



Narromine Aerodrome – Biodiversity Assessment

Simmons Global

DOCUMENT TRACKING

Project Name	Narromine Aerodrome Biodiversity Assessment
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Status	Final
Version Number	1
Last saved on	8 March 2022

This report should be cited as ‘Eco Logical Australia 2022. **Narromine Aerodrome Biodiversity Assessment** . Prepared for Simmons Global’

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Template 2.8.1

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Abbreviations

Abbreviation	Description
BC Act 2016	Biodiversity Conservation Act 2016
DPE	Department of Planning and Environment
ELA	Eco Logical Australia Pty Ltd
EPBC Act 1999	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act 1979	<i>Environmental Planning & Assessment Act 1979</i>
HBT	Hollow bearing trees
LEP	Local Environment Plan
LGA	Local Government Area
NES	National Environmental Significance
NSC	Narromine Shire Council
PCT	Plant Community Type
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
WM Act 2000	<i>Water Management Act 2000</i>

1. Introduction

Eco Logical Australia (ELA) Pty Ltd was engaged by Simmons Global to undertake a biodiversity assessment within the Narromine Aerodrome Precinct to form part of a Development Application (DA) for proposed works at the Narromine Aerodrome. The proposed development will consist of a single industrial shed, with associated carpark and hardstand, and an access road located within the Narromine Aerodrome Precinct, approximately 1.5 km from the township of Narromine, New South Wales (NSW).

Narromine is an aviation hub, with gliding and aviation-related development around Narromine Aerodrome. Located within the Aerodrome is the residential estate Skypark with private hanger access and direct access to taxiways within the airfield (NSW Government 2017). The Aerodrome has considerable cultural heritage significance (GML Heritage 2018) due to the long history of aviation within the regional area. The Aerodrome was initially developed as a private airfield in 1929 and then became a Royal Australian Air Force training school during World War II. In the mid-1950's the aerodrome was used by Qantas as a training facility up until 1975 when ownership was transferred to Narromine Shire Council (NSC). Today it is used as a regional aerodrome consisting of two paved runways and multiple grassed runways.

The purpose of this biodiversity assessment is to identify biodiversity values which will be impacted by the proposed works and to determine whether the Biodiversity Offset Scheme (BOS) will be triggered. Entry thresholds into the BOS include the following:

- whether the amount of native vegetation being cleared exceeds an area threshold
- whether the impacts occur on an area mapped on the Department of Planning, Industry and Environment (DPIE) Biodiversity Values Map
- whether a significant impact is likely on any threatened entity listed under the Biodiversity Conservation Act 2016 (BC Act).

This report includes an assessment of flora and fauna including threatened species, populations, critical habitat and ecological communities.

This report also considers impacts to any Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.1 Subject Area

The proposed development site is located within the Narromine Aerodrome Lot 23 DP 1278134, approximately 4 km north west of Narromine City Centre (**Figure 1**) within the NSC Local Government Area (LGA). The subject area (Lot 23 DP 1278134) is approximately 295 ha, of which 130 ha is airport infrastructure including runways and buildings surrounded by 165 ha of farmland. Much of the site was cleared prior to 1929 to facilitate the first landing within Tom Perry's flat paddock and has been regularly cultivated and cropped since this time. The area is regularly mowed and sprayed to control weeds by NSC as part of the maintenance program. The entire perimeter is surrounded by an animal exclusion fence to prevent wildlife and stock entering the runways.

The broader landscape is predominately irrigated perennial horticultural including orchards and cropping. The site is currently zoned SP1 Special Activities and SP2 Infrastructure for the purposes of aviation under the Narromine Local Environmental Plan (LEP, NSC 2011). The minimum lot size is 0.14 ha. The proposed development is in line with the “Narromine Aerodrome Strategic and Master Plan” (2019) which includes the development of aviation related commercial use and hanger area.

The proposed development includes the acquisition of 28 ha (the study area; **Figure 2**) upon which, the shed and hardstand areas and access roads will be constructed. The total development footprint of the proposed development (Stage 1) is approximately 0.25 ha.



