird	V	154	Pilotbirds are endemic to south-east Australia, can occur above 600 m in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains throughout New South Wales and north-east Victoria. Also occur in forests in the Blue Mountains and around the wetter forests of eastern Australia, to Dandenong near Melbourne. **Present – Recorded on site in multiple locations during surveys and known or assumed to make use of all recorded vegetation communities. Previously recorded 154 times within 10 km of the site.**	Yes
Rostratula australis	Australian Painted Snipe	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. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Stagonopleura guttata	Diamond Firetail	V	210	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 – Recorded 210 times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes
FISH					
Macquaria australasica	Macquarie Perch	E	0	The Macquarie Perch is a moderate-sized fish with an elongate-oval body which is laterally compressed. In the Murray-Darling Basin the species varies from almost black or dark silvery grey to bluish grey or green-brown above, paler to off-white below, often with a yellowish tinge. Macquarie Perch have declined considerably from their historical distribution within NSW, and they are now considered isolated to the upper reaches of the Lachlan and Murrumbidgee Rivers in southern NSW (Ingram et al. 1990). It is also found in low numbers in the Mongarlowe River (Lintermans 2008). Other populations exist in Cataract Dam in the Nepean River catchment, as well as a 2008 record from Georges River near Campbelltown, the first record from the river since 1894 (NSW DPI 2008a). It persists in the Burrinjuck, Cotter (Murrumbidgee) and Wyangala impoundments (McDowall 1996). A breeding population in the Queanbeyan River upstream of the Googong Reservoir exists solely due to a translocation of individuals from the reservoir past a natural barrier (Lintermans 2006). The Googong reservoir population is believed to be effectively extinct. Macquarie perch may occasionally become displaced downstream from the Queanbeyan River into Googong, but they do not form a population in the reservoir (Lintermans pers comm 2009). Hawkesbury and Shoalhaven River populations, seem abundant.	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				Records have also been made in the Dharawal State Conservation Area, the Metropolitan Special Area and in adjacent areas around Appin (Bio-Analysis Pty Ltd 2009). The Macquarie Perch is a riverine, schooling species. It prefers clear water and deep, rocky holes with lots of cover. As well as aquatic vegetation, additional cover may comprise of large boulders, debris and overhanging banks (Cadwallader & Eden 1979). Spawning occurs just above riffles (shallow running water). Populations may survive in impoundments if able to access suitable spawning sites (Wager & Jackson 1993). **Absent – No suitable aquatic habitat present.**	
Prototroctes maraena	Australian Grayling	V	0	The Australian Grayling is diadromous, spending part of its lifecycle in freshwater and at least part of the larval and/or juvenile stages in coastal seas. Adults (including pre spawning and spawning adults) inhabit cool, clear, freshwater streams with gravel substrate and areas alternating between pools and riffle zones, such as the Tambo River, which is also known to have granite outcrops. The species has also been associated with clear, gravel-bottomed habitats in the Mitchell and Wonnangatta Rivers (Victoria) and in a muddy-bottomed, heavily silted habitat in the Tarwin River. **Absent – No suitable aquatic habitat present.**	No
FROGS					
Heleioporus australiacus australiacus	Giant Burrowing Frog, Eastern Owl Frog	E	1	The Giant Burrowing Frog is distributed in south eastern NSW and Victoria and appears to exist as two distinct populations: a northern population largely confined to the sandstone geology of the Sydney Basin and extending as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Found in heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based. Spends more than 95% of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Individual frogs occupy a series of burrow sites, some of which are used repeatedly. The home ranges of both sexes appear to be non-overlapping suggesting exclusivity of non-breeding habitat. Home ranges are approximately 0.04 ha in size.	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				Moderate – Recorded only once within 10 km but known or assumed to make use of all recorded vegetation communities.	
Litoria booroolongensis	Booroolong Frog	E	0	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands; however, several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Litoria littlejohni	Northern Heath Frog, Littlejohn's Tree Frog	E	1	Littlejohn's Tree Frog has a distribution that includes the plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest (90 km north of Sydney) south to Buchan in Victoria. The majority of records are from within the Sydney Basin Bioregion with only scattered records south to the Victorian border and this species has not been recorded in southern NSW within the last decade. Records are isolated and tend to be at high altitude. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Mixophyes balbus	Stuttering Frog	V	1	Stuttering Frogs occur along the east coast of Australia from southern Queensland to north-eastern Victoria. Considered to have disappeared from Victoria and to have undergone considerable range contraction in NSW, particularly in south-east NSW. It is the only Mixophyes species that occurs in south-east NSW and in recent surveys it has only been recorded at three locations south of Sydney. The Dorrigo region, in north-east NSW, appears to be a stronghold for this species. Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
MAMMALS					
Chalinolobus dwyeri	Large-eared Pied Bat	E	151	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves and overhangs. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies. **Present – Acoustic surveys detected this species within the site. No breeding habitat for the species was recorded.**	Yes
Dasyurus maculatus	Spotted-tailed Quoll	E	17	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. **Present – Recorded once during surveys. Previously recorded 17 times within 10 km of the site and known or assumed to make use of all recorded vegetation communities.**	Yes
Notamacropus parma	Parma Wallaby	V	0	The species once occurred in north-eastern NSW from the Queensland boarder to the Bega area in the southeast. Their range is now confined to the coast and ranges of central and northern NSW from the Gosford district to south of the Bruxner Highway between Tenterfield and Casino. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Nyctophilus corbeni	Corben's Long-eared Bat	V	0	Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, bulloke 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. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	
Petauroides volans	Southern Greater Glider	E	1098	The Southern Greater Glider occurs in eastern Australia, in eucalypt forests and woodlands, where it has a broad distribution from around Proserpine in Queensland, south through NSW and the Australian Capital Territory into Victoria. **Present – Recorded on site in multiple locations during surveys. Previously recorded 1098 times within 10 km of the site and known or assumed to make use of PCTs 3687, 3688, and 3696.**	Yes
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	5	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. **High – Recorded five times within 10 km and known or assumed to make use of PCTs 3687 and 3688.**	Yes
Petrogale penicillata	Brush-tailed Rock-wallaby	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	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				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 disperse between female groups within colonies, and less commonly between colonies. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	
Phascolarctos cinereus	Koala	E	13	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. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Pseudomys novaehollandiae	New Holland Mouse, Pookila	V	1	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Genetic evidence indicates that the New Holland Mouse once formed a single continuous population on mainland Australia and the distribution of recent subfossils further suggest that the species has undergone a large range contraction since European settlement. Total population size of mature individuals is now estimated to be less than 10,000 individuals although, given the number of sites from which the species is known to have disappeared between 1999 and 2009, it is likely that the species' distribution is actually smaller than current estimates. Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. **Low – Recorded only once within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Pteropus poliocephalus	Grey-headed Flying-fox	V	15	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. Feed on the nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops. **Moderate – Recorded 15 times within 10 km and known or assumed to make use of PCTs 3687, 3688, and 3862.**	
PLANTS					
Acacia bynoeana	Bynoe's Wattle, Tiny Wattle	V	2	Bynoe's wattle is found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. The species is currently known from about 30 locations, with the size of the populations at most locations being very small (1-5 plants). It has recently been found in the Colymea and Parma Creek areas west of Nowra. Occurs in heath or dry sclerophyll forest on sandy soils. **Low – Recorded only twice within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Acacia flocktoniae	Flockton Wattle	V	0	The Flockton Wattle is found only in the Southern Blue Mountains (at Mt Victoria, Megalong Valley and Yerranderie). Grows in dry sclerophyll forest on sandstone. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Acacia meiantha		E	134	The species is found in three disjunct populations, all within the Central Tablelands and within 100kms of each other. These populations include Clarence, which covers an area of approximately 1 hectare; Mullions Range, covering approximately 5 hectares; and Aarons Pass, which is confined to 2.5km of road easements. **Absent (surveyed) – Surveys conducted with in the recommended survey window did not record this species within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Asterolasia buxifolia		CE	805	Known from a single site associated with granite geology in the riparian zone of the Lett River. Rediscovered in 2000, little is known about the species. **Moderate – Recorded 805 times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes
Astrotricha crassifolia	Thick-leaf Star-hair	V	0	Occurs near Patonga (Gosford LGA), and in Royal NP and on the Woronora Plateau (Sutherland and Campbelltown LGAs). There is also a record from near Glen Davis (Lithgow LGA). **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Banksia penicillata	A banksia	E	0	*Banksia penicillata* is endemic to NSW and is found on sandstone-derived soils along ridges, among rocks or near cliffs, and occasionally on lower slopes and in plateau valleys, in the northern Blue Mountains, including Wollemi, Blue Mountains and Gardens of Stone National Parks, Mugii Murum-ban State Conservation Area and Gardens of Stone State Conservation Area (parts of the former Newnes, Wolgan and Ben Bullen State Forests). Estimated range of approximately 130 km north-south and 70 km east-west, over elevations from 400 m to 1050 m above sea level and an annual rainfall gradient of 800–1300 mm. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Boronia deanei subsp. *deanei*		E	1867	There are scattered populations of Deane's Boronia between the far south-east of NSW and the Blue Mountains with the species found on Newnes Plateau (Newnes State Forest), Nalbaugh Plateau (South East National Park), Kanangra-Boyd National Park, Budderoo National Park and Morton National Park. The species mainly occurs in conservation reserves and once grew profusely in Morton National Park near Bundanoon but has rarely been seen in that area since being impacted by devastating bushfires of the 1960s. The 2019/20 black summer bushfires impacted populations at Newnes Plateau, Nalbaugh Plateau and Kanangra-Boyd National Park. Grows in wet heath, often at the margins of open forest adjoining swamps or along stream. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				site.	
Cryptostylis hunteriana	Leafless Tongue-orchid	V	0	The Leafless Tongue Orchid has been recorded from as far north as Gibraltar Range National Park south into Victoria around the coast as far as Orbost. It is known historically from a number of localities on the NSW south coast and has been observed in recent years at many sites between Batemans Bay and Nowra (although it is uncommon at all sites). Also recorded at Munmorah State Conservation Area, Nelson Bay, Wyee, Washpool National Park, Nowendoc State Forest, Ku-Ring-Gai Chase National Park and Ben Boyd National Park. Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Eucalyptus aggregata	Black Gum	V	271	Black Gum is found in the NSW Central and Southern Tablelands, with small, isolated populations in Victoria and the ACT. In NSW it occurs in the South Eastern Highlands Bioregion and on the western fringe of the Sydney Basin Bioregion. Black Gum has a moderately narrow distribution, occurring mainly in the wetter, cooler and higher parts of the tablelands, for example in the Blayney, Crookwell, Goulburn, Braidwood and Bungendore districts. Grows on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers. Often grows with other cold-adapted eucalypts, such as Snow Gum or White Sallee (*Eucalyptus pauciflora*), Manna or Ribbon Gum (*E. viminalis*), Candlebark (*E. rubida*), Black Sallee (*E. stellulata*) and Swamp Gum (*E. ovata*). Black Gum usually occurs in an open woodland formation with a grassy groundlayer dominated either by River Tussock (*Poa labillardierei*) or Kangaroo Grass (*Themeda triandra*), but with few shrubs. **Moderate – Recorded 271 times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Eucalyptus pulverulenta	Silver-leaved Mountain Gum, Silver-leaved Gum	V	15	The Silver-leafed Gum is found in two quite separate areas, the Lithgow to Bathurst area and the Monaro (Bredbo to Bombala). Grows in shallow soils as an understorey plant in open forest, typically dominated by Brittle Gum (*Eucalyptus mannifera*), Red Stringybark (*E. macrorhyncha*), Broad-leafed Peppermint (E. dives), Silvertop Ash (E. sieberi) and Apple Box (E. bridgesiana). **Moderate – Recorded 15 times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes
Euphrasia arguta		CE	0	*Euphrasia arguta* was rediscovered in the Nundle area of the NSW north western slopes and tablelands in 2008. Prior to this, it had not been collected for 100 years. Historically, Euphrasia arguta has only been recorded from relatively few places within an area extending from Sydney to Bathurst and north to Walcha. The Royal Botanic Gardens Specimen Register records an additional location reported and vouchered in 2002 from near the Hastings River; and Euphrasia arguta was also recorded from the Barrington Tops in 2012. Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Haloragodendron lucasii	Hal	E	0	The known locations of this species are confined to a very narrow distribution on the north shore of Sydney. Reported to grow in moist sandy loam soils in sheltered aspects, and on gentle slopes below cliff-lines near creeks in low open woodland. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Hibbertia acaulothrix		E	0	*Hibbertia acaulothrix* is known from several widely separated localities in New South Wales (NSW), from Wadbilliga National Park in the Southern Tablelands, through the Nattai-Wollondilly area in the Southern Central Tablelands, to the Mt Baker and Mt Coricudgy (Wollemi) area in northern part of the Central Coast and Tablelands. Flowering occurs from October to April, with five yellow petals on each flower. Hibbertia acaulothrix can	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				be distinguished from other Hibbertia species by the presence of simple hairs on the upper leaf structure. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	
Hibbertia cistiflora subsp. *quadristaminea*		E	0	*Hibbertia cistiflora* subsp. *quadristaminea* has been recorded from two subpopulations in NSW, from the Blue Mountains National Park and on the Newnes Plateau in the Gardens of Stone State Conservation Area (formerly Newnes State Forest). The subpopulation discovered in the Blue Mountains National Park grows in the vicinity of Butterbox Point within the Mount Hay area. The subpopulation at Newnes Plateau grows near Old Bells Line of Rd and Bald Trig Point. A survey of the subpopulation at Newnes Plateau in May 2021 found 10,000 plants resprouting from the base following fire. The number of plants in the Blue Mountains National Park subpopulation is unknown. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Isopogon fletcheri	Fletcher's Drumsticks	V	0	Restricted to clifflines of the Grose and Kedumba Valleys. The entire known population occurs within Blue Mountains National Park. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Kunzea cambagei		V	0	*Kunzea cambagei* mainly occurs in the western and southern parts of the Blue Mountains, NSW, mainly the Yerranderie/Mt Werong area, with four main populations with 20 to 150 individuals. Populations are also located west of Berrima, along the Wingecarribee River; Loombah Plateau east of Mount Werong; the Oberon-Colong Stock Route within Kanangra-Boyd National Park (NP); and Wanganderry Plateau within the Nattai NP. Cambage Kunzea is restricted to damp, sandy soils in wet heath or mallee open scrub at higher altitudes on sandstone outcrops or Silurian group sediments. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Leionema lachnaeoides		E	0	Occurs at 10 sites in the upper Blue Mountains, within a 12 km range between Katoomba and Blackheath. Potential habitat occurs in the Megalong and Jamison Valleys. . **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Leptospermum petraeum		CE	0	*Leptospermum petraeum* occurs near Kanangra Walls in Kanangra-Boyd National Park, in the Central Tablelands of NSW. There are nine populations based on available records. However, it is possible that six of these populations are no longer extant. Records from Kelgoola (Wollemi National Park) and Blackheath are uncertain. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Leucochrysum albicans subsp. *tricolor*	Hoary Sunray, Grassland Paper-daisy	E	0	Endemic to south-eastern Australia, where it is currently known from three geographically separate areas in Tasmania, Victoria and south-eastern NSW and ACT. In NSW it currently occurs on the Southern Tablelands adjacent areas in an area roughly bounded by Albury, Bega and Goulburn, with a few scattered localities know from beyond this region. Occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Leucopogon exolasius	Woronora Beard-heath	V	0	Woronora Beard-heath is found along the upper Georges River area and in Heathcote National Park. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Persoonia acerosa	Needle Geebung	E	5	The Needle Geebung has been recorded only on the central coast and in the Blue Mountains, from Mt Tomah in the north to as far south as Hill Top where it is now believed to be extinct. Mainly in the Katoomba/ Wentworth Falls/ Springwood area. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Persoonia hindii		E	2079	The species is restricted to above 900 m asl on the Newnes Plateau, north of Lithgow. It was only discovered in 1989 and found entirely within the Gardens of Stone State Conservation Area (formerly Newnes State Forest). It has a clumped distribution pattern and any given site for the species may be comprised of a combination of ramets (emergent stems joined underground) and genets (separate genetically distinct plants). **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Persoonia hirsuta	Hairy Geebung, Hairy Persoonia	E	0	*Persoonia hirsuta* has a scattered distribution around Sydney. The species is distributed from Singleton in the north, along the east coast to Hilltop in the south west, Dombarton in the south east and the Blue Mountains to the west. *Persoonia hirsuta* has a large area of occurrence, but occurs in small populations or isolated individuals, increasing the species' fragmentation in the landscape. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Persoonia marginata	Clandulla Geebung	V	2	The Clandulla Geebung occurs between Kandos and Clarence in the western Blue Mountains. Populations are largely disjunct and include Clandulla, Ben Bullen and Sunny Corner State Forests; isolated populations have also been recorded from Turon and Gardens of Stone National Parks. Grows in dry sclerophyll forest and woodland communities on sandstone. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Pomaderris brunnea	Rufous Pomaderris, Brown Pomaderris	V	0	Brown Pomaderris is found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It also occurs near Walcha on the New England tablelands and in far eastern Gippsland in Victoria. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Pomaderris cotoneaster	Cotoneaster Pomaderris	E	0	Cotoneaster Pomaderris has a very disjunct distribution, being known from the Nungatta area, northern Kosciuszko National Park (near Tumut),	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				the Tantawangalo area in South-East Forests National Park and adjoining freehold land, Badgery's Lookout near Tallong, Bungonia State Conservation Area, the Yerranderie area, Kanangra-Boyd National Park, the Canyonleigh area and Ettrema Gorge in Morton National Park. The species has also been recorded along the Genoa River in Victoria. Cotoneaster Pomaderris has been recorded in a range of habitats in predominantly forested country. The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	
Prasophyllum fuscum	Tawny Leek-orchid, Slaty Leek-orchid	V	1	The type specimen is from "moist meadows towards the Georges River" in the Sydney area. The species is likely to be extinct from this area. Harden (1993) states that it is confined to the Blue Mountains area. However, some authorities believe *Prasophyllum* species from this area are not *P. fuscum*, but an undescribed species. In addition, some authorities believe it is identical to *P. uroglossum* which occurs in the Wingecarribee area. **Low – Recorded only once within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Prasophyllum petilum	Tarengo Leek Orchid	E	0	Natural populations are known from a total of five sites in NSW. These are near Boorowa, Queanbeyan area, Ilford, Delegate and a newly recognised population c.10 km west of Muswellbrook. It also occurs at Hall in the Australian Capital Territory. This species has also been recorded at Bowning Cemetery where it was experimentally introduced, though it is not known whether this population has persisted. Grows in open sites within Natural Temperate Grassland at the Boorowa and Delegate sites. Also grows in grassy woodland in association with River Tussock *Poa labillardierei*, Black Gum *Eucalyptus aggregata* and tea-trees Leptospermum spp. near Queanbeyan and within the grassy groundlayer dominated by Kangaroo Grass under Box-Gum Woodland at Ilford (and Hall, ACT). **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Prasophyllum sp. Wybong (C.Phelps ORG 5269)	a leek-orchid	CE	0	Endemic to NSW, it is known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Pultenaea glabra	Smooth Bush-pea, Swamp Bush-pea	V	1	Restricted to the higher Blue Mountains and has been recorded from the Katoomba-Hazelbrook and Mount Victoria areas, with unconfirmed sightings in the Mount Wilson and Mount Irvine areas. All known populations occur within the Blue Mountains Local Government Area. This species is primarily associated with riparian or swamp habitat areas in the mid to upper altitudes of the central Blue Mountains on sandstone derived soils. Grows in swamp margins, hillslopes, gullies and creekbanks and occurs within dry sclerophyll forest and tall damp heath on sandstone. **Low – Recorded only once within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Pultenaea parrisiae		V	0	Parris' Bush-pea is known only from far north-east Gippsland (in Victoria) and three sites in NSW (Wadbilliga Trig area and two sites south of Nalbaugh). Grows in moist heathlands in loam soils, sometimes at the margins of woodlands. Also in riparian vegetation. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Rhizanthella slateri	Eastern Underground Orchid	E	0	*Rhizanthella slateri* is restricted to New South Wales where it is currently known from 14 populations including Bulahdelah, the Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra. The *Rhizanthella slateri* population in the Great Lakes Local Government Area (LGA) occurs at the known northern limit of the species' range and is disjunct from other known populations of the species. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Thesium australe	Austral Toadflax, Toadflax	V	0	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Although originally described from material collected in the SW Sydney area, populations have not been seen in a long time. It may persist in some areas in the broader region. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	
Velleia perfoliata		V	4	Only known from the Hawkesbury district and upper Hunter Valley. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
Xerochrysum palustre	Swamp Everlasting, Swamp Paper Daisy	V	0	The Swamp Everlasting *Xerochrysum palustre* is a relatively large, yellow-flowered native daisy growing in seasonal or permanent wetland habitats. The species is endemic to south-eastern Australia, where it occurs in Victoria, Tasmania, and New South Wales. There are about 35 wild populations containing in excess of 10,000 plants. Major threats to populations include wetland drainage and modification, weed invasion, grazing and climate change. The Swamp Everlasting is listed as Vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (listed as *Bracteantha palustris*). *Xerochrysum palustre* is listed as threatened under the Victorian Flora and Fauna Guarantee Act 1988.This national Recovery Plan for the Swamp Everlasting details the species' distribution and biology, conservation status, threats, and recovery objectives and actions necessary to ensure its long-term survival. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
REPTILES					

