

Date 15 June 2020

Our ref: 20MUD-16291

Elton Consulting
via email: liz.densley@elton.com.au

Attention: Liz Densley

Dear Liz,

RE: Rural Lifestyle Planning Proposal at Darthula, 194 Hill End Road, Caerleon – Biodiversity Constraints Assessment

Eco Logical Australia Pty Ltd (ELA) was engaged by Elton Consulting to undertake a preliminary biodiversity constraints assessment at the property known as Darthula, located at 194 Hill End Rd, Caerleon, north east of Mudgee. This biodiversity constraints assessment provides an overview of the potential biodiversity values of the site and highlights potential ecological constraints for the proposed re-zoning of the property into smaller (12 ha) lifestyle lots.

The proposed rezoning of the property is limited to areas that have been largely cleared of vegetation. The assessment, however, has considered biodiversity in the context of the whole property.

Whilst a field inspection of the property was not undertaken at this stage, the desktop assessment identified the key following constraints that will need to be considered:

- The central area of the property consists of a large woodland area and although this is excluded from the rezoning, if clearing is undertaken consideration would need to be given to the Biodiversity Offset Strategy (BOS) process.
- There is potential for threatened species to occur within the property and impacts to these species may trigger the BOS.
- Whilst areas within the property have been cleared these areas may conform to the listed Threatened Ecological Community (TEC's) White Box-Yellow Box-Blakely's Red Gum Woodland in its derived form.
- Sections of the property are considered Koala Habitat. Detailed site surveys may be required to determine koala presence and a Koala Assessment Report may need to be prepared prior to future development applications. Compensatory measures may be required.

These are discussed in detail below.

Location

The Darthula property is located approximately 5 km from Mudgee and consists of 32 parcels of land covering an area of approximately 898 ha (Figure 1). The majority of the land is zoned RU1 Primary Production with a small area of E3 Environmental Management and R5 Large Lot Residential. Minimum lot size ranges from 400 ha (E3) to 100 ha (RU1) down to 12 ha (R5).

Planning and Statutory Matters

Table 1 provides a description of the legislative context for the project. Where an approval or consideration is required, this report addresses the objectives and requirements of the legislation.

Table 1: Legislative Context

Name	Relevance to the project
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	<p>The EPBC Act aims to protect Matters of National Environmental Significance (MNES) including wetlands of international importance, threatened species and communities and listed migratory species. An action that may or is likely to have a significant impact on MNES should be referred to the Commonwealth to determine whether it is a Controlled Action that requires approval from the Commonwealth.</p> <p>MNES have been identified on or near the Darthula property. There are records for <i>Phascolarctos cinereus</i> (Koala), and <i>Anthochaera phrygia</i> (Regent Honeyeater). The property also contains mapped areas of the EPBC listed White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (CEEC).</p>
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	<p>The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals.</p>
<i>Biodiversity Conservation Act 2016</i> (BC Act)	<p>The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greater well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.</p> <p>Development that has a significant impact on biodiversity values as set out in Part 7 of the BC Act and Part 7 of the <i>Biodiversity Conservation Regulation 2017</i> are required to undertake an assessment in accordance with the Biodiversity Assessment Method (BAM) and submit a Biodiversity Development Assessment Report (BDAR). Where impacts to native vegetation and threatened species are likely, entry into the NSW Biodiversity Offsets Scheme (BOS) is required and offsets must be secured for the development.</p>
<i>Fisheries Management Act 1994</i> (FM Act)	<p>The objects of the FM Act are to conserve, develop and share the fishery resources of the State for the benefits of present and future generations. The Act provides protection and approval processes for activities which may impact on threatened species, protected marine vegetation or involve dredging, reclamation or obstruction of fish passage.</p> <p>There are no areas within the property mapped as Key Fish Habitat.</p>
<i>Biosecurity Act 2015</i> (BS Act)	<p>The Act provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers.</p>

Name	Relevance to the project
	<p>Whilst the Act provides for all biosecurity risks, implementation of the Act for weeds is supported by Regional Strategic Weed Management Plans (RSWMP) developed for each region in NSW.</p> <p>Appendix 1 of the Central Tablelands Regional Strategic Weed Management Plan (CTLLS, 2017) identifies the priority weeds for control at a regional scale. There are known infestations of priority weeds <i>Rubus spp</i> (Blackberry), <i>Nassella trichotoma</i> (Serrated Tussock) and <i>Heliotropum amplexicaule</i> (Blue Heliotrope) in the surrounding areas.</p>
<i>SEPP (Infrastructure) 2007</i>	<p>The Infrastructure SEPP simplifies the process for providing essential infrastructure such as schools, hospitals, roads, railways, sewer, water supply and electricity delivery by providing specific planning provisions and development controls. It specifies when development consent is (and is not) required for such development to be carried out in certain zones.</p>
<i>SEPP – State and Regional Development 2011</i>	<p>The State and Regional Development SEPP identifies the development that is State significant development, that is State significant infrastructure and critical State significant infrastructure and development that is regionally significant development.</p>
<i>Koala Habitat Protection SEPP</i>	<p>The SEPP encourages the conservation and management of areas of natural vegetation providing habitat for koalas. It provides a guide for assessing the potential koala habitat of a development area, however, assessment under the BAM and offsets under the BC Act and/or EPBC Act may still be required. <i>Eucalyptus albens</i> (White Box) and <i>Eucalyptus blackelyi</i> (Blakely's Red Gum) key koala feed tree species under Koala Habitat Protection SEPP, are likely to occur within the study area.</p>
<i>Mid-Western Regional Local Environment Plan (LEP) 2012</i>	<p>The subject site is zoned E3 Environmental Management, RU1 Primary Production and R5 Large Lot Residential under the Mid-Western Regional LEP.</p> <p>Consultation with local government should commence early on in the project to determine assessment and land use planning requirements.</p>