Figure 1: Location of proposed works

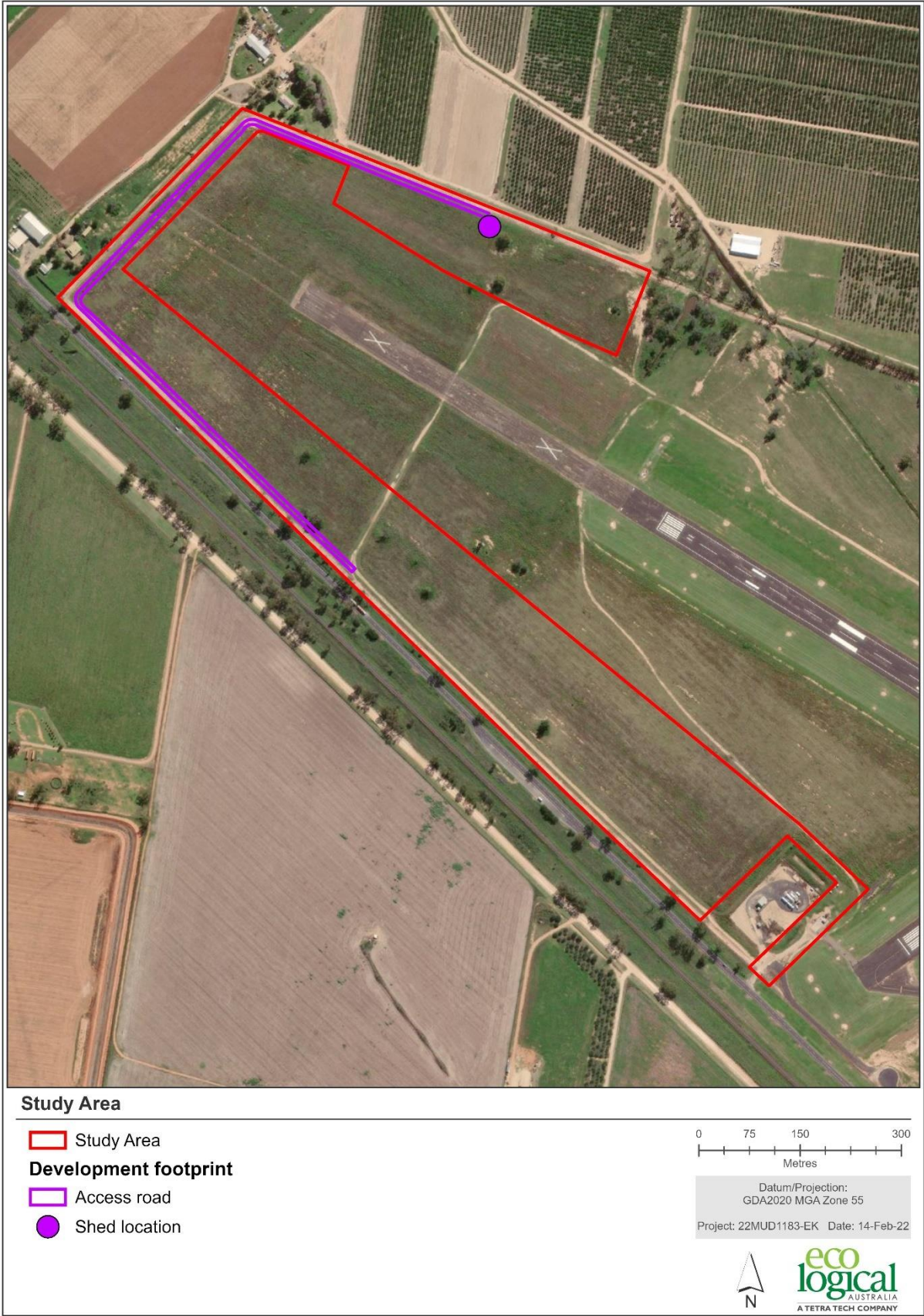


Figure 2: Access Road and Carpark Location

2. Methods

2.1 Literature and data review

A literature review and data audit were undertaken to identify the potential presence of any threatened species, populations and ecological communities listed under the NSW Biodiversity Conservation Act 2016 (BC Act) and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC) Act likely to be present within the study area. The following databases were reviewed prior to conducting the field surveys:

