Proposed Rezoning of land to completed new stages of Heritage Park Residential Development, Jindera NSW 2640

Habitat Assessment

Lot 6 DP1280394

July 2023

Prepared by:

DJC Environmental Consulting Pty Ltd

PROJECT NAME	Biodiversity Assessment – Rezoning 'Heritage' Jindera		
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1 Introduction

1.1 Project background

Nordcon Land are proposing to develop further residential land within the Jindera area. This land requires rezoning and DJC Environmental Consulting Pty Ltd (DJC) was commissioned by Nordcon ('the Proponent') to conduct an overall Biodiversity Assessment of the site to better guide the rezoning process. The site is located on the fringe of Jindera, NSW (**Figure 1**). The works will involve significant earth works including cut and fill.

The proposal site takes place on land identified as a growth area for the township of Jindera. This is rural to semi urban environment previously subject to multiple disturbances.

1.2 The Project

This site has been identified as part of the Jindera growth area. This assessment has been completed to identify all Flora and Fauna within the proposed development footprint. The results of this assessment will guide the overall layout and inform/ identify the constraints or habitat/s on site. This is not meant to be a Test of Significance or a Biodiversity Assessment Method for offsetting vegetation removals, but rather inform what is currently onsite and guide these assessments should they be required.

Figure 1: Location of the proposed rezoning DP1280394

2 Landscape features

2.1 Study area

The study area is located 2 kilometres south of Jindera (NSW). The boundaries of the study area were chosen to reflect both direct and indirect impacts of the proposal. The study area is located within the Greater Hume Council LGA, in the NSW South Western Slopes 'NSS Lower Slopes Brokong Plains Vegetation Formation: Grassy Woodlands' (Mitchell Landscapes V3).

2.2 Identified features

2.2.1 IBRA Bioregions and subregions

The study area is located 16 kilometres (km) north of the Victorian/NSW border at the locality of Jindera, NSW. The NSW south western slopes bioregion (NSS) covers a total area of 8,681,126 hectares with 93.47% of it within NSW (NPWS 2003a). The Bioregion is a large area of foothills and ranges comprising the western fall of the Great Dividing Range to the edge of the Riverina Bioregion. The bioregion lies wholly in the eastern part of the Lachlan Fold Belt which consists of a complex series of north to north-westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Granites are common and mostly located in large scale upfolded bodies of rock. Alluvial sands and loams are more common than clays in most parts of the landscape, but alluvial clays become more important nearer to the Riverine Plain. The climate is mainly sub-humid with hot summers and no dry season. A temperate climate occurs at higher elevations along the eastern boundary of the bioregion. Rainfall varies from 1200mm in the east to 400mm in the west.

The South Western Slopes extends both sides of the state border along the Murray River reaching between Albury and Dunedoo of Central Western NSW. The Bioregion has been historically used for grazing, as early as the 1830's. The grazing industry was and continues to be an important component of the local economy. Crops, such as canola, wheat, barely, etc are increasingly playing a significant role in the economy of the region. The native vegetation of the region is dominated by various Eucalypt species such as River Red Gum, Yellow Box, White Gum, Grey Box, Kurrajong, Red Ironbark and Cypress Pine (NPWS 2003a).

2.2.2 Areas of Outstanding Biodiversity Value

There are no areas of outstanding biodiversity value within the study area. The development area is unlikely to intersect neighbouring areas of Biodiversity value mapped on the Biodiversity Values map (**Figure 3**).

