

Lodge environmental

**FLORA
& FAUNA
ASSESSMENT**

**VACY VILLAGE - STAGE 5
598 GRESFORD ROAD, VACY NSW**
**PREPARED FOR
Minotaur Project Management**



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1.0 INTRODUCTION

Lodge Environmental Pty Ltd was commissioned by Minotaur Project Management to prepare this Flora and Fauna Assessment (FFA), to accompany a Development Application for Vacy Village - Stage 5, a proposed 18-lot (resulting lots) subdivision located on 598 Gresford Road, Vacy NSW (herein referred to as the **Study Area**). The Stage 5 proposal also includes the construction of new roads, with an entrance from Gresford Road. The Stage 5 works area is herein referred to as the **Subject Land**.

This report describes the native vegetation, any threatened species, populations and communities and associated habitat features which were recorded or are predicted to occur within the Subject Land. The information documented in this report has been obtained through desktop data searches and field survey, with the inclusion of relevant legislative context, methods and recommendations. This report will assist in informing a DA associated with the proposal.

1.1 OBJECTIVES

This report presents an assessment of possible impacts associated with the proposal at the Subject Land and is based on a field investigation, a literature review of previous studies undertaken in the region, the consultation of relevant databases and a consideration of the objectives of Section 4 of the EP&A Act, the State BC Act, the Commonwealth EPBC Act and any relevant State Environmental Planning Policies (SEPP).

The environmental impacts of the development have been assessed via the Test of Significance pursuant to Section 7.3 BC Act 2016, the Matters of National Environmental Significance (MNES) under the EPBC Act, and the relevant clauses within the Dungog Local Environmental Plan 2014 (DLEP) and the Dungog Development Control Plan (DDCP). The direct and indirect ongoing impacts of the development are addressed in this FFA.

1.2 SITE DESCRIPTION

The Study Area encompasses Lot 123 in Deposited Plan (DP) 1063557 (**Figure 1**), which is located at 598 Gresford Road, Vacy 2421. The Subject Land is a proposed 18-lot subdivision located on the southern side of Gresford Road, covering approximately 25.47 hectares. The Subject Land features exotic pasture with scattered native trees, several dams, and multiple mapped hydrolines. To the north and east of the Subject Land, the adjoining properties feature similarly cleared land with scattered paddock trees and the western border adjoins a vegetated residential lot. A large unnamed area of forest, covering approximately 2000 ha, lies to the south of the Subject Land.

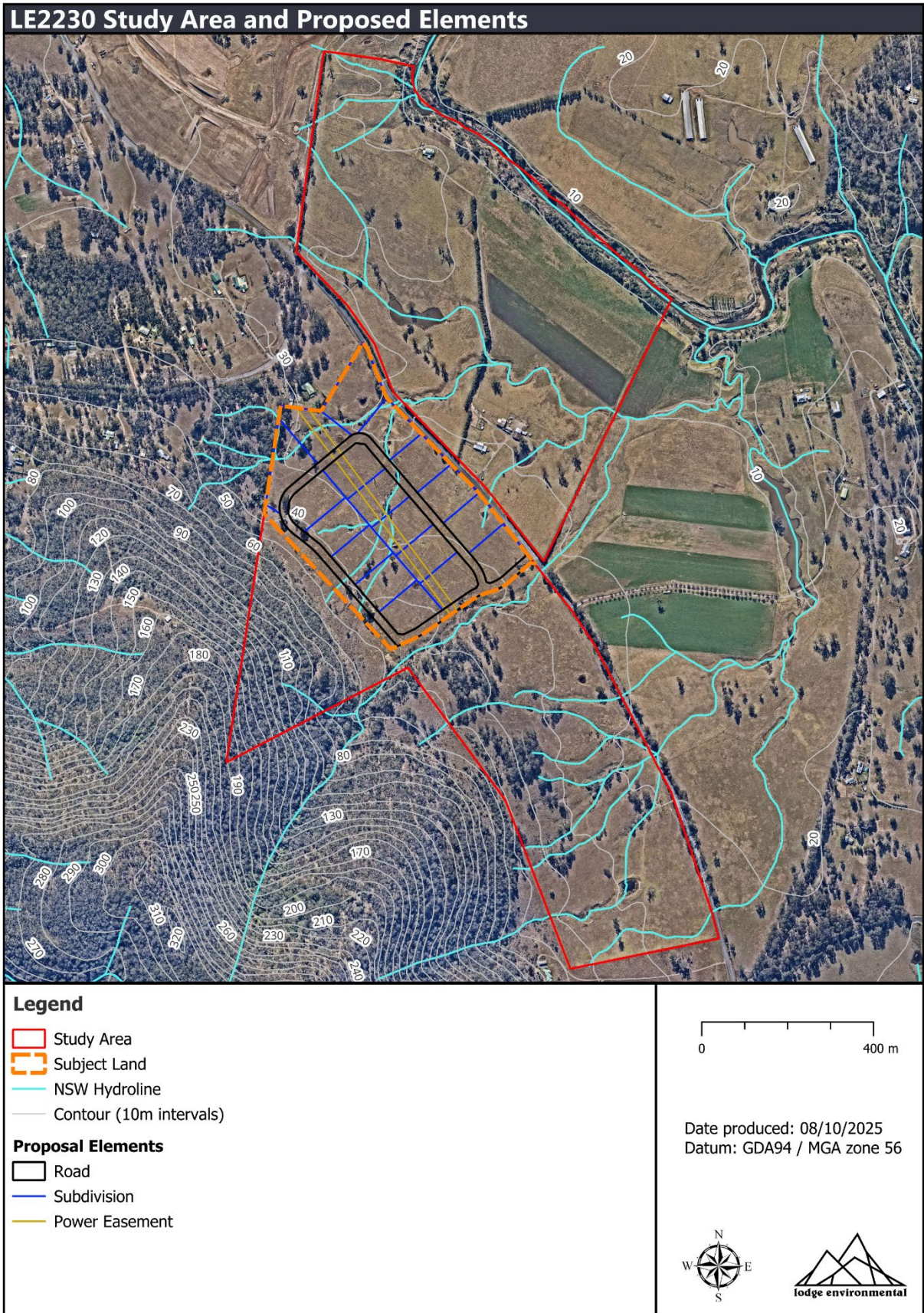


Figure 1: Aerial of the Study Area and Subject Land

2.0 LEGISLATIVE CONTEXT

2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal planning legislation for the state, providing a framework for the overall environmental planning, and development assessment process. Various legislative instruments, such as the NSW *Biodiversity Conservation Act 2016* (BC Act), NSW *Water Management Act 2000* (WM Act) and NSW *Rural Fires Act 2007* (RF Act) are integrated with the EP&A Act and have been reviewed below where relevant.

2.2 BIODIVERSITY CONSERVATION ACT 2016

The NSW *Biodiversity Conservation Act 2016* (BC Act) aims to slow the decline of threatened species, populations and communities listed under the Act. The BC Act is integrated with the EP&A Act and requires consideration of whether a development (Part 4 of the EP&A Act) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

The schedules of the BC Act list species, populations and communities as endangered or vulnerable. All developments, land use changes or activities need to be assessed to determine if they will have an unacceptable impact on species, populations or communities listed on these schedules.

The potential impact of a proposed development on any threatened species, populations or communities is assessed through an Assessment of Significance (AoS), conducted under Section 7.3 of the BC Act during the development application stage. If the impacts on the area are found to be 'significant', a Biodiversity Development Assessment Report (BDAR) would be required as would concurrence from DCCEE, including application of the Biodiversity Assessment Methodology (BAM) and entering into the Biodiversity Offset Scheme (BOS). A BDAR would also be deemed necessary if any proposed development were to involve clearance of vegetation mapped on the State Biodiversity Values Map (BVM) or involve native vegetation clearance above the threshold tables within the BC Act (**Table 1**). The minimum lot size of the Subject Land is 8000m².

Table 1: Offset scheme thresholds - native vegetation clearance area criteria

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme applies
Less than 1 ha	0.25 ha or more
1 ha, and less than 40 ha	0.5 ha or more
40 ha, and less than 1,000 ha	1 ha or more
1,000 ha or greater	2 ha or more

2.3 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. Under this Act an action will require approval from the Minister for the Environment if the action has, will have, or is likely to have, a significant impact on a Matters of National Environmental Significance (MNES). MNES include listed threatened species and ecological communities, migratory species and wetlands of international importance protected under international agreements. Where applicable, the assessment criteria relevant to this Act must be drawn upon to determine whether there would be a significant impact on these species and hence whether referral to the Federal Environmental Minister is required.

2.4 WATER MANAGEMENT ACT 2000

The NSW Department of Climate Change, Energy, the Environment and Water administers the *Water Management Act 2000* (WM Act) and is required to assess activities carried out on waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 meters of the highest bank of the river, lake, or estuary. Certain activities within this land are defined as a 'controlled activity' and requires approval from the Office of Water.

NRAR recommends a Vegetated Riparian Zone (VRZ) is provided adjacent to the channel to provide a protective buffer between catchment land uses and aquatic habitat. This not only helps improve water quality and aquatic habitat but provides habitat for terrestrial and riparian flora and fauna. The VRZ plus the channel width constitute the 'riparian corridor' (**Figure 2**). The width of the VRZ within waterfront land is measured from the top of the highest bank on both sides of the watercourse. The VRZ width has been predetermined and standardised for first, second, third and fourth order and greater watercourses (**Figure 3**).

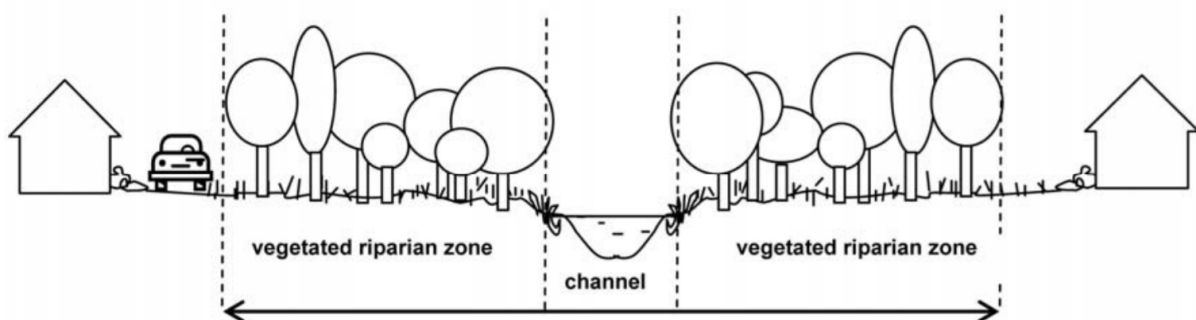
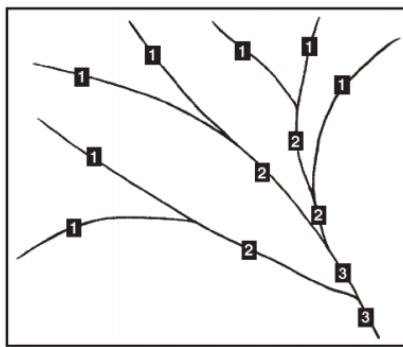


Figure 2: The riparian corridor

The watercourse type uses the Strahler stream order system of classification (**Figure 3**). The Strahler system numbers the smallest headwater streams as 1st Order, and stream order increases downstream through the catchment as streams merge and form larger streams (e.g. when two 1st Order streams join they become a 2nd Order).

Non-riparian corridor works such as asset protection zones, roads, infrastructure and recreational areas can be authorised by NRAR in the outer riparian corridor (outer 50%), so long as an equivalent area connected to the VRZ is offset and the average width of the VRZ is

achieved over the watercourse within the site (**Table 1**). The inner 50% of the VRZ must be fully maintained as a functional riparian zone.



Watercourse type	VRZ width (each side of watercourse)	Total RC width
1 st order	10 metres	20 m + channel width
2 nd order	20 metres	40 m + channel width
3 rd order	30 metres	60 m + channel width
4 th order and greater (includes estuaries, wetlands and any parts of rivers influenced by tidal waters)	40 metres	80 m + channel width

Figure 3: The Strahler System and recommended riparian corridor widths (NRAR)

Table 2: Riparian corridor matrix

Stream order	Vegetated Riparian Zone (VRZ)	RC off-setting for non RC uses	Cycleways and paths	Detention basins		Stormwater outlet structures and essential services	Stream realignment	Road crossings		
				Only within 50% outer VRZ	Online			Any	Culvert	Bridge
1 st	10m	•	•	•	•	•	•			
2 nd	20m	•	•	•	•	•		•		
3 rd	30m	•	•	•		•			•	•
4 th +	40m	•	•	•		•			•	•

Watercourses are identified on 1:25,000 topographic maps published by NSW Government Spatial Services (maps.six.nsw.gov). The Controlled activities – Guidelines for riparian corridors on waterfront land (DCCEEW 2025) also note that “where a watercourse does not exhibit the features of a defined channel with beds and banks, the Office of Water may determine that the watercourse is not waterfront land for the purposes of the WM Act”. However, removal of a watercourse from the existing hydroline mapping does not alter the downstream watercourse type (i.e. Strahler stream order is fixed).

A watercourse assessment for each hydroline within the Subject Land, using the NRAR Waterfront Land Assessment Tool, is included in **Appendix F**.

2.5 LOCAL PLANNING INSTRUMENTS

2.5.1 Dungog Local Environment Plan 2014

The Dungog Local Environment Plan 2014 (DLEP) is the principal planning instrument for the Dungog LGA. The LEP sets out the planning framework and establishes the requirements for the use and development of land in the LGA. The LEP provides broad direction regarding what

types of development are permitted within specific land use zones. The Subject land is not overlain by Clause 6.6 Riparian land and watercourses.

2.5.2 Dungog Development Control Plan

The Dungog Development Control Plan (DDCP) aims to make detailed local provisions for all land within the LGA. The purpose of this Plan is to give effect to the aims and objectives of DLEP 2014 and to guide and facilitate permissible development accordingly. This Plan outlines Council's standards for new development and seeks to achieve the objectives of the land use zones as prescribed in DLEP 2014.

3.0 METHODS

3.1 DATA AND LITERATURE REVIEW

Data records and relevant literature pertaining to the ecology of the Subject Land and surrounding areas were reviewed on 4 August 2025. The material reviewed included:

- NSW BioNet Atlas of NSW Wildlife database search (10 km)
- EPBC Act Protected Matters Search Tool (10 km)
- Review of the State Biodiversity Values Map
- EES threatened species profile database
- NSW State Vegetation Type Map
- ePlanning Property Report
- Relevant legislative documents
- NSW Hydroline mapping
- Aerial photography.

3.2 FIELD SURVEY

To address the FFA, the following survey methods were undertaken on the 12th of August by ecologists Annabelle McTaggart and Lissabelle Giuliano:

- Identification of plant species and vegetation communities present within the site
- Searching for signs of threatened species, observe and record significant flora and fauna - threatened and migratory species, other incidental fauna observations
- Observing and recording current disturbance and threats (e.g. weeds, trampling, litter)
- Identifying potential habitat for threatened flora and fauna species/populations (e.g. habitat bearing trees (HBTs), creeks, boulders etc) and record with a handheld GPS
- Recording presence of environmental weeds
- Taking reference photographs of the entire site
- Validating the presence of low order mapped hydrolines, using the NRAR Waterfront Land Assessment Tool

3.3 SURVEY LIMITATIONS

Survey was conducted during the noted times and may be outside of the optimal survey period for some flora and fauna species. It is therefore possible that some species may not have been detected due to their seasonal geographic variation. Cryptic species may not have been obvious. However, habitat assessments were conducted to further predict the likelihood of species occurrence at the site. A conservative approach was applied in the assumption of the presence of species that could potentially occur within the site area. In this regard, the survey is considered adequate for the purposes of this report.

4.0 DESKTOP REVIEW

4.1 BIODIVERSITY VALUES MAP

A review of the State Biodiversity Values Map was conducted on 4 August 2025. There are no Biodiversity Values (BV) mapped throughout the Subject Land (**Figure 4**). The nearest mapped BV lies approximately 500 metres north-east of the Subject Land and is confined to the riparian corridor surrounding the Paterson River, which is classified as 'Biodiverse Riparian Land'. Additionally, land classified as 'Identified Old Growth Forest' is located approximately 830 metres south-west of the Subject Land.

4.2 EXISTING VEGETATION MAPPING

A review of the State Vegetation Type Map (DCCEEW 2024) identified the following Plant Community Types (PCTs) within or just beyond (*) the Subject Land (**Figure 5**).

- PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest
- PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest
- PCT 3446 - Lower North Foothills Ironbark-Box-Gum Grassy Forest*
- PCT 3244 - Lower North Spotted Gum-Mahogany-Ironbark Sheltered Forest*

4.3 LAND ZONING

The Subject Land is predominantly zoned as **R5 - Large Lot Residential** under the Dungog LEP (2014) (**Figure 6**). The objectives of this zone are:

- To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.
- To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To isolate housing from existing intensive agriculture or future intensive agricultural areas.

A small portion of the Subject Land is zoned as **C3 - Environmental Management**, which coincides with partial coverage of proposed Road No. 2 (permitted with consent under the Dungog LEP 2014, Part 2 Land Use Table). The objectives of this zone are:

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.

- To promote the rural amenity and scenic landscape values of the area and prevent the silhouetting of unsympathetic development on ridgelines.