- Commonwealth EPBC Act Protected Matters search, within a 10 km radius of the study area. Report created 02/02/2022 (DAWE 2022)
- BioNet (Wildlife Atlas) search for threatened species/populations listed under the NSW BC Act previously recorded within 10 km radius of the study area (DPIE 2022)
- Narromine Shire Council Local Environmental Plan 2011
- Biodiversity Values Map (DPIE 2022). Accessed 4 Feb 2022
- NSW Threatened Species Profiles (DPIE 2022). Accessed 4 Feb 2022
- Mapped Important Areas (DPIE 2022) BAM – Important Areas. Accessed 4 Feb 2022

Aerial photography of the subject area and surrounds were also used to investigate the extent of native vegetation cover and landscape features in the study area. Species searches from both the NSW BioNet Atlas and EPBC Protected Matters search were combined to produce a list of threatened species, populations and ecological communities that may occur within the study area. This list was also supplemented or amended based on local ecological knowledge of the area, including known species occurrences. A likelihood of occurrence table for threatened flora, fauna and ecological communities is given in **Appendix A**.

2.2 Site assessment

A field assessment was undertaken by ELA Senior Ecologist Dr. Cheryl O'Dwyer on 9 February 2022 to determine whether the vegetation present constitutes native vegetation. In order to determine this, four vegetation integrity plots were completed in accordance with the methodology detailed in the Biodiversity Assessment Method (BAM). Additionally, 13 rapid assessment points and notes were taken regarding general site condition and biodiversity values, as well as any opportunistic recordings of flora and fauna, including threatened species. The entire study area was traversed on foot, with opportunistic searches undertaken for threatened flora species returned by the literature review. It should be noted that the timing of the survey was not ideal for recording *Swainsona recta* (Small Purple Pea), *Swainsona murrayana* (Slender Darling Pea) or *Lepidium monoplacoides* (winged peppergrass). A flora list is provided in **Appendix B**.

Habitat for potentially occurring threatened and migratory fauna species returned by the literature and data review was assessed across the entire study area, including hollow-bearing trees (HBTs) and key foraging resources, with incidental observations of all fauna species recorded during the field survey.

3. Results

3.1 Desktop assessment

A total of five (5) threatened ecological communities listed under the BC Act and / or EPBC Act were returned from the database searches, as being recorded within a 10 km radius of the study area. All five communities were listed under the EPBC Act with only two communities not listed under the BC Act, as per below:

- Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (BC Act and EPBC Act)
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (BC Act and EPBC Act)
- Natural Grasslands of the Murray Valley Plains (EPBC Act)
- Poplar Box Grassy Woodland on alluvial plains (EPBC Act)
- Weeping Myall Woodlands (BC Act and EPBC Act)

Seven (7) threatened flora and fauna species were considered to have the potential to occur within the subject area based on nearby records obtained from BioNet (**Figure 3**). A further sixteen (16) species was returned from the Commonwealth database. **Appendix A** identifies the threatened species returned by the data audit together with an assessment of the likelihood of occurrence for each species within the study area. Each species likely occurrence was determined by reviewing the records for each species in the area, consideration of habitat availability and knowledge of the species ecology.

The site does not coincide with any mapped areas of sensitive biodiversity on the NSW DPIE Biodiversity Values Map as of 4 February 2022. The Regent Honeyeater and Migratory Shorebirds Important Area Mapping (DPIE, 2022) was also reviewed with no important areas mapped within or adjacent to the study area.

The NSW SEED Central West Tablelands PCT mapping (**Figure 4**) and NSW BioNet vegetation Classification database returned the following PCTs as potentially occurring within the study area:

- PCT 0: Exotic vegetation (this encompassed all of the study area)
- PCT 45: *Plains Grass grassland on alluvial mainly clay soils in the Riverine Bioregion and NSW South Western Slopes Bioregion*
- PCT 82 *Western Grey Box – Poplar Box – White Cypress Pine tall woodland on red loams mainly of the eastern Cobar Peneplain Bioregion*
- PCT 83 *Yellow Box Woodland on sandy loam soils on alluvial plains mainly in the upper Darling Riverine Plain Bioregion*
- PCT 244 - *Poplar Box grassy woodland on alluvial clay-loam soils mainly in the temperate climate zone of central NSW (Wheatbelt)*

Relevant information regarding the characteristic species, landscape position, soils and distribution was collated for use during the field survey.