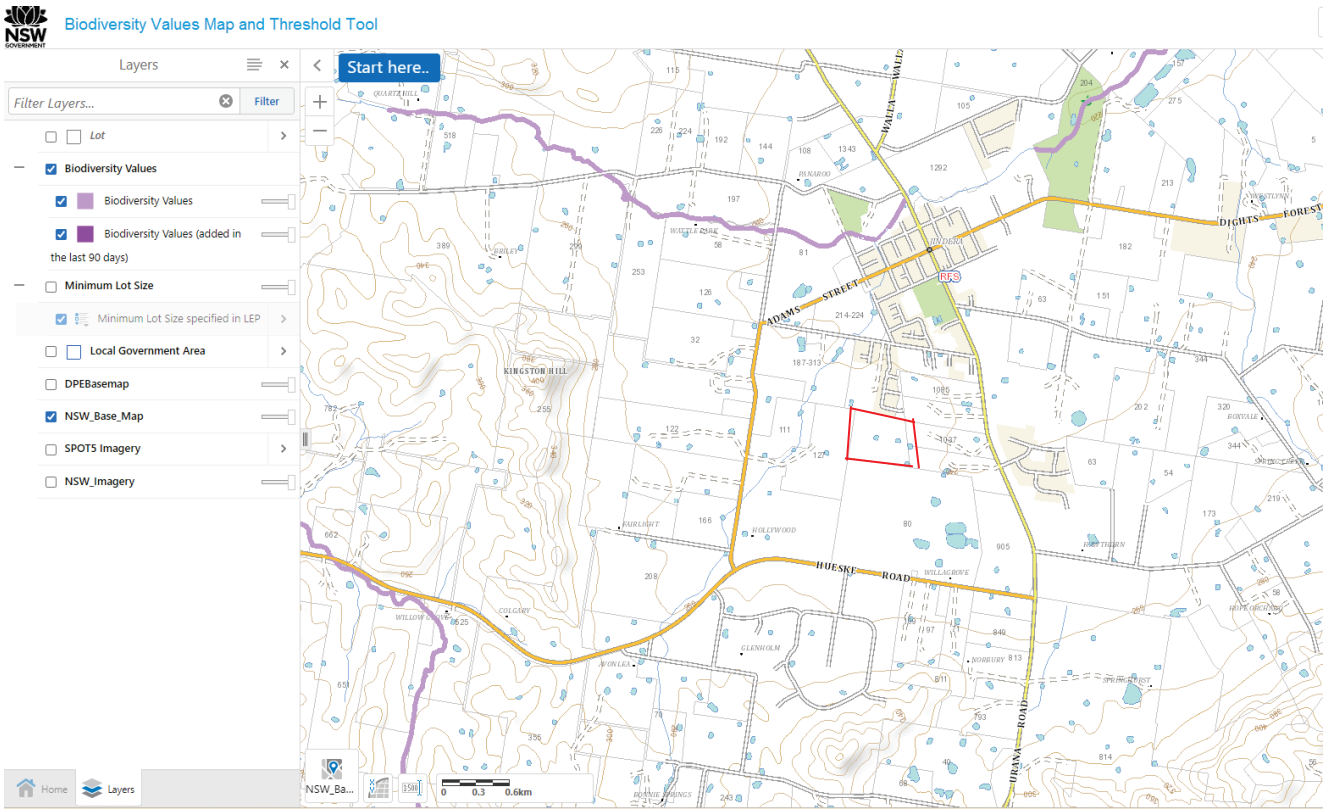

Figure 3: Biodiversity Values Map and Threshold Tool map showing the study area.

3 Native vegetation

3.1 Method

3.1.1 Vegetation surveys

DJC Environmental completed field survey on Wednesday 14th and 20th June 2023, with methodologies consistent with OEH, DEPI and where required the EPBC Act.

A vegetation survey was completed with the entire site walked over. The approach to undertaking the vegetation surveys was as follows:

1. *Vegetation mapping and zone allocation.* This was done to characterise the type, condition and area of native and non-native vegetation within the study area to allow mapping according to the various type and condition categories (zones) of vegetation present.
2. *Floristic plots.* These were not completed as part of the due diligence assessment

The field survey also focused on the detection of any threatened ecological communities listed under the EPBC Act, FM Act and TSC Act. Targeted surveys for any flora species were not conducted. This site/s were walked over extensively.

3.1.2 Terrestrial Habitat Assessment

Terrestrial Habitat assessment was undertaken to develop an understanding of the extent and conditions of habitats within the study area. The results of which assisted in the analysis of the likelihood of occurrence of threatened and migratory species as well as documenting habitat condition. This will include the identification of important habitat features such as movement corridors and important microhabitat features in riparian forest such as the presence of mistletoe and shrubby vegetation.

Terrestrial Habitat Assessment also enables fauna habitat condition mapping where the study area was assigned ranking relative to one another (High, Moderate and Low) and their approximate extent mapped. Habitat condition was determined through the habitat assessment using factors such as the availability of microhabitat including fallen timber and mistletoe, amount of exotic vegetation, presence of tree hollows and any threatened species records collected during the survey. Also taken into consideration are the known habitat requirements of the threatened species and the experience of the assessor. The following rankings were assigned relative to each other (not an overall stand-alone general condition) with consideration (but not necessarily all) of the following attributes:

High Quality Habitat

- Patch size large.
- Abundant trees hollows present.
- Habitat is well connected to other areas of habitat.
- Shrub density is high.
- Virtually no weed species present.
- Good quantities of fallen timber, leaf litter and other microhabitat.
- Contains levels of habitat that are likely to supporting breeding and/or roosting opportunities for threatened species that are known to, or are likely to occur in the study area.
- Threatened species are known to occur there from this survey, previous records or author's knowledge.

Moderate

- Patch size moderately sized and/or tree density remains sparse.
- Some trees hollows present.
- Moderate shrub density.
- Some weeds present.
- Some fallen timber, mistletoe, leaf litter and other microhabitat.
- Habitat has some connectivity to surrounding habitat.
- Contains levels of habitat that may support breeding and/or roosting opportunities for threatened species that are known to or are likely to occur in the study area.
- Threatened species may occur within this habitat.

Low

- Patch size small and/or tree density within patch sparse.
- Virtually no trees hollows present.
- Virtually no shrubs present.
- Virtually no fallen timber, mistletoe, leaf litter and other microhabitat.
- Habitat has little connectivity to surrounding areas.
- Weed invasion high.
- Contains virtually no habitat that would support breeding and/or roosting opportunities for threatened species that are known to or are likely to occur in the study area.
- Unlikely to support threatened species on a permanent basis.

The locations of the various rankings in the study area are provided in **Figure 4**.