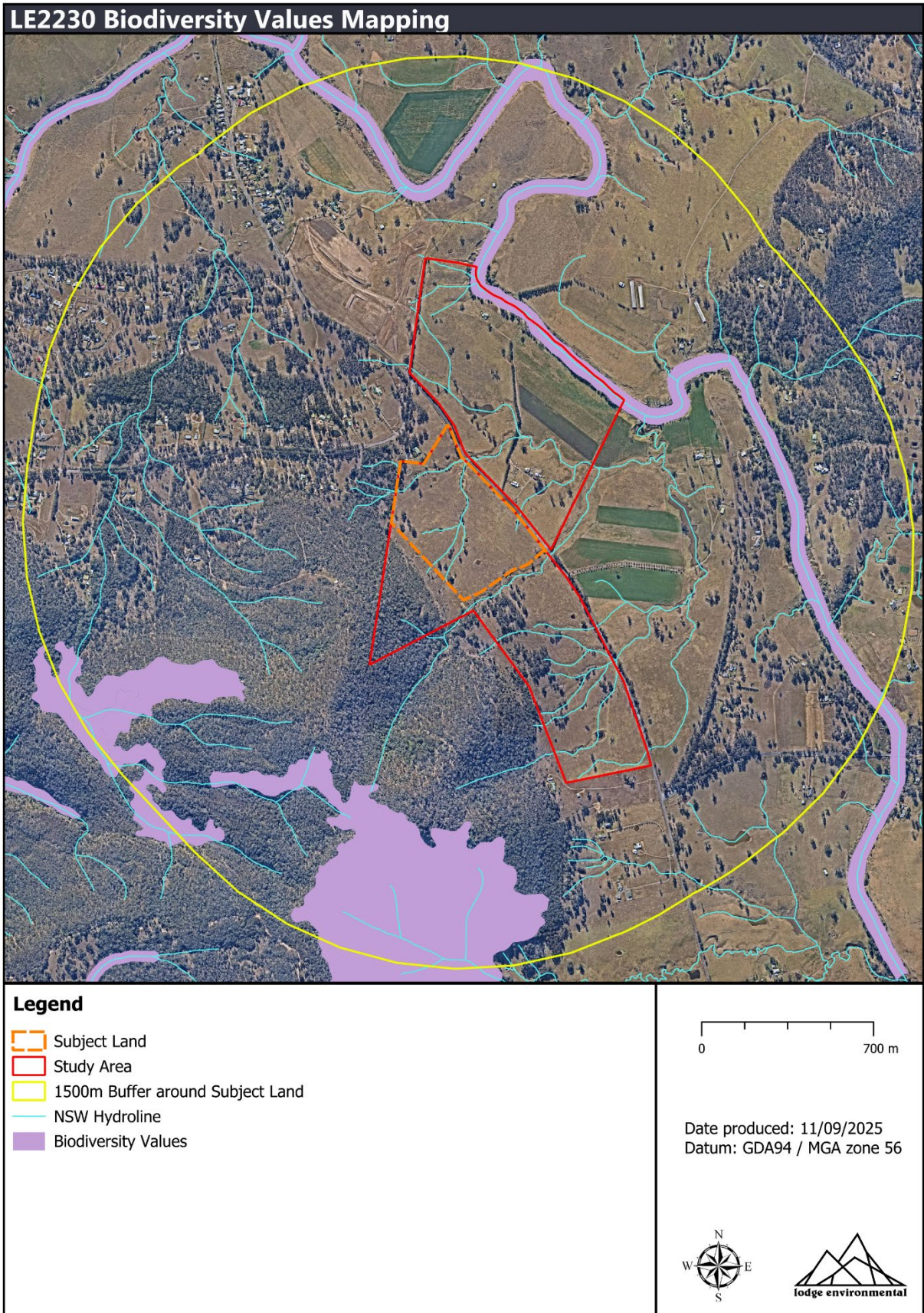


Figure 4: Biodiversity Values Mapping

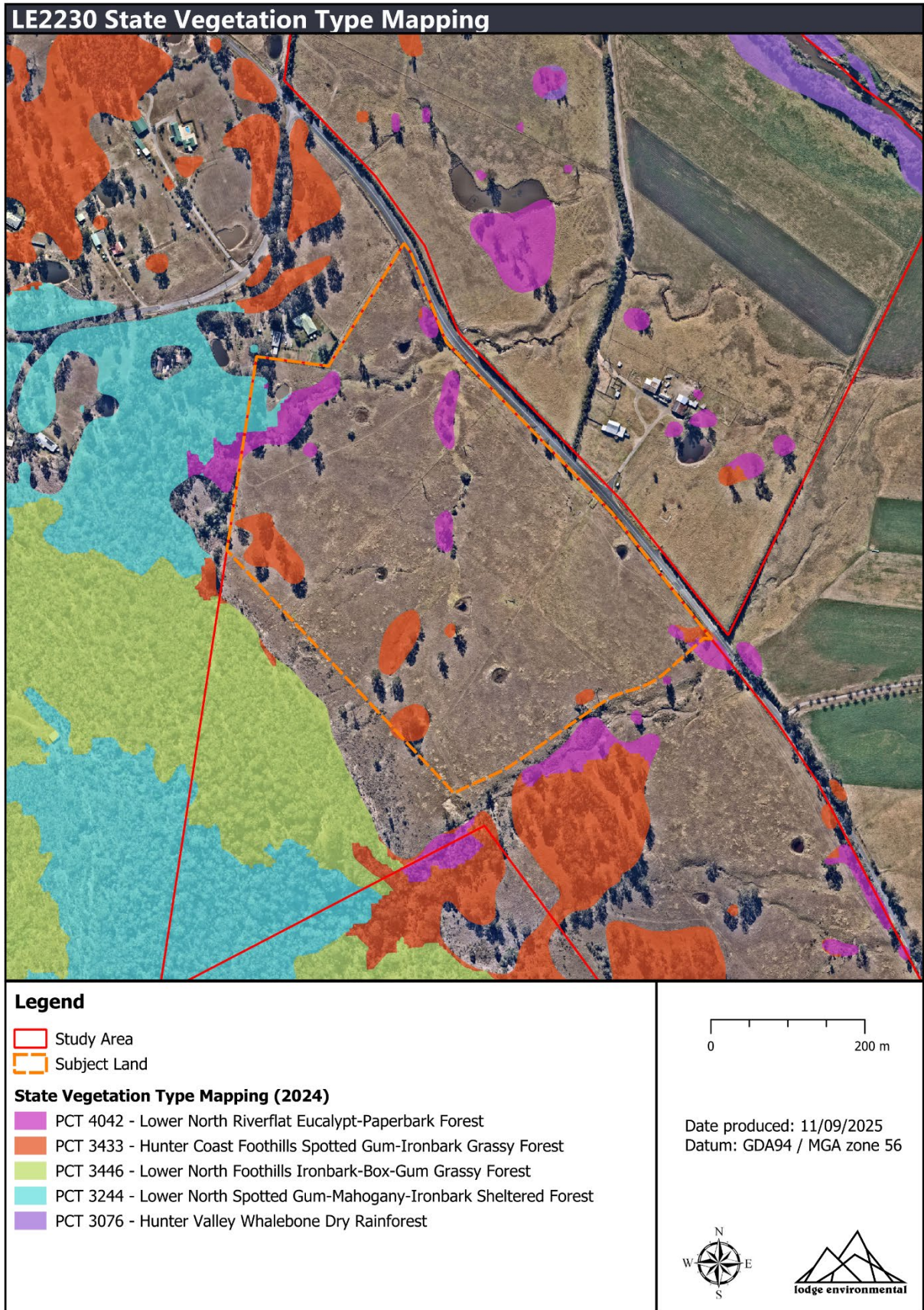


Figure 5: Unvalidated Vegetation Mapping (DCCEW 2024)

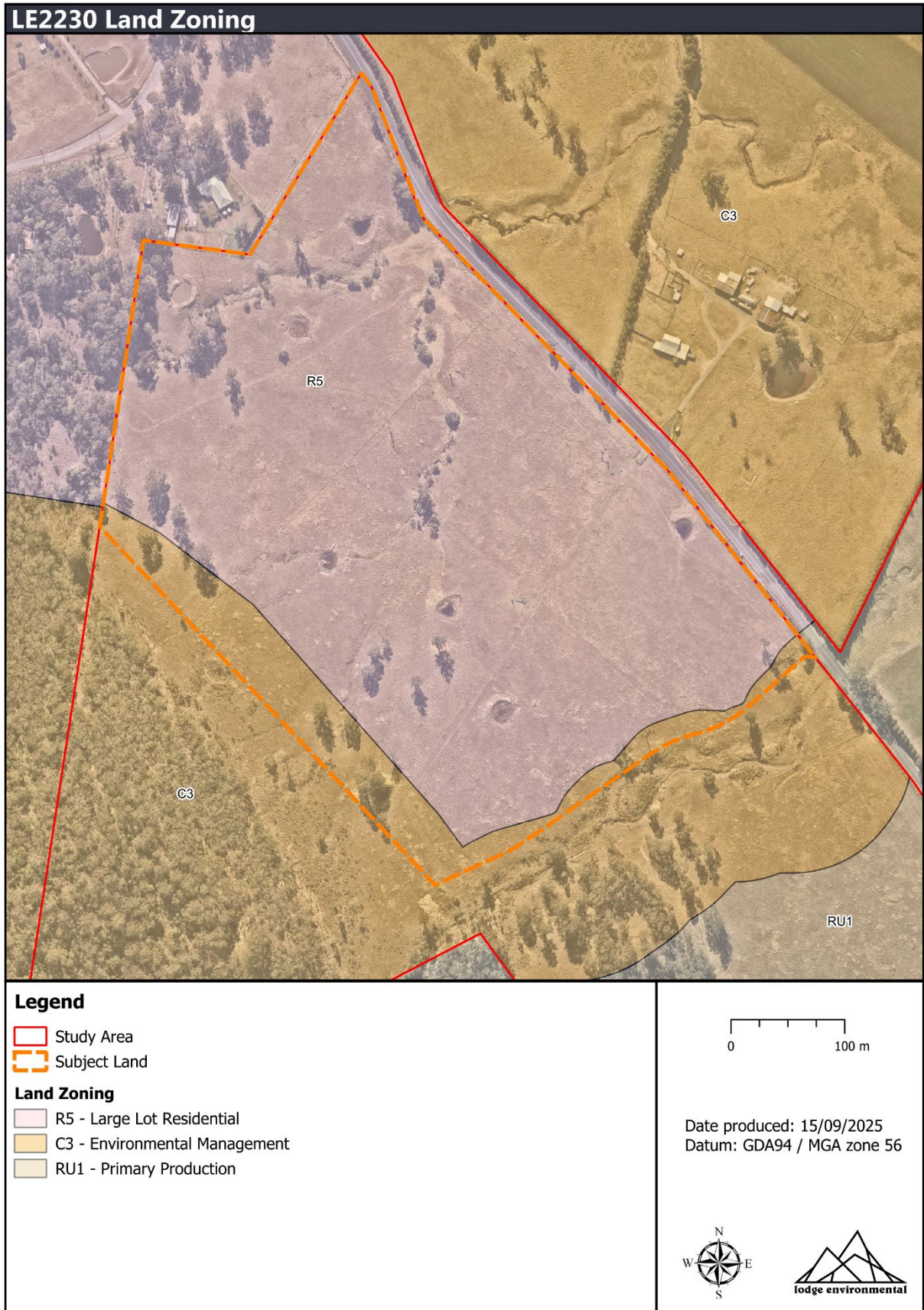


Figure 6: Land Zoning of the Subject Land (Dungog LEP 2014)

4.4 THREATENED FLORA SPECIES

A review of the NSW BioNet Atlas and the Commonwealth Protected Matters Search Tool identified eight Threatened Ecological Communities (TECs), and 21 flora species listed under the BC Act and/or the EPBC Act that have been previously recorded, or are considered to have habitat, within 10 km of the site. BioNet Atlas threatened flora records are shown in **Figure 7**. This initial compilation of potentially occurring species informed the site survey, providing an indication of which species required consideration within the site. An assessment of the likelihood of occurrence of threatened flora species within the site is available in **Appendix A** and was used to guide the field survey methodology.

Prior to field survey, two threatened flora species were identified as having moderate to high potential to occur within the Subject Land (**Table 3**).

Table 3: Potentially occurring threatened flora

Scientific name	Common name	BC Act	EPBC Act
Flora			
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V
<i>Rutidosis heterogama</i>	Heath Wrinklewort	V	V

4.5 THREATENED FAUNA SPECIES

A review of the NSW BioNet Atlas and the Commonwealth Protected Matters Search Tool identified 76 threatened fauna listed under the BC Act and/or the EPBC Act that have been previously recorded, or are considered to have habitat, within 10km of the site. BioNet Atlas threatened fauna records are shown in **Figure 8**. This initial compilation of potentially occurring species, which informed the site survey, provided an indication of which species required consideration within the Subject Land. An assessment of the likelihood of occurrence of threatened fauna species within the site is available in **Appendix A** and was used to guide the field survey methodology.

Prior to field survey, nine threatened fauna species were identified as having the potential to occur within the Subject Land (**Table 4**).

Table 4: Potentially occurring threatened fauna.

Common name	Scientific name	BC Act	EPBC Act
Aves			
South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>	V	V
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-
Turquoise Parrot	<i>Neophema pulchella</i>	V	-
Mammals			
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V	-
Southern Myotis	<i>Myotis macropus</i>	V	-
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V	-

Common name	Scientific name	BC Act	EPBC Act
Koala	<i>Phascolarctos cinereus</i>	E	E
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	V	V

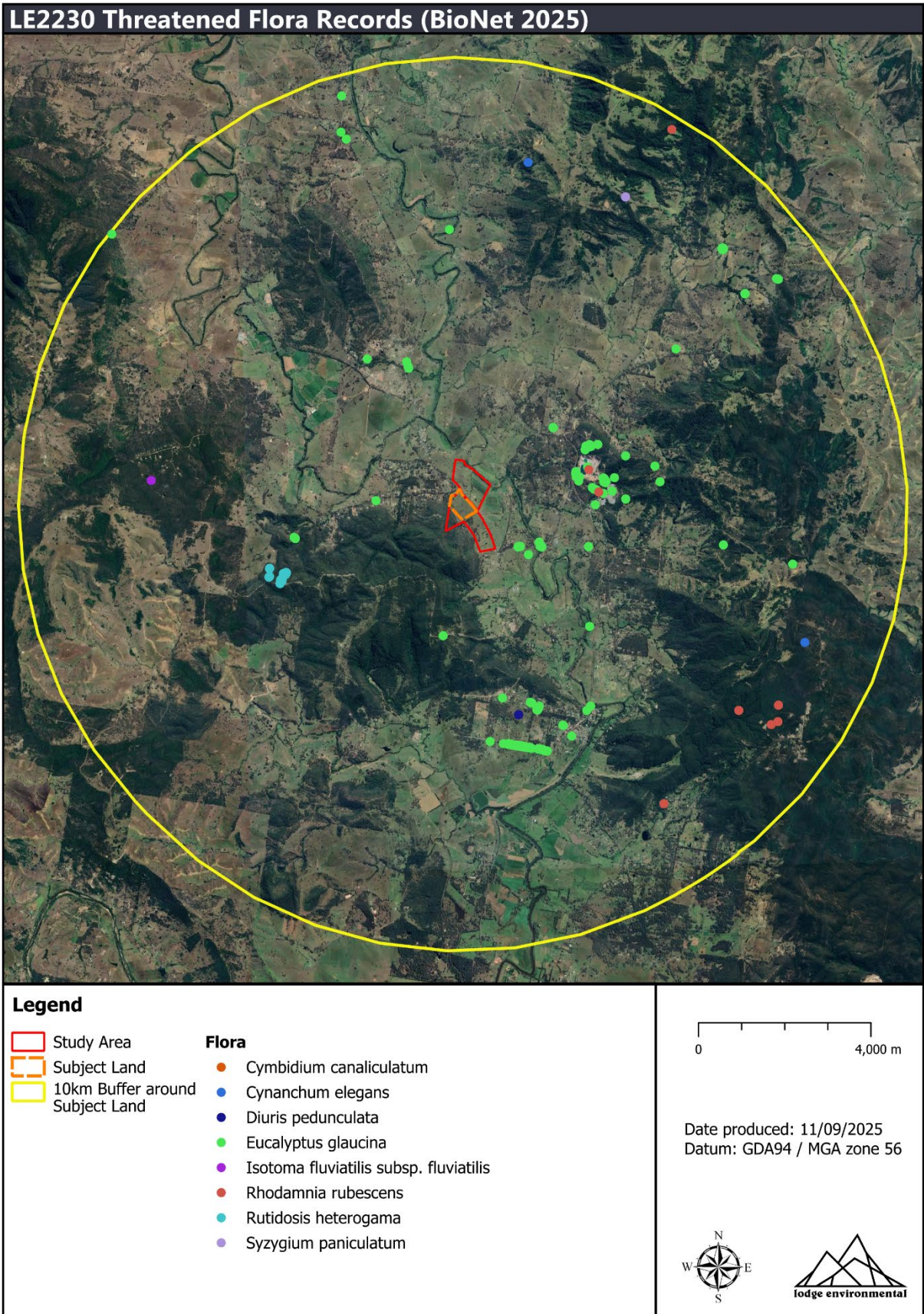


Figure 7: Threatened flora species recorded within 10km of the Subject Land

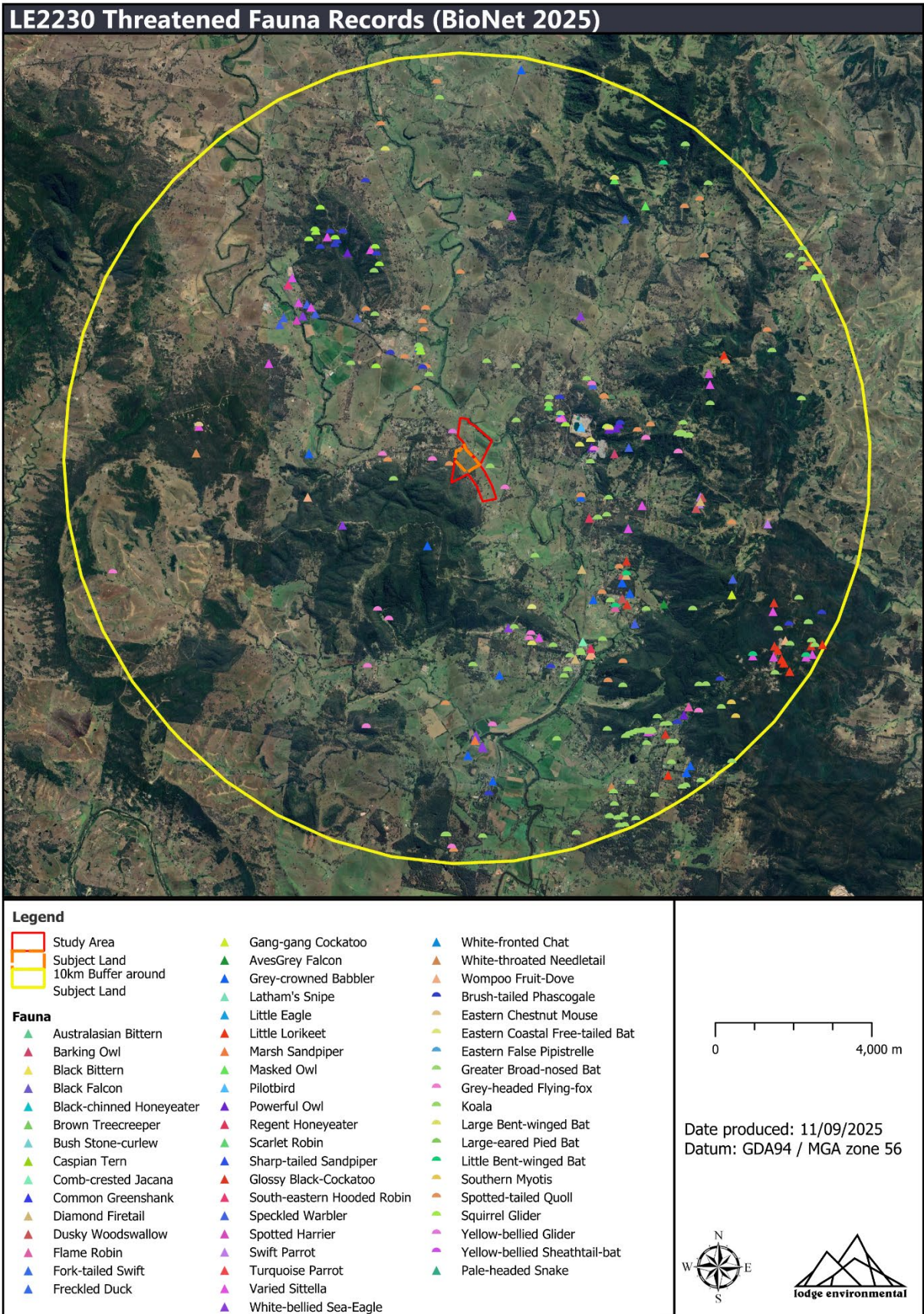


Figure 8: Threatened fauna species recorded within 10km of the Subject Land

5.0 FIELD SURVEY RESULTS

5.1 EXISTING ENVIRONMENT AND HABITAT

The Subject Land is characterised by previously cleared areas, comprised of exotic grasses, weeds and pasture species. Native trees are scattered throughout the exotic pasturelands. There are several dams present within the Subject Land, as well as two watercourses.

The cleared areas consist predominantly of exotic ground cover and pasture species, including *Axonopus fissifolius* (Common Carpetgrass), *Paspalum dilatatum* (Paspalum), *Plantago lanceolata* (Ribwort Plantain), and *Cenchrus clandestinus* (Kikuyu Grass). These species are also prevalent beneath the scattered native trees. Other exotic species such as *Lantana camara* (Lantana), *Bidens pilosa* (Cobbler's Pegs) and *Olea europaea* (Common Olive) are also present. Mature *Corymbia maculata* (Spotted Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), and *Eucalyptus fibrosa* (Red Ironbark) exist as scattered paddock trees throughout the exotic grasslands. In the western portion of the Subject Land, *Eucalyptus amplifolia* (Cabbage Gum) and *Melaleuca linariifolia* (Flax-leaved Paperbark) occur along the banks of the 2nd Order streams.

The native trees across the site may help facilitate the movement and foraging of a wide variety of highly mobile native fauna species (i.e. birds and mammals), acting as 'stepping stones' for movements throughout the Subject Land and the wider locality. Similarly, dams and hydrolines within the Subject Land may facilitate the movement of fauna such as frogs and turtles.

Two of the six mapped NSW hydrolines were validated within the Subject Land. A watercourse assessment for each hydroline, using the DCCEE Waterfront Land Assessment Tool, is included in **Appendix F**. The validated watercourses include the two 2nd Order (Strahler Stream Order) mapped streams.



Habitat Bearing Trees (HBTs) and habitat features recorded within the Subject Land are described in **Table 5**.