Figure 1

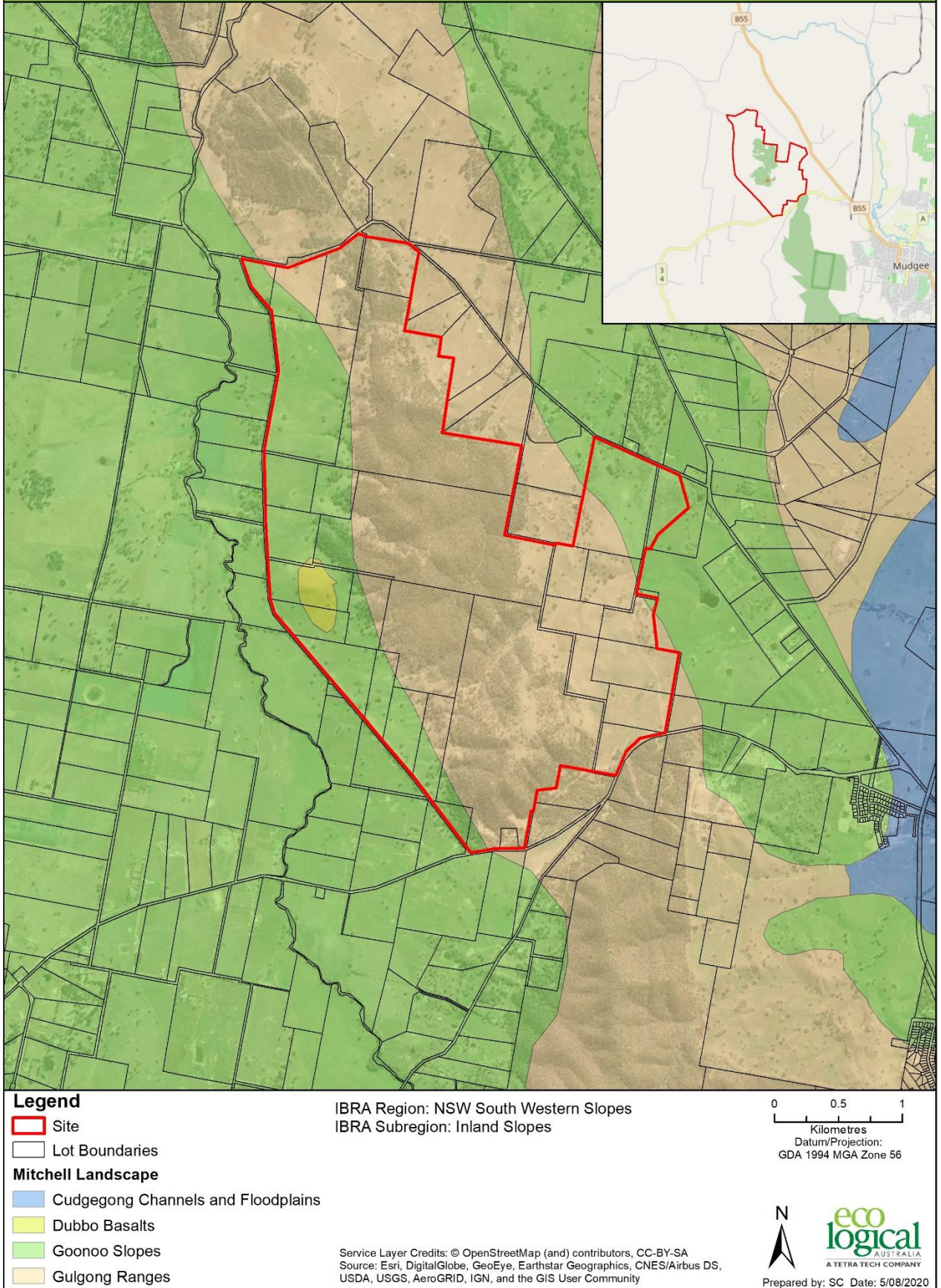


Figure 1: Location of Darthula property

Desktop Assessment

A desktop literature review and data audit was undertaken to identify the potential presence of any threatened species, populations and ecological communities listed under the BC Act and the EPBC Act occurring within the Darthula property and surrounds which could be affected by the proposed rezoning of the property. Additional species were added to the list based on ELA databases and local knowledge.

The following databases were reviewed prior to conducting the field surveys:

- EPBC Act protected matters search, for MNES using a radius of 10 km around the study area (coordinates: -32.533868 149.510282,-32.534056 149.532272,-32.569995 149.542819,-32.57945 149.520379,-32.533868 149.507364,-32.533868 149.510059,-32.533868 149.510059,-32.533868 149.510282).
- BioNet (Wildlife Atlas) search for threatened species/populations listed under the BC Act previously recorded within the study area (co-ordinates: latitude -32.51 to -32.61 and longitude 149.47 to 149.57).
- Sharing and Enabling Environmental Data (SEED) vegetation mapping (DPIE 2020a).
- 1:25,000 hydroline data (Natural Resource Access Regulator).
- Key Fish Habitat mapping.
- Biodiversity Values Map in accordance with the BC Act. This identifies land with high biodiversity value that is particularly sensitive to impacts from development and clearing.
- Commonwealth, NSW and local legislation and planning instruments.
- Mid-Western Regional LEP 2012.
- Existing biodiversity information and previous environmental assessments for the study area and surrounds.
- Any additional material relevant to the project.