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Aprasia parapulchella	Pink-tailed Legless Lizard	V	0	The Pink-tailed Legless Lizard is only known from the Central and Southern Tablelands, and the South Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (*Themeda australis*). **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No
Eulamprus leuraensis	Blue Mountains Water Skink	E	594	Restricted to the middle and upper Blue Mountains west of Sydney, the Blue Mountains Water Skink is known from approximately 70 threatened highland peat swamps extending from the Newnes Plateau in the north-west to just south of Hazelbrook in the south-east. It is possible that additional locations will be identified, and these may lie outside the currently known distribution. Recent genetic work has established that populations on the Newnes Plateau are genetically and morphologically distinct from populations in the Blue Mountains. Each local population is also genetically distinct, even from populations less than 0.5 km away. Dispersal between populations appears to be very rare and appears to involve mostly males. **Moderate – Recorded 594 times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes
Hoplocephalus bungaroides	Broad-headed Snake	E	33	The Broad-headed Snake is largely confined to Triassic and Permian sandstones, including the Hawkesbury, Narrabeen and Shoalhaven groups, within the coast and ranges in an area within approximately 250 km of Sydney. **Absent (surveyed) – Targeted surveys conducted within the recommended survey window did not record this species within the site.**	No
MIGRATORY SPECIES					
Migratory Marine Birds					