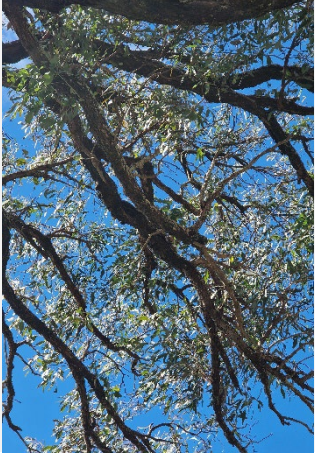



Table 5: Habitat features observed within the Subject Land

Habitat Feature	Description of the feature	Presence of the habitat feature
Habitat-bearing trees	Habitat-bearing trees can be alive or dead (stag) and include any additional sheltering, roosting or nesting features that may be relied upon by native fauna, but are not captured within the traditional definition of a Hollow-bearing tree. These features include hollows, crevices, cracks, fissured branches, exfoliating bark, nests, dreys and arboreal termite mounds.	Hollows and fissures (inc. fissured branches) were recorded across two stags and eight trees (Table 5). These recorded habitat features have the potential to provide roosting and shelter habitat for a variety of threatened and non-threatened fauna species found within the locality.
Groundcover	Groundcover consists of low shrubs, grasses, herbs and leaf litter. Tall, dense tussock grasses provide important shelter and nesting habitat for a diverse range of animals, including birds, reptiles, marsupials and insects.	Groundcover consisted predominately of exotic species. Exotic groundcover species still provide habitat for a range of fauna found in the locality.
Leaves, flowers, fruits, seeds and sap	Leaves, flowers, fruits, seeds and sap serve as a critical food source for a diverse array of native animals ranging from large mammals to insects, that are subsequently eaten by birds and	Upper stratum species across the Subject Land provide leaves, flowers, fruits and seeds as a foraging and shelter habitat for fauna within the locality.

Habitat Feature	Description of the feature	Presence of the habitat feature
	mammals. In addition, the foliage of plants can offer vital shelter to nesting or roosting animals, protecting them from both harsh weather conditions and predators.	
Waterbodies and Watercourses	Access to water is an essential habitat feature for many animals. While some animals require water only for drinking, others depend heavily on certain aquatic habitats for breeding and foraging. Aquatic ecosystems are home to a diverse array of species such as fish, frogs, turtles, platypus, water rats and aquatic invertebrates. These animals use fallen logs, instream rocks and substrate as places to hide, rest and nest.	Eight small dams were located within the Subject Land. These waterbodies provide habitat for waterbirds, frogs and aquatic fauna. Two hydrolines were observed within the Subject Land.

Table 6: Habitat Bearing Trees recorded within the Subject Land

HBT ID	Description of Habitat Features	Proposal Impact?	Photo
1	2 Small hollows	Yes	
2	Fissured	Yes	

3	Fissured	No	
4	Fissured	Yes	
5	Fissured	No	
6	Fissured	No	-
7	Fissured	No	-
8	Fissured	No	

9	Stag	No			
10	Stag	No			
11	Stick Nest	No			

5.2 VALIDATED VEGETATION

Following the field assessment and consideration of the historical disturbance and current land use practices, three vegetation zones were validated within the Subject Land, being:

- PCT 0 - Exotic Pasture
- PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest
- PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest

Figure 9 depicts the validated vegetation within the Subject Land. The below subsections provide a detailed description of the vegetation zones recorded.

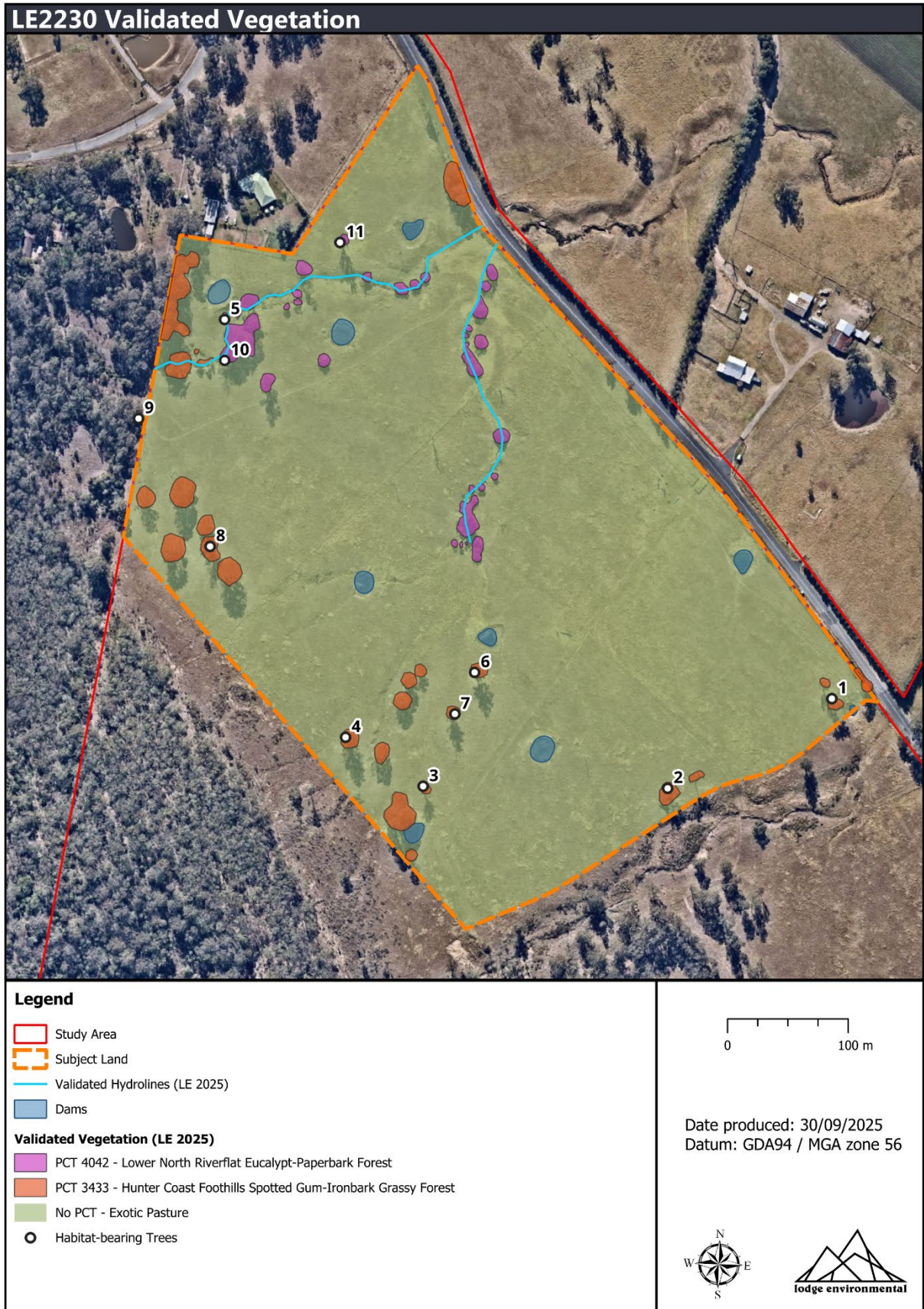


Figure 9: Validated Vegetation (Lodge Environmental 2025)

5.2.1 PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest

Table 7: Subject Land occurrence of PCT 4042

PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest	
Vegetation Formation	Forested Wetlands
Vegetation Class	Coastal Floodplain Wetlands
Percent Cleared	73.11%
TEC Association	<ul style="list-style-type: none"> Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered, BC Act) Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (Endangered, EPBC Act)
Generic PCT Description taken from BioNet (2025)	<p>A very tall to extremely tall sclerophyll open forest with a sub-canopy of <i>Melaleuca</i> trees and a grassy and herbaceous ground cover found on low-lying coastal alluvial soils between Wyong and Nambucca, Central Coast and north coast. The tree canopy includes a range of eucalypt species, with no single species consistently recorded across all sites and each being occasional or rarely occurring. Collectively however, species are mostly from <i>Angophora</i>, red gum, mahogany and ironbark eucalypt groups. Common combinations are <i>Eucalyptus tereticornis</i> or <i>Eucalyptus amplifolia</i> with <i>Angophora floribunda</i> or <i>Angophora subvelutina</i>, however one or all of these species are sometimes absent. Other eucalypts that occasionally occur include <i>Eucalyptus siderophloia</i> and <i>Eucalyptus resinifera</i>. A sub-canopy of <i>Melaleuca</i> is typical, commonly including <i>Melaleuca liniifolia</i>, <i>Melaleuca nodosa</i> or <i>Melaleuca styphelioides</i>, also commonly with <i>Callistemon salignus</i>. A sparse cover of the climber <i>Parsonia straminea</i> is very frequently recorded on the stems of these smaller trees. A lower sparse to mid-dense shrub layer commonly includes <i>Melaleuca</i> species, <i>Breynia oblongifolia</i> and <i>Glochidion ferdinandi</i>, occasionally with <i>Acacia irrorata</i> and <i>Leptospermum polygalifolium</i>. The ground layer consists of a dense cover of grasses, forbs and graminoids that very frequently includes <i>Dichondra repens</i>, <i>Lobelia purpurascens</i>, <i>Dianella caerulea</i>, <i>Oplismenus imbecillis</i> and <i>Lomandra longifolia</i>, commonly with <i>Entolasia marginata</i> and <i>Imperata cylindrica</i>. This PCT occurs on creek flats, river flats and elevated residual alluvial terraces mainly below 50 metres asl and in the coastal rainfall zones that generally exceed 1000 mm per annum. The original extent of this PCT is likely to have been heavily depleted by past clearing, with remnants only remaining in narrow ribbons in the headwaters of catchments or as isolated patches in cleared landscapes. It grades into a range of coastal swamp forests on impeded alluviums including PCTs 4044 and 4020. In the lower Hunter district, where annual rainfall is below 900 mm per annum, this PCT is replaced by the related alluvial creek flat forest PCT 3328. On river flats north of Nambucca it is primarily replaced by PCT 4045.</p>
Landscape profile	<p>With reference to the eSPADE (DPIE, 2025) the soil within the Subject Land has been mapped as 'Vacy' (vaz); "Gentle footslopes and undulating low hills on Carboniferous sediments of the Mount Johnstone, Mowbray and Newtown Formations in the central part of the Hunter Region." "The Rivermead (riz) soil landscape has been included where small areas of alluvial terrace occur at the lower end of some footslopes." "Drainage lines are deeply incised, with narrow (<2 m) gullies in the lower reaches where rock outcrop is common on short steeper (<15%) sideslopes."</p>
Vegetation Structure	<i>Eucalyptus</i> canopy with <i>Melaleuca</i> sub-canopy
Landscape Position	Occurs along hydrolines located within gently undulating pasturelands

Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Eucalyptus amplifolia</i>	
Mid and Ground Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Acacia implexa</i> , <i>Melaleuca linariifolia</i> , <i>Dichondra repens</i> , <i>Juncus usitatus</i> , <i>Lobelia purpurascens</i>	
Justification for PCT Selection	<p>Given the PCT representation within the Subject Land is restricted to scattered canopy trees or shrubs, the PCT was assigned based on the surrounding SVTM, trees present, and landscape position of the Subject Land. PCT 4042 was assigned based on the two canopy species present and subsequent desktop analysis aligning the Subject Land with the distribution information and landscape characteristics as detailed on the BioNet Vegetation Classification (OEH 2025).</p> <p>The Subject Land is located within the Dungog LGA, occurring on Newcastle Coastal Ramp (Mitchell Landscapes, 2002) at an elevation between 20-30 metres asl.</p> <p>PCT 4042 is mapped on the SVTM (DCCEEW 2024) within the Subject Land. BioNet Vegetation Classification describes PCT 4042 as occurring on “coastal alluvial soils”. The Subject Land landscape profile, “Vacy”, includes “small areas of alluvial terrace... at the lower end of some footslopes”, which aligns with the occurrence of PCT 4042. The occurrence of PCT 4042 within the Subject Land occurs at the base of footslopes extending into the adjacent forest, and is represented by <i>Euclyptus amplifolia</i> and a sub-canopy of <i>Melaleuca linariifolia</i>, both of which are characteristic species of PCT 4042 in BioNet, with both described as frequently occurring. Therefore, PCT 4042 has been assigned as a best fit for the western native vegetation species.</p>	
Alternative PCTs Considered	<p>Alternative PCTs that were considered but ultimately ruled out are:</p> <ul style="list-style-type: none"> • PCT 3433 - typically doesn't display red gums. • PCT 3446 - typically can display red gums, however, doesn't display a melaleuca sub-canopy. • PCT 3244 - typically ironbarks, mahoganies and grey gums. • PCT 3075 - this is a rainforest PCT. 	
Survey Method	Condition	Area (ha)
Random meander	Canopy only	0.33 ha

PCT 4042 representative photograph



5.2.2 PCT 3433 Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest

Table 8: Subject Land occurrence of PCT 3433

PCT 3433 – Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest	
Vegetation Formation	Dry Sclerophyll Forests (Shrub/grass sub-formation)
Vegetation Class	Hunter-Macleay Dry Sclerophyll Forests
Percent Cleared	68.60%
TEC Association	<ul style="list-style-type: none"> Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions (Endangered, BC Act)
Generic PCT Description taken from BioNet (2025)	<p>A tall to very tall sclerophyll open forest with dry and soft-leaved shrubs and a grassy ground cover on undulating foothills of the Hunter coast hinterland from Tuggerah to Stratford, and the lower Hunter valley around Cessnock. The canopy almost always includes <i>Corymbia maculata</i> accompanied by one or more ironbarks (<i>Eucalyptus fibrosa</i> or <i>Eucalyptus siderophloia</i>). Mahoganies (<i>Eucalyptus umbra</i> or <i>Eucalyptus acmenoides</i>) are also commonly present in the canopy. The sparse mid-stratum almost always includes one or more <i>Acacia</i> species, of which <i>Acacia falcata</i> and <i>Acacia ulicifolia</i> are the most frequent and abundant. The shrubs and small trees that complete the mid-stratum very frequently include <i>Daviesia ulicifolia</i>, commonly <i>Bursaria spinosa</i>, <i>Persoonia linearis</i> and rarely <i>Pultenaea villosa</i>, <i>Leucopogon juniperinus</i> or patches of <i>Melaleuca nodosa</i>. The mid-dense ground layer typically includes graminoids, forbs, twiners and a hardy fern. <i>Entolasia stricta</i> is almost always present, with <i>Themeda triandra</i>, <i>Lobelia purpurascens</i>, <i>Microlaena stipoides</i>, <i>Aristida vagans</i>, <i>Lomandra multiflora subsp. multiflora</i>, <i>Glycine clandestina</i> and <i>Cheilanthes sieberi subsp. sieberi</i> all very frequent. This PCT occurs primarily on Permian sediments, however is also present on claystones of the Narrabeen Group. It is commonly recorded at elevations below 150 metres asl, with scattered records up to 300 metres asl, in a moist climate with a mean annual rainfall of 1030 mm.</p> <p>As rainfall decreases in adjacent areas this PCT grades into PCT 3444, with considerable spatial overlap occurring in the Cessnock area. While this PCT has a higher frequency of mahogany eucalypts and melaleucas than PCT 3444, there is considerable overlap in the assemblage of both PCTs. On coastal foothills it grades into PCT 3432 which is characterised by different canopy species such as <i>Angophora costata</i> and <i>Corymbia gummifera</i>.</p>
Landscape profile	With reference to the eSPADE (DPIE, 2025) the soil within the Subject Land has been mapped as 'Vacy' (vaz); "Gentle footslopes and undulating low hills on Carboniferous sediments of the Mount Johnstone, Mowbray and Newtown Formations in the central part of the Hunter Region."
Vegetation Structure	Scattered paddock trees.
Landscape Position	Scattered amongst gentle slopes cleared for agricultural pasture.
Upper Stratum Species recorded that align with the PCT (Boldened text denotes dominant species)	<i>Eucalyptus beyeriana</i> , <i>Eucalyptus crebra</i> , <i>Eucalyptus fibrosa</i> , <i>Corymbia maculata</i>
Mid and Ground Stratum Species recorded that align with the PCT	<i>Acacia fimbriata</i> , <i>Acacia implexa</i> , <i>Acacia ulicifolia</i> , <i>Dichondra repens</i> , <i>Juncus usitatus</i> , <i>Lissanthe strigosa</i> , <i>Lobelia purpurascens</i>
Justification for PCT Selection	PCT determination was difficult, given the PCT representation within the Subject Land is restricted to scattered canopy trees. Hence, the PCT was assigned based on the surrounding SVTM, canopy trees and landscape position of the Subject Land. PCT 3433 was assigned based primarily on canopy species present and subsequent desktop analysis aligning the Subject Land with the distribution information and landscape characteristics as detailed on the BioNet Vegetation Classification (OEH 2025).

The Subject Land is located within the Dungog LGA, occurring on Newcastle Coastal Ramp and Central Hunter Foothills (Mitchell Landscapes, 2002) **at an elevation between 20-30 metres asl.**

PCT 3433 is mapped on the SVTM (DCCEEW 2024) within the Subject Land. BioNet Vegetation Classification describes PCT 3433 as occurring on “lower slopes in the escarpment foothills”, which aligns with the soil profile description of “Gentle footslopes and undulating low hills”. The occurrence of PCT 3433 within the Subject Land occurs on mild slopes, and consists of canopy and scattered shrubs and forbs only, with *Eucalyptus fibrosa* and *Corymbia maculata* being the dominant species, both of which are listed for PCT 3433 in BioNet, with both described as almost always occurring.

Based predominantly on topography and geological factors as outlined by BioNet Vegetation Classification and discussed above, the native vegetation within the Subject Land has been assigned as a best fit for PCT 3433, given the limited species present.

Alternative PCTs Considered

Alternative PCTs that were considered but ultimately ruled out are:

- PCT 4042 - typically occurs on alluvial deposits and displays a sub-canopy of *Melaleuca*.
- PCT 3446 - commonly includes *Eucalyptus crebra* or *Eucalyptus siderophloia*, *Eucalyptus tereticornis* or *Eucalyptus moluccana*. PCT 3343 was considered a better canopy fit.
- PCT 3244 - floristically and spatially related to PCT 3433, however 3433 tends to occur in drier parts of the Central and Hunter coasts and includes *Eucalyptus fibrosa*, rather than ironbarks with a more coastal distribution, as in 3244. PCT 3343 was therefore considered a better fit.
- PCT 3075 - this is a rainforest PCT.

Survey Method	Condition	Area (ha)
Random meander	Scattered Paddock Trees	0.6 ha

PCT 3433 representative photograph



5.2.3 Exotic Pasture

The Exotic Pasture zone encompasses most of the Subject Land (**Figure 10**). The vegetation present within this zone consists of mostly exotic grasses and forbs, including *Axonopus fissifolius* (Common Carpetgrass), *Paspalum dilatatum* (Paspalum), *Sporobolus fertilis* (Giant

Parramatta Grass), and *Cenchrus clandestinus* (Kikuyu Grass). Small patches of *Lantana camara* (Lantana) were observed. Scattered paddock trees, consistent with characteristic species of PCT 3244 are interspersed throughout this zone and have been mapped as a separate vegetation zone.

5.3 THREATENED ECOLOGICAL COMMUNITIES

TECs are ecological communities that are at the risk of extinction from a number of pressures, including:

- Clearing of native vegetation
- Inappropriate fire regimes
- Exotic and/or invasive species
- Climate change
- Water diversion
- Pollution and urban development.

TECs are afforded considerable protection via their listing under both the State BC Act and Commonwealth EPBC Act.

Both PCTs present within the Study Area are associated with multiple TECs. These TEC associations are listed below in **Table 9**. The extent of TECs within the Study Area are displayed in **Figure 10**.

Table 9: Threatened Ecological Community Associations

PCT	Associated TEC	BC Act	EPBC Act
4042	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	Endangered	-
	Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and South East Queensland bioregions	-	Endangered
3433	Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions	Endangered	-

5.3.1 BC Act Threatened Ecological Community Association

The NSW Threatened Species Scientific Committee (TSSC) outlines the legal definition of each BC Act TEC. This definition is used to determine if a PCT is considered to represent the associated TECs. An assessment of the relevant TEC criteria and determinations is contained below.