The results of the desktop assessment were combined to produce a list of threatened and migratory species and ecological communities, listed under the BC Act and/or EPBC Act, that could potentially occur within the property (Appendix A).

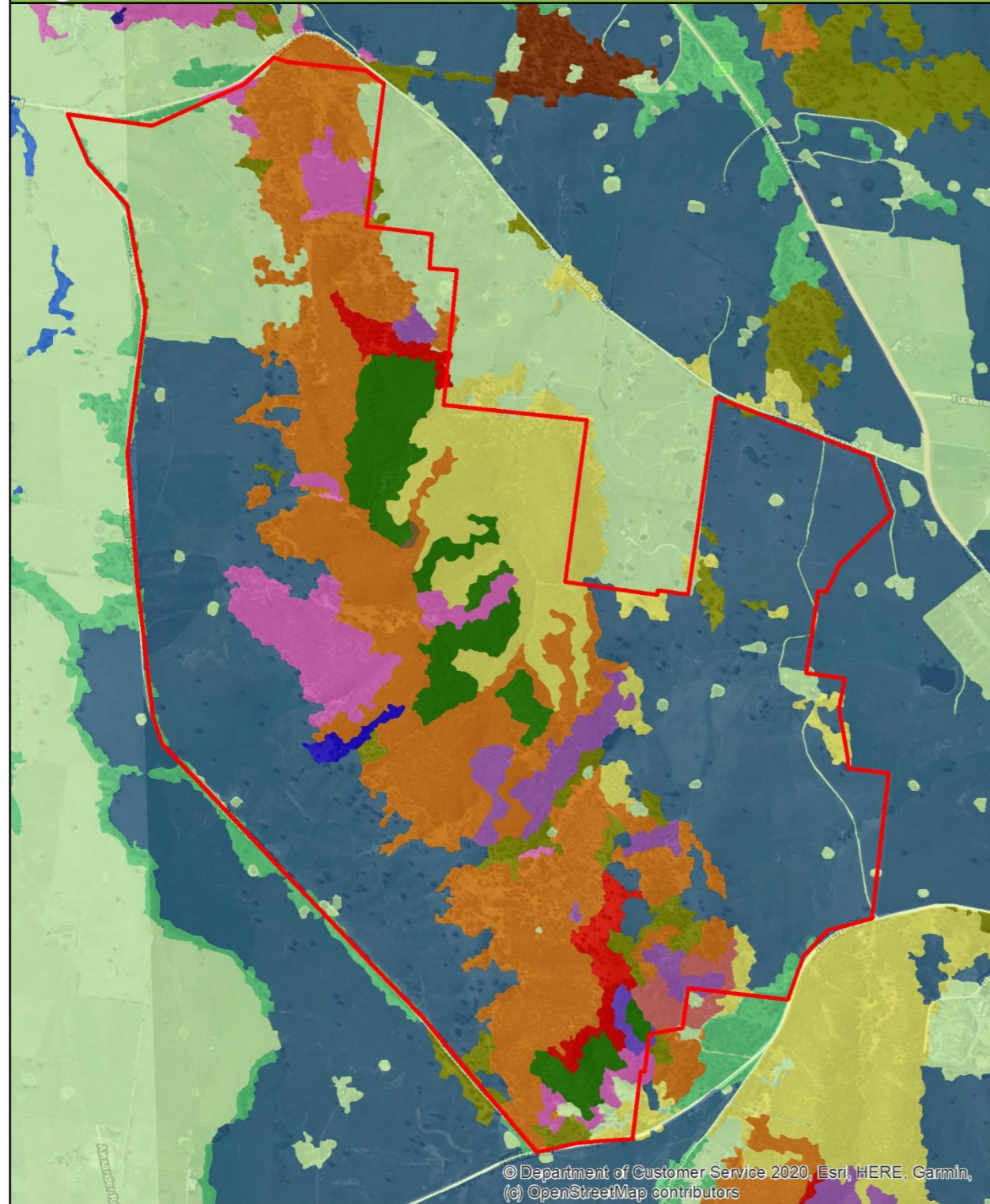
Vegetation Communities

The desktop assessment identified 14 Plant Community Types (PCT's) that may potentially occur within the property based on NSW State Vegetation Type Mapping (DPIE, 2020), as shown by Table 2 and Figure 2. From the areas calculated PCT 796 *Derived grassland of the NSW South Western Slopes* is the most abundant occupying the eastern and western boundaries. This PCT is classified as containing a variety of native grasses and herbs and this PCT also forms part of the Box Gum Woodland communities listed under both the BC Act and EPBC Act.

Table 2: Potential plant communities that could occur within the Darthula property (from NSW State Vegetation Mapping SEED DPIE 2020a).

PCT	Name	Area (Ha)	EPBC	BC TEC
76	Western Grey Box tall grassy woodland on alluvial loams and clay soils in the NSW South Western Slopes and Riverina Bioregions	6	X	X
186	Dwyers Red Gum-Black Cypress Pine-Currawang shrubby low woodlands on rocky hills mainly in the NSW South Western Slopes Bioregion.	2		x
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	20		x
268	White Box-Blakely's Red Gum-Long leaved Box-Norton's Bos-Red stringybark grass-shrub woodland on shallow soils on hills in the NSW south Western Slopes Bioregion	3	x	x
272	White Box – Black Cypress Pine-red gum +/- Mugga Ironbark shrubby woodland in the hills of the NSW central western slopes	45		
280	Red Stringybark – Blakely's Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion	5	x	x
281	Rough-barked apple-red gum-Yellow Box Woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Region	5	x	x
289	Mugga Ironbark-Inland scribbly gum-Red Box shrub/grass open forest on hills in the upper slopes sub region of the NSW South Western Slopes Bioregion	75		
331	Red Stringybark woodland on hillslopes northern NSW South Western Slopes Bioregion	0.5		
347	White Box-Blakely's Red Gum shrub/grass woodland on metamorphic hillslopes in the mid-southern part of the upper slopes sub-region on the NSW South Western Slopes Bioregion	23	x	x
461	Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	214		
478	Red Ironbark-Black Cypress Pine-stringybark +/- Narrow-leaved wattle shrubby open forest on sandstone in the Gulgong-Mendooran region, southern Brigalow Belt South Bioregion	50		
796	Derived grassland of the NSW South Western Slopes	304	x	X
1177	Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	16		
0	Exotic / Cleared	80		