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Apus pacificus	Fork-tailed Swift	C,J,K	4	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 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. **Moderate – Recorded four times within 10 km, though not known or assumed to make use of any of the recorded vegetation communities.**	Yes
Migratory Terrestrial Species					
Hirundapus caudacutus	White-throated Needletail	V	33	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. **High – Recorded 33 times within 10 km and known or assumed to make use of all recorded vegetation communities.**	Yes
Motacilla flava	Yellow Wagtail	M	0	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. 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 – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
Migratory Wetlands Species					
Actitis hypoleucos	Common Sandpiper	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 – Not recorded within 10 km and the site lacks appropriate wetland habitat for this species.**	No
Calidris acuminata	Sharp-tailed Sandpiper	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. **Low – Not recorded within 10 km and the site lacks appropriate wetland habitat for this species.**	No
Calidris ferruginea	Curlew Sandpiper	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	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				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 – Not recorded within 10 km and the site lacks appropriate wetland habitat for this species.**	
Calidris melanotos	Pectoral Sandpiper	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 – Not recorded within 10 km and the site lacks appropriate wetland habitat for this species.**	No
Gallinago hardwickii	Latham's Snipe	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 Wales. **Absent - No appropriate wetland habitat present.**	No
Pandion haliaetus	Osprey	M	0	The Osprey has a global distribution with four subspecies previously recognised throughout its range. Eastern Ospreys are found right around the Australian coastline, except for Victoria and Tasmania. They are common around the northern coast, especially on rocky shorelines, islands and reefs. The species is uncommon to rare or absent from	No

Scientific Name	Common Name	+Comm. Status	BioNet Records < 10 km?	Likelihood of Occurrence	Test of significance required (Yes/No)
				closely settled parts of south-eastern Australia. There are a handful of records from inland areas. Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. **Low – Not recorded within 10 km and not known to make use of any of the vegetation communities recorded within the site.**	

***NSW Status:** ^^=Sensitive species: location of records generalised, P=Protected, V=Vulnerable, E1=Endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.

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

EPBC Act-listed Critically Endangered and Endangered Species

Regent Honeyeater (*Anthochaera phrygia*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The Regent Honeyeater has been recorded five times within 10 km of the site but is thought not to make use of the vegetation communities recorded within the site. In spite of this, records from 2019 place the species on the Newnes Plateau within 1.5 km of the site. Some use of the site therefore remains possible, though it is unclear if a population is resident in the area or if the records are of transient individuals. The proposal would retain mature trees and would result primarily in the loss of understorey vegetation and regrowth along a c. 25 km alignment. Minor loss of foraging habitat represents the most likely impact to this species to result from this proposal. Given the small scale of this impact, and considering that known records are from remnant vegetation further into the Blue Mountains area, this is unlikely to result in a long-term decline in any local population.
Reduce the area of occupancy of the species	Given the highly mobile nature of this species and the retention of similar vegetation in the area surrounding the site, no impacts on area of occupancy are anticipated.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m, primarily impacting understorey vegetation and canopy regrowth. This is unlikely to result in fragmentation for a highly mobile species such as this, particularly given the retention of mature trees.
Adversely affect habitat critical to the survival of a species	Any breeding or foraging habitat in areas where the species is likely to occur must be considered habitat critical to the survival of this species. Within NSW, key areas include the Bundarra-Barraba region, Pilliga Woodlands, Mudgee-Wollar region, Capertee Valley and Hunter Valley. The subject land is not within these key regions, though it is relatively close to the Capertee Valley, though the subject land is not known to contain vegetation communities utilised by this species. Impacts to critical habitat should therefore be considered unlikely. If impacts do occur, they are likely to be limited in scope.
Disrupt the breeding cycle of a population	The Regent Honeyeater typically nests in the canopies of mature, rough-barked trees. As mature trees will be retained, direct impacts to breeding activity are unlikely.
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 not remove any habitat known to be utilised by this species, though some limited foraging potential remains possible. No isolation of habitat is likely, and the scale of impacts is such that the proposal is unlikely to cause any local population of the species to decline.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	The Regent Honeyeater is threatened primarily by clearing, fragmentation and degradation of habitat, particularly the loss of large trees. Some loss of potential foraging habitat would result from the proposal; however, no impacts to vegetation communities known to be used by this species would result and no impacts to large trees are anticipated. The proposal should not significantly interfere with the recovery of the species within the region.

Conclusion	No significant impact

Asterolasia buxifolia	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	Little is known about this species, which was only rediscovered in 2000. The single known population occurs in riparian vegetation along the River Lett, between 7.9 and 9.1 km from the subject land. Historical records may also place the species on Bells Line of Road, which traverses part of the Newnes Plateau area, though this is uncertain, and most sources consider the rediscovery location synonymous with the location of the original collection. It is thought that the species may always have possessed a limited distribution along this river. Impacts associated with the proposal will not extend to this population. While not specifically targeted, the species was not detected during flora surveys conducted in its flowering season. The subject land is at a markedly higher elevation than the known population and is not dominated by *Leptospermum polygalifolium* or *Callistemon sieberi*, as is the case for the known site. Given the low affinity between the subject land and the known population, the absence of historical records of the species within the site, and the failure to detect the species during surveys, it is highly unlikely that a population of the species occurs within the site and would be adversely impacted by the proposal.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population occupies the site. The current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The proposal would produce narrow (up to 1.2 m) gaps through the existing vegetation; however, as it is highly unlikely that the species occurs within the site, this is not expected to result in fragmentation of any population.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species is confined to its known occurrence along the River Lett. This area would not be adversely affected by the proposal.
Disrupt the breeding cycle of a population	No impacts on breeding activity are anticipated as it is highly unlikely that the species occurs within or near the site.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The species is not known to occur within any of the vegetation communities recorded within the site. Consequently, no impacts on any habitat for this species are anticipated.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Major threats to this species include fire regimes that cause declines in biodiversity, habitat disturbance and modification impacts, weeds, disease, and climate change. The extremely restricted distribution of the species suggests that it is highly susceptible to stochastic events. Given that evidence indicates that the species is unlikely to occur within or near the subject land, the impacts associated with the proposal are unlikely to directly interfere with the recovery of the species.
Conclusion	No significant impact

Swift Parrot (*Lathamus discolor*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal would result in the loss of up to 2.15 ha of potential habitat for this species, associated with PCTs 3687, 3688, and 3696. Impacts would be largely confined to understorey vegetation and canopy regrowth and would retain mature food trees for this species. The species has been recorded only once within 10 km, in relatively low-lying habitat c. 8.3 km south of the site, and the subject land is not designated as important habitat in NSW. In light of the above, it is unlikely that any population is dependent on the subject land and similarly unlikely that the proposal would lead to a long-term decline in any population.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population occupies the site. Given that mature trees will be retained and that surrounding vegetation will remain, the area of occupancy will not be reduced.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m, primarily impacting understorey vegetation and canopy regrowth. This is unlikely to result in fragmentation for a highly mobile species such as this, particularly given the retention of mature trees.
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*). The subject land is not in Tasmania and was not found to contain any of the key foraging species above. For this reason, no adverse impacts to critical habitat are likely.
Disrupt the breeding cycle of a population	Considering this species breeds exclusively in Tasmania and that the site contains at most marginal foraging habitat, 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 would result in the loss of up to 2.15 ha of potential habitat for this species but would not remove the mature trees that make up the majority of the diet of this species. No isolation of habitat is likely, and the scale of impacts is unlikely to cause the species to decline locally.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
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. This proposal will retain all mature trees, including those with hollows, and is not expected to impact the preferred forage species for the Swift Parrot. It should therefore not interfere with the recovery of the species within the region.
Conclusion	No significant impact