5.3.1.1 Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion

As per the NSW Scientific Committee final determinations (2010), *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion* (SCFF) is listed as an *Endangered* ecological community under the BC Act (NSW TSSC 2010). SCFF typically occurs

as a forest to woodland community on coastal floodplains, featuring a tall open canopy of eucalyptus that can exceed 40 metres in height, and a dense groundcover rich in soft-leaved forbs, scramblers, and grasses. In regrowth stands or lower-quality sites, the canopy may be considerably shorter. A scattered shrub layer is usually present, including *Breynia* spp., *Commersonia* spp., *Hibiscus* spp. and *Acacia* spp., with vines present.

The community's structure is shaped by historical and ongoing disturbances, including grazing, fire, hydrological changes, soil salinity, and the presence of exotic grasses, vines, and forbs. Historically widespread across the floodplains of the Tweed, Richmond, Clarence, Macleay, Hastings, and Manning Rivers, as well as smaller systems throughout the NSW North Coast bioregion. Since European settlement, clearing and fragmentation have greatly reduced the extent and function of the community, with less than 30% of the Coastal Floodplain Wetlands vegetation class remaining. Large former areas have been converted to exotic pastures, cropping land, and, on the far north coast, canefields and plantations. Most remaining stands occur on private agricultural land rather than public reserves, and the community is now highly fragmented. The persistence of SCFF is further threatened by ongoing clearing, flood mitigation and drainage works, landfilling, urban and industrial development, altered hydrological regimes, agricultural intensification, and widespread weed invasion. Very few examples remain unaffected by weeds, and ecological processes continue to be compromised by the high level of disturbance. These factors contribute to a significant reduction in the ecological function of SCFF.

A comparison of the occurrence of PCT 4042 within the Subject Land and the determining factors listed within the NSW Scientific Committee Final Determinations for SCFF is detailed below in **Table 10**.

Table 10: Comparison of PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest within the Study Area and the final determination for Subtropical Coastal Floodplain Forest (SCFF) of the New South Wales North Coast Bioregion

Key attribute	NSW Scientific Committee Final Determination - SCFF	PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest
Location	SCFF is restricted to the NSW North Coast bioregion and is known to occur within the LGAs of Tweed, Byron, Lismore, Ballina, Richmond Valley, Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Hastings, Greater Taree, Great Lakes and Port Stephens, but may occur elsewhere in this bioregion.	The Subject Land is located within the Dungong LGA, in the NSW North Coast Bioregion in the Upper Hunter Subregion.
Soils and landscape position	<p>SCFF is strongly associated with clay-loam and sandy loams of alluvial flats, drainage lines and river terraces associated with coastal floodplains.</p> <p>It may occupy central or marginal parts of the floodplains and sandy flats, where flooding is periodic and soils are rich in silt and sand.</p> <p>Generally occurs below 50 m, but up to 250 m elevation in this bioregion</p>	<p>With reference to the eSPADE (DPIE, 2025) the soil within the Subject Land has been mapped as 'Vacy' (vaz) soils and 'Rivermead' (riz) soils.</p> <p>Vacy Soils are defined as including "small areas of alluvial terrace... at the lower end of some footslopes".</p> <p>The Rivermead (riz) soils and landscape are Quaternary or Tertiary aged alluvium - sand, silt and clay.</p>

Key attribute	NSW Scientific Committee Final Determination - SCFF	PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest
Floristic composition and structure	SCFF is characterised by the floristic assemblage species outlined in Part 4 of the SCFF NSW Scientific Committee Final Determination. The structure of the community may vary from tall open forests to woodlands, although partial clearing may have reduced the canopy to scattered trees. A layer of small trees may be present, including <i>Melaleuca</i> spp. The composition and structure of the understorey is influenced by grazing and fire history, changes to hydrology and soil salinity and other disturbance, and may have a substantial component of exotic grasses, vines and forbs.	2 of the 102 characteristic species were recorded within the Subject Land, although the total species list of the community is considerably larger. <u>These species were:</u> <ul style="list-style-type: none"> • <i>Dichondra repens</i> • <i>Eucalyptus amplifolia</i> The Subject Land displayed a sub-canopy of <i>Melaleuca</i> and exotic ground layer.
Disturbance	Many remnants of SCFF are highly fragmented and degraded, often occurring on private agricultural land rather than in reserves. Extensive clearing, altered hydrology, and conversion to exotic pastures, cropping, and plantations have severely reduced its extent and ecological function. Ongoing threats include flood mitigation and drainage works, landfilling, urban and industrial development, agricultural intensification, and widespread weed invasion. Very few patches remain weed-free, and ecological processes are significantly compromised	The majority of the Subject Land is subject to historical and current disturbances, including: <ul style="list-style-type: none"> • Clearance, • Recreational use, and • Weed invasion.

The Subject Land geology includes alluvium, lies within the North Coast Bioregion, and contains scattered characteristic trees and a small tree sub-layer. Despite evident fragmentation and disturbance, as patches with a disturbed canopy and exotic ground component are recognised as part of the community, PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest within the Subject Land is considered representative of the TEC Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion.

5.3.1.2 Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions

As per the NSW Scientific Committee final determinations (2019), *Lower Hunter Spotted Gum Ironbark Forest of the Sydney Basin and NSW North Coast Bioregions* (LHSGIF) is listed as an *Endangered* ecological community under the *BC Act* (NSW TSSC 2019) In undisturbed conditions, LHSGIF typically occurs as an open forest, dominated by *Corymbia maculata* (Spotted Gum) and *Eucalyptus fibrosa* (Broad-leaved Ironbark), with *E. punctata* (Grey Gum) occurring less frequently. Other eucalypts and associated species may be present but are not characteristic of the community, with species composition varying in response to soils, drainage,

topography, and disturbance history. The shrub layer may range from sparse to moderately dense. The ground layer is usually diverse, often featuring grasses, herbs, and sedges like *Themeda triandra*, *Aristida vagans*, *Lomandra* spp., and *Microlaena stipoides*. LHS GIF is consistently identified as a distinct assemblage associated with intermediate climatic zones, typically where annual rainfall ranges between 750–1000 mm. While its climatic and geographic affinities are well established, successive treatments have varied in the compositional range ascribed to the community, resulting in differences in its formal definition.

LHS GIF was once more extensive across the Lower Hunter Valley, particularly around Cessnock, but its distribution has been greatly reduced and fragmented since European settlement, with an estimated 27–48% of the pre-1750 extent remaining. Much of the community persists in small remnants, many less than 10 ha in size, and large portions show evidence of disturbance, including altered floristics and structure. These impacts are influenced by a combination of factors such as soil properties (including chemical composition, texture, depth, and drainage), topography, and climate, as well as ongoing and historical disturbances like fire, logging, grazing, and extreme weather events (e.g. flooding, drought, heatwaves, and cold snaps). Continued pressures from land clearing for residential and rural development, vineyards, industrial expansion, grazing, and weed invasion further threaten the community. As a result, LHS GIF is now considered at very high risk of extinction, with ongoing decline in both its extent and ecological function.

A comparison of the occurrence of PCT 3433 within the Subject Land and the determining factors listed within the NSW Scientific Committee Final Determinations for LHS GIF is detailed below in **Table 11**.

Table 11: Comparison of PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest within the Study Area and the final determination for Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions

Key attribute	NSW Scientific Committee Final Determination - LHS GIF	PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest
Location	LHS GIF is known to occur in the Lower Hunter Valley, primarily within the Cessnock-Beresfield region, with its range roughly enclosed by the towns of Paxton, Branxton, Clarence Town, Beresfield, Mt Vincent, and the northern boundary of Watagans National Park. Its northern and southern populations are divided by the Hunter River floodplain.	The Subject Land is situated within Vacy, in the Dungog LGA, in the Upper Hunter IBRA subregion. It lies approximately 19.6 km north of Maitland, 18 km west of Clarence Town, north of the Hunter River, and just south of the Paterson River.
Soils and landscape position	LHS GIF occurs mainly on Permian and Carboniferous geology in the central to lower Hunter Valley, particularly on Dalwood, Maitland, Greta and Tomago Coal Measures, and on Carboniferous sediments near Paterson, Seaham and Clarence Town. It is commonly associated with moderately fertile yellow podsollic and solodic soils of the Aberdare, Branxton and Neath landscapes.	With reference to the eSPADE (DPIE, 2025) the soil within the Subject Land has been mapped as 'Vacy' (vaz); "Gentle footslopes and undulating low hills on Carboniferous sediments of the Mount Johnstone, Mowbray and Newtown Formations in the central part of the Hunter Region."

Key attribute	NSW Scientific Committee Final Determination - LHSgif	PCT 3433 - Hunter Coast Foothills Spotted Gum-Ironbark Grassy Forest
Floristic composition	LHSgif is typically an open forest in an undisturbed condition, but can take form as a woodland, dense thicket of shrubs or saplings LHSgif is typically characterised by the floristic assemblage species listed in Part 1 and with common compositions outlined in Part 4.3 of the SGTF NSW Scientific Committee Final Determination (TSSC 2019). However, the species composition of any given patch is influenced by natural variability (soils, drainage, topography), and history of disturbance, and may occur outside the typical range of variation.	3 of the 44 characteristic species for LHSgif were recorded within the Subject Land. <u>These species were:</u> <ul style="list-style-type: none"> • <i>Eucalyptus fibrosa</i> • <i>Corymbia maculata</i> • <i>Lissanthe strigosa</i>
Characteristic tree species	LHSgif is typically dominated by <i>Corymbia maculata</i> and <i>Eucalyptus fibrosa</i> , with <i>E. punctata</i> less common. A number of other eucalypt species occur infrequently, and are not considered characteristic of the TEC. A sparse to moderately dense shrub stratum may be present and is variable in composition. The ground stratum is typically diverse.	<i>Eucalyptus fibrosa</i> and <i>Corymbia maculata</i> , were dominant within the Subject Land, however a shrub and ground layer were absent.
Disturbance	Much of the remaining area of Lower Hunter Spotted Gum Forest has been disturbed by clearing, fragmentation, weed invasion, altered soil conditions, and past fire and logging activity. Continuing threats include grazing, extreme weather events, unauthorised access, and further clearing for residential, rural, industrial, and vineyard development	The majority of the Subject Land is subject to historical and current disturbances, including: <ul style="list-style-type: none"> • Clearance, • Recreational use, and • Weed invasion.

The Subject Land is located just north of the described boundaries of the TEC, is mapped as occurring on soils consisting of carboniferous sediments, and contains the key canopy species, and therefore the occurrence of PCT 3433 within the Subject Land is considered to represent the TEC Lower Hunter Spotted Gum Ironbark Forest of the Sydney Basin and NSW North Coast Bioregions under the BC Act.

5.3.2 EPBC Act Threatened Ecological Community Association

Commonwealth threatened status and listings focus legal protection on patches of threatened ecological communities that are most functional, have a high abundance of native species and in comparatively good condition. Condition thresholds and key diagnostic characteristics assist in identifying if the EPBC Act is to apply to a patch of native vegetation.

5.3.2.1 Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

Subtropical Eucalypt Floodplain Forest and Woodland of the New South Wales North Coast and South East Queensland bioregions (SEFFW) is listed as *Endangered* under the EPBC Act (DCCEEW 2022). For PCT 4042 vegetation to be considered as SEFFW under the EPBC Act, a patch must meet key diagnostic characteristics as per section 2.1 of the Conservation Advice.

A comparison of the occurrence of PCT 4042 within the Subject Land to the Approved Commonwealth Conservation Advice prepared for SEFFW is detailed below in **Table 12**.

Table 12: Comparison of PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest the approved conservation advice for Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

Key diagnostic characteristic	Approved Conservation Advice for SEFFW	PCT 4042 - Lower North Riverflat Eucalypt-Paperbark Forest
Location	<ul style="list-style-type: none"> SEFFW occurs in the NSW North Coast (NNC) and Southern Eastern Queensland (SEQ) IBRA regions and on Curtis Island in the Brigalow Belt North (BBN) IBRA Bioregion. This area encompasses an area, which includes just north of Newcastle SEFFW occurs in the catchments of the eastern watershed of the Great Dividing Range, typically in their lower reaches. It generally occurs below 50 asl, and up to 250 asl. 	The Subject Land is located within the Dungong LGA, in the NSW North Coast Bioregion in the Upper Hunter Subregion.
Soil geology	<ul style="list-style-type: none"> SEFFW occurs on a variety of alluvial landforms and low-lying areas where water can accumulate, including floodplains, riparian zones, gullies, flats, terraces, fans, and localised depressions among low rises. It occurs on alluvial soils of various textures including silts, clay loams, sandy loams, gravel and cobbles. The soils are typically deep (greater than one metre). It does not typically occur on soils that are primarily marine or aeolian sands, but may occur on such substrates after they have been modified by fluvial activity. 	<p>With reference to the eSPADE (DPIE, 2025) the soil within the Subject Land has been mapped as 'Vacy' (vaz) soils and 'Rivermead' (riz) soils.</p> <p>Vacy Soils are defined as including "small areas of alluvial terrace... at the lower end of some footslopes".</p> <p>The Rivermead (riz) soils and landscape are Quaternary or Tertiary aged alluvium - sand, silt and clay.</p>
Floristics and structure	<ul style="list-style-type: none"> Occurs as a tall closed-forest, tall open-forest, closed forest, open forest, tall woodland, or woodland. The canopy has a crown cover of at least 20%. It has a tree canopy dominated by one or a combination of <i>Angophora</i>, <i>Corymbia</i>, <i>Eucalyptus</i>, <i>Lophostemon</i> and/or <i>Syncarpia</i> tree species listed below, but 	Within PCT 4042, <i>Eucalyptus amplifolia</i> was dominant and a sub-layer of <i>Melaleuca</i> was present.

Key diagnostic characteristic	Approved Conservation Advice for SEFFW	PCT 4042 – Lower North Riverflat Eucalypt-Paperbark Forest
	<p>not dominated by <i>Eucalyptus robusta</i> (swamp mahogany).</p> <ul style="list-style-type: none"> • Other canopy tree species may be present, and in some areas rainforest trees may be prominent. • A mid-layer (including a sub-canopy, and/or shrub-layer) may be present, sparse or absent; and fauna may be abundant or rare. 	

Conditions Thresholds

Patch size thresholds

Whilst PCT 4042 appears to meet all of the above key diagnostic characteristics for SEFFW, the smallest recognised patch size is 0.5 ha, with a maximum break of 30 metres between areas in the same patch. 0.33 ha of PCT 4042 was identified within the Subject Land, across 2 patches, with no vegetation near enough to increase the size of the patches beyond the Subject Land. As PCT 4042 within the Subject Land does not meet the minimum patch size of 0.5 ha, PCT 4042 is not considered representative of Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions.

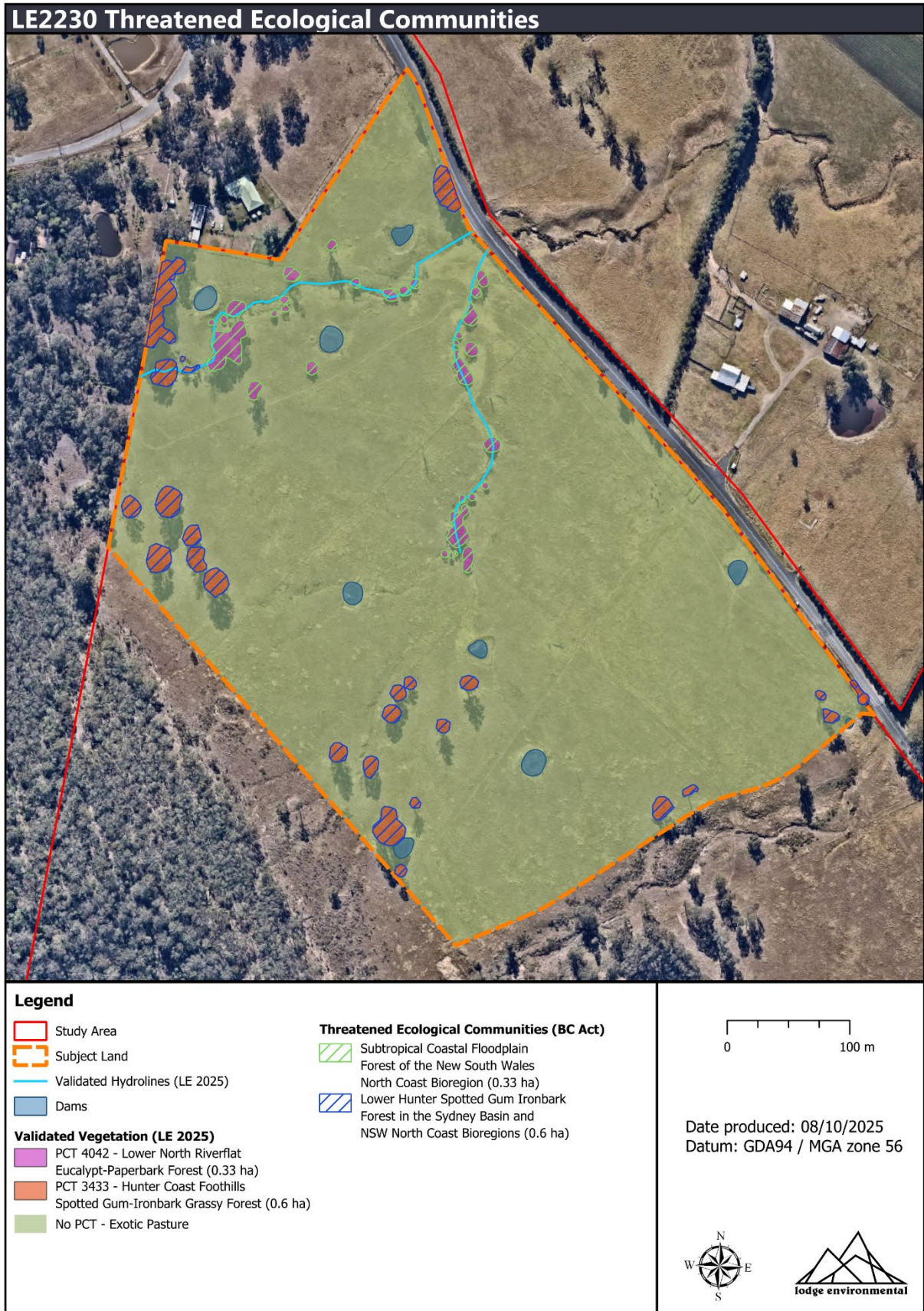


Figure 10: Associated Threatened Ecological Communities (BC Act)

5.3.3 Priority Weeds

Weeds that create the highest level of risk and have the feasibility of being controlled are called priority weeds. Priority weeds identified within the Subject Land are detailed below in **Table 13**.

Weeds of National Significance list the most problematic plant species in Australia as determined by the Australian Weeds Strategy 2017 – 2027 (DAFF, 2017). The species on this list have been identified by their severe invasiveness, potential for spread, and environmental, social and economic impacts.

Within NSW, all pest plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable (DPI, 2024).

State priority weeds have been assessed by NSW Department of Primary Industries as posing a high to medium biosecurity risk to the entire state of NSW. Regional priority weeds are those considered to pose a key risk to the region. Both State and Priority weeds are listed in the Hunter Regional Strategic Weed Management Plan 2023-2027 (Local Land Services, 2022).

Table 13: Priority Weeds within the Subject Land

Scientific Name	Common Name	Weeds of National Significance	State Priority Weed	Hunter Regional Priority Weed
<i>Lantana camara</i>	Lantana	X	X	X
<i>Olea europaea</i> subsp. <i>cuspidata</i>	African olive			X
<i>Senecio madagascariensis</i>	Fireweed	X	X	
<i>Sporobolus fertilis</i>	Giant parramatta grass			X

5.3.4 Threatened Flora Species

Targeted flora surveys were not conducted as part of this assessment. Following the site survey and with a greater understanding of the habitat attributes within the Subject Land, no threatened flora species are considered to have potential of occurring within the Subject Land.

5.4 FAUNA

A total of 20 fauna species were identified within the site. A species list is included in **Appendix C**. Targeted surveys were not conducted as part of this assessment.

5.4.1 Threatened Fauna Species

There were no threatened fauna species identified within the Subject Land.

In general, the habitat potential of the Subject Land for specialist native species, such as the listed threatened species, is poor. This is primarily due to the isolated nature of the native vegetation and historical land use, which has degraded much of the Subject Land's natural habitat value. Nevertheless, the remaining native canopy within the Subject Land has the

potential to be utilised by native fauna moving through the landscape, offering sheltering and foraging habitat.