Figure 3: Threatened Species Data Search (BioNet Atlas)

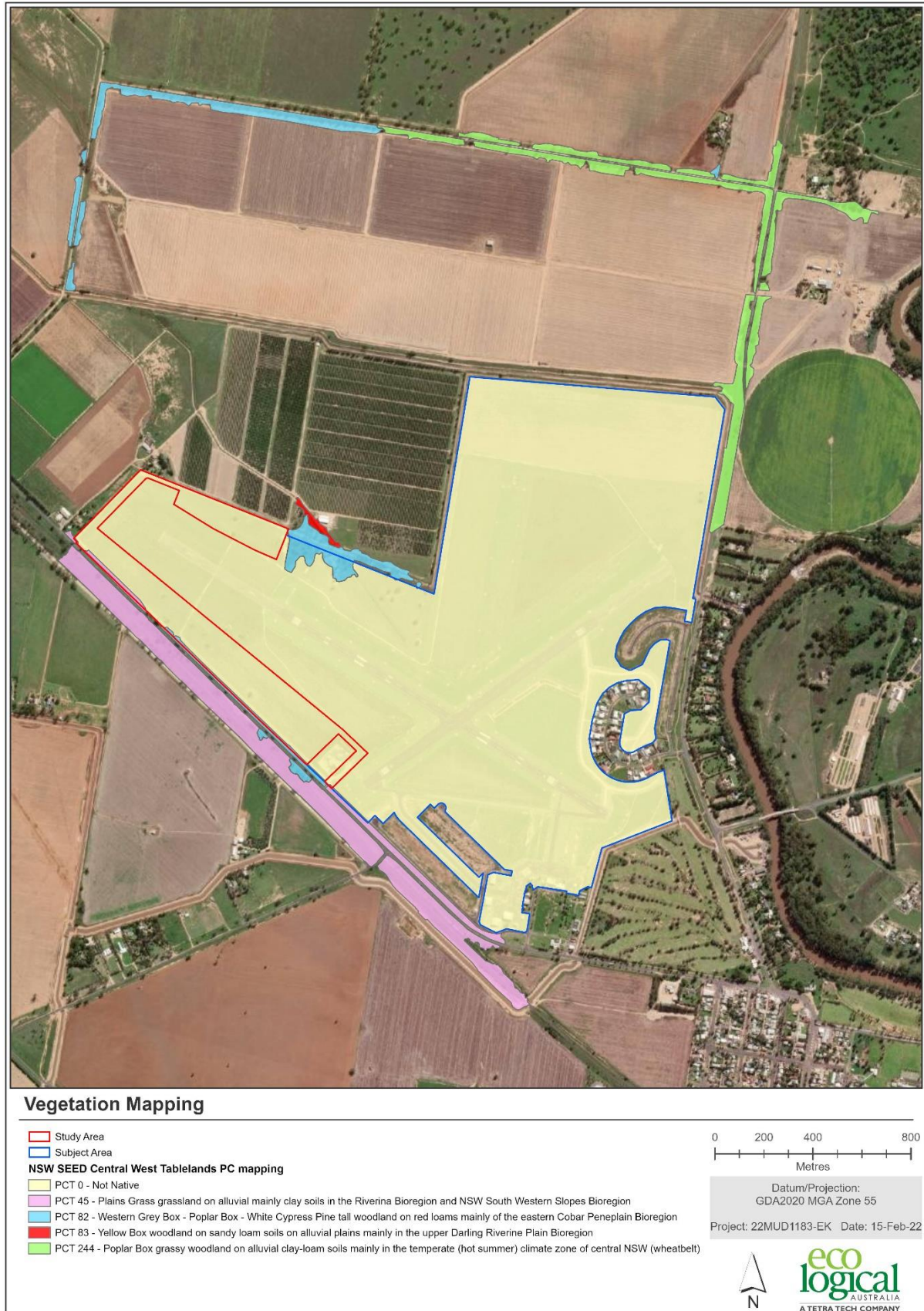


Figure 4: Vegetation Map

3.2 Site assessment

The vegetation within the study area is reflective of historical vegetation clearing, cultivation and on-going management of the site which includes regular spraying and mowing. The vegetation is dominated by exotic vegetation including *Conyza bonariensis* (Fleabane), *Brassica rapa* (Wild Mustard), *Verbena bonariensis* (Purpletop vervain) and *Chloris gayana* (Rhodes grass) with scattered patches of *Chloris truncata* (Windmill Grass) and *Echinochloa colona* (Awnless barnyard grass). The study area conforms to the State Vegetation Mapping which identifies the study area as PCT 0 (**Figure 5**).