Gang-gang Cockatoo (*Callocephalon fimbriatum*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	This species was recorded at least six times within or near the site and is considered to utilise all of the recorded vegetation communities. Consequently, up to 2.36 ha of associated vegetation would be removed. This species feeds primarily in canopies and only rarely makes use of the understorey. Given that the proposal would retain all mature trees, impacts on foraging behaviour are likely to be minimal. Likewise, as hollow-bearing trees will be retained, no direct impacts on breeding activity are likely. The mobility of this species and the small scale of the impacts together suggest that a long-term decline in the local population is unlikely to result from proposal activities.
Reduce the area of occupancy of the species	Given that mature trees will be retained and that surrounding vegetation will remain, the area of occupancy will not be reduced.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m, primarily impacting understorey vegetation and canopy regrowth. This is unlikely to result in fragmentation for a highly mobile species such as this, particularly given the retention of mature trees.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species varies by season, with the preferred habitat for the species in the summer months consisting particularly of the following: • Tall mountain forests and woodlands – particularly mature, wet sclerophyll forests with eucalypt-dominated canopies and shrubby understories of *Acacia* and *Banksia* – particularly in secluded valleys. • Subalpine Snow Gum (*Eucalyptus pauciflora*) woodlands and similar open habitats at higher altitudes, including regenerating forests. During winter, the species favours drier habitats at lower altitudes, including box-ironbark woodlands, River Red Gum (*Eucalyptus camaldulensis*) communities, coastal *Leptospermum* or *Casuarina*, and heathlands. All foraging habitat in the breeding and non-breeding seasons is to be considered critical habitat. The site contains areas that may be considered critical habitat, notably tall gully forests containing extensive areas of *Acacia terminalis* and other potential foraging species. Any removal of vegetation must be considered an adverse impact, though the scale of these impacts is such that no area of suitable habitat would be wholly removed, and extensive areas of similar habitat would remain.
Disrupt the breeding cycle of a population	No hollow-bearing trees would be impacted by the proposal; therefore, impacts on breeding activity are unlikely.
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 2.36 ha of associated vegetation for the species, distributed along a linear alignment of c. 25 km. Extensive areas of vegetation will remain in areas immediately surrounding the site, and mature trees within the site will be retained. No isolation of habitat would result. Any reduction or fragmentation of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).

Interfere with the recovery of the species	Loss of key breeding and foraging habitat from intensive wildfire events and inappropriate hazard reduction burns, loss and degradation of breeding and foraging habitat from rural and urban development, loss of breeding and foraging habitat from forestry management practices, climate change impacts to habitat suitability and distribution, psittacine circovirus disease, and lack of knowledge of locations of key breeding habitat and breeding ecology and success are the main threats to this species. The proposal would result in some loss of habitat, though the small scale of the proposed impact suggests that any interference with the recovery of the species would be minor.
Conclusion	No significant impact

Large-eared Pied Bat (*Chalinolobus dwyeri*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	This species has been recorded 151 times within 10 km of the site and is considered to utilise PCTs 3687, 3688, and 3696. Consequently, up to 2.15 ha of suitable habitat for the species would be removed or modified by the proposal. The Large-eared Pied Bat was detected three times by acoustic recordings and is therefore considered to be present as a foraging species; however, the low frequency and timing of detections suggests that no roosting habitat occurs in the immediate vicinity of the site (Corymbia Ecology, 2024). It is thought that the species preys predominantly on small flying insects below the forest canopy. While canopy vegetation will largely be retained, impacts to mid- and ground-layer vegetation and ongoing disturbance during operation of the track may alter the spectrum of available prey. As the diet of the species is poorly known, it is unclear to what extent this may impact the local population of the species. Given the small scale of the proposed impact, however, long-term declines in the local population are unlikely.
Reduce the area of occupancy of the species	Records suggest that the species occurs extensively across the Newnes Plateau, with most records occurring >2.5 km north and east of the site, and a smaller number of records occurring >6 km south. The species has not previously been recorded within 2.5 km of the site. Given that these known populations are unlikely to be displaced by the proposal, the area of occupancy of the species is likely to remain unchanged.
Fragment an existing population into two or more populations	Populations within the Newnes Plateau area may already be partly isolated from populations south of the subject land as this area contains urban development (Lithgow) with limited remnant habitat. The small scale of the proposed impacts suggests that significant additional fragmentation is unlikely.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Large-eared Pied Bat includes any maternity roosts, and sandstone cliffs and fertile wooded valley habitat within close proximity of each other. The subject land contains suitable foraging habitat and sandstone cliffs, though no active maternity colonies were identified. Given the abundance of records, maternity habitat is likely to occur further to the north of the site. As the location of this habitat is uncertain, the subject land may precautionarily be regarded as critical habitat. Any clearing or disturbance may be regarded as an adverse impact; however, the small scale of the proposed impact suggests significant adverse effects are unlikely.
Disrupt the breeding cycle of a population	The disturbance area does not overlap any potential maternity cave habitat, suggesting that no direct impacts on breeding are likely. Minor effects on breeding through disruption of foraging behaviour may result, though these are likely to be limited in scope.
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 2.15 ha of potential foraging habitat for this species. The proposal will not significantly exacerbate existing fragmentation for such a mobile species. Any reduction and fragmentation of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Clearing and isolation of forest and woodland habitats near cliffs, caves and old mine workings for agriculture or development, loss of foraging habitat close

	to cliffs, caves and old mine workings from forestry activities and too-frequent burning, usually associated with grazing, damage to roosting and maternity sites from mining operations, and recreational caving activities, use of pesticides and disturbance to roosting areas by goats are the main threats to this species. This proposal will result in the loss of up to 2.15 ha of forest habitat near cliffs and caves, exacerbating the known threats to this species. Increased recreational activity within the site is also likely to result in increased climbing and caving activity, with consequent disturbance to cave-dwelling fauna. These impacts are likely to be limited in scope and severity and should not interfere significantly with the recovery of the species, particularly given the absence of maternity roosts.
Conclusion	No significant impact

Spotted-tailed Quoll (SE Mainland Population, *Dasyurus maculatus maculatus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	Scat of this species was recorded once within the site and the species is considered to utilise all of the recorded vegetation communities. Consequently, up to 2.36 ha of associated vegetation would be removed. This species uses hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky cliff faces as den sites. While hollow-bearing trees will be retained, fallen logs will be displaced. It is strongly recommended that these be retained and relocated in adjacent habitat. Numerous small caves, rock outcrops, and cliffs will remain in the surrounding landscape. Given that this species maintains extremely large home ranges (88-1515 ha for females and 359-5512 for males), the loss of 2.36 ha of vegetation along a c. 25 km alignment is unlikely to substantially alter the available habitat such that the local population declines.
Reduce the area of occupancy of the species	While some impacts to habitat utilised by this species would result from the proposal, the small scale of the proposed impact and the large home range of species suggests that area of occupancy will not be reduced.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m within the understorey. For a species that routinely moves long distances (up to 8 km in a day) across varied and sometimes disturbed terrain, this is unlikely to present a significant barrier to movement. No fragmentation is therefore anticipated.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Spotted-tailed Quoll is likely to consist of large patches of forest with adequate denning resources and relatively high densities of medium-sized mammalian prey, though the thresholds for each of these requirements cannot be calculated with precision. It is not clear that the subject land would meet these requirements on its own merits, though it forms part of the larger Blue Mountains area that would. The small scale of the proposed impacts relative to the large home range of the species suggests that any adverse impacts to potentially critical habitat are likely to be minimal.
Disrupt the breeding cycle of a population	The proposal may result in the loss or displacement of some denning resources (e.g. fallen logs with hollows, though these should be retained and relocated). However, extensive potential breeding habitat would remain in the form of hollow trees, caves, outcrops and similar landscape features. Any disruption is likely to be limited in severity.
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 2.36 ha of potential habitat for the species. The proposal will not significantly exacerbate existing fragmentation of foraging habitat for this species, as previously discussed. Any reduction or fragmentation of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Loss, fragmentation and degradation of habitat, competition with introduced predators such as cats and foxes, deliberate poisoning, shooting and trapping, primarily in response to chicken predation, roadkill, and poisoning from eating cane toads in the wild are the main threats to this species.

	Although this proposal will exacerbate the loss, degradation, and, to a very limited extent, the fragmentation of habitat, due to the clearing of up to 2.36 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region, when the small scale of the proposed impacts are considered in light of the large home range of the species.
Conclusion	No significant impact

Blue Mountains Water Skink (*Eulamprus leuraensis*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	This species has been recorded 594 times within 10 km of the site but is not known to make use of any of the recorded vegetation communities and the species was not observed during the course of surveys. It is confined to sedge and shrub swamps, which occur on the Newnes Plateau but not within the footprint of the proposal. The presence of *Baeckea linifolia* and *Tetrarrhena turfosa* may serve as an indicator of the potential presence of the Blue Mountains Water Skink. These species were not recorded within or near the site. In light of the above, it is unlikely that any population of the species occurs within or near the site and similarly unlikely that the proposal would result in long-term to any population of the species.
Reduce the area of occupancy of the species	As indicated above, it is unlikely that an established population exists at the site. The current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As no populations of the species are likely to occur within or near the site, no fragmentation is likely. The swamp habitat occupied by this species is naturally fragmentary and would not be further fragmented by this proposal.
Adversely affect habitat critical to the survival of a species	Critical habitat has not been formally defined for this species. The site is unlikely to constitute critical habitat as it does not contain the swamp habitat favoured by this species.
Disrupt the breeding cycle of a population	Breeding requirements are poorly known for this species. The proposal is unlikely to adversely impact breeding by this species given the absence of suitable habitat.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal is unlikely to directly or indirectly impact any habitat for this species, as suitable habitat was not observed during the survey.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Threats to this species include urban development, pollution and sedimentation, alterations to hydrological regimes, weed invasion, visitor disturbance, and predation by cats. As the site contains no habitat suitable for occupation by this species, no interference is likely.
Conclusion	No significant impact