Figure 4: Terrestrial Habitat Assessment rankings DP1280394

3.1.3 Limitations

A common limitation of many biodiversity studies is the short period of time in which they are conducted. When combined with a lack of seasonal sampling this can lead to either low detection rates or false absences being reported. This is also particularly relevant to highly mobile species that may not have been in the study area at the time of the survey.

3.2 PCT descriptions & Biodiversity Value Scores

Native vegetation mapping recorded the study area belonging to one (1) Plant Community Type (PCT) in varying condition, that being *PCT ID 277 Blakley's Red Gum – Yellow Box grassy tall woodland.* A detailed description of this PCT including status, species composition, habitat and distribution in the study area is below. This area is considered the better-quality habitat on this site.

Table 2: Vegetation zones

Zone	Vegetation zone code	Plant community type (PCT)	Threatened ecological community?	Area (ha)
V1	PCT 277	Blakely's Red Gum – Yellow Box grassy tall woodland	Yes	**0.8**

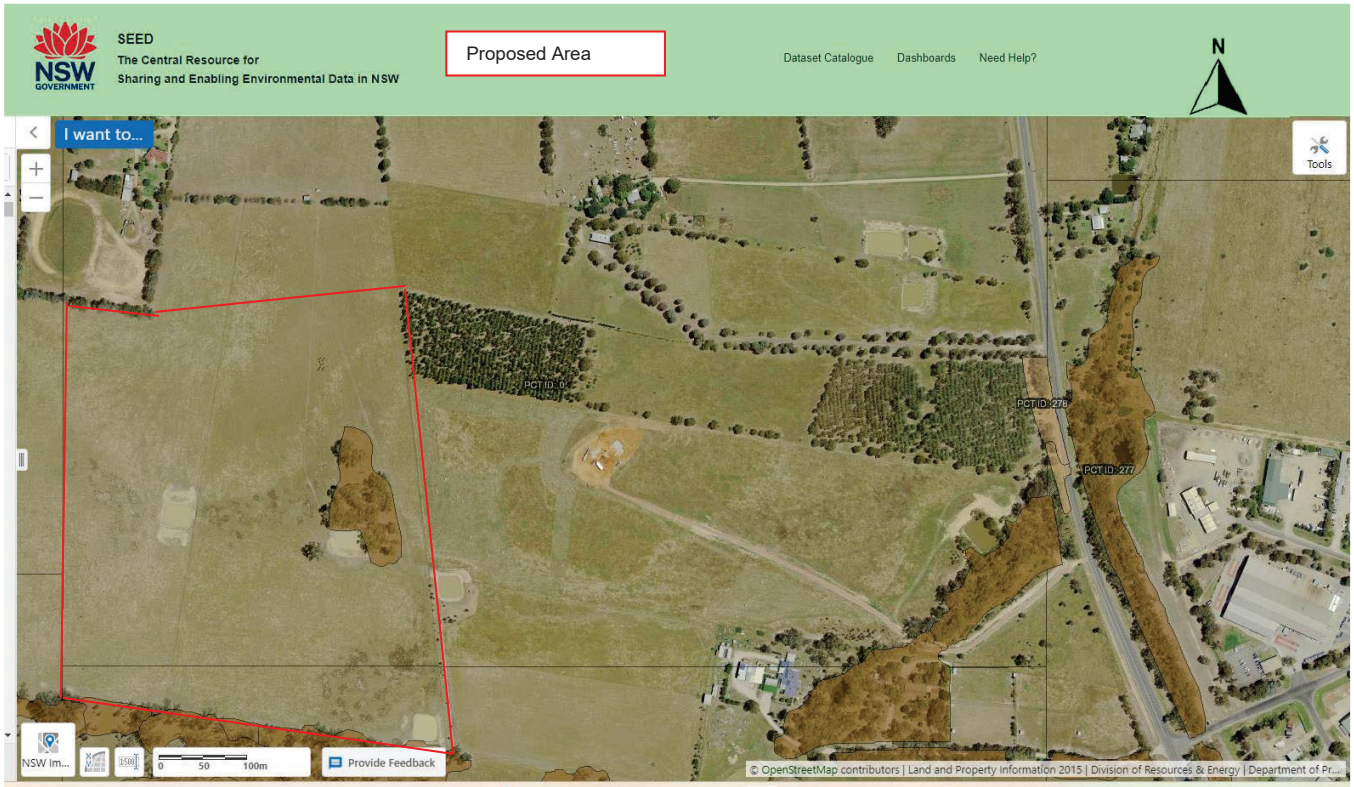

Figure 5: PCTs in the study area. SEED NSW 2023

PCT ID 277 –

Blakley's Red Gum – Yellow Box grassy tall woodland of NSW South Western Slopes Bioregion

Vegetation formation: *Grassy Woodlands*

Vegetation class: *Western Slopes Grassy Woodlands;*

PCT: *277*

Other mapping sources: *NSW State Vegetation Type Map (SVTM), Western Version v1.0*

Conservation status: *Critically endangered (BC Act)*

Estimate of percent cleared: *90%*

Condition: *Varies from moderate condition, where there is a mixed native grassy and herbaceous understorey to low, there is no shrub layer and the understorey is dominated by exotic grasses and weeds.*

Extent affected the study area: ***0.8 ha***

Description:

It is an open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: White Box Eucalyptus albens, Yellow Box E. melliodora and Blakely's Red Gum E. blakelyi. Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs. Areas where the main tree species are present ranging from an open woodland formation to a forest structure, and the groundlayer is predominantly composed of exotic species; and Sites where the trees have been removed and only the grassy groundlayer and some herbs remain.