Figure 5: Vegetation within the study area. *Conyza bonariensis* with *Chloris truncata*, *Echinochloa colona* and dead stems of *Brassica rapa* (wild mustard).

The study area included a few scattered trees, *Eucalyptus populnea*; (Poplar Box), *Brachychiton populneus* (Kurrajong) with one *Geijera parviflora* (Wilga) with a few *E. melanophloia* (Silver-leaved Ironbark) in the surrounding subject area. It was considered that the most likely PCT based on landscape positioning, soils and Interim Biogeographic Regionalisation for Australia (IBRA) region was most likely to be PCT 244 *Poplar Box grassy woodland on alluvial clay-loam soils mainly in the temperate (hot summer) climate zone of central NSW (Wheatbelt)*. However, given the dominance of exotic vegetation, lack of trees and the current and future management of the study area it no longer conforms to any PCT. It is also unlikely to be restored to any future PCT due to the desire to maintain the area as an airfield and vegetation growth will be limited due to NSC ongoing maintenance of mowing and use of non-selective herbicides.

There are ten trees and six stags within the study area. Details are given in **Table 1** below. Each tree was assessed for habitat features such as hollows and nesting sites. None of the trees will be removed during

the proposed development. Only two stags (2 small hollows) and one *B. populneus* (1 medium hollow) had hollows (**Figure 6**). Three trees (two *E. populnea* and one *B. populneus*) had stick nests (**Figure 7**).

Table 1: Tree assessment

Species	Common name	Number of individuals	Habitat features
<i>Eucalyptus populnea</i>	Poplar Box	7	No hollows were observed. Two trees contained large stick nests which are most likely to be Magpies
<i>Brachychiton populneus</i>	Kurrajong	3	One medium hollow within the main trunk. One stick nest.
Stag		6	Only 1 tree contained two small hollows. One other stag contained numerous cracks and crevices suitable for bats.

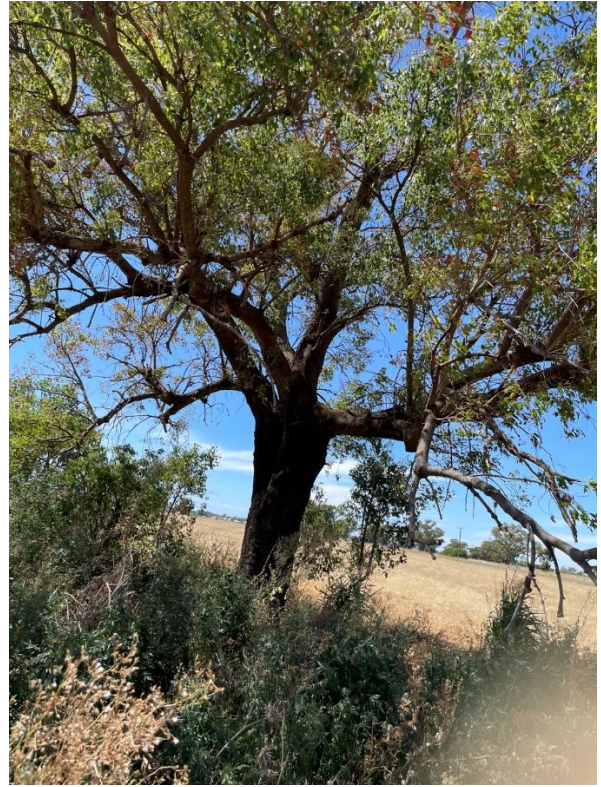


Figure 6: *Eucalyptus populnea* (Poplar Box) with stag and *Brachychiton populneus* with hollow in trunk.



Figure 7: Large stick nest in *Eucalyptus populnea*. Vegetation under trees dominated by *Lactuca serriola* (Prickly lettuce) and *C. bonariensis*.