Giant Burrowing Frog (*Heleioporus australiacus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The species has been recorded only once within 10 km of the site but is considered to be associated with all vegetation communities within the site. The single record is associated with a dam located c. 7.5 km north of the site. The site contains areas of potential habitat for the species, namely pools and soaks in low-order streams. Fifteen mapped Strahler 1st and 2nd order streams intersect the proposed alignment, many of which contained small pools during at least part of the survey period. Surveys were commenced but not completed for this species once the streamlined assessment was adopted. Four nights of spotlighting transects and call playback did not return evidence of the species within or near the site. While the species cannot be comprehensively ruled out, the available evidence suggests that no population exists within the site. Should a population in fact be present, the narrow, linear nature of the proposed disturbance suggests that impacts should not result in irreversible impacts: the watercourses continue outside the site and similar habitat would continue to exist nearby. Evidence indicates that the species is tolerant of at least short-term increases in sedimentation (Green, Thompson, and Lemckert, 2004); however, the impacts of long-term increases in turbidity resulting from erosion of exposed trail surveys is less clear. While long-term decreases in any local population are unlikely, sediment control measures should be implemented to further minimise any risk.
Reduce the area of occupancy of the species	Given the availability of similar habitat adjacent to the subject land, impacts on area of occupancy are likely to be minimal.
Fragment an existing population into two or more populations	The proposal would introduce gaps of up to 1.2 m in the understorey. Creek crossings may result in some limited fragmentation, particularly if they are heavily trafficked; however, as the species spends much of the year in non-breeding habitat up to 300 m from breeding ponds, it is likely to be sufficiently mobile to overcome minor obstacles to movement.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of this species has not been precisely defined, though the published conservation advice notes that the species is dependent upon soaks and pools in first- or second-order streams surrounded by native forest or heathland, and that the species makes use of this surrounding vegetation in non-breeding periods. The subject land contains suitable habitat that would, if a breeding population were present, constitute critical habitat. In the absence of thorough surveys under ideal conditions (after heavy rains) confirming that the species is absent, the proposal may be considered to impact small areas of critical habitat, though the small scale of these impacts and availability of similar habitat nearby suggests that these impacts are unlikely to be significant.
Disrupt the breeding cycle of a population	Where the proposal results in direct impacts to stream beds, impacts to the breeding cycle of the species are possible. The species breeds mainly in autumn immediately before or after heavy rain, and construction should be avoided during this period where possible. However, impacts to breeding habitat during operation of the track would remain. Given the narrow footprint of the proposal and availability of similar habitat in the wider landscape, these impacts are likely to be limited in scope.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal would result in the loss of up to 2.36 ha of associated vegetation for this species, though the extent of any impacts to potential breeding habitat is significantly smaller. Similar habitat will remain in areas surrounding the site and it is unlikely that any areas of habitat would be isolated.

Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	There is no Recovery Plan for this species. Habitat loss, reduction of water quality, forestry disturbance, intense or frequent fire, and disturbance to breeding habitat by vehicles are the main threats to this species. Sedimentation resulting from erosion of the exposed trail surface and direct impacts to watercourses through trail formation and use represent potential vectors for impacts to this species. While the narrow disturbance footprint suggests that the risk of direct impacts to breeding habitat is low, run off of sediment from the track surface may extend the impacts of the proposal outside the direct impact area. Erosion and sedimentation control measures should be implemented to minimise impacts on water quality to avoid interfering with the recovery of this species.
Conclusion	No significant impact

Hooded Robin (south-eastern form, *Melanodryas cucullata cucullata*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	This species has been recorded 13 times within 10 km of the site and is known or assumed to utilise all of the recorded vegetation communities; consequently, up to 2.36 ha of associated vegetation would be removed by the proposal. Local records are largely from Gardens of Stone State Conservation Area, suggesting that the species does make use of habitat on the Newnes Plateau, though habitat within the footprint aligns poorly with the preference of the species for dry woodlands or shrublands with open, structurally diverse understoreys. The failure to detect the species within the site, together with the relatively small scale of the proposed impacts, suggests that the proposal is unlikely to lead to a long-term decrease in any local population.
Reduce the area of occupancy of the species	No population is known to occur within the site and the habitat that currently or formerly supports the recorded populations would not be impacted by the proposal. It is therefore unlikely that the area of occupancy for this species would be significantly reduced.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m within the understorey. The canopy would be largely unaffected. Fragmentation impacts are unlikely to adverse impact this species.
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. The tall, dense forests and open heathlands that account for much of the site do not align closely with this description of critical habitat. Areas of relatively sparse Silvertop Ash (*Eucalyptus sieberi*) do occur in the transition between forested slopes and open heath on the plateau but typically lack the grass layer favoured by this species. On the basis of the above definition, it is considered here that no critical habitat occurs within the site.
Disrupt the breeding cycle of a population	The species is generally thought to return to the same nesting site each breeding season. It builds nests in tree crevices from 1-5 m above the ground. As this may entail the use of relatively immature trees, some impacts to potential breeding habitat may result from the proposal. However, no evidence of this species was noted in repeated traverses of the proposed alignment. Impacts to breeding activity are therefore unlikely.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	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. The tall, dense forests and open heathlands that account for much of the site do not align closely with this description of critical habitat. Areas of relatively sparse Silvertop Ash (*Eucalyptus sieberi*) do occur in the transition between forested slopes and open heath on the plateau but typically lack the grass

	layer favoured by this species. On the basis of the above definition, it is considered here that no critical habitat occurs within the site.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Clearing of woodlands, resulting in loss and fragmentation of habitat, modification and destruction of ground habitat through heavy grazing and compaction, removal of litter and fallen timber, introduction of exotic pasture grasses and frequent fire, and aggressive exclusion from forest and woodland habitat by overabundant Noisy Miners, and disturbance and changes to vegetation structure activities are the main threats to this species. This proposal would result in some loss of potentially suitable habitat, though the recorded vegetation appears to be of at most marginal suitability. In light of this, and considering the small scale of the proposed impacts, the proposal should not significantly interfere with the recovery of the species within the region.
Conclusion	No significant impact

Southern Greater Glider (*Petauroides volans*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	This species has been recorded 1098 times within 10 km of the site, was recorded at least 25 times within or near the site during surveys, and is thought to make use of PCTs 3687, 3688, and 3696. Consequently, up to 2.15 ha of suitable habitat for the species would be removed or modified by the proposal. Impacts to habitat for this species would result from this proposal, though as most of those impacts would be to the mid- and ground-layers, arboreal mammals including the Southern Greater Glider are likely to avoid the most significant impacts. Loss of recruitment of canopy trees via clearing of regrowth and impacts related to increased human activity within the site are the most likely negative effects of the proposal on this species. Sightings of the species within disturbed areas of the site (e.g., within trees in the State Mine Gully Museum grounds and adjacent to existing trails and roads) suggest that the formation of additional tracks should not displace the species and are unlikely to lead to long-term declines in the local population.
Reduce the area of occupancy of the species	The species occurs extensively across the Newnes Plateau. The reduction in available habitat in a small area of this local distribution is unlikely to reduce the area of occupancy of the species.
Fragment an existing population into two or more populations	The proposal would result in cleared gaps of up to 1.2 m within the understorey. The canopy would be largely unaffected. These minor fragmentation impacts are unlikely to adverse impact strictly arboreal species such as the Southern Greater Glider which is capable of gliding up to 100 m.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of this species includes sites possessing one or more of the following attributes: • Large, continuous areas of eucalypt forest, containing mature hollow-bearing trees, and a diverse range of preferred food species. • Smaller or fragmented patches connected to larger patches that can facilitate dispersal or enable recolonisation. • Cool microclimate areas in forests or woodlands (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes). • Areas identified as climate refuges. • Short- or long-term post-fire refuges. The Southern Greater Glider has a restricted diet but is known to feed on Narrow-leaved Peppermint (*Eucalyptus radiata*), one of the most abundant canopy species within the site. The site and surrounding landscape also contain a high diversity of other eucalypt species that may provide additional foraging opportunities. The presence of a preferred food tree, a diverse range of alternative eucalypts, and large areas of continuous forest (the Greater Blue Mountains area) within the surrounding landscape suggest that the site should be considered critical habitat. Any clearing of this habitat could be considered an adverse impact; however, considering that key habitat features (mature trees, including hollow-bearing trees) will be retained, and that impacts will be largely confined to the understorey, these impacts are unlikely to significantly reduce the viability of the local population of this species.
Disrupt the breeding cycle of a population	Hollow-bearing trees will not be impacted by the proposal. Impacts on breeding activity are therefore likely to be minimal. In the longer term, clearing of immature trees will reduce the availability of forage species and future hollows in the landscape; however, as these impacts will be confined to a narrow (≤1.2 m) alignment, this impact is likely to be minimal.

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 2.15 ha of potential habitat for the species. The proposal will not significantly exacerbate existing fragmentation of foraging habitat for this species, as mature trees will be retained. Any reduction or fragmentation of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a species becoming established in the species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species	Key threats identified for this species include frequent and intense bushfires, inappropriate prescribed burning, climate change, land clearing and timber harvesting. The removal or modification of up to 2.15 ha of associated vegetation for this species represents a contribution to these key threats (land clearing); however, the small scale of the proposed impact and the retention of key habitat features (mature trees) suggest that these impacts are unlikely to be significant.
Conclusion	No significant impact

EPBC Act-listed Vulnerable Species

South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species was detected within the site on two occasions during surveys. Only one potential food source for this species was detected during surveys, namely the Dwarf She-oak (*Allocasuarina nana*), which occurs within the rock plate heath community (PCT 3862) on the plateau. Dwarf She-oak is not listed as a preferred food species in the Conservation Advice for the South-eastern Glossy Black-Cockatoo but represents the most likely food source for birds detected during surveys. The site also traverses areas that contain potential breeding sites with suitable hollows. Impacts to this species are likely; however, given the retention of mature trees and small scale of potential impacts to foraging habitat (0.13 ha of PCT 3862), these impacts are unlikely to result in long-term decreases in any population. The subject land does not occur at or near the limit of the known range of this species and would not, by itself, support a key source population. The recorded birds are therefore unlikely to form part of an important population as defined in the significant impact guidelines under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, no important population of this species is likely to occur locally.
Fragment an existing important population into two or more populations	As indicated above, no important population of this species is likely to occur locally.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of this species has been broadly defined to include any habitat used by the species for foraging, breeding, roosting, or dispersal. The subject land excludes breeding habitat but contains areas that may be used for foraging, namely the rock plate heath community (PCT 3862) on the plateau. Impacts to this community will result from the proposal; however, the scale of these impacts will be minimal (0.13 ha), and the alignment will make use of areas of bare rock where possible, retaining foraging habitat for this species.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally. No breeding habitat (hollow-bearing trees) will be impacted by the proposal.
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 2.36 ha of potential habitat for the species, though only 0.13 ha was noted as containing significant foraging resources and no breeding habitat would be impacted. Isolation of areas of habitat is not anticipated. Any reduction or fragmentation 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 construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Major threats to this species include reduction of suitable habitat through clearing for development; decline of hollow bearing trees over time due to land management activities; excessively frequent fire which eliminates sheoaks from areas, prevents the development of mature sheoak stands, and destroys nest trees; firewood collection resulting in loss of hollow-bearing trees; reduced

	recruitment of hollow-bearing trees; disturbance of breeding attempts; and decline in extent and productivity of sheoak foraging habitat due to feral herbivores. The absence of hollow-bearing trees and limited impacts to foraging habitat suggests that the proposal would not significantly interfere with the recovery of the species.
Conclusion	No significant impact