Photo 1: Moderate condition PCT 277 in the activity area.

3.3 Threatened ecological communities

Ecological communities are naturally occurring groups of native flora and fauna that are interacting in a unique habitat. The structure, composition and distribution are determined by environmental factors such as soil type, position in the landscape, climate and water availability.

Blakely's Red Gum Woodland is listed as an endangered ecological community by national environment law. Much of this EEC has disappeared or become degraded since European settlement due to land-clearing for agriculture and weed invasion. *The PCT onsite has been modified by the past and current uses of the site however it still fits the Grassy Box Woodland definition in its broadest sense.* See photos in **Appendix C** for an overview of the site.

3.4 Groundwater dependent ecosystems

Groundwater dependant ecosystems (GDE) are generally defined as natural ecosystems that require access to groundwater to meet all or some of their water requirements so as to maintain their ecological processes such as peat swamps and permanent wetlands. A review of the Atlas of GDE revealed that the Murray River in general supports GDE reliant on the surface expression of groundwater. *No GDE reliant on subsurface groundwater or caves and aquifers are present*.

3.5 Aquatic habitat assessment

Given that the works as proposed are not interfering with any aquatic habitats, aquatic surveys were not required.

4 Fauna species survey

4.1.1 Terrestrial flora surveys

No threatened flora have been previously recorded in the activity area (based on database searches), however two (2) vulnerable River Swamp Wallaby-grass (Amphibromus fluitans) and Sturdy Leek-orchid (Prasophyllum validum) and two (2) endangered flora species Small Purple-pea (*Swainsona recta*), and (*Cullen parvum*) Small Scurf-pea were recorded within 10kms of the site.

Suitable and viable habitat zones that might contain threatened flora is considered to be very unlikely within the study area, with historical clearing, weed invasion and development pressure likely to inhibit the presence of threatened flora. Exceptions would be the areas mapped as moderate condition; however, these areas are very small and it is likely that threatened flora would have been detected if present in these small pockets of vegetation. No targeted flora surveys were conducted as part of this assessment.

4.1.2 Terrestrial fauna surveys

Targeted surveys for those threatened fauna species that have either been previously recorded within the study area or are considered to have a moderate likelihood of occurring within the study area (based on previous records within 5 km of the study area and the presence of suitable habitat as determined from the field surveys).

Database searches of locally occurring NSW (BC Act) and Commonwealth (EPBC Act) listed threatened and migratory species revealed fifty (50) species of threatened fauna have been previously recorded and/or have potential habitat within 5km of the study area. **Table 3** is a summary of methodologies employed on site on the 14th and 20th June 2023. All survey work was conducted by Danielle Cleland (DJC Environmental Consulting). Incidental fauna sightings were also recorded on the survey days.

Table 3: Threatened Fauna Survey methodology

Intended Target	Methodology	Survey Period Notes
"Woodland Birds" included the Diamond Fire Tail, Flame Robbin, Superb Parrot, Regent Honeyeater, Turquoise Parrot, Dusky Wood Swallow, Little Lorikeet, Black-chinned Honeyeater and the Brown Tree-creeper	Point Count method, where observations were made from 4 points for 20 minutes each.	Four-point count sites were visited for 20min survey period. Temperature ranged from 3 to 11°C.
Crinia sloanei – Sloane's Froglet	Point Count method, where observations were made from 5 points for 20 minutes each.	Five-point count sites were visited for 20min survey period. Temperature ranged from 3 to 11°C.

While this assessment was not intended to be a threatened species assessment, in order to ensure any habitat onsite that has 'potential' for threatened species is captured and considered as part of the overall subdivision design, species that have potential to be utilising the site were opportunistically surveyed for during the two site inspections.

Figure 6: Location of Point Count Survey sites – June 2023

4.1.3 Threatened species results

Much of the vegetation within the study area has been previously disturbed due historic land clearing, grazing/ agricultural uses, weed invasion from uses and surrounding areas, development impacts associated with new and existing residential development in the surrounding area.

These impacts have resulted in substantial degradation for selected species. To inform an assessment of how habitat degradation has impacted candidate threatened species a search of the Atlas of NSW Wildlife (OEH 2018a) was undertaken for a 5 km radius around the study area. Using these Atlas results, the likelihood of occurrence of candidate threatened species was assessed by:

- Review of location and date of recent (<5 years) and historical (>5-20 years) records;
- Review of available habitat within the subject land and surrounding areas;
- Review of the scientific literature pertaining to each species and population; and
- Applying knowledge of each species.

4.1.4 Limitations

This assessment was not conducted to be a Threatened Species Assessment or a Test of Significance but rather an assessment of the existing habitat quality on site and any identified Threatened Species that may have been present while the field assessment was completed. Once a final design has been produced for each site a Test of Significance will need to be completed and any subsequent Biodiversity Assessment Report (BDAR) as required.