The following observations were noted:

- Hollows and fissures were recorded across eleven trees throughout the Subject Land. These features provide sheltering, roosting and/or breeding habitat.
- A stick nest was present in one tree
- Native canopy provides flowers which may be utilised as a food source for highly mobile fauna.
- Mid and ground stratum predominantly absent.
- Limited connectivity to areas of greater condition vegetation due to a fragmented landscape.
- Eight small dams and two hydrolines are located within the Subject Land, which provide potential habitat for waterbirds, amphibians and aquatic fauna and enhance habitat connectivity.
- No rocks, caves, overhangs or crevices to provide habitat.
- Limited natural recruitment or regeneration of native flora species.

Following the site survey and with a greater understanding of the habitat attributes of the Subject Land, the threatened species listed in **Table 14**. have the potential to utilise the habitat attributes within the Subject Land.

Table 14: Threatened fauna species with a potential to use habitat features within the Subject Land

Common name	Scientific name	BC Act	EPBC Act
Aves			
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-
Turquoise Parrot	<i>Neophema pulchella</i>	V	-
Mammals			
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V	-
Southern Myotis	<i>Myotis macropus</i>	V	-
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V	-
Koala	<i>Phascolarctos cinereus</i>	E	E
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	V	V

5.4.2 Biodiversity and Conservation SEPP 2021

The Koala Habitat Protection SEPP 2021 has now been consolidated under Chapter 4 of the Biodiversity and Conservation SEPP 2021 (The SEPP). The SEPP aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for *Phascolarctos cinereus* (Koala) to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline.

5.4.2.1 Development Assessment Process - No Approved Koala Plan of Management

Part 4.9 of The SEPP applies to the Subject Land due to the following criteria being met:

- The Subject Land encompasses an area of at least 1 ha (including adjoining land), and
- Dungog Shire Council does not have an approved Koala Plan of Management.

Before the consenting authority approve a DA, they must assess whether the development is likely to have any impact on Koalas or Koala habitat. To demonstrate a development has low or no impact on Koalas or Koala habitat information prepared by a suitably qualified ecologist must detail if the land subject to the DA:

- Does not include any trees belonging to the Koala use tree species.
- Is not Core Koala Habitat. Core Koala Habitat is defined as:
 - An area of land where Koalas are recorded as being present (individuals recorded, scratch marks or scat).
 - An area of land where Koalas have been recorded as being present in the previous 18 years.
- Does not include any trees with a diameter at breast height of more than 10 cm.
- Includes only horticultural or agricultural plantations.

If a DA is considered to have a higher level of impact on Koalas or Koala habitat, a Koala Assessment Report (KAR) must be submitted to the consenting authority to assist with deciding whether to grant consent.

The Dungog LGA is located within the North Coast Koala Management Area (KMA). High, significant and occasional use species were identified within the Subject Land however, as the Subject Land is almost entirely cleared of canopy, and minimal tree removal is proposed, the proposal is expected to have minimal impact on the local Koala population and habitat. Furthermore, the Subject Land is largely separated from most nearby Koala records, which predominantly occur on the northern side of the Paterson River. Notably, the closest record, located approximately 286 m east of the Subject Land, was recorded within a paddock and has a spatial accuracy of 3,516 m. Additionally, one record has been documented approximately 1,650 m west of the Subject Land (1,479 m from the Study Area boundary), situated within the adjacent forest. Given this is the only record within the forest, and most records occur on the northern side of the Paterson River, the Subject Land is likely rarely used by individuals, and if so, only those moving through the landscape, and therefore is not considered core koala habitat.

Further considerations under the SEPP are required if the consent authority disagree with the above statement.

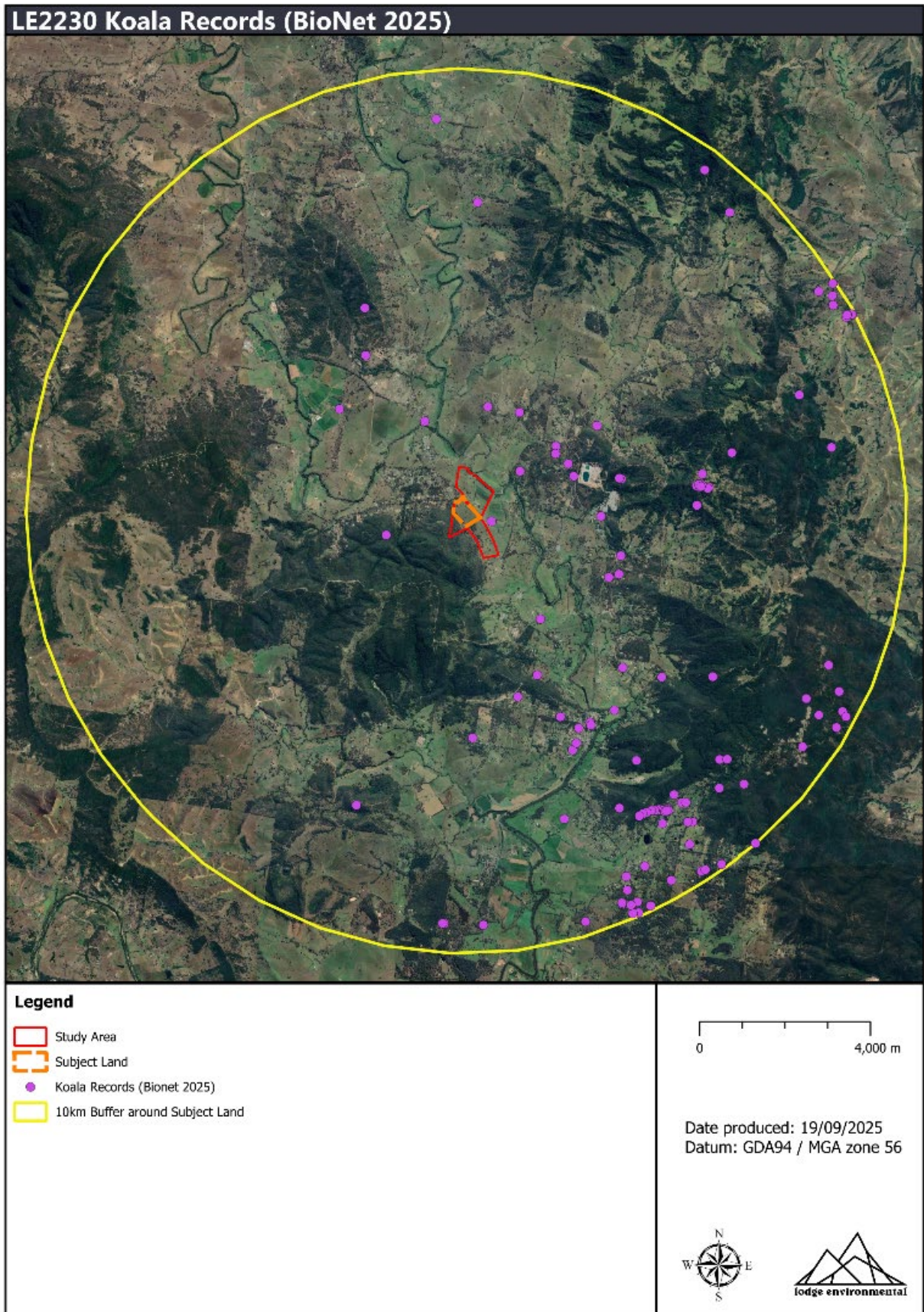


Figure 11: Koala records within the surrounding 10km (BioNet 2025)

6.0 IMPACT ASSESSMENT

6.1 SUMMARY OF IMPACTS

Figure 9 depicts the Subject Land and the associated impacts to native vegetation assessed within this report. These impacts relate to the construction of the proposed road and power easement. There is no tree removal proposed from the establishment of lot boundaries. The proposed development will require the removal of three HBTs.

6.1.1 Direct Impacts

The direct impacts imposed by the proposal on native vegetation will result from the clearance of paddock trees, as well as scattered native shrubs and forbs, totalling 0.239 ha of native vegetation. This includes 0.029 ha of the TEC Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (BC Act), and 0.21 ha of the TEC Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions (BC Act).

No threatened flora species are to be impacted by the proposal.

Three HBTs are to be removed. The HBTs consist of scattered native paddock trees, with a total of 2 small hollows and at least two fissured trunks or branches (see **Table 5**). The impacted native vegetation is considered to provide sheltering and foraging habitat for the threatened fauna species listed in **Section 5.4.1**. Further assessment (**Section 6.4**) is required to ascertain whether the proposal is likely to have a significant impact on any of these threatened species and whether entry into the BOS is required.

One validated hydroline and one farm dam will be impacted by the proposed road. As the development occurs within 40 metres of the validated watercourses, a controlled activity approval will be required from DCCEEW.

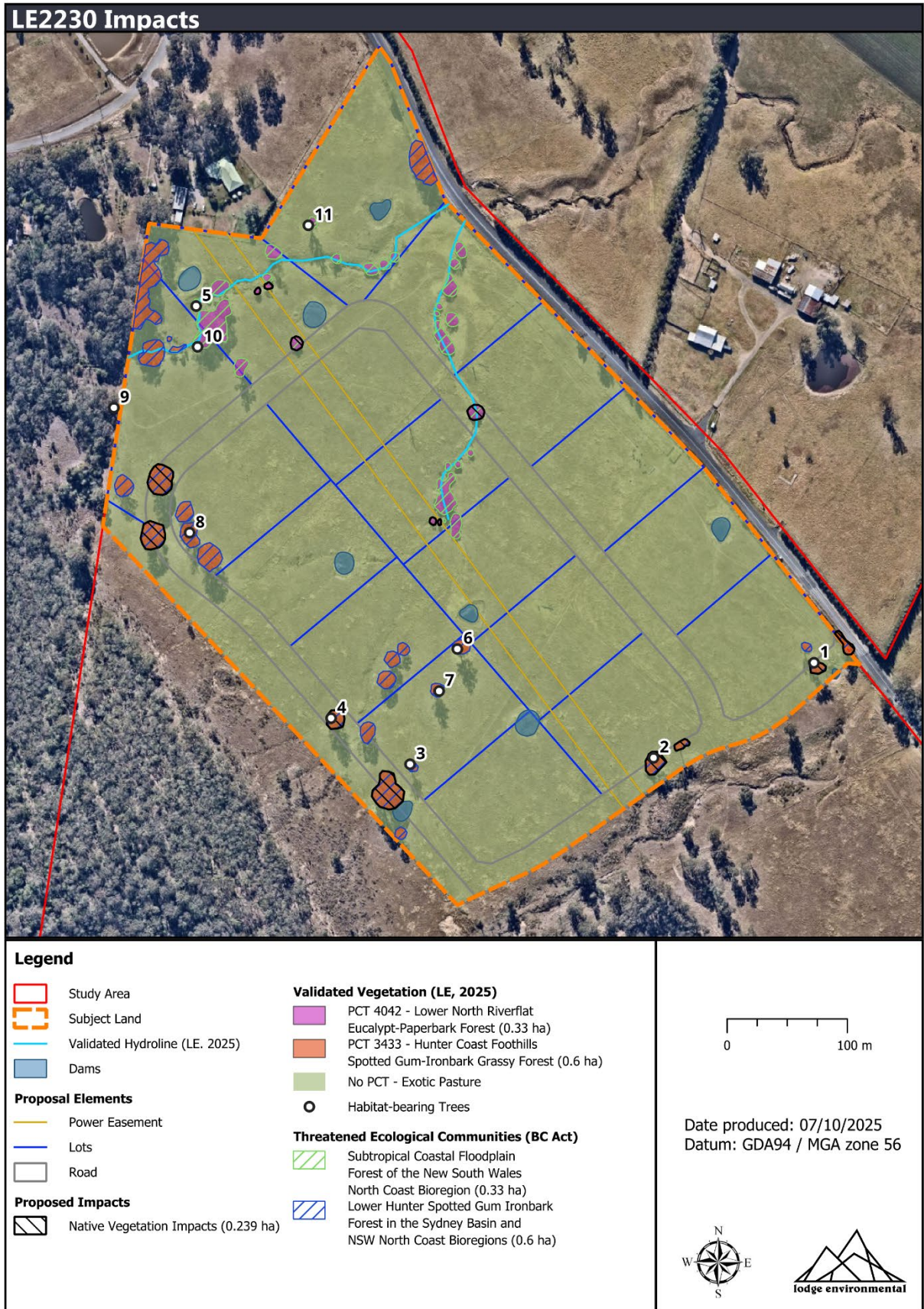


Figure 12: Impact to native vegetation

6.1.2 Indirect Impacts

The proposal is not considered to introduce any significant additional indirect impacts on important vegetation or fauna habitat beyond those already present due to current land use. The proposal will impact a small area of native vegetation, consisting of scattered paddock trees. This vegetation is located within a disturbed and fragmented landscape, where considerable indirect impacts already exist, such as weed incursion and native fauna vehicle strikes. The proposed development will not fragment any biodiversity linkages.

Table 15 details the indirect impacts relevant to the proposal and any measures that are to be implemented to avoid or minimise the impact.

Table 15: Indirect Impacts and recommended avoidance and minimisation measures

Indirect Impact	Assessment of impact	Avoidance and Minimisation Measures
Non-native vegetation	<p>Non-native vegetation within the Subject Land includes introduced pasture species and exotic shrubs and forbs.</p> <p>Works increase the potential for weed spread and invasion into adjacent vegetation.</p>	All weed species should be controlled and disposed of appropriately. A Construction Environmental Management Plan (CEMP) should be prepared by suitably qualified personnel to address how to manage the spread and invasion of exotic species into adjacent native vegetation.
Construction works	<p>There is the potential for additional impact to the watercourses and waterbodies within the Subject Land due to:</p> <ul style="list-style-type: none"> • Run-off • Sedimentation 	Adequate measures should be taken to minimise soil erosion for the duration of works within the site. Special care should be taken to avoid water, chemical, pollutants and soil runoff into dams and hydrdolines.
Vehicle strikes	The proposal includes construction of a new road, providing access from Gresford Road. The construction and operation of the road will result in increased potential for vehicle strikes.	Residential speed limits will apply.

6.2 DUNGOG LEP (2014)

Clause 6.6 of the Dungog LEP - Riparian land and watercourses - aims to maintain water quality within watercourses, the stability of the bed and banks of watercourses, aquatic and riparian habitats and ecological processes within watercourses and riparian areas. No areas within the Subject Land are overlaid by this clause, with the closest mapping occurring to the north of the Subject Land, coinciding with the Paterson River. Accordingly, no further consideration of this clause is required.

6.3 BIODIVERSITY OFFSET SCHEME ENTRANCE

6.3.1 Native vegetation clearance threshold

The proposed development impact to native vegetation totals 0.239 ha, at a maximum. The impact to native species is below the Biodiversity Offset Scheme entrance threshold of 0.25 ha for a lot size <1 ha (based on proposed minimum lot size). Therefore, the BOS entrance threshold is not triggered.

6.3.2 Biodiversity Values Mapping

There is no land within the Subject Land overlain by the BV Map. Therefore, the BOS entrance threshold is not triggered.

6.3.3 Assessments of Significance

Assessments of Significance (AoS) were applied where necessary. The AoS are discussed below.

6.4 SIGNIFICANCE ASSESSMENTS

6.4.1 Assessment of Significance under the EP&A Act and BC Act

Assessments using the criteria provided under the EP&A Act must be considered by consent or determining authorities when considering a development proposal or development application. This enables a decision to be made as to whether there is likely to be a significant impact on the species and hence if entry into the BOS required.

The results of the field survey have been used to inform whether significance assessments are required and for any listed species and communities. Significance assessments have been undertaken (**Appendix D**) for the species listed in .

Table 16: Species to which the BC Act Test of Significance has been applied

Common name	Scientific name	BC Act	EPBC Act
Threatened Ecological Communities (TECs)			
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion		E	-
Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions		E	-
Aves			
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-
Turquoise Parrot	<i>Neophema pulchella</i>	V	-

Common name	Scientific name	BC Act	EPBC Act
Mammals			
Yellow-bellied Sheathtail-bat	<i>Saccolaimus flaviventris</i>	V	-
Southern Myotis	<i>Myotis macropus</i>	V	-
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V	-
Koala	<i>Phascolarctos cinereus</i>	E	E
Grey-headed Flying Fox	<i>Pteropus poliocephalus</i>	V	V

After undertaking the AoS for the above listed entities, under its current layout, the proposal is not considered to have any significant impact on any of the above entities.

6.4.2 EPBC Act Significant Impact Guidelines

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. The process includes the application of Significant Impact Criteria (SIC) for listed threatened species and ecological communities that represent a MNES that will be impacted because of the proposed action. Significant impact guidelines that outline several criteria have been developed by the Commonwealth, to aid in conducting the assessment and help decide whether a referral to the Commonwealth is required.

After applying the SIC for the **Grey-headed Flying Fox** and **Koala**, under its current layout, the proposal is not considered to have any significant impact on these species.

7.0 RECOMMENDATIONS

The proposal will result in the removal of up to 0.239 ha of native vegetation, consisting of scattered native paddock trees that are consistent with two TECs. Three HBTs which contain a total of at least 4 habitat features will be impacted.

Key preliminary recommendations and comments include:

- Only the vegetation identified as impacted within this report can be removed. All other vegetation must be protected throughout the development and upon habitation of the proposed lots. Any further impact to vegetation would require additional assessment.
- Prior to any vegetation clearing, four habitat features are to be offset with nest boxes or artificial hollows at 1:1 ratio, for a total of two artificial hollows, or two small parrot boxes (or similar), and two microbat boxes. Nest boxes should be installed within the Study Area in trees with few to no existing habitat features.
- The following procedure for felling of the HBTs should be undertaken in accordance with the below:
 - Prior to felling, a suitably licensed ecologist is to be engaged to conduct a pre-clearance survey within 48 hours of felling works to assess the occupancy of hollows, where possible, to ensure that the hollows are not currently being utilised by native fauna.
 - A suitably licensed ecologist (who is vaccinated for Australian Bat Lyssavirus) is to be engaged to supervise the removal of the HBTs in order to minimise the chance of harm to fauna, and to rescue or relocate any fauna displaced during the clearing process.
 - Remove the non-HBTs prior to removal of the HBTs.
 - Fell trees into the already disturbed areas to avoid damaging adjacent vegetation.
 - Take care when moving equipment near vegetation to be retained.
 - Where possible, logs from felled trees should be distributed into areas of retained vegetation so that they can continue to provide habitat for fauna such as terrestrial reptiles and mammals.
 - Relocate woody debris to areas where they will not contribute a fire hazard.
 - Leave the HBTs standing for at least one night after non-HBT clearing to allow any fauna the opportunity to remove themselves after site disturbance.
 - After clearing, re-check the site to ensure no fauna have become trapped or injured during clearing operations. Any fauna found should be moved to adjacent habitat.
 - Before felling the HBTs, tap trunk using heavy machinery to scare fauna from the hollows. Repeat several times. The aim is to 'substantially' shake the tree and encourage fauna to exit.

- Carefully fell the HBT by gently lowering the tree to the ground using an excavator arm fitted with grapples. Preferably, arrange for qualified tree surgeons to dismantle the HBT using chainsaws and pulleys.
- After felling the tree, thoroughly check the tree for fauna in the case that any have become trapped or injured during clearing operations. Any fauna should be checked and safely moved into adjacent habitat.
- If taking the tree down in stages, the non-hollow bearing branches should be removed before the hollow bearing branches are removed.
- Provide written evidence to Council in order to document that a suitable qualified person was engaged for the tasks listed above.
- A dam dewatering protocol should be prepared and implemented to minimise harm to fauna residing within the impacted farm dam.
- Adequate erosion and sediment control measures should always be in place during construction, in accordance with best practice guidelines (Landcom 2004), including:
 - sediment fencing
 - vehicle and machinery movement confined to designated work areas
 - consideration given to weather, with works stopped if the onset of heavy rain is deemed likely to cause soil erosion or soil structure damage
- All weed/exotic species should be controlled. It is recommended that a Construction Environmental Management Plan (CEMP) is prepared by suitably qualified personnel.
 - Weed material must be disposed of appropriately, at a waste disposal centre, where the composting process will destroy all plant pathogens and seeds.
- Care must be taken when moving equipment near vegetation to be retained. If works appear to encroach on retained vegetation, advice from a qualified Arborist should be gained to infer appropriate tree protection measures. Generally, the Tree Protection Zone (TPZ) is a hypothetical estimation of the area required to protect a tree from adverse construction and development activities. It is calculated for each tree by multiplying diameter at breast height (DBH) by 12 and is a radius measured in metres from the centre of trunk. It is understood that encroachments into the TPZ can occur for 10% of the zone in accordance with AS4970-2009 Protection of trees on development sites.
- A Controlled Activity Approval is recommended due to encroachment into waterfront land along the validated watercourses. A Vegetation Management Plan should be provided prior to granting of the construction certificate to guide ongoing preservation of the validated watercourse.