Brown Treecreeper (south-eastern subspecies, *Climacteris picumnus victoriae*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The subspecies has been recorded 71 times within 10 km of the site and is known or assumed to make use of all recorded vegetation communities. The species is most often associated with dry open forest and woodland communities and is rarely recorded in communities with dense shrub layers. The dense, tall, shrubby or ferny forests and open, mostly treeless heaths recorded within the site are therefore likely to be only marginally suitable for use by this species. This, combined with the fact that the site is not at or near the limit of the known range of this species, suggests that local populations are unlikely to be considered important as defined in the significant impact guidelines under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, no important population of this species is likely to occur locally.
Fragment an existing important population into two or more populations	As indicated above, no important population of this species is likely to occur locally.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Brown Treecreeper (eastern subspecies) includes areas that have a relatively undisturbed grassy woodland with native understorey; large living or dead trees and stumps with hollows which are essential for roosting and nesting sites; and fallen timber which provides essential foraging habitat. The majority of the site consists of tall, dense forest or open, mostly treeless heath; while the site does contain fallen timber and hollow-bearing trees occur in the wider landscape, the clear difference between the recorded vegetation and the preferences of this subspecies suggests that the site is unlikely to be considered critical habitat.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally.
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 2.36 ha of marginally suitable habitat for the subspecies. The proposal will not significantly exacerbate existing fragmentation of foraging habitat for this species, considering the marginal suitability of the site and that impacts will largely be confined to the ground- and mid-layers. Any reduction or fragmentation 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 construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	The major threats to this species include historical and ongoing loss of woodland, forest, and mallee habitats due to agriculture, forestry, mining, and residential development; fragmentation of remaining woodland and forest, which isolates populations and leads to local extinctions; habitat degradation, particularly the loss of hollow-bearing trees and fallen timber from firewood collection and overgrazing; and insufficient eucalypt regeneration due to overgrazing and frequent fires. The proposal would contribute to the loss of potential habitat, however marginal, and may result in the removal or displacement of fallen timber. Timber should be retained and relocated wherever possible. The small scale of these impact suggests that these are unlikely to significantly interfere with the recovery of the species.

Conclusion	No significant impact

Black Gum (*Eucalyptus aggregata*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	While the species has been recorded 271 times within 10 km of the site, no individuals of this species or associated vegetation communities were recorded during surveys. This species is typically associated with alluvial soils surrounding creeks on broad, flat plains. This does not describe the subject land, which consists of sharply etched gullies rising to sandstone plateaux. It is therefore highly unlikely that the species occurs within or near the site. The largest population within 10 km of the site occurs near Springvale Coal Mine and consists of at least 140 trees on swampy ground associated with a drainage line. This population may be considered important, given its size and potential to sustain genetic diversity in the local landscape. However, no impacts to this population would result from the present proposal and it is extremely unlikely that an important population could exist within the site itself.
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. Habitat critical to the survival of the species is likely to comprise any land necessary for the long-term maintenance of the species, for the maintenance of genetic diversity, or for the reintroduction or recovery of the species. This does not describe the subject land, which is unlikely to contain the species, and which is broadly unsuitable for the species.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally. Mature trees will be retained by the proposal.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No impacts to vegetation communities known to be associated with this species would result from the proposal. Minor fragmentation impacts in the immediate landscape may result from the proposal but would not extend to any population of this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Identified threats to this species include clearing for cropping and grazing, habitat reduction and patchiness, lack of recruitment, herbicide control of fireweed and serrated tussock, hybridisation with related species, and climate change effects. The proposal is unlikely to directly or indirectly impact this species.
Conclusion	No significant impact

Silver-leaved Mountain Gum (*Eucalyptus pulverulenta*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	While the species has been recorded 15 times within 10 km of the site, it is not known to make use of the vegetation communities recorded within the site. Although it was not specifically targeted, flora surveys across the whole of the site did not detect any individuals of this species, which is distinctive and easily recognised. It is therefore highly unlikely that any population of this species occurs within the site.
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	Habitat critical to the survival of this species has not been formally defined but is unlikely to include sites that do not contain any vegetation communities know or assumed to support this species.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No habitat associated with this species is expected to be removed or modified as a result of this proposal.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Key threats to this species include damage to habitat by grazing, susceptibility to stochastic events owing to small population size, and illegal seed collection. The proposal is unlikely to exacerbate these threats and will therefore not interfere with the recovery of the species.
Conclusion	No significant impact

White-throated Needletail (*Hirundapus caudacutus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is considered to be associated with all vegetation communities recorded within the site; consequently, up to 2.36 ha of potential habitat would be impacted by this proposal. The species has been recorded 33 times within 10 km of the site and some use of the site for foraging is likely. However, the site is not at or near the limit of the known range of the species and does not contain an unusually high concentration of records, suggesting that local populations are unlikely to be considered important according to the relevant definition.
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. The wide distribution and broad habitat tolerances of the species suggest that the subject land by itself is unlikely to be critical to the persistence of the species in the landscape.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal would remove/modify up to 2.36 ha of potential habitat for the species. The species is thought to favour forest or woodland habitats but primarily feed aerially and roosts in canopies. As the impacts of the proposal would be confined to the lower storeys and mature trees would be retained, the species is unlikely to be substantially adversely affected by the proposal. No fragmentation would result for a highly mobile species such as this one. No impacts likely to result in a decline in the species at a regional scale are anticipated.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Aerial collisions 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 wooded habitat is also a threat, and this would be exacerbated to a limited extent by to the clearing of up to 2.36 ha of forest. As proposal activities will largely spare the canopy they are unlikely to significantly impact this species or interfere with its recovery.
Conclusion	No significant impact

Yellow-bellied Glider (south-eastern, *Petaurus australis australis*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species has been recorded five times within 10 km of the site and is considered to be associated with PCTs 3687 (where the species was recorded) and 3688. Consequently, up to 2.14 ha of habitat associated with this species would be impacted by the proposal. While some impacts to potential habitat for this species are therefore likely, the subject land is not at the limit of the known range of this species and only five further records of the species are known from within 10 km, suggesting that the local population does not meet the applicable criteria for importance as defined in the significant impact guidelines under the EPBC Act.
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	Habitat critical to the survival of this species includes sites possessing one or more of the following attributes: • Large, continuous areas of floristically diverse eucalypt forest, dominated by winter-flowering and smooth-barked species, with living hollow-bearing trees and sap trees. • Areas identified as climate refuges. • Short- or long-term post-fire refuges. • Habitat corridors required for dispersal. • Areas in which trees show evidence of sap extraction by this species. Key tree species recorded within or near the site – not all of them smooth-barked – include *Eucalyptus dalrympleana*, *E. fastigata*, *E. piperita*, *E. radiata*, *E. sclerophylla, E. racemosa*, and *E. viminalis*. As the site contains these species and forms part of a large, continuous forested area, it must be considered critical habitat for the species. Any loss of vegetation may be considered an adverse impact; however, as this species is arboreal, and as mature canopy trees (and all hollow-bearing trees) will be retained, the scale of the proposed impact is unlikely to be significant.
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 2.14 ha of potential habitat for the species. For an arboreal species such as this one, fragmentation impacts are likely to be minimal. Any reduction and fragmentation 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 construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	The key threats to this species are climate change, altered fire regimes, clearing, fragmentation and timber harvesting. The proposal would exacerbate threats related to clearing and fragmentation as it would result in the loss of up to 2.14 ha of associated habitat; however, as clearing would be largely confined

	to the mid- and ground-layers, impacts to arboreal mammals such as this are likely to be minimal.
Conclusion	No significant impact

Grey-headed Flying-fox (*Pteropus poliocephalus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	Fifteen widely dispersed records of the Grey-headed Flying-fox are known from within 10 km of the site, and the species is known or assumed to make use of PCTs 3687, 3688, and 3862. Consequently, up to 2.27 ha of potential habitat for the species would be removed or modified by the proposal. The site is not at or near the limit of the known range of this species and does not support a breeding camp. The species was not detected during bat surveys undertaken in December 2024 or by any nocturnal survey undertaken at the site. On this basis, it is highly unlikely that an important population occurs within or is dependent upon the site.
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	Habitat critical to the survival of the species has been defined as including areas containing key winter- and spring-flowering myrtaceous species and vegetation communities that meet one or more of the following conditions: • Contains native species known to be productive as foraging habitat during key periods surrounding conception and birth (August to May). • Contains native species used for foraging and occurs within 20 km of a nationally important camp. • Contains native and/or exotic species used for roosting at the site of a nationally important camp. None of the key food trees identified for this species were recorded within the site and the National Flying-fox Monitoring Viewer does not identify any nationally important camps within 20 km. The nearest camp of any kind, located in Portland, is c. 19.7 km from the site but is not listed as nationally important and may be inactive, with surveys failing to detect any individuals since at least 2017.
Disrupt the breeding cycle of an important population	As indicated above, no important population of this species is likely to occur locally and no evidence of a breeding camp in or near the site was recorded.
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 2.27 ha of potential habitat for the species. The proposal will not significantly exacerbate existing fragmentation for a mobile species such as this. Any reduction and fragmentation 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 construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Loss and degradation of foraging and roosting habitat is considered to be the primary threat to the survival of this species. Lesser or poorly quantified threats to the species include conflict with humans, collision with power lines and fences, and climate change. No impacts to key foraging habitat or breeding camps would result from the proposal, and the proposal would not exacerbate threats related to electrocution, entanglement, or heat stress. There is some potential for additional conflict with humans, given that use of the site by

	humans is expected to increase; however, as the local habitat appears to see limited use by the species, this is unlikely to directly interfere with the recovery of the species within the region.
Conclusion	No significant impact