Vegetation Communities

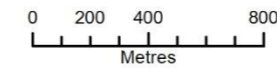


Legend

Subject Land

Plant Community Type (OEH 2015)

- PCT 0: Not Native
- PCT 76: Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
- PCT 84: River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion
- PCT 186: Dwyers Red Gum - Black Cypress Pine - Currawang shrubby low woodland on rocky hills mainly in the NSW South Western Slopes Bioregion
- PCT 266: White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
- PCT 268: White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion
- PCT 272: White Box - Black Cypress Pine - red gum +/- Mugga Ironbark shrubby woodland in hills of the NSW central western slopes
- PCT 280: Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion
- PCT 281: Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion
- PCT 289: Mugga Ironbark - Inland Scribbly Gum - Red Box shrub/grass open forest on hills in the upper slopes sub-region of the NSW South Western Slopes Bioregion
- PCT 331: Red Stringybark woodland on hillslopes, northern NSW South Western Slopes Bioregion
- PCT 347: White Box - Blakelys Red Gum shrub/grass woodland on metamorphic hillslopes in the mid-southern part of the upper slopes sub-region of the NSW South Western Slopes Bioregion
- PCT 461: Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion
- PCT 478: Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion
- PCT 483: Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley
- PCT 796: Derived grassland of the NSW South Western Slopes
- PCT 1177: Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion



Datum/Projection:
GDA 1994 MGA Zone 56



Prepared by: SC Date: 5/08/2020



Figure 2: Plant Community Type (PCT) mapping

Threatened Ecological Communities (TEC)

Three Threatened Ecological Communities (TEC) listed under the BC Act and/or EPBC Act have been identified as potentially occurring within the Darthula property. Two of these listed communities are likely to occur within the property due to the PCT's that have been identified from the NSW State Vegetation Mapping database (Table 2).

PCT 76 forms part of the listed community *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penneplain, Nandewar and Brigalow Belt South Bioregions*, and seven PCT's form part of the listed ecological community *White-Box-Yellow Box-Blakely's Red Gum Grassy Woodland* under the BC Act and the EPBC Act (Table 2). Figure 3 shows the possible location and extent of the TEC's potentially occurring on within the property. The total area of TEC has shown in Figure 3 is 365 ha.

The EPBC Act Protected Matters search tool also identified that '*Natural temperate grasslands of the southern eastern highlands*' could also occur within a 10 km search of the study area. However, PCT's within this listed community were not identified from NSW State Vegetation Mapping as occurring within the Darthula property. Nevertheless, whilst unlikely to occur, this community will need to be considered in future assessment.

Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia

PCT 76-Western Grey Box tall grassy woodland on alluvial loams and clay soils in the NSW South Western Slopes and Riverina Bioregions is dominated by *Eucalyptus microcarpa* (Western Grey Box) together with *Callitris glaucophylla* (White Cypress Pine) and *Allocasuarina luehmannii* (Bull oak). The understory is sparse and generally consists of *Dodonaea viscosa* (Wedge-leaf Hop-bush), *Acacia buxifolia* (Box-leaved Wattle), *Bursaria spinosa* (Native Blackthorn) with a grassy ground layer of *Rytidosperma caespitosa* (Wallaby Grass), *Chloris truncata* (Windmill Grass), *Austrostipa aristiglumis* (Plains Grass) and *Aristida behriana* (Bunch Wiregrass). The BC Act listed community "*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penneplain, Nandewar and Brigalow Belt South Bioregions*" occurs on fertile soils of tertiary and Quaternary alluvial origin corresponding with Red Brown Earths where average rainfall is 375-800 mm. Consequently, much of the TEC has been cleared or modified by grazing by domestic stock (Benson 1991) resulting in a highly fragmented and disturbed ecosystem (Benson et al 2006).

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland

Box-Gum Grassy Woodlands are often characterised by a species-rich understory of native tussock grasses, herbs and scattered shrubs. The overstory is often dominated by *Eucalyptus albens* (White Box), *E. melliodora* (Yellow Box) and/or *E. Blakelyi* (Blakely's Red Gum) with the presence of *E. moluccana* (Grey Box), *E. Bridgesiana* (Apple Box) or *E. macrorhyncha* (Red Stringybark) as co-dominants. *E. goniocalyx* (Long-leaved Box), *Callitris endlicheri* (Black Cypress Pine) and *Brachychiton populneus* (Kurrajong) can also occur. The understorey species include *Olearia sp.* (Sticky Daisy) and *Cassinia sp.* (Sifton Bush). Ground layer is dominated by *Austrostipa sp.* (Spear grass) and *Rytidosperma sp.* (Wallaby Grass). Within the Mudgee region this community is often represented as both a remnant woodland and in its derived native grassland form. Much of this community exists in a cleared or part-cleared condition due to growing on the fertile soils that were often cleared or grazed for agriculture. Seven PCT's from the desktop mapping have been identified as forming part

of this threatened community. This vegetation community is considered a potential EEC under the BC Act and CEEC under the EPBC Act. It can meet the requirements of the Acts in both its woodland form and cleared form (derived native grassland of White Box grassy woodland).