8.0 CONCLUSION

Through the completion of the surveys conducted as part of this report, no threatened flora or fauna were recorded within the Subject Land that will be significantly impacted by the development.

A range of suitable recommendations have been made to improve the environmental outcome of the proposal. These include felling supervision for HBTs, supplementary habitat installation and weed control.

Assessments of Significance were undertaken where necessary. It was determined that the proposal will not constitute a significant impact on the listed entities.

This Flora and Fauna Assessment has adequately considered threatened species and communities in the context of the proposed development in the Subject Land by:

- Conducting a field survey.
- Adopting the precautionary principle in the assessment of threatened species; and
- Designating appropriate recommendations to minimise potential impacts to threatened species that may transiently occur on the site as well as any other fauna.

The assessments contained within this report have determined that the proposed development is unlikely to have a significant effect on any listed communities or species or their habitat in accordance with the EP&A Act, BC Act and EPBC Act provided the recommendations contained in this report are adhered to. There will not be an impact on any active and mapped areas of Biodiversity Value, nor will there be an impact on native vegetation above the relevant impact threshold.

Therefore, the preparation and submission of a BDAR or referral to the Commonwealth is not required.

9.0 REFERENCES

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10.0 LIMITATIONS

This report and the associated services performed by Lodge Environmental are in accordance with the scope of services set out in the contract between Lodge Environmental and the Client. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to Site.

Lodge Environmental derived the data in this report primarily from visual inspections, and limited survey and analysis made on the dates indicated. In preparing this report, Lodge Environmental has relied upon, and presumed accurate, certain information provided by government authorities, the Client and others identified herein. The report has been prepared on the basis that while Lodge Environmental believes all the information in it is deemed reliable and accurate at the time of preparing the report, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the Client arising from or in connection with the supply or use of the whole or any part of the information in the report through any cause whatsoever.

The data, findings, observations, conclusions and recommendations in the report are based solely upon the state of the Site at the time of the investigation. The passage of time, manifestation of latent conditions or impacts of future events (e.g. changes in legislation, scientific knowledge, land uses, etc) may render the report inaccurate. In those circumstances, Lodge Environmental shall 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 the report.

This report has been prepared on behalf of and for the exclusive use of the Client and is subject to and issued in connection with the provisions of the agreement between Lodge Environmental and the Client. Lodge Environmental accepts no liability or responsibility whatsoever and expressly disclaims any responsibility for or in respect of any use of or reliance upon this report by any third party or parties.

It is the responsibility of the Client to accept if the Client so chooses any recommendations contained within and implement them in an appropriate, suitable and timely manner.

Appendices

Appendix A: Threatened Flora And Fauna Likelihood Table

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Ecological Community						
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>		-	CE	The ecological community is known to occur on hilly to undulating landscapes in areas with soils of moderate fertility derived from a range of lithologies, including alkaline and acid volcanics, granites, sediments, serpentinites and metamorphics. The structure of the ecological community varies with location and site conditions but typically it was formerly (prior to European settlement) an open grassy woodland with medium height trees.	Low	No
<i>River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria</i>		E	CE	Associated with silts, clay-loams and sandy loams, on periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains. Generally occurs below 50 m elevation, but may occur on localised river flats up to 250 m above sea level. The structure of the community may vary from tall open forests to woodlands, although partial clearing may have reduced the canopy to scattered trees.	Low	No
<i>Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</i>		-	E	Associated with grey-black clay-loams and sandy loams, where the groundwater is saline or sub-saline, on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes associated with coastal floodplains. The structure of the community may vary from open forests to low woodlands, scrubs or reedlands with scattered trees. Known from parts of the Local Government Areas of Wollongong.	Low	No
<i>Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions</i>		-	E	The ecological community is found on alluvial landforms, including floodplains, the riparian zones of parent rivers and other order tributaries, alluvial flats, floodplain/alluvial terraces and	Moderate	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				periodically flooded depressions. It generally occurs below 50 m above sea-level (ASL), although it can occur up to 250 m ASL.		
<i>Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion</i>		E	-	Associated with clay-loams and sandy loams, on periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains. Generally occurs below 50 m, but may occur on localised river flats up to 250 m elevation in the NSW North Coast bioregion.	Moderate	Yes
Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions		E	-	Currently known to occur in the Lower Hunter Valley centred on the Cessnock-Beresfield area and approximately bounded by the towns of Paxton, Branxton, Clarence Town, Beresfield, Mt Vincent and the northern boundary of Watagans National Park.	Moderate	Yes
<i>Lowland Rainforest of Subtropical Australia</i>		-	CE	The ecological community occurs on basalt and alluvial soils, including sand and old or elevated alluvial soils as well as floodplain alluvia. It also occurs occasionally on enriched rhyolitic soils and basaltically enriched metasediments. Lowland Rainforest mostly occurs in areas <300 m above sea level. Aspect can result in the ecological community being found at >300 m altitude on north-facing slopes, but typically 300 m defines the extent of the lowlands. In addition, Lowland Rainforest typically occurs in areas with high annual rainfall (>1300 mm).	Low	No
<i>Central Hunter Valley eucalypt forest and woodland</i>		-	CE	The Central Hunter Valley eucalypt forest and woodland ecological community generally occurs on soils derived from the Permian sedimentary bedrock found on the valley floors and on lower hillslopes and low ridges.	Moderate	No
<i>Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</i>		-	E	The ecological community typically occurs in low-lying coastal alluvial areas with minimal relief,	Moderate	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				such as swamps, floodplain pockets, depressions, alluvial flats, back-barrier flats, fans, terraces, and behind fore-dunes. The ecological community most commonly occurs at elevations below 20m above sea-level (ASL) but may occur occasionally up to 220m ASL on hill slopes, for example in association with perched swamps and lakes, or a naturally high-water table. The community occurs primarily on poorly permeable sandstone plateaux in the low relief headwater valleys of streams and on sandstone benches with abundant seepage moisture.		
Flora						
Hairy-joint Grass	<i>Arthraxon hispidus</i>	V	V	Moisture and shade-loving grass, found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps.	Low	No
Thick-lipped Spider-orchid	<i>Caladenia tessellata</i>	E	V	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Also open heathland habitat. Flowers September to November.	Low	No
Leafless Tongue-orchid	<i>Cryptostylis hunteriana</i>	V	V	Occurs in a range of communities, including swamp-heath and woodland. Larger populations typically occur in woodland dominated by Scribbly Gum (<i>Eucalyptus sclerophylla</i>), Silvertop Ash (<i>E. sieberi</i>), Red Bloodwood (<i>Corymbia gummifera</i>) and Black She-Oak	Low	No
<i>Cymbidium canaliculatum</i> population in the Hunter Catchment	<i>Cymbidium canaliculatum</i>	EP	-	Typically grows in the hollows, fissures, trunks and forks of trees in dry sclerophyll forest or woodland, where its host trees typically occur on Permian Sediments of the Hunter Valley floor. It usually occurs singly or as a single clump, which can form large colonies on trees, between two and six metres from the ground.	Low	No
White-flowered Wax Plant	<i>Cynanchum elegans</i>	E	E	Restricted to eastern NSW, from Brunswick Heads on the north coast to Gerroa in the Illawarra	Low	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				region, and as far west as Merriwa in the upper Hunter River valley. Dry rainforest; littoral rainforest; <i>Leptospermum laevigatum</i> - <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> (Coastal Tea-tree-Coastal Banksia) coastal scrub; <i>Eucalyptus tereticornis</i> (Forest Red Gum) or <i>Corymbia maculata</i> (Spotted Gum) open forest and woodland; and <i>Melaleuca armillaris</i> (Bracelet Honey Myrtle) scrub.		
Bluegrass	<i>Dichanthium setosum</i>	V	V	Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. (Often collected from disturbed open grassy woodlands on the northern tablelands, where the habitat has been variously grazed, nutrient-enriched and water-enriched). It is open to question whether the species tolerates or is promoted by a certain amount of disturbance, or whether this is indicative of the threatening processes behind its depleted habitat. Associated species include <i>Eucalyptus albens</i> , <i>Eucalyptus melanophloia</i> , <i>Eucalyptus melliodora</i> , <i>Eucalyptus viminalis</i> , <i>Myoporum debile</i> , <i>Aristida ramosa</i> , <i>Themeda triandra</i> , <i>Poa sieberiana</i> , <i>Bothriochloa ambigua</i> , <i>Medicago minima</i> , <i>Leptorhynchos squamatus</i> , <i>Lomandra</i> aff. <i>longifolia</i> , <i>Ajuga australis</i> , <i>Calotis hispidula</i> and <i>Austrodanthonia</i> , <i>Dichopogon</i> , <i>Brachyscome</i> , <i>Vittadinia</i> , <i>Wahlenbergia</i> and <i>Psoralea</i> species.	Low	No
Small Snake Orchid	<i>Diuris pedunculata</i>	E	E	The Small Snake Orchid grows on grassy slopes or flats.	Low	No
Slaty Red Gum	<i>Eucalyptus glaucina</i>	V	V	Grows in grassy woodland and dry eucalypt forest. Grows on deep, moderately fertile and well-watered soils.	Moderate	No – not present
-	<i>Euphrasia arguta</i>	CE	CE	Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy	Low	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				country near Bathurst', and 'in meadows near rivers'. Plants from the Nundle area have been reported from eucalypt forest with a mixed grass and shrub understorey; here, plants were most dense in an open disturbed area and along the roadside, indicating the species had regenerated following disturbance.		
-	<i>Isotoma fluviatilis subsp. fluviatilis</i>	-	X	Known to grow in damp places, on the Cumberland Plain, including freshwater wetland, grassland/alluvial woodland and an alluvial woodland/shale plains woodland (Cumberland Plain Woodland) ecotone.	Low	No
Tall Knotweed	<i>Persicaria elatior</i>	V	V	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Low	No
-	<i>Prasophyllum sp. Wybong (C.Phelps ORG 5269)</i>	-	CE	Known to occur in open eucalypt woodland and grassland	Low	No
Illawarra Greenhood	<i>Pterostylis gibbosa</i>	E	E	Known from a small number of populations in the Hunter region (Milbrodale), the Illawarra region (Albion Park and Yallah) and the Shoalhaven region (near Nowra). All known populations grow in open forest or woodland, on flat or gently sloping land with poor drainage.	Low	No
Eastern Underground Orchid	<i>Rhizanthella slateri</i>	V	E	Habitat requirements are poorly understood and no particular vegetation type has been associated with the species, although it is known to occur in sclerophyll forest. Highly cryptic given that it grows almost completely below the soil surface, with flowers being the only part of the plant that can occur above ground. Therefore usually located only when the soil is disturbed.	Low	No
Scrub Turpentine	<i>Rhodamnia rubescens</i>	CE	CE	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Low	No

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		BC Act	EPBC Act			
Native Guava	<i>Rhodomyrtus psidioides</i>	CE	CE	Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	Low	No
Heath Wrinklewort	<i>Rutidosia heterogama</i>	V	V	Grows in heath on sandy soils and moist areas in open forest, and has been recorded along disturbed roadsides.	Moderate	No – not present
Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	E	V	On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Low	No
Black-eyed Susan	<i>Tetradlea juncea</i>	V	V	Usually found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest.	Low	No
Austral Toadflax	<i>Thesium australe</i>	V	V	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda australis</i>).	Low	No
Aves						
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.	Low	No
Fork-tailed Swift	<i>Apus pacificus</i>	M	M	The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher.	Low	No

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		BC Act	EPBC Act			
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V	-	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	Low	No
Australasian Bittern	<i>Botaurus poiciloptilus</i>	E	E	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha spp.</i>) and spikerushes (<i>Eleocharis spp.</i>).	Low	No
Bush Stone-curlew	<i>Burhinus grallarius</i>	E	-	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber.	Low	No
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	M	M	The Sharp-tailed Sandpiper prefers the grassy edges of shallow inland freshwater wetlands.	Low	No
Curlew Sandpiper	<i>Calidris ferruginea</i>	E	CE	It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts.	Low	No
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V	E	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. The Gang-gang Cockatoo prefers tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests during summer, these being at higher altitudes. In winter, this species occurs at lower altitudes in drier, more open eucalypt forests and woodlands, or in dry forest in coastal areas.	Low	No
South-eastern Glossy Black-Cockatoo	<i>Calyptorhynchus lathami lathami</i>	V	V	In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina. Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	Low	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Spotted Harrier	<i>Circus assimilis</i>	V	-	Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	Low	No
Greater Sand Plover	<i>Charadrius leschenaultii</i>	V	V, M	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	Low	No
Speckled Warbler	<i>Chthonicola sagittata</i>	V	-	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.	Low	No
Spotted Harrier	<i>Circus assimilis</i>	V		The Spotted Harrier occurs throughout the Australian mainland, with individuals dispersing widely in NSW and comprise of a single population. This species occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	Low	No
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V	V	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (<i>Eucalyptus</i>	Low	No

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				<i>camaldulensis</i>) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains.		
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V	-	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.	Low	No
White-fronted Chat	<i>Epthianura albifrons</i>	V	-	Gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs.	Low	No
Red Goshawk	<i>Erythrotriorchis radiatus</i>	E	E	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Low	No
Grey Falcon	<i>Falco hypoleucos</i>	V	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. 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.	Low	No

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Black Falcon	<i>Falco subniger</i>	V	-	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. There is assumed to be a single population in NSW that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres (Marchant & Higgins 1993).	Low	No
Latham's Snipe	<i>Gallinago hardwickii</i>	-	M	Occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. Migratory Wetlands Species.	Low	No
Little Lorikeet	<i>Glossopsitta pusilla</i>	V	-	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. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.	Moderate	Yes
Painted Honeyeater	<i>Grantiella picta</i>	V	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 (<i>Acacia pendula</i>), Brigalow (<i>A. harpophylla</i>) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus <i>Amyema</i> .	Low	No
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-	The White-bellied Sea-Eagle is widespread along the east coast of NSW. This species occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and	Moderate	No - no breeding habitat observed

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				mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. The habitat of this species is characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Additionally, their terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest).		
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	The Little Eagle is found throughout the Australian mainland apart from the most densely forested areas of the Dividing Range escarpment. It occurs as a single population throughout NSW. The species occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used.	Moderate	No - no breeding habitat observed
White-throated Needletail	<i>Hirundapus caudacutus</i>	-	M	Almost exclusively aerial. Takes insects on wing over a range of habitat types. Recorded most often above wooded areas, including open forest and rainforest. Migratory Terrestrial Species.	Low	No
Caspian Tern	<i>Hydroprogne caspia</i>	-	M	Found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred.	Low	No
Black Bittern	<i>Ixobrychus flavicollis</i>	V	-	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation.	Low	No
Comb-crested Jacana	<i>Irediparra gallinacea</i>	V	-	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation.	Low	No
Swift Parrot	<i>Lathamus discolor</i>	E	CE	The Swift Parrot migrates to the Australian south-east mainland between February and October. In NSW the species is generally found on the coast and southwest slopes. Favoured feed trees	Low	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
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				include winter flowering species such as <i>Eucalyptus robusta</i> (Swamp Mahogany), <i>Corymbia maculata</i> (Spotted Gum), <i>C. gummifera</i> (Red Bloodwood), <i>E. tereticornis</i> (Forest Red Gum), <i>E. sideroxylon</i> (Mugga Ironbark) and <i>E. albens</i> (White Box).		
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V	E	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas (northern and eastern coastal QLD and TAS), rarely found on the coast. 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.	Low	No
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis gularis</i>	V	-	Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (<i>Eucalyptus sideroxylon</i>), White Box (<i>E. albens</i>), Inland Grey Box (<i>E. microcarpa</i>), Yellow Box (<i>E. melliodora</i>), Blakely's Red Gum (<i>E. blakelyi</i>) and Forest Red Gum (<i>E. tereticornis</i>).	Low	No
Blue-winged Parrot	<i>Neophema chrysostoma</i>	V	V	The Blue-winged Parrot inhabits a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones. Throughout their range, they favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones. Blue-winged Parrots can also be seen in altered environments such as airfields, golf courses and paddocks.	Low	No
Turquoise Parrot	<i>Neophema pulchella</i>	V	-	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	Moderate	Yes

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		BC Act	EPBC Act			
Barking Owl	<i>Ninox connivens</i>	V	-	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland.	Low	No
Powerful Owl	<i>Ninox strenua</i>	V	-	Large tracts of open or closed sclerophyll forest or woodlands but can occur in fragmented landscapes as well. Gullies consisting of wet to dry sclerophyll forest with a dense understorey.	Low	No
Eastern Curlew	<i>Numenius madagascariensis</i>	CE	CE, M	The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats.	Low	No
Scarlet Robin	<i>Petroica boodang</i>	V	-	Lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Its habitat usually contains abundant logs and fallen timber: these are important components of its habitat.	Low	No
Flame Robin	<i>Petroica phoenicea</i>	V	-	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The ground layer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense.	Low	No
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V	-	Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions.	Low	No
Wompoo Fruit-Dove	<i>Ptilinopus magnificus</i>	V	-	Occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests.	Low	No
Pilotbird	<i>Pycnoptilus floccosus</i>	V	V	Pilotbirds are strictly terrestrial, living on the ground in dense forests with heavy undergrowth.	Low	No
Australian Painted Snipe	<i>Rostratula australis</i>	E	E	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Low	No
Diamond Firetail	<i>Stagonopleura guttata</i>	V	V	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	Low	No

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		BC Act	EPBC Act			
				West Plains and Riverina. Not commonly found in coastal districts. 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. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.		
Freckled Duck	<i>Stictonetta naevosa</i>	V	-	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree.	Low	No
Common Greenshank	<i>Tringa nebularia</i>	M	M	Common Greenshanks are found both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.	Low	No
Marsh Sandpiper	<i>Tringa stagnatilis</i>	M	M	Lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, salt pans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks.	Low	No
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	Lives in dry eucalypt forests and woodlands from sea level to 1100 m.	Low	No
Mammalia						
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V	Cave-roosting bat that forages in timbered woodland and dry sclerophyll forest.	Low	No
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Low	No
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V	-	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but	Low	No

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		BC Act	EPBC Act			
				will also roost under bark or in man-made structures.		
Little Bentwing-bat	<i>Miniopterus australis</i>	V	-	Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats.	Moderate	Yes
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	V	-	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes.	Low	No
Southern Myotis	<i>Myotis macropus</i>	V	-	Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Moderate	Yes
Parma Wallaby	<i>Notamacropus parma</i>	V	V	Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest.	Low	No
Corben's Long-eared Bat	<i>Nyctophilus corbeni</i>	V	V	Inhabits a variety of vegetation types, including mallee, bulloke (<i>Allocasuarina leuhmanni</i>) and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark. Slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground.	Low	No
Greater Glider	<i>Petauroides volans</i>	-	V	It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old	Low	No

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
				trees and abundant hollows. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species.		
Yellow-bellied Glider	<i>Petaurus australis</i>	V	V	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	Low	No
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey.	Low	No
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V	-	Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter.	Moderate	Yes
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	E	V	Habitats containing numerous ledges, caves and crevices are favoured by this species.	Low	No
Koala	<i>Phascolarctos cinereus</i>	E	E	Open eucalypt forest and woodland, containing a variety of 'preferred' feed trees	Low	No
Eastern Chestnut Mouse	<i>Pseudomys gracilicaudatus</i>	V	V	Mostly found, in low numbers, in heathland and is most common in dense, wet heath and swamps. In the tropics it is more an animal of grassy woodlands.	Low	No
New Holland Mouse	<i>Pseudomys novaehollandiae</i>	-	V	Open heathland, open woodland with a heathland understorey and vegetated sand dunes.	Low	No
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Occur in subtropical and temperate rainforests, tall sclerophyll forests and urban areas.	Moderate	Yes
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V	-	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows.	Moderate	Yes
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V	-	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest. Roosts in tree hollows and buildings.	Low	No

Amphibia

Common Name	Scientific Name	Legislation		Habitat Associations	Likelihood of Occurrence	Further Significance Assessment Undertaken
		BC Act	EPBC Act			
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spikerushes (<i>Eleocharis</i> spp.).	Low	No
Stuttering Frog	<i>Mixophyes balbus</i>	E	V	Typically found in association with permanent streams through temperate and sub-tropical rainforest and wet sclerophyll forest, and also in moist gullies in dry forest.	Low	No
Reptilia						
Pink-tailed Legless Lizard	<i>Aprasia parapulchella</i>	V	V	Inhabits sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks.	Low	No
Hunter Valley Delma	<i>Delma vescolineata</i>	E	E	The Hunter Valley delma is known almost entirely from a 25 km wide corridor in the Hunter Valley NSW, between Maitland and Muswellbrook. The Hunter Valley delma occurs in secondary native grassland remaining after the removal or dieback of previous woody canopy vegetation.	Low	No
Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>	V	-	Found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest.	Low	No
New England Leaf-tailed Gecko, Moritz's Leaf-tailed Gecko	<i>Saltuarius moritzi</i>	-	E	Moritz's leaf-tailed geckos occur in rainforest, wet sclerophyll forest, gorges and along wetter drainage lines in dry sclerophyll forest.	Low	No

Key. V=Vulnerable, E=Endangered, Ep=Endangered Population, CE=Critically Endangered, M=Migratory. Species habitat associations have been informed predominantly from EES (2021) and DotEE (2021) species profiles.