The floristic data from the four Vegetation Integrity Plots (**Table 2**) is representative of the dominance of exotic species within the study area.

Table 2: Floristic Composition

Plot No.	Total species	No. Native species	No. Exotic species	% cover of native species
1	7	1	6	5%
2	6	1	5	8%
3	8	2	6	30%
4	10	4	6	12%

The field data was unable to be uploaded into the BAM Calculator (BAMC) to generate a Vegetation Integrity (VI) score due to the dominance of exotic vegetation and lack of PCT selection. The score is expected to be low reflective of the lack of native species diversity, lack of native cover, and no structural attributes.

No threatened species records within the NSW BioNet Atlas database or the EPBC Act Protected Matters are located within or adjacent to the study area, nor were observed during the site assessment. Given the absence of historical records, the disturbed and developed nature of the site and surrounding land, as well as the lack of connectivity with areas of more favourable threatened species habitat, it is unlikely that the study area would constitute habitat for any locally occurring threatened species. As such, the

proposed development would be unlikely to significantly impact upon any threatened entity listed under the BC Act or EPBC Act.

Only five bird species, one reptile and one mammal were observed opportunistically on site (**Table 3**). This is reflective of the lack of habitat and poor condition of the vegetation within the study area. Current and ongoing management of the site actively excludes the use by fauna. To prevent collisions the entire subject area is surrounded by a 2 m high steel mesh fence.

Table 3: Fauna recorded opportunistically on site

<i>Species</i>	<i>Common Name</i>
<i>Cracticus tibicen</i>	Australian Magpie
<i>Aquila audax</i>	Wedgetail Eagle
<i>Milvus migrans</i>	Black Kite
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Platyercus eximius</i>	Eastern Rosella
<i>Demansia psammophis</i>	Yellow-faced Whip snake
<i>Lepus europaeus</i>	European Hare

4. Conclusion

ELA has undertaken an assessment of the impact on the environment of the proposed new access road and carpark for Narromine Aerodrome. The biodiversity values of the study area were identified through a comprehensive data and literature review and an ecological field survey. The data review included searches of the relevant threatened species and vegetation mapping databases, environmental planning instruments and previous studies, whilst the field survey included vegetation validation and mapping, threatened fauna habitat assessment and threatened flora and fauna surveys.

Due to the already disturbed and managed nature of the site, it is considered that vegetation present is unlikely to provide significant suitable habitat for use by threatened fauna species for breeding/ and or roosting. There is potential that the site is used by predatory birds such as eagles, on an occasional basis for foraging purposes. Additionally, it is unlikely that the study area is suitable habitat for threatened flora in the locality due to the highly disturbed nature of the site from past agricultural activities, current maintenance and regular weed spraying. The vegetation on site does not align with any PCT.

Given the above, it is determined that the proposed development site located within the Narromine Aerodrome located on Mitchell Highway Narromine (Lot 23 DP 1278134) will not trigger entry into the NSW BOS due to the following:

- the vegetation proposed for development does not constitute native vegetation
- the proposed development site is not mapped on the DPIE Biodiversity Values Map
- the proposed development is unlikely to have a significant impact on any threatened entity listed under the BC Act.

5. References

Department of the Environment (DotE), 2013. *Matters of National Environmental Significance - Significant impact guidelines 1.1*. Australian Government Department of the Environment, Canberra

Department of the Environment and Energy (DotEE), 2021. *Species Profile and Threats Database*. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl> Australian Government, Department of the Environment and Energy, Canberra.

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[Narromine Shire Council \(2019\). Narromine Aerodrome strategic and master plan. NSC, Narromine. NSW](#)

NSW Government (2017). Central West and Orana Regional Plan 2036. Dubbo. NSW 2830 [Central-West-and-Orana-Regional-Plan-2036.pdf \(nsw.gov.au\)](#)

A1 Appendix A - Likelihood Table

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database searches. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the study areas, results of the site inspection and professional judgement. Some migratory, marine and aquatic species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- “yes” - the species was or has been observed on the site
- “likely” = a medium to high probability that a species uses the site
- “potential” = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- “unlikely” = a very low to low probability that a species uses the site
- “no” = habitat on site and in the vicinity is unsuitable for the species.