Natural Temperate Grassland of the South Eastern Highlands

This listed community is characterised by a very diverse flora and is dominated by moderately tall dense to open tussock grasses with up to 70% of species classified as herbs and forbs within the inter-tussock spaces. These grasslands are located at altitudes between 560-1200 m and are generally dominated by *Themeda triandra* (Kangaroo grass), *Rytidosperma* sp. (Wallaby grass) and *Bothriochloa macra* (Red grass). The native herbaceous plants are diverse consisting of sedges, rushes orchids, lilies and daisies. The community is naturally treeless reflecting limits to the natural growth of trees in valleys subject to cold air drainage (Kirkpatrick 1993). No PCT's from the desktop mapping have been identified as forming this threatened community.

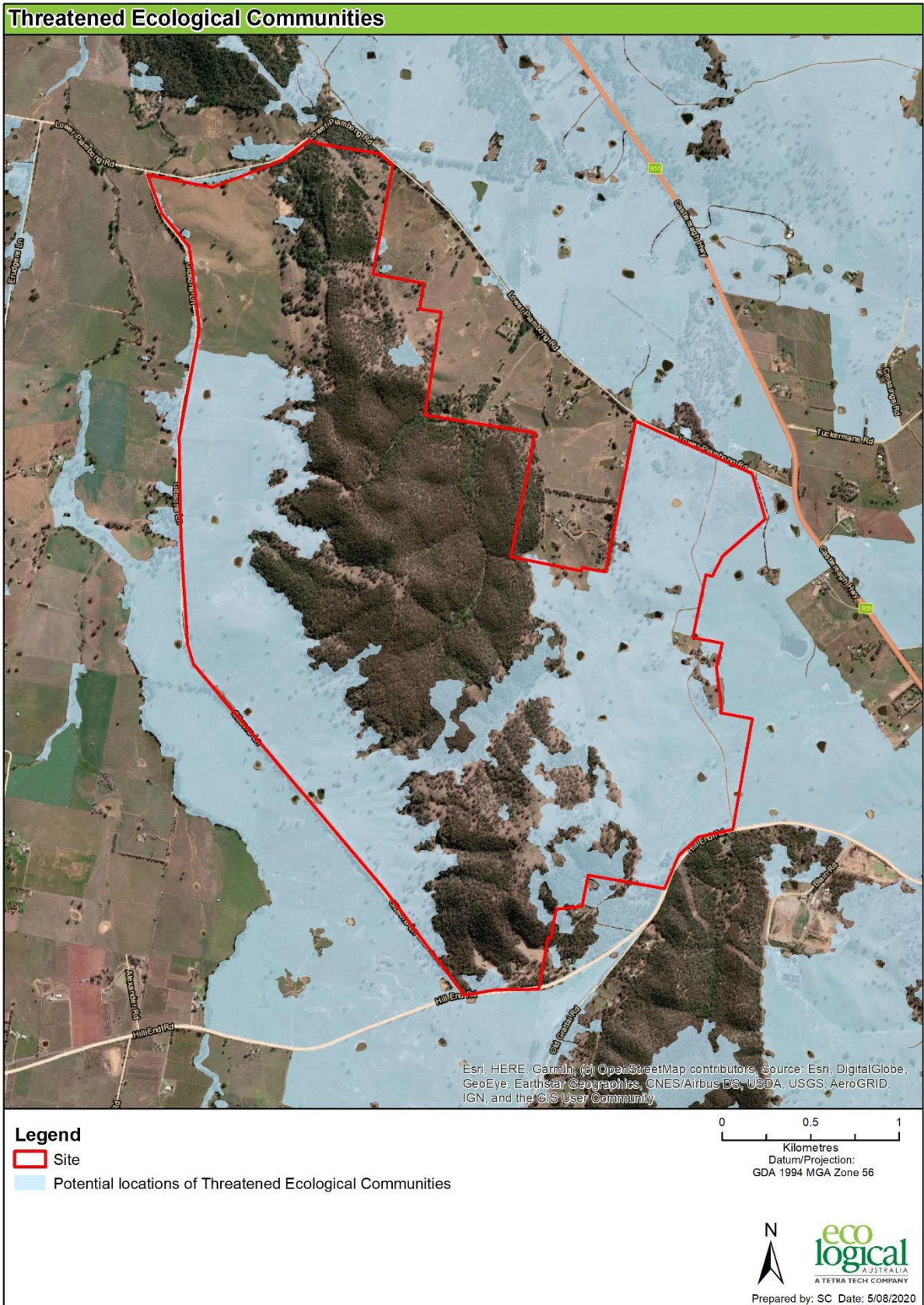


Figure 3: Potential location of Threatened Ecological Communities (TEC) within the property

Threatened flora and fauna

The desktop assessment identified 22 threatened fauna, four migratory species and 13 threatened flora species that may potentially occur within a 10 km radius of the Study Area (Appendix A). The following listed species have been recorded nearby (Figure 4):

- *Phascolarctos cinereus* (koala) - vulnerable,
- *Anthochaera phrygia* (Regent Honeyeater) – critically endangered,
- *Glossopsitta pusilla* (Little Lorikeet) - vulnerable,
- *Callocephalon fimbriatum* (Gang-gang cockatoo) - vulnerable
- *Swainsona recta* (Small purple-pea) - endangered
- *S. sericea* (Silky Swainsona-pea) - vulnerable
- *Acacia ausfeldii* (Ausfelds wattle) – vulnerable