Appendix B: Flora Species List

Scientific name	Common name	Native	Exotic
<i>Acacia fimbriata</i>	Fringed Wattle	x	
<i>Acacia implexa</i>	Hickory Wattle	x	
<i>Acacia ulicifolia</i>	Prickly Moses	x	
<i>Axonopus fissifolius</i>	Narrow-Leaved Carpet Grass		x
<i>Azolla pinnata</i>	Mosquito Fern	x	
<i>Cenchrus clandestinus</i>	Kikuyu Grass		x
<i>Corymbia maculata</i>	Spotted Gum	x	
<i>Dichondra repens</i>	Kidney Weed	x	
<i>Eucalyptus amplifolia</i>	Cabbage Gum	x	
<i>Eucalyptus beyeriana</i>	Beyer's Ironbark	x	
<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	x	
<i>Eucalyptus fibrosa</i>	Red Ironbark	x	
<i>Hypochaeris radicata</i>	Flatweed		x
<i>Juncus usitatus</i>	Common Rush	x	
<i>Lantana camara</i>	Lantana		x
<i>Lissanthe strigosa</i>	Peach Heath	x	
<i>Lobelia purpurascens</i>	White Root	x	
<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife	x	
<i>Melaleuca linariifolia</i>	Narrow-Leaved Paperbark	x	
<i>Olea europaea subsp. cuspidata</i>	African Olive		x
<i>Onopordum acanthium subsp. acanthium</i>	Scotch Thistle		x
<i>Paronychia brasiliiana</i>	Brazilian Whitlow		x
<i>Paspalum dilatatum</i>	Dallas Grass		x
<i>Persicaria spp.</i>	Knotweed	x	
<i>Plantago lanceolata</i>	Ribwort Plantain		x
<i>Polycarpon tetraphyllum</i>	Fourleaf Manyseed		x
<i>Romulea rosea var. australis</i>	Onion Grass		x
<i>Senecio madagascariensis</i>	Fireweed		x
<i>Setaria parviflora</i>	Pigeon Grass		x
<i>Sida rhombifolia</i>	Paddy's Lucerne		x
<i>Sporobolus fertilis</i>	Giant Parramatta Grass		x
<i>Trifolium spp.</i>	Clover		x
<i>Verbena bonariensis</i>	Purpletop Vervain		x

Appendix C: Fauna Species List

Class Name	Scientific Name	Common Name
Aves	<i>Manorina melanocephala</i>	Noisy Miner
	<i>Gymnorhina tibicen</i>	Australian Magpie
	<i>Corvus coronoides</i>	Australian Raven
	<i>Falco cenchroides</i>	Nankeen Kestrel
	<i>Cracticus torquatus</i>	Gray Butcherbird
	<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet
	<i>Strepera graculina</i>	Pied Currawong
	<i>Platycercus elegans</i>	Crimson Rosella
	<i>Psophodes olivaceus</i>	Eastern Whipbird
	<i>Dacelo novaeguineae</i>	Laughing Kookaburra
	<i>Eolophus roseicapillus</i>	Galah
	<i>Coracina novaehollandiae</i>	Black-Faced Cuckoo-shrike
	<i>Colluricincla harmonica</i>	Gray Shrike-thrush
	<i>Platycercus eximius</i>	Eastern Rosella
	<i>Ocyphaps lophotes</i>	Crested Pigeon
	<i>Anthochaera carunculata</i>	Red Wattlebird
	<i>Chenonetta jubata</i>	Australian Wood Duck
<i>Anas superciliosa</i>	Pacific Black Duck	
Reptile	<i>Chelodina longicollis</i>	Eastern Long-Necked Turtle
Amphibian	<i>Limnodynastes peronii</i>	Striped Marsh Frog

Appendix D: Test of Significance

Threatened Ecological Communities

Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion (Endangered – BC Act)

Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion (SCFF) is listed as Endangered under the BC Act. SCFF occurs as tall open eucalyptus forest to woodland on coastal floodplains, with a dense groundcover and scattered shrubs and vines. The community has been heavily impacted by historical and ongoing disturbances such as grazing, fire, hydrological changes, and weed invasion. Extensive clearing and fragmentation have reduced its extent and ecological function. Most remnants are on private agricultural land, highly degraded, and subject to further threats including development, agriculture, altered water regimes, and invasive species (NSW DCCEEW 2010).

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

Not applicable - not a threatened species.

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

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

The Subject Land, and the SCFF within, has been impacted by historical agricultural land use. This has significantly reduced the vegetation structure and species diversity within the Subject Land. The patch of SCFF within the Subject Land is very small and of poor quality. The loss of 0.029 ha of poor condition, highly fragmented SCFF is such a small relative area that it is not considered to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The local occurrence has been assessed using the State Vegetation Type Map (DCCEEW 2024) and includes associated PCTs occurring within the Study Area and contiguous vegetation (within 100m of the Study Area), which totals 5.39 ha.

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

Only two of the 102 characteristic species of SCFF were identified during the site survey. The two species recorded are frequently occurring species within the local area and thus their removal will not substantially modify the composition of SCFF such that its local occurrence is likely to be placed at risk of extinction.

- C. In relation to the habitat of a threatened species or ecological community:

- i. The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

0.029 ha of vegetation representing SCFF is to be removed.

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

The Subject Land, and the SCFF within, consists of scattered paddock trees, therefore clearance of this habitat will not further contribute to fragmentation and isolation from other areas of native habitat. Neighbouring land to the north and east is similarly dominated by exotic pasture with scattered paddock trees. The Subject Land and associated SCFF patches are already isolated and degraded, separated from the adjacent large forest patch situated to the southwest at higher elevations. The proposed removal of 0.029 ha of SCFF within the Subject Land will not result in additional fragmentation or isolation beyond existing conditions.

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

The existing patch of SCFF is very small and exists within a highly fragmented landscape. The long-term survival of the TEC is not dependant on the retention of this patch.

D. **Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)**

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. **Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.**

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- **Clearing of native vegetation**

The removal of a small area (0.029 ha) belonging to SCFF is considered a very small disturbance. The trees exist within a highly disturbed and fragmented landscape and do not significantly contribute to the health of SCFF in the wider landscape. Therefore, it is considered unlikely that the proposed vegetation removal would exacerbate any key threatening processes to such an extent that they would place at risk of extinction.

Conclusion

The proposal will directly affect a maximum area of 0.029 ha of SCFF. The vegetation proposed for removal is unlikely to significantly contribute to further recruitment and supports very limited ground or mid-stratum species. The vegetation exists within a highly disturbed and fragmented landscape and does not significantly contribute to the health of SCFF in the wider landscape. Therefore, it is considered unlikely that the proposed vegetation removal would place the TEC at risk of extinction.

As such, a BDAR is not recommended with respect to the potentially affected threatened ecological community.

Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions (Endangered - BC Act)

Lower Hunter Spotted Gum Ironbark Forest of the Sydney Basin and NSW North Coast Bioregions (LHSGIF) is listed as *Endangered* under the BC Act. LHSGIF typically occurs as open forest dominated by *Corymbia maculata* and *Eucalyptus fibrosa*, with a diverse ground layer of grasses, herbs, and sedges. The community has been heavily impacted by historical and ongoing disturbances including fire, logging, grazing, and extreme weather events. Extensive clearing and fragmentation reduced its extent to an estimated 27-48% of its original range, with most remnants small, degraded, and vulnerable to further threats such as development, agriculture, and weed invasion. LHSGIF is now considered at very high risk of extinction due to ongoing decline in extent and ecological function (NSW DCCEEW 2019).

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

Not applicable - not a threatened species.

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

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

The Subject Land, and the LHSGIF within, has been impacted by historical agricultural land use. This has significantly reduced the vegetation structure and species diversity within the Subject Land. The patch of SCFF within the study area is very small and of poor quality. The loss of 0.21 ha of poor condition, highly fragmented LHSGIF is a small relative area that it is not considered to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The local occurrence has been assessed using the State Vegetation Type Map (DCCEEW 2024) and includes associated PCTs occurring within the Study Area and contiguous vegetation (within 100m of the Study Area), which totals 12.96 ha.

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

Only three of the 44 characteristic species of LHSGIF were identified during the site survey. The three species recorded are frequently occurring species within the local area and thus their removal will not substantially modify the composition of LHSGIF such that its local occurrence is likely to be placed at risk of extinction.

- C. **In relation to the habitat of a threatened species or ecological community:**

- i. **The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and**

0.21 ha of vegetation representing LHSGIF is to be removed.

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

The Subject Land, and the LHSGIF within, consists of mostly scattered paddock trees, therefore clearance of this habitat will not impact fragmentation and

isolation from other areas of native habitat. Neighbouring land to the north and east is similarly dominated by exotic pasture with scattered paddock trees. The Subject Land contains edge habitat associated with LHSGIF, adjoining a larger forest patch to the southwest at higher elevations. This edge area is already isolated and degraded. The proposed removal of 0.21 ha within this portion will not increase fragmentation or contribute to the decline of the adjacent larger native vegetation patch.

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

The existing patch of LHSGIF is very small and exists within a highly fragmented landscape. The long-term survival of the TEC is not dependant on the retention of this patch.

D. **Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)**

There are no Areas of Outstanding Biodiversity Value within the Study Area with reference to the Areas of Outstanding Biodiversity Value register.

E. **Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.**

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- **Clearing of native vegetation**

The removal of a small area (0.21 ha) belonging to LHSGIF is considered a very small disturbance. The trees exist within a highly disturbed and fragmented landscape and does not significantly contribute to the health of LHSGIF in the wider landscape. Therefore, it is considered unlikely that the proposed vegetation removal would exacerbate any key threatening processes to such an extent that they would place at risk of extinction.

Conclusion

The proposal will directly affect a maximum area of 0.21 ha of LHSGIF. The vegetation proposed for removal is unlikely to significantly contribute to further recruitment and supports very limited ground or mid-stratum species. The vegetation exists within a highly disturbed and fragmented landscape and does not significantly contribute to the health of LHSGIF in the wider landscape. Therefore, it is considered unlikely that the proposed vegetation removal would place the TEC at risk of extinction.

As such, a BDAR is not recommended with respect to the potentially affected threatened ecological community.

Threatened Microbats

Southern myotis (*Myotis macropus*) – Vulnerable (BC Act)

Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.

Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*) – Vulnerable (BC Act)

Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.

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

Impacts that are considered to impact on the life cycle of a species relates to impacts on stages of reproduction, growth, development, ageing and death. The impacts of the proposal on the above listed bat species relates to the loss of a maximum of 0.239 ha of marginal sheltering habitat. The potential shelter habitat is not favourable and is unlikely to support breeding due to its proximity to human activity and would likely be frequently disturbed. The listed species are highly mobile and can utilise a range of more preferential foraging and sheltering habitats, particularly within the old growth forest adjacent to the Subject Land. Therefore, the removal of a 0.239 ha and three HBTs will not adversely affect the life cycle of these species such that a viable population is likely to be placed at risk of extinction.

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

- i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,**

Not applicable - not an endangered ecological community.

- C. In relation to the habitat of a threatened species or ecological community:**

- i) The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and**

0.239 ha of native vegetation, and three HBTs considered potential sheltering habitat are to be removed.

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

The proposal would not result in the fragmentation or isolation of any areas of foraging or sheltering habitat for these species. The existing habitat already exists in a fragmented landscape. The areas of potential habitat to be affected are very small and will not fragment or isolate foraging habitat at a broad scale.

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

The proposed development will require the removal 0.239 ha and three HBTs within the Subject Land. These habitat features exist within poor quality habitat, cleared for current agricultural use

and subject to existing disturbances, and thus it is unlikely that the Subject Land supports breeding behaviours. The listed species are highly mobile and can utilise a range of more preferential foraging and sheltering habitats. Therefore, the habitat present within the Subject Land is not considered important to the long-term survival of the listed species.

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

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation

The removal of 0.239 ha of vegetation and three HBTs with marginal sheltering habitat is considered a very small disturbance. These species are highly mobile and is known to rely on a range of foraging and shelter resources within the local occurrence. Therefore, the proposal is unlikely to exacerbate the impacts of this key threatening process.

Conclusion

The proposal will directly affect a maximum area of 0.239 ha of marginal sheltering habitat only. If the listed bat species utilise the trees and human structures for intermittent foraging or sheltering, the localised nature of the removal, indicate that the proposed action is unlikely to have a significant impact on listed bat species such that it would put a local population of any of the species at risk of extinction or substantially isolate any areas of potential habitat

As such, a Species Impact Statement or BDAR is not recommended with respect to the potentially affected species.

Threatened Megabats

***Pteropus poliocephalus* (Grey-headed Flying Fox) – Vulnerable (BC Act)**

Occur in subtropical and temperate rainforests, tall sclerophyll forests. Forages on a variety of flowering and fruiting native and exotic plants.

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

The proposed development is only removing a maximum of 0.239 ha of scattered canopy within predominantly cleared land. This is a relatively small area when compared to intact adjoining and surrounding bushland. A GHFF camp has not been recorded within the Study Area and given the widespread foraging habits of this species, the vegetation to be removed is not considered important to the GHFF life cycle. As such, the proposal would not be considered to have an impact on any local populations of the above listed species such that they would be placed at risk of extinction.

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

- i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

- C. In relation to the habitat of a threatened species or ecological community:**

- i) The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
- ii) Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
- iii) The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

The proposed development is only removing a maximum of 0.239 ha of scattered canopy within cleared land. Being within cleared land, this removal will not fragment any areas of habitat. The area to be removed is relatively small when compared to intact nearby surrounding bushland, with GHFF foraging over a diverse number of species and widespread area. As such, the proposal would not be considered likely to have an impact on any local populations of the above listed species such that the long-term survival of the species in the locality would be threatened. Therefore, it will not impact the long-term survival of the above-listed species.

- D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)**

There are no Areas of Outstanding Biodiversity Value within the Study Area with reference to the Areas of Outstanding Biodiversity Value register.

- E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.**

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation
- Removal of dead wood and dead trees

The removal of 0.239 ha of marginal foraging habitat is considered a small disturbance, particularly in relation to the surrounding habitat. Due to the proximity to human activity and the presence of more preferential habitat nearby, it is not considered important habitat. Therefore, it is considered unlikely that the proposed vegetation and habitat removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the GHFF at risk of extinction.

Conclusion

The proposal is unlikely to constitute a significant impact on the above-listed threatened mammals, given that the proposal is removing a small area of habitat that is not considered crucial habitat for these species.

As such, a Species Impact Statement or BDAR is not recommended with respect to the potentially affected species.

Threatened Birds

Little Lorikeet (*Glossopsitta pusilla*) – Vulnerable

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. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.

Turquoise Parrot (*Neophema pulchella*) – Vulnerable

Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.

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

Impacts that are considered to have an adverse effect on the life cycle of a species relates to impacts on stages of reproduction, growth, development, ageing and death. The impacts of the proposal on the above listed bird species relates to the loss of a maximum of 0.239 ha of marginal foraging and sheltering habitat. The potential shelter habitat is not favourable and is unlikely to support breeding due to its exposed location. The listed species are highly mobile and can utilise a range of more preferential foraging and sheltering habitats. Therefore, the removal of up to 0.239 ha of native vegetation, including two suitable HBTs, is not likely to adversely affect the life cycle of these species such that a viable population is likely to be placed at risk of extinction.

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

- i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable – not an endangered ecological community.

- C. In relation to the habitat of a threatened species or ecological community:**

- i) The extent to which habitat is likely to be removed or modified because of the proposed development or activity, and

0.239 ha of native vegetation, and two HBTs considered potential sheltering habitat are to be removed.

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

The proposal would not result in the fragmentation or isolation of any areas of foraging or sheltering habitat for these species. The areas of potential habitat to be affected are very small and will not fragment or isolate foraging habitat at a broad scale.

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

The proposed development will require the removal up to 0.239 ha of native vegetation, including two suitable HBTs, within the Subject Land. These habitat features exist within an area cleared for current agricultural use and occur within an exposed location, and thus it is unlikely that the Subject Land supports breeding behaviours. The listed species are highly mobile and can utilise a range of more preferential foraging and sheltering habitats. Therefore, the habitat present within the Subject Land is not important to the long-term survival of the listed species.

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

There are no Areas of Outstanding Biodiversity Value within the Subject Land with reference to the Areas of Outstanding Biodiversity Value register.

E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation

The removal of 0.239 ha of vegetation, including suitable HBTs with marginal sheltering habitat, is considered a very small disturbance. These species are highly mobile and is known to rely on a range of foraging and shelter resources within the local occurrence. Therefore, the proposal is unlikely to exacerbate the impacts of this key threatening process.

Conclusion

The proposal will directly affect a maximum area of 0.239 ha of marginal foraging or sheltering habitat only. If the listed bird species utilise the trees for intermittent foraging or sheltering, the localised nature of the removal, indicate that the proposed action is unlikely to have a significant impact on listed bat species such that it would put a local population of any of the species at risk of extinction or substantially isolate any areas of potential habitat

As such, a Species Impact Statement or BDAR is not recommended with respect to the potentially affected species.

Threatened Mammals

Brush-tailed phascogale (*Phascogale tapoatafa*)- Vulnerable

Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest. Nest and shelter in tree hollows with entrances 2.5 - 4 cm wide and use many different hollows over a short time span.

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

The proposed development is only removing 0.239 ha of scattered canopy within cleared land. The tree hollows present are not considered preferred habitat due to their location within poor quality habitat. They likely only provide marginal sheltering habitat. As such, the proposal is not likely to have an impact on any local populations of the Brush-tailed phascogale that would place them at risk of extinction.

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

- i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

- C. In relation to the habitat of a threatened species or ecological community:**

- i) The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
- ii) Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
- iii) The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

The proposed development is only removing 0.239 ha of scattered canopy within cleared land. Being within existing cleared land, this removal will not fragment any areas of habitat. The tree hollows present are not considered preferred habitat due to their location within poor quality habitat. They likely only provide marginal sheltering habitat and are therefore not considered important habitat. As such, the proposal is not likely to impact the long-term survival of the Brush-tailed phascogale.

- D. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)**

There are no Areas of Outstanding Biodiversity Value within the Study Area with reference to the Areas of Outstanding Biodiversity Value register.

- E. Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatened process.**

Key threatening processes, as listed in Schedule 4 of the BC Act of relevance to the proposed vegetation and habitat clearance:

- Clearing of native vegetation

- Removal of dead wood and dead trees

The removal of 0.239 ha of potential habitat is considered a small disturbance, particularly in relation to the surrounding habitat. Due to the location within cleared, poor quality habitat, and the presence of more preferential bushland habitat to the south, the Subject Land is not considered important habitat. Therefore, it is considered unlikely that the proposed vegetation and habitat removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the listed mammal species at risk of extinction.