No assessments of significance are required. Information provided in the habitat associations’ column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database (DPIE 2022a), NSW Threatened Species Profiles (DPIE 2022b) and DPIE BioNet (DPIE 2022c).

- “CE” = critically endangered
- “E” = endangered
- “V” = Vulnerable
- “M” = Migratory

Table A1 – Likelihood of Occurrence- Threatened Ecological Communities

Threatened Ecological Community	BC Act Status	EPBC Status	Act	Distribution and Habitat	Likelihood of Occurrence
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	E	E		<p>Semi-arid to humid subtropical woodland where <i>Eucalyptus coolabah</i> subsp. <i>coolabah</i> (Coolibah) and/or <i>Eucalyptus largiflorens</i> (Black Box) are the dominant canopy species and where the understorey tends to be grassy. Other tree species may occur in the tree canopy but are not dominant, including <i>Acacia salicina</i> (Cooba), <i>Acacia stenophylla</i> (River Cooba), <i>Casuarina cristata</i> (Belah), <i>Eremophila bignoniiflora</i> (Eurah), <i>Eucalyptus camaldulensis</i> (River Red Gum) and <i>Eucalyptus populnea</i> (Bimble Box). The mid or shrub layer may or may not be present. Ground cover lifeforms typically comprise native graminoids, other herbs, chenopods and other low shrubs that are typically under 50 cm tall.</p> <p>Associated with the floodplains and drainage areas of the Darling Riverine Plains and the Brigalow Belt South bioregions. Found on the grey, self-mulching clays of periodically waterlogged floodplains, swamp margins, ephemeral wetlands, stream levees, drainage depressions and gilgai.</p>	No. Not suitable habitat
Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	E	E		<p>Woodland to open forest with a canopy dominated by <i>Eucalyptus microcarpa</i> (Grey Box). Other tree species are often present and may be co-dominant with Grey Box at some sites, including <i>Allocasuarina luehmannii</i> (Buloke), <i>Brachychiton populneus</i> (Kurrajong), <i>Callitris glaucophylla</i> (White Cypress Pine), <i>Eucalyptus albens</i> (White Box), <i>E. camaldulensis</i> (River Red Gum), <i>E. conica</i> (Fuzzy Box), <i>E. leucoxylon</i> (Yellow Gum), <i>E. melliodora</i> (Yellow Box) and <i>E. populnea</i> (Bimble Box). The understorey is characterised by a moderately dense to sparse shrub layer, and a ground layer of perennial and annual native forbs and graminoids, dominated by tussock grasses.</p> <p>The community includes patches of derived grassland, where the tree canopy and mid layer has been removed to less than 10% crown cover, but the native ground layer remains largely intact. Distributed through central New South Wales through northern and central Victoria into South Australia. In NSW, found in the southern subregions of the Brigalow Belt South bioregion, the eastern subregions of the Darling Riverine Plain bioregion, the NSW South Western Slopes bioregion and the eastern subregions of the Cobar Peneplain bioregion. Flat to undulating plains, low</p>	No. Not found during field survey.