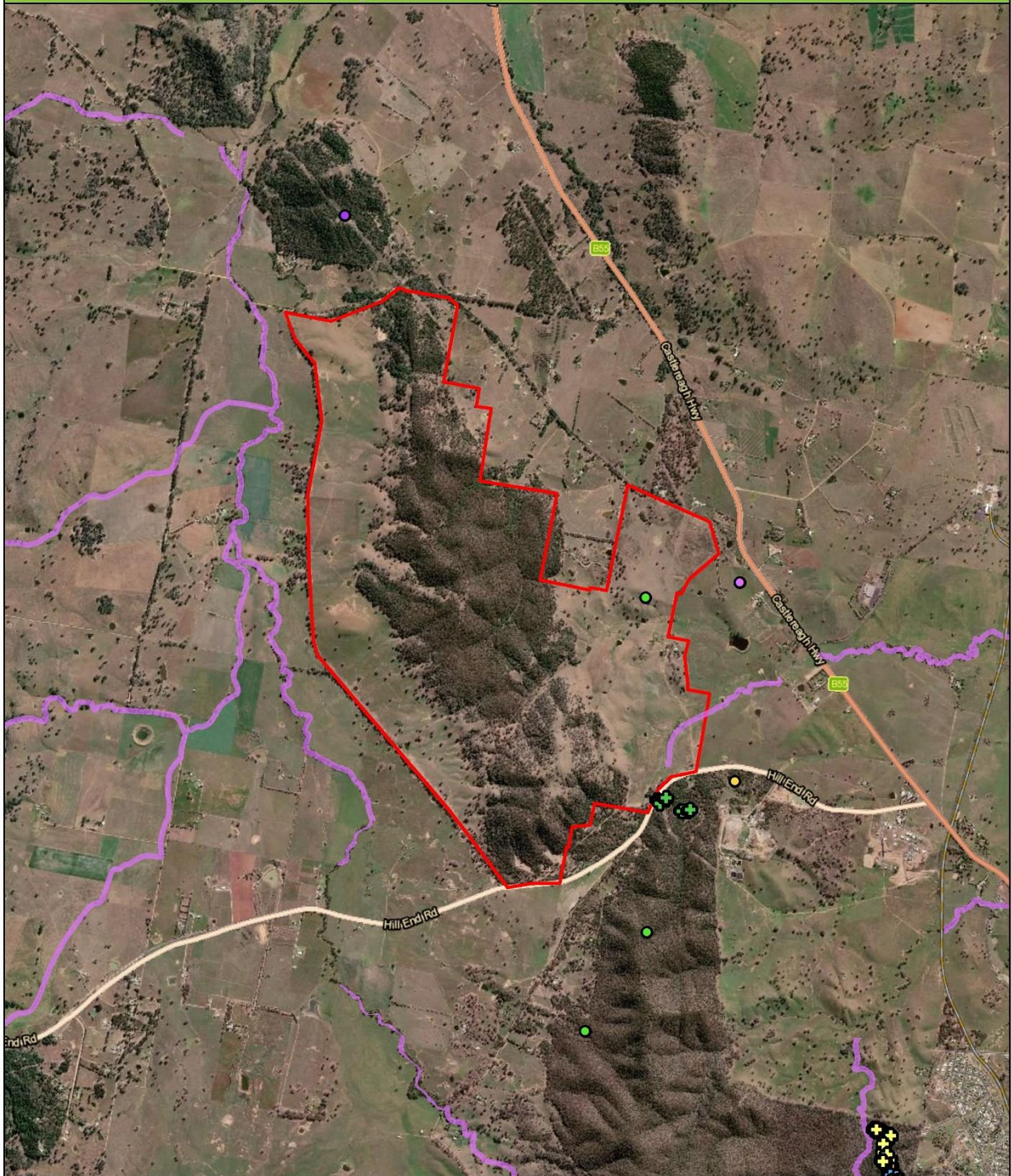
All of these species have the potential to occur within the property.

Given the size and extent of the property and local knowledge of the area it is likely that habitat for threatened species occurs within the property. It is likely that along the ridge lines rocky outcrops which may provide habitat for threatened reptile species such as *Aprasia parapulchella* (Pink-tailed Legless Lizard), and threatened cave dependent microbats including the *Chalinolobus dwyeri* (Large-eared Pied Bat). Tree hollows would provide potential habitat for hollow dependant species which may include *Calyptorhynchus lathamii* (Glossy Black-Cockatoo), *Nyctophilus corbeni* (Corben's Long-eared Bat) and threatened owls such as the *Ninox connivens* (Barking Owl). Large woody debris may provide suitable foraging habitat for a variety of threatened woodland birds.

There are no creeks or drainage lines that occur within the property that have been identified as Key Fish Habitat, however a riparian area within the south eastern corner of the property has been identified as significant area on the Biodiversity Values (BV) Map (Figure 4). Areas of land identified on the BV map have been identified as land with high biodiversity values that are particularly sensitive to impacts from development and clearing (DPIE 2020b). Impacts to areas identified on the BV map should be avoided.