Conclusion

The proposal is unlikely to constitute a significant impact on the Brush-tailed phascogale, given that the proposal is removing a small area of habitat that is not considered crucial or preferred habitat for this species.

As such, a Species Impact Statement or BDAR is not recommended with respect to the potentially affected species.

- Koala (*Phascolarctos cinereus*) - Endangered (BC Act)

The Koala is an arboreal marsupial with fur ranging from grey to brown above, and white below. It has large furry ears, a prominent black nose and no tail. It spends most of its time in trees and has long, sharp claws, adapted for climbing. Adult males weigh 6 - 12 kg and adult females weigh 5 - 8 kg. During breeding, males advertise with loud snarling coughs and bellows.

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. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.

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

Impacts that are considered to impact on the life cycle of a species relates to impacts on stages of reproduction, growth, development, ageing and death. The impacts of the proposed subdivision on the Koala relates to the loss of potential foraging habitat only.

Koalas have home ranges varying between 3 to 500 ha depending on the habitat quality. Suitable foraging habitat present within the Study Area is the multiple mature *Eucalyptus beyeriana*, *Eucalyptus crebra*, and *Eucalyptus fibrosa* individuals scattered amongst exotic pasture. More suitable habitat is present within the immediate locality, most notably in the large forest extending south of the Subject Land.

The relative impact of the proposal is expected to be small when considering the large home ranges of Koalas and preferential habitat located in the wider locality. The removal of less than 0.239 ha of potential foraging habitat in an existing disturbed and modified environment is considered unlikely to impact a local viable population of this species that it is likely to be placed at risk of extinction.

- a. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
 - i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable - not an endangered ecological community.

- b. In relation to the habitat of a threatened species or ecological community:
 - I. The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

Total clearance of 0.239 ha of native vegetation is required for the proposal, some of which includes mature high use and significant use tree species, listed within the North Coast KMA Central Coast tree list.

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

The upper stratum species present have the potential to infrequently act as a corridor for fauna moving through the locality, however, higher quality and well-connected vegetation exist to the south and west of the Subject Land. The trees within the Subject Land are located within a disturbed and fragmented environment and removal of less than 0.239 ha of potential habitat will not further fragment or isolate any potential habitat.

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

Impacts that are considered to impact on the life cycle of a species relates to impacts on stages of reproduction, growth, development, ageing and death. The impacts of the proposed subdivision on the above listed bats relates to the loss of potential foraging habitat only.

Koalas have home ranges varying between 3 to 500 ha depending on the habitat quality. Suitable foraging habitat present within the Study Area is the multiple mature *Eucalyptus beyeriana*, *Eucalyptus crebra*, and *Eucalyptus fibrosa* individuals scattered amongst exotic pasture. More suitable habitat is present within the immediate locality, most notably in the large forest extending south of the Subject Land.

The relative impact of the proposal is expected to be small when considering the large home ranges of Koalas and preferential habitat located in the wider locality. The less than 0.239 ha of potential foraging habitat is considered to be infrequent foraging habitat at most and not important to the long-term survival of this species.

- c. Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding value (either directly or indirectly)

There are no areas of outstanding biodiversity value in the Study Area.

- d. Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatened process.

There is one key threatening process, as listed in Schedule 4 of the BC Act, of relevance to the proposed vegetation clearance:

- Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)

The removal of less than 0.239 ha of potential habitat is considered a small disturbance, particularly in relation to the surrounding habitat and large home range of this species. Therefore, it is considered unlikely that the proposed vegetation removal would exacerbate any key threatening processes to such an extent that they would place any local populations of the species at risk of extinction.

Conclusion

The proposal will directly affect less than 0.239 ha of potential habitat to be cleared. Even if a local population of Koalas did use the trees for intermittent use, the localised nature of the vegetation removal and the presence of abundant suitable foraging resources in the broader landscape, indicate that the proposed action is *unlikely* to have a significant impact on Koalas such that it would put a local population at risk of extinction or substantially isolate any areas of potential habitat.

In summary:

- Proposed impact is relatively small less than 0.239 ha.
- This species is mobile and forage widely, no species were recorded during survey, although no targeted survey was conducted.
- The habitat to be removed will not isolate or fragment other foraging resources. The Study Area is located in an already modified and fragmented environment.
- Only one Koala record is located in the adjacent 2000 ha forest, which indicates the area is not frequently utilised as habitat and Koalas may infrequently use the Subject Land in passing, at most.

A Species Impact Statement or BDAR is not recommended with respect to the potentially affected species.

Appendix E: Significant Impact Criteria

Threatened Megabats

Pteropus poliocephalus (Grey-headed Flying Fox) – Vulnerable (EPBC Act)

Occur in subtropical and temperate rainforests, tall sclerophyll forests. Forages on a variety of flowering and fruiting native and exotic plants. The nearest recorded GHFF camp (Tocal 521) was located 7 km south in Tocal, in 2022, and is rated a Category 5 (population 16,000 – 49,999). This camp has been recorded nearly every year since 2012, with over 50,000 individuals recorded in 2021.

Criterion a: lead to a long-term decrease in the size of an important population of a species

No important populations were detected within the wider Study Area. The nearest recorded GHFF camp to the Subject Land was located 7 km south in Tocal, in 2022. The development will only remove 0.239 ha of native vegetation that may be considered occasional foraging habitat. Substantial areas of foraging and habitat are available in the nearby bushland and GHFF is highly mobile and forages on a wide variety of species. As such, the proposal will not decrease the size of any potential important populations.

Criterion b: reduce the area of occupancy of an important population

No important populations were detected within the Subject Land. The nearest recorded GHFF camp is detailed above. Therefore, the proposal will not reduce the area of occupancy of any important populations.

Criterion c: fragment an existing important population into two or more populations

The development will only remove 0.239 ha of native vegetation that may be considered occasional foraging habitat. Substantial areas of foraging and habitat are available in nearby bushland and GHFF is highly mobile and forages on a wide variety of species. As such, the development will not fragment any habitat or important populations.

Criterion d: adversely affect habitat critical to the survival of a species

The development will not directly affect any GHFF camps and only remove 0.239 ha of native vegetation that may be considered occasional foraging habitat. Substantial areas of foraging habitat are available in nearby bushland and GHFF is highly mobile and forages on a wide variety of species. Therefore, it will not affect habitat critical to the survival of the species.

Criterion e: disrupt the breeding cycle of an important population

The development will not affect any GHFF camps and as such, will not disrupt the breeding cycle of an important population.

Criterion f: Adversely affect habitat critical to the survival of a species; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

The development will not affect any GHFF camps and will only remove 0.239 ha of native vegetation that may be considered occasional foraging habitat. Substantial areas of foraging and habitat are available in nearby bushland and GHFF is highly mobile and forages on a wide variety of species. Therefore, the habitat to be removed is not considered critical and will not impact any habitat to the extent that these species will decline.

Criterion g: Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

The proposal will not result in the introduction of any invasive species.

Criterion h: Introduce disease that may cause the species to decline;

The proposal will not result in the introduction of any diseases.

Criterion i: Interfere substantially with the recovery of the species;

The proposal is not considered to interfere with any recovery or conservation efforts that are targeted towards the above-listed species.

Conclusion

The proposed action is not considered to constitute a significant impact on the Grey-headed Flying Fox. As such, a referral to the Commonwealth is not recommended.

Koala (*Phascolarctos cinereus*) - Endangered (EPBC Act)

The Koala is an arboreal marsupial with fur ranging from grey to brown above, and white below. It has large furry ears, a prominent black nose and no tail. It spends most of its time in trees and has long, sharp claws, adapted for climbing. Adult males weigh 6 - 12 kg and adult females weigh 5 - 8 kg. During breeding, males advertise with loud snarling coughs and bellows.

Criterion a: lead to a long-term decrease in the size of a population

The Subject Land does not support populations for breeding or dispersal, populations necessary for maintaining genetic diversity, or populations near the limit of the species range. No Koalas, or signs of Koala, were recorded during site survey.

Criterion b: reduce the area of occupancy

Koalas have home ranges varying between 3 to 500 ha depending on the habitat quality. Suitable foraging habitat present within the Study Area is the multiple mature *Eucalyptus beyeriana*, *Eucalyptus crebra*, and *Eucalyptus fibrosa* individuals scattered amongst exotic pasture. More suitable habitat is present within the immediate locality, most notably in the large forest extending south of the Subject Land.

Criterion c: fragment an existing population into two or more populations

The upper stratum species present have the potential to infrequently act as a corridor for fauna moving through the locality, however, higher quality and well-connected vegetation exist to the south and west of the Subject Land. The trees within the Subject Land are located within a disturbed and fragmented environment and removal of less than 0.239 ha of potential habitat will not further fragment or isolate any populations. Most of the nearby Koala population appears to be obstructed from the Subject Land by the Paterson River to the north, with only one Koala record in the 2000 ha forest to the south.

Criterion d: adversely affect habitat critical to the survival of a species

Koalas have home ranges varying between 3 to 500 ha depending on the habitat quality. Suitable foraging habitat present within the Study Area is the multiple mature *Eucalyptus beyeriana*, *Eucalyptus crebra*, and *Eucalyptus fibrosa* individuals scattered amongst exotic pasture. More suitable habitat is present within the immediate locality, most notably in the large forest extending south of the Subject Land.

Criterion e: disrupt the breeding cycle of a population

Koalas do not have specific habitat features required for breeding. As such, the removal of less than 0.239 ha of potential habitat reduces the potential breeding habitat for this species. However, more suitable habitat is present within the immediate locality, most notably in the 2000 ha forest to the south.

Criterion f: Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;

The development would result in the removal of less than 0.239 ha of infrequently used foraging habitat only. The vegetation to be removed is not favourable foraging habitat when compared to more consolidated vegetation within the wider landscape. The areas of potential foraging habitat within the Subject Land represent a very small amount relative to the extent of consolidated woodland which exists within a 10 km radius of the site, including the 2000 ha forest extending south of the Subject Land.

Criterion g: Result in invasive species that are harmful to a endangered species becoming established in the endangered species' habitat;

The project will not result in the establishment of an invasive species that is harmful to Koalas.

Criterion h: Introduce disease that may cause the species to decline;

The project will not result in the introduction of a disease that is harmful to Koalas.

Criterion i: Interfere substantially with the recovery of the species;

Considering the above factors, the project will not interfere substantially with the recovery of the species.

Conclusion

The proposed action is not considered to constitute a significant impact on the Koalas and therefore a referral to the Commonwealth is not recommended.

Appendix F: NRAR Waterfront Land Tool Checklist

Question	Answer and Subsequent Question
Hydroline 1 (Figure 13)	
1) Is your property located on a watercourse, lake or estuary within the shaded area in any of the NRAR waterfront land maps at Appendix 1?	No. Go to question 2.a.
2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your property or within 40 metres of the proposed work?	Yes. Go to question 3.
3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?	1 st or 2 nd Order. Go to question 4.a.
4) Does the watercourse have a defined bed or bank?	No. Go to question 5.c.
5.c) Using Appendix 6, are there any watercourse features present?	No. Go to question 12.
12) Result:	Controlled activity approval not required-No watercourse

Supporting evidence:

This hydroline does not display a defined channel or banks and did not retain any water at the time of survey. No watercourse features were observed. Photos depict the hydroline from Points 1a and 1b on the map (**Figure 13**).



Point 1a looking downstream (left) and upstream (right)



Point 1b looking downstream (left) upstream (right)

Hydroline 2 (Figure 13)

1) Is your property located on a watercourse, lake or estuary within the shaded area in any of the NRAR waterfront land maps at Appendix 1?

No.
Go to question 2.a.

2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your property or within 40 metres of the proposed work?

Yes.
Go to question 3.

3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?

1st or 2nd Order.
Go to question 4.a.

4) Does the watercourse have a defined bed or bank?

No.
Go to question 5.c.

5.c) Using Appendix 6, are there any watercourse features present?

No. Go to question 12.

12) Result:

Controlled activity approval not required-No watercourse

Supporting evidence:

This hydroline does not display a defined channel or banks and did not retain any water at the time of survey. No watercourse features were observed. Photos depict the hydroline looking downstream (left) and upstream (right) from Point 2 on the map (**Figure 13**).



Hydroline 3 (Figure 13)

1) Is your property located on a watercourse, lake or estuary within the shaded area in any of the NRAR waterfront land maps at Appendix 1?	No. Go to question 2.a.
2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your property or within 40 metres of the proposed work?	Yes. Go to question 3.
3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?	1 st or 2 nd Order. Go to question 4.a.
4.a) Does the watercourse have a defined bed or bank?	Yes. Go to question 4.b.
4.b) Using Appendix 5, choose the watercourse type that best matches the watercourse on your property.	Type 3c. Go to question 5.a.
5.a) Using Appendix 6, are there any watercourse features present?	Yes. Go to question 5.b.
5.b) Using Appendix 6, check the box for each watercourse feature present (select all that apply).	Pools. Go to question 8.
8) Using Appendix 8, locate the high bank of the watercourse, lake or wetland on your property.	Type 3c. Go to question 9.
9) Are the proposed works located within 40 metres of the high bank?	Yes. Go to question 14.
14) Result:	Controlled activity approval is required

Supporting evidence:

This hydroline exhibited a defined channel with banks, and contained flowing water and areas of pooled water at the time of survey. Photos depict the hydroline looking downstream (left) and upstream (right) from Point 3 on the map (**Figure 13**).



Hydroline 4 (Figure 13)

1) Is your property located on a watercourse, lake or estuary within the shaded area in any	No. Go to question 2.a.
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of the NRAR waterfront land maps at Appendix 1?	
2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your property or within 40 metres of the proposed work?	Yes. Go to question 3.
3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?	1 st or 2 nd Order. Go to question 4.a.
4.a) Does the watercourse have a defined bed or bank?	Yes (in parts). Go to question 4.b.
4.b) Using Appendix 5, choose the watercourse type that best matches the watercourse on your property.	Type 3c. Go to question 5.a.
5.a) Using Appendix 6, are there any watercourse features present?	Yes. Go to question 5.b.
5.b) Using Appendix 6, check the box for each watercourse feature present (select all that apply).	Pools. Go to question 8.
8) Using Appendix 8, locate the high bank of the watercourse, lake or wetland on your property.	Type 3c. Go to question 9.
9) Are the proposed works located within 40 metres of the high bank?	Yes. Go to question 14.
14) Result:	Controlled activity approval is required

Supporting evidence:
This hydroline exhibited a defined channel with banks in sections, and areas of pooled water at the time of survey. Photos depict the hydroline looking downstream (left) and upstream (right) from Point 4 on the map (**Figure 13**).



Hydroline 5 (Figure 13)	
1) Is your property located on a watercourse, lake or estuary within the shaded area in any of the NRAR waterfront land maps at Appendix 1?	No. Go to question 2.a.
2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your	Yes. Go to question 3.

property or within 40 metres of the proposed work?	
3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?	1 st or 2 nd Order. Go to question 4.a.
4) Does the watercourse have a defined bed or bank?	No. Go to question 5.c.
5.c) Using Appendix 6, are there any watercourse features present?	No. Go to question 12.
12) Result:	Controlled activity approval not required-No watercourse

Supporting evidence:

This hydroline contained residual water at the time of survey however does not display a defined channel or banks, and no watercourse features were observed. Photos depict the hydroline looking downstream (left) and upstream (right) from Point 5 on the map (**Figure 13**).



Hydroline 6 (Figure 13)

1) Is your property located on a watercourse, lake or estuary within the shaded area in any of the NRAR waterfront land maps at Appendix 1?	No. Go to question 2.a.
2.a) Using the Hydro Line spatial data map, identify if there is a blue line on your property or within 40 metres of the proposed work?	Yes. Go to question 3.
3) Using the Determining stream order fact sheet at Appendix 4 and the Hydro Line spatial data map, what is the stream order of your watercourse?	1 st or 2 nd Order. Go to question 4.a.
4) Does the watercourse have a defined bed or bank?	No. Go to question 5.c.
5.c) Using Appendix 6, are there any watercourse features present?	No. Go to question 12.
12) Result:	Controlled activity approval not required-No watercourse

Supporting evidence:

This hydroline does not display a defined channel or banks and did not retain any water at the time of survey. Photos depict the hydroline looking downstream (left) and upstream (right) from Point 6 on the map. A farm dam is located downstream at the border of the property (**Figure 13**).



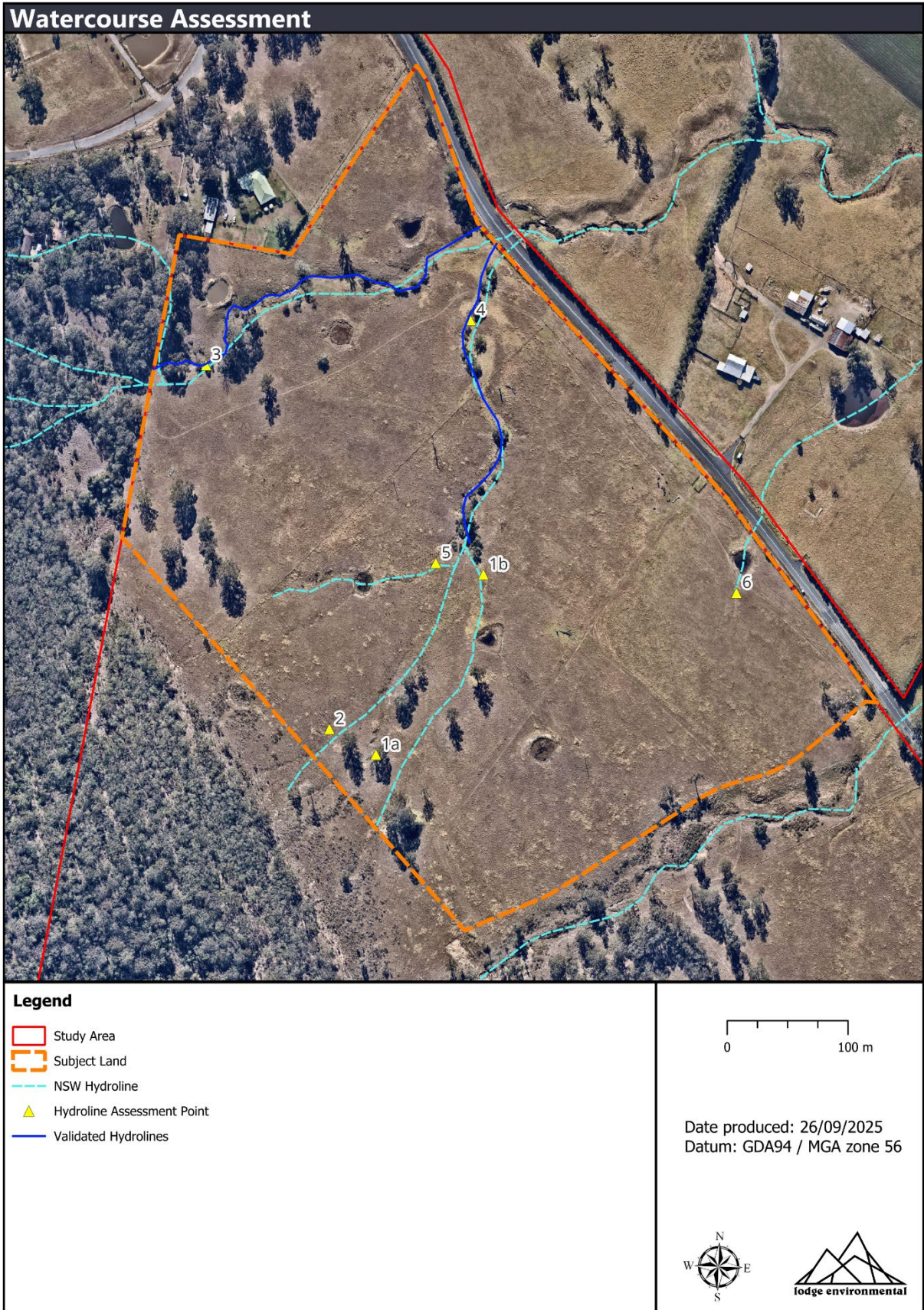


Figure 13: Watercourse Assessment Points