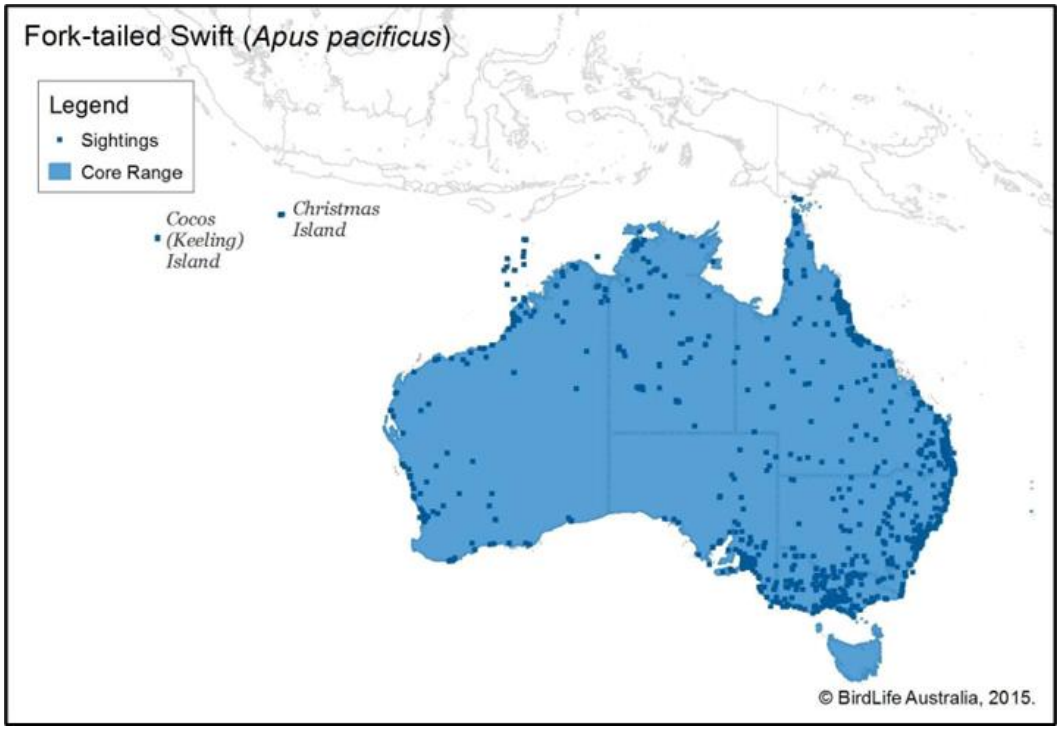
Pilotbird (*Pycnoptilus floccosus*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is considered to be associated with all vegetation communities recorded within the site; consequently, up to 2.36 ha of potential habitat would be impacted by this proposal. The species was recorded in several locations within and near the site during surveys. The Pilotbird is relatively widely distributed, with the local subspecies, *P. floccosus sandlandi*, occurring from the Blue Mountains west of Newcastle to the Dandenong Ranges east of Melbourne. The subject land is not at the limit of the known distribution of the species. The population that occurs diffusely across the Newnes Plateau is likely to be considered an important population of the species, as it represents one of only a small number of relatively dense aggregations of records, suggesting it is important to the maintenance of genetic diversity, and extends to the western limit of the known range of the species; however, by themselves, the individuals recorded in or near the footprint of the proposal do not constitute an important population, and the small scale of the proposed impacts suggests that long-term declines in the local population are unlikely to result from proposal activities.
Reduce the area of occupancy of an important population	Should the local population be regarded as important, the proposal still would not be expected to significantly reduce the area of occupancy for the species as extensive areas of suitable habitat, often with prior records of the species, would remain in the area immediately surrounding the subject land.
Fragment an existing important population into two or more populations	This species is exclusively terrestrial, occupying dense undergrowth and rarely ascending more than 1-2 m from the ground. Impacts to understorey vegetation are therefore more likely to result in fragmentation impacts to this species than to most co-occurring bird species. These impacts are likely to be extremely limited in scope, however, as they would entail the creation of gaps of no more than 1.2 m and often less. Birds were seen on and adjacent cleared trails of similar widths during the survey, suggesting that these impacts would not significantly decrease the habitat value of the local landscape for this species.
Adversely affect habitat critical to the survival of a species	According to the published conservation advice, habitat critical to the survival of the Pilotbird includes “wet sclerophyll forests in temperate zones in moist gullies with dense undergrowth” and “dry sclerophyll forests and woodlands occupying dry slopes and ridges.” This describes the entirety of the subject land. The proposal would therefore result in the loss or modification of up to 2.36 ha of critical habitat. Any loss of habitat may be considered an adverse impact. However, the impacts would be distributed along a c. 25 km alignment and the proposal never entails a clearing width greater than 1.2 m, suggesting that the ultimate impacts on critical habitat are likely to be minimal.
Disrupt the breeding cycle of an important population	As the Pilotbird nests on or near the ground, there is potential for the proposal to directly impact breeding activities during clearing of vegetation. The breeding season for the species is thought to be August-January and construction should take place outside of these months to reduce the likelihood of any adverse impacts.
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 2.36 ha of potential habitat for the species. Evidence from site surveys suggests that the species is capable of navigating clearings of 1.2 m or wider, indicating that fragmentation impacts are likely to be limited in severity. This reduction/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	There is the potential for construction and operation to introduce invasive species to the proposal site or exacerbate existing infestations of significant

becoming established in the vulnerable species' habitat	invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	The Pilotbird was thought not to be subject to significant threatening processes until fires burnt large areas of its habitat in January 2020. Key threats to this species therefore primarily relate to climate change and the potential for extended severe drought and extreme fire events. Predation by invasive exotic mammals (cats, foxes) is also a threat. The loss of up to 2.36 ha of vegetation represents at most a negligible contribution to climate change via reduced carbon sequestration. Threats related to predation may increase following disturbance, which may facilitate access by invasive species; however, as the site is already proximal to urban development, it is highly likely that significant populations of invasive predators are already present. Feral cats were detected during surveys. The proposal is unlikely to significantly exacerbate these threats.
Conclusion	No significant impact

Diamond Firetail (*Stagonopleura guttata*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	While the species has been recorded 210 times within 10 km of the site, it is not known to make use of any of the vegetation communities recorded within the site. The known records all occur around the margins of the search area, with none reported within 8 km of the site. In light of this, it is unlikely that the site supports a key source population for the species or one that is necessary for the maintenance of genetic diversity. Similarly, the site does not occur at or near the limit of the known distribution of the species. It should therefore be considered that no important population of the species occurs locally.
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	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. The majority of the site supports dense forest that is unlikely to be suitable for use by this species. The sparsely treed heaths on the plateau may be more appropriate but contained only highly localised grass patches. Therefore, the site is likely to offer only marginal habitat for this species. This, combined with the lack of records within or near the site and the failure to detect the species during surveys, suggests that the site should not be considered critical habitat.
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 would not remove any habitat known to be utilised by this species. Fragmentation impacts are unlikely to impact populations known to occur in the wider landscape, given the small scale of the proposed impact and the mobility of the species. Any reduction and fragmentation 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 construction and operation 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 6.7**).
Introduce disease that may cause the species to decline	Construction machinery and future bicycles entering the site could potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 6.7**).
Interfere with the recovery of the species.	Modification and destruction of ground- and shrub layers within habitat, invasion of weeds, clearing and fragmentation of a variety of habitats and poor regeneration of open forest and woodland habitats are the key threats to the species. The proposal would exacerbate threats related to loss of ground and shrub layers and invasion of weeds, as well as, in a very minor way, fragmentation of habitat. Considering the marginal suitability of the site for use by this species, however, this is unlikely to significantly interfere with the recovery of this species.
Conclusion	No significant impact

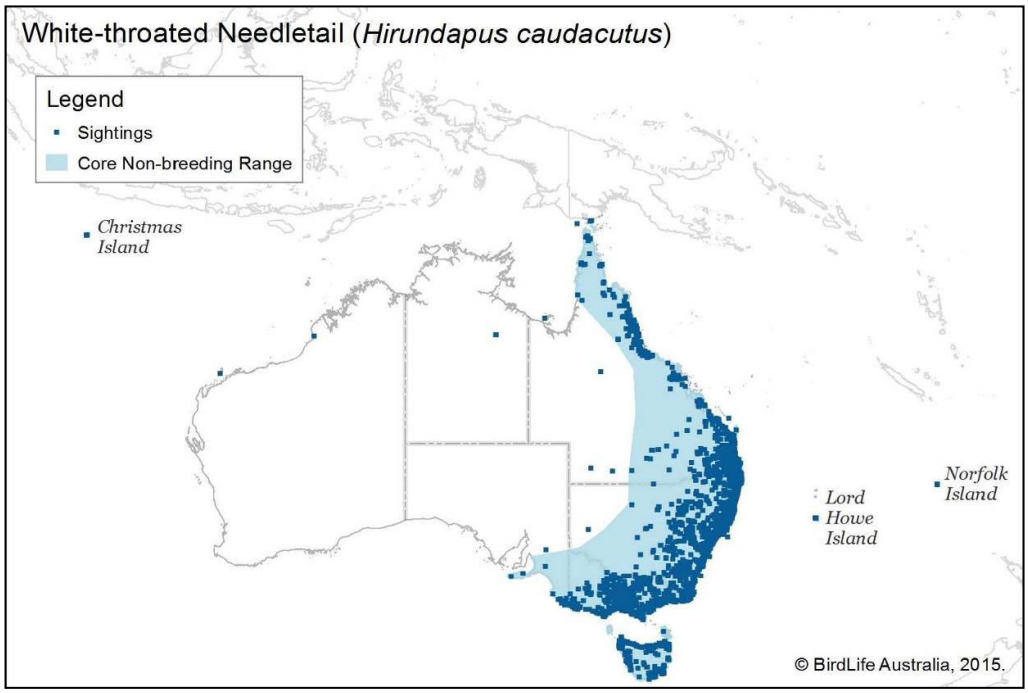
EPBC Act-listed Migratory Species

Fork-tailed Swift (*Apus pacificus*)	
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.	*Apus pacificus* is widespread throughout Australia with the entire country being mapped as within their "core range". The species was not observed during the field survey but has been recorded four times within 10 km of the site. Three of these records are from the wider Newnes Plateau. Some use of the site is therefore possible; however, as this species forages aerially and breeds outside of Australia, 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.	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 6.7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	An ecologically significant proportion of this species has been estimated at between 100 (nationally significant) and 1000 (internationally significant) individuals (Australian Government Department of the Environment, 2015). Considering the scarcity of local records and wide habitat tolerances of the species, it is unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Retention of the canopy suggests that impacts to aerial feeders such as this are likely to be minimal. The proposal is unlikely to seriously disrupt the lifecycle for this species
Conclusion	**No significant impact**



Fork-tailed Swift Core Range (BirdLife Australia, 2015)