Numerous threatened fauna species are difficult to detect and the abundance and activity levels (and thus detectability) of many species changes from year to year in response to a range of variables

(e.g. timing and intensity of rainfall, and temperature). The precautionary principle was employed, that if it was not possible to confirm the presence or absence of any species from the study area, the species has been assumed present if suitable habitat was present.

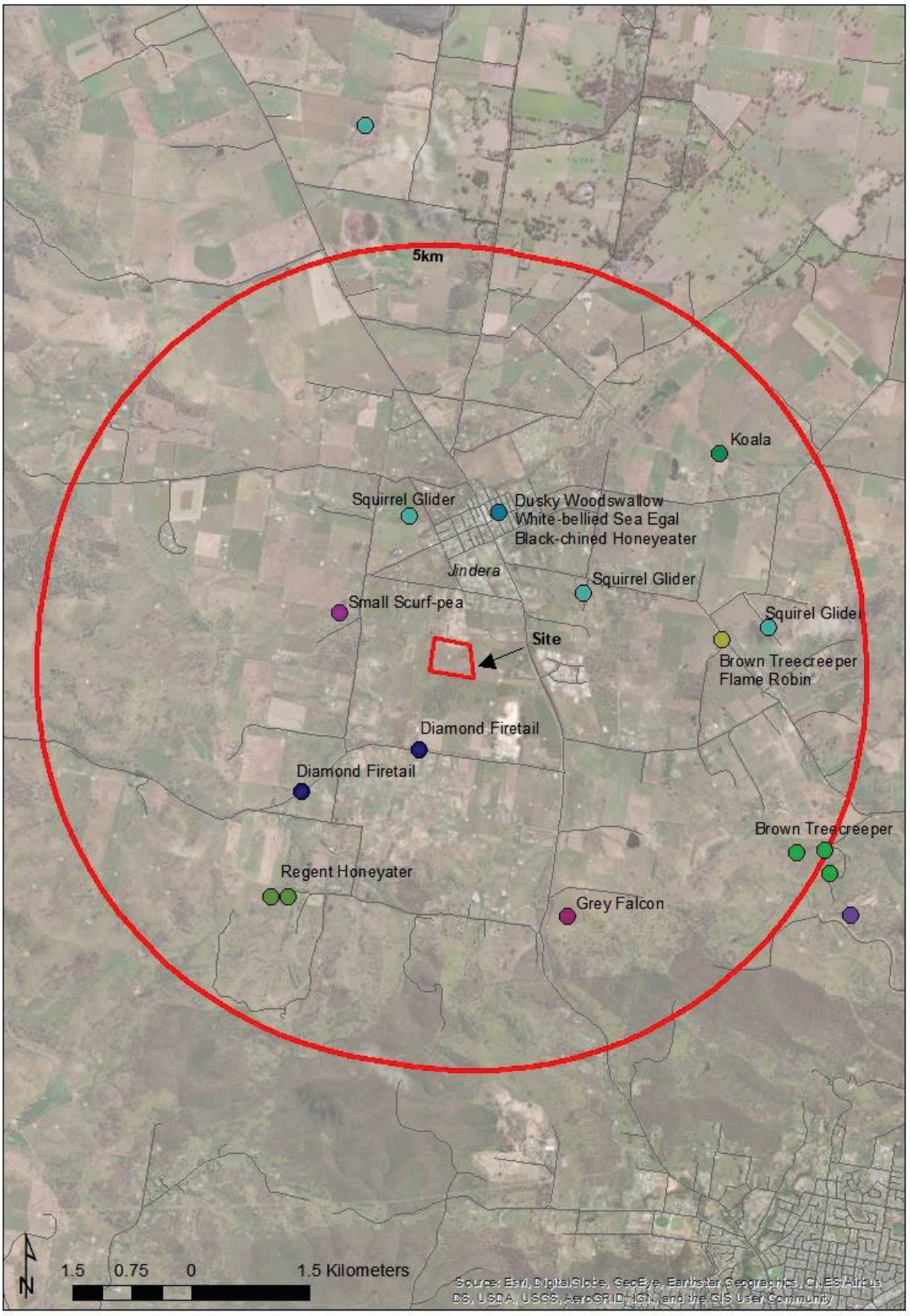

Figure 7: Location of recorded threatened species (5km buffer). Source: BioNET

5 Avoid and minimise impacts

5.1 Avoidance and minimisation

5.1.1 Avoiding & minimising impacts on native vegetation and habitat during project planning

Impacts on PCT ID 277 Should be avoided where possible. The design should consider the retention of this moderate quality vegetation, where possible retention should seek to improve the quality by providing linkages to other areas of vegetation, through weed management and revegetation. Subdivision design should also seek to ensure vegetation that is retained where surface and or ground water feeds these habitats, hydrology is able to be maintained post development.

The project design (final subdivision layout) should seek to ensure that:

- Trafficable areas during the works stage are to be confined to existing tracks or clear areas and avoid, where possible, creation of new tracks set-down yards or spaces within vegetated areas; and
- The proposal footprint (temporary project infrastructure e.g. site compounds) is overlaid on aerial photography together with information presented, to ensure areas of better quality habitat value are avoided where possible.
- Retention of better-quality habitat.
- Where retention is not possible, or retention will see the integrity of this habitat degraded or significantly impacted, removal and offsetting would need to be justified.