The property is likely to contain koala feed trees such as *E. albens* and *E. blakelyi* and the property contains areas of mapped koala habitat (Figure 5). The new Koala Habitat Protection SEPP applies to development under Part 4 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The areas shaded pink (Figure 5) show development application areas that will require development assessment whilst the blue areas have been identified as site investigation areas and may become koala habitat in the future. Detailed field-based site surveys may be required in accordance with the Koala Habitat Protection Guidelines and a Koala Assessment Report may need to be prepared prior to any development detailing how the proposed development avoids, minimises and compensates for impacts to koala habitat. Given the records within the region, it is possible for koalas to reside within the property. If impacts to koalas are identified, offsets will be required. In addition, an assessment of significance of impacts to koalas under the EPBC Act will need to be considered and if there are potential significant impacts then a referral to the Federal Government may be necessary.

Threatened Species (OEH 2020)



Legend

- Subject Land
- Biodiversity Values Map

Threatened Flora

- + *Acacia ausfeldii*
- + *Swainsona recta*
- + *Swainsona sericea*

Threatened Fauna

- Gang-gang Cockatoo
- Koala
- Little Lorikeet
- Regent Honeyeater

0 0.5 1
Kilometres
Datum/Projection:
GDA 1994 MGA Zone 56

Service Layer Credits: Esri, HERE, Garmin, (c)
OpenStreetMap contributors
Source: Esri, DigitalGlobe, GeoEye, Earthstar
Geographics, CNES/Airbus DS, USDA, USGS,
AeroGRID, IGN, and the GIS User Community



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Prepared by: SC Date: 5/08/2020

Figure 4: Records of threatened species found within the study area and surrounds

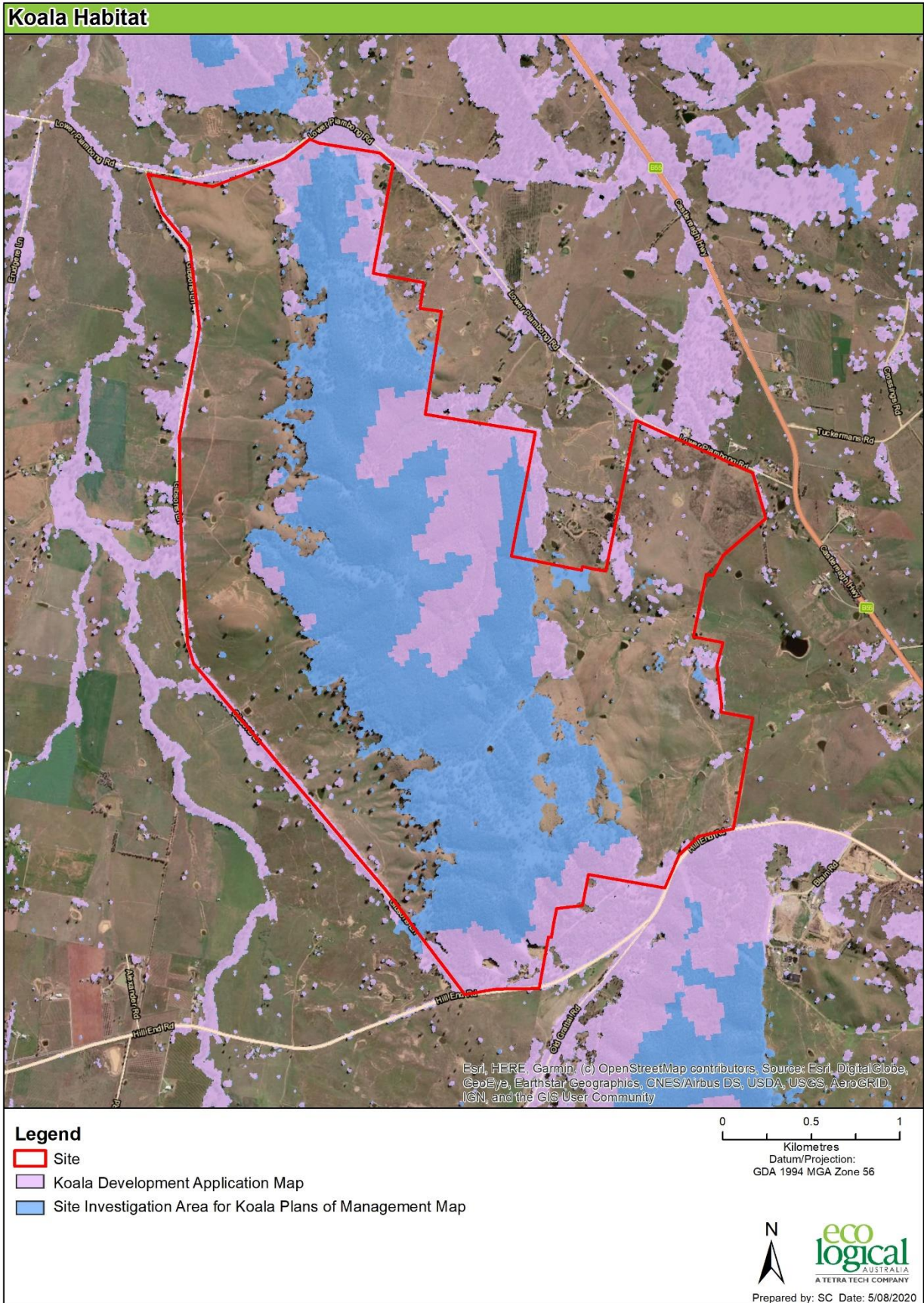


Figure 5: Potential Koala habitat based on DPIE Koala Habitat Mapping. (Pink areas are Koala Development Application Areas and Blue areas are Site Investigation Areas).

NSW Biodiversity Offset Scheme (BOS)

The NSW Biodiversity Offset Scheme (BOS) was established under the Part 6 of the BC Act. The BOS is triggered if:

- clearing thresholds are exceeded, or
- the area is identified on the BV Map, or
- significant impacts to threatened species are likely.