White-throated Needletail (*Hirundapus caudacutus*)	
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 is widespread in eastern Australia from Tasmania to Cape York, most often observed above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy. The subject land falls within the mapped "non-breeding core range" for this species. This species was not observed during the field survey but has been recorded 33 times within 10 km of the site, with records spanning much of the Newnes Plateau. Some use of the site is therefore possible; however, as this species forages aerially and breeds outside of Australia, 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.	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 6.7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	An ecologically significant proportion of this species has been estimated at between 10 (nationally significant) and 100 (internationally significant) individuals (Australian Government Department of the Environment, 2015). The species exhibits wide habitat tolerances and forages aerially, suggesting that the loss of mainly understorey vegetation associated with this proposal is unlikely to result in significant adverse impacts to this population. As the species occurs across the Newnes Plateau, it is unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site itself. The proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**No significant impact**



White-throated Needletail Core Range (BirdLife Australia, 2015)

Appendix F: BAM-C Outputs

Credit Summary Report

BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00050127/BAAS21028/25/00056834	Lithgow Mountain Bike Park	05/08/2025
Assessor Name	Report Created	BAM Data version *
David Orchard	19/08/2025	Current classification (live - default) (82)
Assessor Number	BAM Case Status	Date Finalised
BAAS21028	Finalised	19/08/2025
Assessment Revision	BOS entry trigger	Assessment Type
5	BOS Threshold: Area clearing threshold	Part 4 Developments (Small Area)

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Newnes Plateau Peppermint-Ash Tall Forest												
1	3687_Good	Not a TEC	73.7	54.5	1.6	PCT Cleared - 3%	High Sensitivity to Gain			1.50		33

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BAM Credit Summary Report

2	3687_Moderate	Not a TEC	50	30.8	0.15	PCT Cleared - 3%	High Sensitivity to Gain			1.50	2
										Subtotal	**35**
										Total	**35**

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
Chalinolobus dwyeri / Large-eared Pied Bat (Fauna)									
3687_Good	54.5	54.5	1.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	True	66
3687_Moderate	30.8	30.8	0.15	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	True	3
								Subtotal	**69**
Petauroides volans / Southern Greater Glider (Fauna)									
3687_Good	54.5	54.5	1.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	44

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BAM Credit Summary Report

3687_Moderate	30.8	30.8	0.15	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Endangered	Endangered	False	2
								Subtotal	**46**

Assessment Id
00050127/BAAS21028/25/00056834

Proposal Name
Lithgow Mountain Bike Park

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Biodiversity Credit Report (Like-for-like)

BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id 00050127/BAAS21028/25/00056834	Proposal Name Lithgow Mountain Bike Park	BAM data last updated * 05/08/2025
Assessor Name David Orchard	Assessor Number BAAS21028	BAM Data version * Current classification (live - default) (82)
Proponent Names	Report Created 19/08/2025	BAM Case Status Finalised
Assessment Revision 5	BOS entry trigger BOS Threshold: Area clearing threshold	Assessment Type Part 4 Developments (Small Area)
Date Finalised 19/08/2025	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		

Species
Chalinolobus dwyeri / Large-eared Pied Bat

Additional Information for Approval

BAM Biodiversity Credit Report (Like for like)

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami lathami / South-eastern Glossy Black-Cockatoo
Ephippiorhynchus asiaticus / Black-necked Stork
Grantiella picta / Painted Honeyeater

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3687-Newnes Plateau Peppermint-Ash Tall Forest	Not a TEC	1.8	33	2	35

BAM Biodiversity Credit Report (Like for like)

3687-Newnes Plateau Peppermint-Ash Tall Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Sydney Montane Dry Sclerophyll Forests This includes PCT's: 1630, 3685, 3686, 3687, 3688, 3689, 3691, 3692, 3693, 3694, 3695, 3696	Sydney Montane Dry Sclerophyll Forests <50%	3687_Good	Yes	33	Wollemi, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Sydney Montane Dry Sclerophyll Forests This includes PCT's: 1630, 3685, 3686, 3687, 3688, 3689, 3691, 3692, 3693, 3694, 3695, 3696	Sydney Montane Dry Sclerophyll Forests <50%	3687_Moderate	No	2	Wollemi, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Chalinolobus dwyeri / Large-eared Pied Bat	**3687_Good, 3687_Moderate**	1.8	69.00
Petauroides volans / Southern Greater Glider	**3687_Good, 3687_Moderate**	1.8	46.00

Credit Retirement Options

Like-for-like credit retirement options

Assessment Id: 00050127/BAAS21028/25/00056834

Proposal Name: Lithgow Mountain Bike Park

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BAM Biodiversity Credit Report (Like for like)

Chalinolobus dwyeri / Large-eared Pied Bat	Spp	IBRA subregion
	Chalinolobus dwyeri / Large-eared Pied Bat	Any in NSW
Petauroides volans / Southern Greater Glider	Spp	IBRA subregion
	Petauroides volans / Southern Greater Glider	Any in NSW

Vegetation Zones Report

BAM Vegetation Zones Report

Proposal Details

Assessment Id 00050127/BAAS21028/25/00056834	Assessment name Lithgow Mountain Bike Park	BAM data last updated * 05/08/2025
Assessor Name David Orchard	Report Created 19/08/2025	BAM Data version * Current classification (live - default) (82)
Assessor Number BAAS21028	Assessment Type Part 4 Developments (Small Area)	BAM Case Status Finalised
Assessment Revision 5	BOS entry trigger BOS Threshold: Area clearing threshold	Date Finalised 19/08/2025

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Vegetation Zones

#	Name	PCT	Condition	Area	Minimum number of plots	Management zones
1	3687_Good	3687-Newnes Plateau Peppermint-Ash Tall Forest	Good	1.62	1	
2	3687_Moderate	3687-Newnes Plateau Peppermint-Ash Tall Forest	Moderate	0.15	1	

Candidate Species Report

BAM Candidate Species Report

Proposal Details

Assessment Id 00050127/BAAS21028/25/00056834	Proposal Name Lithgow Mountain Bike Park	BAM data last updated * 05/08/2025
Assessor Name David Orchard	Report Created 19/08/2025	BAM Data version * Current classification (live - default) (82)
Assessor Number BAAS21028	Assessment Type Part 4 Developments (Small Area)	BAM Case Status Finalised
Assessment Revision 5	BOS entry trigger BOS Threshold: Area clearing threshold	Date Finalised 19/08/2025

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List of Species Requiring Survey

Name	Presence	Survey Months
Chalinolobus dwyeri Large-eared Pied Bat	Yes (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Miniopterus orianae oceanensis Large Bent-winged Bat	No (surveyed)	☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?

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BAM Candidate Species Report

Persoonia hindii Persoonia hindii	No (surveyed)	☑ Jan ☑ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☐ Dec ☐ Survey month outside the specified months?
Petauroides volans Southern Greater Glider	Yes (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☑ Oct ☐ Nov ☑ Dec ☐ Survey month outside the specified months?
Petrogale penicillata Brush-tailed Rock-wallaby	No (surveyed)	☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec ☐ Survey month outside the specified months?

Threatened species Manually Added

Common Name	Scientific Name
Southern Greater Glider	Petauroides volans

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Swift Parrot	Lathamus discolor	Habitat constraints

Predicted Species Report

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00050127/BAAS21028/25/00056834	Lithgow Mountain Bike Park	05/08/2025
Assessor Name	**Report Created**	**BAM Data version ***
David Orchard	19/08/2025	Current classification (live - default) (82)
Assessor Number	**Assessment Type**	**BAM Case Status**
BAAS21028	Part 4 Developments (Small Area)	Finalised
Assessment Revision	**BOS entry trigger**	**Date Finalised**
5	BOS Threshold: Area clearing threshold	19/08/2025

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Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black-breasted Buzzard	Hamirostra melanosternon	3687-Newnes Plateau Peppermint-Ash Tall Forest
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	3687-Newnes Plateau Peppermint-Ash Tall Forest
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	3687-Newnes Plateau Peppermint-Ash Tall Forest
Dusky Woodswallow	Artamus cyanopterus cyanopterus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Flame Robin	Petroica phoenicea	3687-Newnes Plateau Peppermint-Ash Tall Forest
Gang-gang Cockatoo	Callocephalon fimbriatum	3687-Newnes Plateau Peppermint-Ash Tall Forest
Grey-headed Flying-fox	Pteropus poliocephalus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Large Bent-winged Bat	Miniopterus orianae oceanensis	3687-Newnes Plateau Peppermint-Ash Tall Forest

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BAM Predicted Species Report

Little Eagle	Hieraaetus morphnoides	3687-Newnes Plateau Peppermint-Ash Tall Forest
Little Lorikeet	Glossopsitta pusilla	3687-Newnes Plateau Peppermint-Ash Tall Forest
Pilotbird	Pycnoptilus floccosus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Rosenberg's Goanna	Varanus rosenbergi	3687-Newnes Plateau Peppermint-Ash Tall Forest
Scarlet Robin	Petroica boodang	3687-Newnes Plateau Peppermint-Ash Tall Forest
South-eastern Hooded Robin	Melanodryas cucullata cucullata	3687-Newnes Plateau Peppermint-Ash Tall Forest
Speckled Warbler	Chthonicola sagittata	3687-Newnes Plateau Peppermint-Ash Tall Forest
Spotted-tailed Quoll	Dasyurus maculatus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Square-tailed Kite	Lophoictinia isura	3687-Newnes Plateau Peppermint-Ash Tall Forest
Swift Parrot	Lathamus discolor	3687-Newnes Plateau Peppermint-Ash Tall Forest
Varied Sittella	Daphoenositta chrysoptera	3687-Newnes Plateau Peppermint-Ash Tall Forest
White-bellied Sea-Eagle	Haliaeetus leucogaster	3687-Newnes Plateau Peppermint-Ash Tall Forest
White-throated Needletail	Hirundapus caudacutus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Yellow-bellied Glider	Petaurus australis	3687-Newnes Plateau Peppermint-Ash Tall Forest

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Black-necked Stork	Ephippiorhynchus asiaticus	3687-Newnes Plateau Peppermint-Ash Tall Forest
Painted Honeyeater	Grantiella picta	3687-Newnes Plateau Peppermint-Ash Tall Forest
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami	3687-Newnes Plateau Peppermint-Ash Tall Forest

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Black-necked Stork	Ephippiorhynchus asiaticus	Habitat constraints

NSW GOVERNMENT

BAM Predicted Species Report

Painted Honeyeater	Grantiella picta	Habitat constraints
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami	Habitat constraints