5.1.2 Measures to avoid & minimise environmental impacts from the proposal

- Clearing / lopping will be restricted to the vegetation occurring within the development footprint. Surrounding areas will not be impacted as part of the proposal.
- A pre-clearing survey undertaken to ensure hollow-bearing trees occurring outside the clearing footprint are marked and protected.
- An appropriately skilled ecologist on site during clearing operations to ensure hollow-bearing trees outside the development footprint are protected from the construction impact.
- If resident fauna is discovered during the clearing process, they will be safely removed and translocated as per the staged habitat removal process.

6 Impact assessment

The range of potential impacts to biodiversity likely to occur as a result of the proposal includes:

- Removal / lopping of native vegetation;
- Injury and mortality of fauna;
- Edge effects on adjacent native vegetation and habitat;
- Invasion and spread of weeds;
- Invasion and spread of pests;
- Noise, light and vibration.

The following sections detail the likely extent, nature and duration of the potential impacts to biodiversity as a result of the proposal.

6.1 Construction impacts

6.1.1 Removal of Native Vegetation

The proposal will potentially see impacts to (but not necessarily permanent removal of all) native and non-native vegetation within the site/s. As mentioned, this assessment is to identify the better-quality habitat within the site and any potential threatened species habitat in order to guide the final subdivision design. Subsequent impacts to any habitat as part of the site/s development will require further assessment.

6.1.2 Removal of Threatened Flora

Threatened flora is unlikely to be impacted by the proposal in its current form.

6.1.3 Removal of Threatened Fauna Habitat

Fauna habitats to be removed as part of the proposal may provide shelter/roosting/nesting and foraging habitat to the threatened/migratory birds. However, the habitats recorded in the impact area were not considered to provide limiting or important habitat for any of these species. This was mainly due to the fact that the study area is generally disturbed and subject to edge effects and any habitat to be removed is already heavily impacted by grazing, weeds, neighbouring residential/rural use areas.

The site is largely Low condition grazed paddocks with pockets of small man made or low depression wet areas and some Moderate vegetation confined to a patch of PCT 277.

However, majority of the area potentially cleared for the project is already highly disturbed and comprises of introduced grasses and forb species. Several fauna hotspots occur within a 10 to 20km radius of the development site with similar native woodland/forested habitat which would not be impacted by the proposal. Therefore, the proposal (depending on the final design) could potentially result in the removal of a relatively small proportion of similar habitat present within the locality. Based on the highly mobile, wide-ranging nature of these species and the prevalence of potential habitat within the locality, it is likely that the potential foraging and roosting habitat within the impact area represents marginal habitat and these species are considered unlikely to be dependent on the resources in the impact area for survival.

On the other hand, developments can impact upon fauna in a number of ways. The significance of an impact would be greatest if any of the following situations occur:

- Death or injury of individuals.
- Loss or disturbance of limiting foraging resources.
- Loss or disturbance of limiting breeding resources.
- Limiting resources are those that are important for a particular species survival. E.g. animals that only feed on certain types of plants or breed in certain habitats such as caves or tree hollows.

6.2 Other impacts

6.2.1 Aquatic impacts

Construction activities should not interfere with any aquatic habitats; thus, they will not impact aquatic environments. No areas of outstanding biodiversity value (AOBV) are within the subject site. The site is highly disturbed, contained exotic grasses and did not contain any flowing water. Therefore, it is not considered an AOBV.

6.2.2 Fragmentation of identified biodiversity links and habitat corridors

The proposal will result in the potential disturbance (but not necessarily complete loss) of highly disturbed areas of native and exotic vegetation. The potential patches of vegetation to be impacted by the proposal are small, isolated and of poor to medium -quality habitat. The fauna habitat in the study area is already fragmented by existing land uses.

The proposal is likely to make traversing the landscape at least on the ground more difficult for local fauna, however much of this site is open disturbed paddocks and not connected good quality vegetation. The patch of somewhat structured vegetation within Lot 6 DP1280394 is already fragmented, more consistent with a stepping stone, rather than a linkage within the landscape. There are also low-lying areas over the site, some that are partially man made in the form of a drain and due to the stockpiling of soil, others that have naturally formed. Some of these areas do provide potential habitat for some fauna species, in particular the Sloane's Froglet (*Crinia sloanei*). No Sloane's Froglets were heard calling during the field assessments, other species of frogs were recorded calling over the site. A list if the species identified during the site visits is found in **Appendix A and B.**

6.2.3 Injury and mortality of fauna

Injury and mortality of fauna could occur during construction activities. The removal of any native and non-native vegetation may result in fauna injury and mortality for species such as bats, arboreal mammals, nesting birds, reptiles and invertebrate species. Clearing machinery and plant has the potential to crush fauna resulting in death or injury. Measures to minimise potential impacts to fauna during any removal of vegetation should be implemented, including but not limited to:

- Pre-clearing surveys by a qualified ecologist/fauna spotter-catcher to identify and re-locate 'at risk' fauna;
- A two-stage clearing process (which allows nesting/roosting species the opportunity to re-locate on their own) if required; and
- The development of detailed procedures to deal with unexpected fauna and threatened species finds.