The Biodiversity Assessment Methodology (BAM) is used as a standardised and consistent method to assess biodiversity on a proposed development or major project site and used in the calculation of these credits.

The BAM classifies threatened species as either 'ecosystem' or 'species' credit species. Ecosystem species can be reliably predicted based on the PCTs present, and therefore do not require targeted surveys. Species credit species cannot be reliably based on the PCTs present and therefore require targeted survey. These species typically have seasonal requirements. It is noted that some species are dual credit species, whereby breeding habitat is assessed as a species credit and foraging habitat is assessed as an ecosystem credit.

While the rezoning in itself does not include land clearing, the future subdivision and subsequent dwellings will lead to the need to further identify impacts at a site-specific level. Any future development applications for subdivision will need to undertake a detailed assessment of the impact of clearing required for access tracks, building envelopes, services and probable asset protection zones, which may trigger the BOS and a Biodiversity Development Assessment Report (BDAR) may be required. The level of impact cannot be determined until the location and extent of disturbance is known. The current proposal, as far as possible, is looking to avoid encroaching on the most heavily vegetated and steep areas of the property and it is also possible that future clearing within each lot could avoid threatened species and habitat.

Conclusions


There are several factors that need to be considered in the planning of the proposed development. These are summarised below:

- A number of threatened species and communities are likely to occur within the property such as koalas, Regent Honeyeaters and White Box Grassy Woodlands which are listed and protected under both the BC Act and the EPBC Act.
- Any future development applications that involve land clearing may require a BDAR and a Koala Assessment Report.
- Any impacts associated with road upgrades (realignment and widening) could add additional areas to the overall development footprint and should be considered as part of the development approval process.

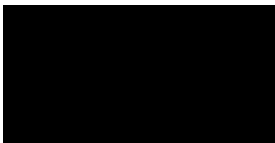
Recommendations

In order to reduce the biodiversity offset liability for the site, and to avoid delays in obtaining future development approvals, the following is recommended:

- Undertake detailed field surveys to ground truth the mapping, vegetation condition and extent prior to the finalisation of the subdivision layout across the property.
- Finalise project design to avoid areas of high constraints including any EEC. Any areas with a high abundance of tree hollows, rocky outcrops or areas that may be considered Core or Potential koala habitat should be avoided where possible.
- The development footprint should utilise areas where native vegetation is not intact and in low condition which would generate lower vegetation integrity scores than intact vegetation.
- Minimise clearing required for access tracks by using current vehicle tracks where possible.
- Avoid impacts to vegetation within the riparian areas including low lying areas such as drainage lines and creek lines to avoid impacts to habitat and migratory bird species.
- Engage regulators early in the development phase to ensure all required approvals are identified.

If you have any questions about any aspect of this report please feel free to contact me on the telephone numbers below or via email at 

Regards,



Chery O'Dwyer

Senior Ecologist

Office 02 4302 1236 Mob 0410552708

References

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Prober SM, Thiele KR (2004) *Floristic patterns along an east-west gradient in grassy box woodland of Central New South Wales*. *Cunninghamia* **8**, 306-325

Appendix A Flora and Fauna, and Vegetation Communities

Threatened fauna species listed under the BC Act and EPBC Act from BioNet database, Protected Matters searches and records from ELA.

Scientific name	Common name	BC Act Status	EPBC Act Status
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE
<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	V	V
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E
<i>Calidris ferruginea</i>	Curlew Sandpiper		CE
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	V	
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E
<i>Delma impar</i>	Striped Legless Lizard	V	V
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	
<i>Grantiella picta</i>	Painted Honeyeater	V	V
<i>Hirundapus caudacutus</i>	White-throated Needletail	M	V
<i>Litoria booroolongensis</i>	Booroolong Frog		E
<i>Motacilla flava</i>	Yellow Wagtail		M
<i>Myiagra cyanoleuca</i>	Satin Flycatcher		M
<i>Neophema pulchella</i>	Turquoise Parrot	V	
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat	V	V
<i>Ninox connivens</i>	Barking Owl	V	
<i>Ninox strenua</i>	Powerful Owl	V	
<i>Pachycephala inornata</i>	Gilbert's Whistler	V	
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E	V
<i>Phascolarctos cinereus</i>	Koala	V	V
<i>Polytelis swainsonii</i>	Superb Parrot	V	V
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Rhipidura rufifrons</i>	Rufous Fantail		M
<i>Rostratula australis</i>	Australian Painted Snipe	E	E

Threatened vegetation communities and flora species listed under the BC Act and EPBC Act from Bionet and Protected Matters searches and records of ELA

Scientific name	Common name	BC Act Status	EPBC Act Status
<i>Acacia ausfeldii</i>	Ausfelds wattle	E	E
<i>Dichanthium setosum</i>	Bluegrass	V	V
<i>Eucalyptus cannonii</i>	Capertee stringybark	V	
<i>Euphrasia arguta</i>		E	CE
<i>Homoranthus darwinoides</i>		V	V
<i>Leucochrysum albicans var tricolor</i>			E
<i>Ozothamnus tessellatus</i>			V
<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	E	E
<i>Prasophyllum sp. Wybong (C.Phelps ORG 5269)</i>			CE
<i>Swainsona recta</i>	Small Purple-pea	E	E
<i>Swainsona sericea</i>	Silky Swainson-pea	V	
<i>Tylophora linearis</i>		V	E
<i>Zieria obcordata</i>		E	E

Threatened Ecological Community	BC Act Status	EPBC Act Status
Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia		E
Natural Temperate Grassland of the South Eastern Highlands		CE
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	E	CE