6.2.4 Invasion and spread of weeds

There is a low to medium chance that weeds could be spread during the construction works as machinery and vehicles will pass through areas where there are high levels of weeds, and soil will be disturbed and transported around the area during site preparation and cut and fill works. The potential for invasion and spread of weeds will be mitigated and managed by completing

Weeds of note identified on site include Blackberry nightshade (*Solanum nigrum*) and Scotch thistle (*Onopordum acanthium*) are priority weeds in NSW. These weeds need to be managed appropriately according to their status to prevent further spread of the plant and its seed bank. The site has other weedy species that are largely agricultural weeds.

6.2.5 Invasion and spread of pests

The proposal is located within a fragmented and previously disturbed rural context. The development of the site for housing while retaining where possible the better-quality patches of remnant vegetation, has the potential to introduce more domestic pets such as cats, however given there is already existing residential development directly adjacent to this site these pets are likely already present. The field assessment identified other pest species already present within the area (Fox, Rat and a Hare).

It is unlikely that the development will introduce further pest species as it appears they are already present.

6.2.6 Invasion and spread of pathogens and disease

The prevalence of pathogens and disease within the area is unknown.

6.2.7 Noise, light and vibration

The study area is already subject to noise, light and vibration from traffic within the exiting developed residential area near the site. The proposal will see an increase to this for any of the retained vegetation. The proposal is unlikely to further increase these effects such that the habitat would be unsuitable for the suite of fauna species that currently utilise it.

6.2.8 Cumulative impacts

The cumulative impacts of fauna mortality are not considered to be substantial, given the existing impacts on fauna mortality in the local area. The impacts of the local projects, including the current proposal, are not likely to substantially increase the threat of fauna mortality in the local area.

7 Mitigation

Measures and safeguards to mitigate potential impacts of the proposal on threatened biodiversity are detailed in **Table 10**.

Key mitigation measures will include minimising impacts to existing native vegetation during the construction period (other than that identified for removal) and this will include clear demarcation of clearing zones, establishment of buffer zones (where practicable) and the management of potential weed invasion, sedimentation and erosion.

Table 10: Mitigation measures

Impact	Mitigation measures	Timing and duration
Removal of native vegetation	Native vegetation removal can be minimised through detailed design.	Detailed design
	Pre-clearing surveys can be undertaken by a suitably qualified ecologist if clearing is required.	Prior to construction
	Clearing limits and exclusion zones can be clearly identified prior to work within/adjacent to the study area.	Prior to construction
Removal of threatened species habitat and habitat features	Habitat removal can be minimised through detailed design.	Detailed design
Aquatic impacts	A site-specific Erosion and Sediment Control Plan/s can be prepared and implemented as part of the Soil and Water Management Plan. The Plan will include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.	Prior to and during construction
	An emergency spill kit is to be kept on site at all times. All staff are to be made aware of the location of the spill kit and trained in its use.	During construction
Groundwater dependent ecosystems	Interruptions to water flows associated with groundwater dependent ecosystems can be minimised through detailed design.	Detailed design
Changes to hydrology	Changes to existing surface water flows can be minimised through detailed design.	Detailed design
Fragmentation of identified biodiversity links and habitat corridors	Any connectivity measures implemented can be designed and installed under the supervision of an experienced ecologist.	Detailed design and during construction
Edge effects on adjacent native vegetation and habitat	Exclusion zones can be set up at the limit of clearing.	During construction
Injury and mortality of fauna	Implementation of two stage clearing process to allow fauna to disperse from habitat voluntarily; inspection of hollows by experienced ecologist/fauna spotter/catcher prior to and after clearing of hollow-bearing trees/stags to safely remove and relocate any injured /displaced fauna.	During construction
Invasion and spread of weeds	Establishment of clearing limits and exclusion zones within/adjacent to the works sites.	During construction
	To prevent the spread of weed seed, all weed material removed can be disposed of in a suitable waste facility and not mulched on site. This is to avoid the reintroduction and further spread of weeds in the area.	During construction
	Machinery can be washed following best practice hygiene protocols prior to being brought to site to prevent the spread of weed seed, pathogens and fungi.	During construction
Invasion and spread of pests	Pest species can be managed within the project site.	During construction

8 Conclusion

The site has a history of grazing, land clearing and ongoing agricultural uses, although the site has been used for grazing and is periodically still used for this purpose is does provide some medium quality habitat (patch of PCT 277). In addition to this identified medium quality habitat, there are a number of defined wet depressions scattered over the site, these areas have potential to be suitable Sloane's Froglet habitat (further surveys need to be completed to confirm this).

Where possible as part of the final design process for this site, retention of the medium quality patch of vegetation should be considered. Final design should also seek to consider the water regime for this patch of vegetation and the impact proposed surrounding development will have on the longer-term survival of this PCT.

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10 Appendices

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Appendix A Flora observed during field assessment.

Genus	Species	Common name	Native / Exotic
Elymus	*scaber*	Common wheat grass	Native
Onopordum	*acanthium L.*	Scotch thistle	Exotic
Eucalyptus	*melliodora*	Yellow Box	Native
Eucalyptus	*blakelyi*	Blakelys Red Gum	Native
Juncus	*spp*	Juncus	Native
Microlaena	*stipoides*	Weeping grass	Native
Paspalum	*dilatatum*	Paspalum	Exotic
Phragmites	*australis*	Common Reed	Native
Malva	*parviflora*	Marshmallow	Exotic
Ehrharta	*longiflora*	Annual Veldtgrass	Exotic
Solanum	*nigrum*	Blackberry Nightshade	Exotic
Elymus	*repens*	Couch grass	Exotic
Arctotheca	*calendula*	Capeweed	Exotic
Rumex	*obtusifolius*	Broadleaf Dock	Exotic
Cytisus	*proliferus*	Lucerne trees	Exotic
Phalaris	*Phalaris*	Phalaris	Exotic
Rumex	*acetosella*	Sheep Sorrell	Exotic
Trifolium	*spp*	Clover	Exotic
Pseudognaphalium	*luteoalbum*	Cudweed	Native
Hypochoeris	*radicata*	Flat-weed/ Cats ear	Exotic
Plantane	*Spp*	Plantane	Exotic
Avena	*fatua*	Wild oats	Exotic
Bromus	*Spp*	Brome grass	Exotic
Lolium	*Spp*	Rye grass	Exotic
Cyperus	*Spp*	Drain Flat-sedge	Exotic
Acacia	*Paradoxa*	Prickly Wattle	Native
Alternanthera	*pungens Kunth*	Khaki	Exotic
Romulea	*Spp*	Onion Grass	Exotic
Dactylis	*glomerata*	Cocksfoot	Exotic
Carex	*Spp*	Carex	Native
Pennisetum	*glaucum*	Millet	Exotic
Eucalyptus	*albens*	White Box	Native
Taraxacum	*officinale*	Dandelion	Exotic
Eucalyptus	*polyanthemos*	Red Box	Native
Erigeron	*bonariensis*	Fleabane	Exotic
Thuidiopsis	*furfurosa spp*	Moss	Native
Callistemon	*viminalis*	Bottlebrush	Native

Genus	Species	Common name	Native / Exotic
Eucalyptus	*sideroxylon*	Ironbark	Native
Rubus	*fruticosus*	Blackberry	Exotic
Romulea	*rosea*	Onion-Grass	Exotic
Taraxacum spp		Dandelion	Exotic
Echium	*plantagineum*	Paterson's Curse	Exotic
Onopordum	*acanthium*	Scotch thistle	Exotic
Avena	*fatua*	Wild oats	Exotic
Rumex	*acetosella*	Red Sorrel	Exotic
Polygonum	*aviculare*	Wire Weed	Exotic
Lactuca	*serriola*	Prickly Lettuce	Exotic
Rumex spp		Dock	Exotic
Hypericum	*perforatum*	St Johns Wort	Exotic
Eucalyptus	*blakelyi*	Blakely's Red Gum	Native
Eucalyptus	*maculata*	Spotted Gum	Native
Eucalyptus	*melliodora*	Yellow Box	Native
Helichrysum	*luteoalbum*	Jersey Cudweed	Native
Poa	*labillardieri*	Poa Grass	Native
Eucalyptus	*leucoxylon var rosea*	Pink Flowing Gum	Native
Pennisetum	*clandestinum*	Kikuyu grass	Exotic
Panicum	*effusum*	Hairy Panic Grass	Exotic
Rosa	*rubiginosa*	Sweet Bria Rose	Exotic
Carex	*breviculmis*	Short-stem Sedge	Native
Eleocharis	*acuta*	Common spike rush	Native
Acacia	*paradoxa*	Kangaroo Thorn	Native

Appendix B: Fauna observed during the field assessment

Common Name	Species Name
Australian Magpie	*Cracticus tibicen*
Australian Wood Duck	*Chenonetta jubata*
Black Shouldered Kite	*Elanus axillaris*
Eastern Sign-bearing Frog	*Crinia parinsignifera*
Eastern Grey Kangaroo	*Macropus giganteus*
Galah	*Eolophus roseicapillus*
Pigeon	*Ocyphaps lophotes*
Spotted Marsh Frog	*Limnodynastes tasmaniensis*
White-winged Chough	*Corcorax melanorhamphos*
Willie Wagtail	*Rhipidura leucophrys*
Suburb fairy wren	*Malurus cyaneus*
Fox *	*Vulpes vulpes*
Hare *	*Lepus europaeus*
Rat *	*Rattus rattus*
* Exotic species	

Appendix C: Photos

Photo 1: Remnant patch, medium quality vegetation.

Photo 2: Low lying areas largely covered by pasture grasses, with pockets of Carex.

Photo 3: Remnant pocket of vegetation onsite.

Photo 4: Pockets of smaller wetland areas holding water, some due to water being diverted off the new developed residential areas.

Photo 5: Open paddock dominated by pasture grasses and some scattered Carex

Photo 6: onsite heavy pasture grasses

Photo 7: onsite dam with some fringing vegetation.

Photo 8: remnant patch of medium quality vegetation