Threatened Ecological Community	BC Act Status	EPBC Status	Act	Distribution and Habitat	Likelihood of Occurrence
				slopes and rises and, to a lesser extent, drainage depressions and flats. May extend to more elevated hillslopes on the fringes of its range. Often occurs on productive soils derived from alluvial or colluvial materials.	
Natural Grasslands of the Murray Valley Plains		CE		Ranges from open to closed tussock grassland dominated by one or more of <i>Rytidosperma</i> spp., <i>Austrostipa</i> spp. and <i>Enteropogon ramosus</i> (curly windmill grass). In areas where grasses are sparse it may be a herbland/forbland. At other sites, the grassland may grade into an open grassy shrubland where low chenopod shrubs become co-dominant with the grass component. Occurs predominately across the southern parts of the Riverina bioregion and extends into parts of the Murray Darling Depression and NSW South-Western Slopes bioregion. Typically occurs on a landscape of flat alluvial lowland plains with heavy-textured grey, brown and red clays.	No. Not found during field survey
Poplar Box Grassy Woodland on alluvial plains		E		The Poplar Box Grassy Woodland on Alluvial Plains ecological community is typically a grassy woodland or occasionally open grassy forest, with a canopy dominated by <i>Eucalyptus populnea</i> and an understorey mostly of grasses and other forbs. Other sub-dominant tree species may include <i>Callitris glaucophylla</i> , <i>Casuarina cristata</i> , <i>Eucalyptus coolabah</i> , <i>E. largiflorens</i> and <i>E. melanophloia</i> . Occasionally with emergent taller trees such as <i>E. microcarpa</i> and <i>E. pilligaensis</i> (also known as <i>E. woollsiana</i>). Although not typical, there may also be a low density of medium shrubs and small trees including <i>Acacia aneura</i> , <i>Alectryon oleifolius</i> subsp. <i>canescens</i> , <i>Apophyllum anomalum</i> , <i>Atalaya hemiglauca</i> , <i>Capparis mitchellii</i> , <i>Eremophila mitchellii</i> and <i>Geijera parviflora</i> . Shrubby forms of Poplar Box woodland exist on lower nutrient sandy soils and are not part of the ecological community. The ground layer is typically open and low and can vary in composition across the geographical range of the community, depending on rainfall, local hydrological conditions, landscape, soil type and season. Grasses occurring throughout the range of the community include species of <i>Aristida</i> , <i>Bothriochloa</i> , <i>Dichanthium</i> , <i>Themeda</i> and <i>Heteropogon</i> . In drier areas on lighter texture soils in the west of the range, additional species include <i>Eragrostis</i> spp., <i>Thyridolepis mitchelliana</i> and <i>Monachather paradoxus</i> . While <i>Enteropogon acicularis</i> , <i>Paspalidium</i> spp. and <i>Sporobolus</i> spp. occur in both northern and southern locations. In southern areas with winter rainfall and heavy-textured soils, other C3 grasses are more prevalent, including <i>Rytidosperma</i> and <i>Austrostipa</i> spp., including plains grass	No. Not found during field survey. It is likely that this TEC was once present historically however given the degraded nature of the study area, the habitat does not conform due to the lack of key characterises and condition thresholds.

Threatened Ecological Community	BC Act Status	EPBC Status	Act	Distribution and Habitat	Likelihood of Occurrence
				(<i>Austrostipa aristiglumis</i>). Low-lying moist areas prone to occasional inundation may include sedges such as <i>Carex inversa</i> and <i>Eleocharis plana</i> , rushes such as <i>Juncus</i> spp. and ferns such as <i>Marsilea drummondii</i> . There are a diverse range of forbs which vary seasonally, examples include species of <i>Bulbine</i> , <i>Brachyscome</i> , <i>Einadia</i> , <i>Erodium</i> , <i>Oxalis</i> and <i>Wahlenbergia</i> . In addition, chenopods such as <i>Enchylaena tomentosa</i> , <i>Maireana</i> spp., <i>Rhagodia spinescens</i> , <i>Sclerolaena birchii</i> and <i>Sclerolaena muricata</i> may occur. This community occurs in a broad band west of the Great Dividing Range in gently undulating to flat landscapes and occasionally on gentle slopes, at altitudes typically less than 300 metres above sea level. In NSW it extends widely across the western slopes and plains from Leeton in the south, west to Bourke, Goondiwindi in the north and Tamworth in the east. It extends into Queensland as far north as Chinchilla and west to Longreach.	
Weeping Myall Woodlands	E	E		Open woodlands to woodlands, generally 4-12 m high, in which <i>Acacia pendula</i> (Weeping Myall) trees are the sole or dominant overstorey species. Other vegetation may include <i>Alectryon oleifolius</i> subsp. <i>elongatus</i> (Western Rosewood), <i>Eucalyptus populnea</i> (Poplar Box) or <i>Eucalyptus largiflorens</i> (Black Box). <i>Amyema quandang</i> (Grey Mistletoe) commonly occurs on the branches of Weeping Myall trees. The understorey often includes an open layer of shrubs above an open ground layer of grasses and herbs, though the ecological community can exist naturally either as a shrubby or a grassy woodland. Found within inland alluvial plains west of the Great Dividing Range. In NSW, it occurs in the Riverina, NSW South Western Slopes, Darling Riverine Plains, Brigalow Belt South, Murray-Darling Depression, Nandewar and Cobar Peneplain Bioregions. Generally, occur on flat areas, shallow depressions or gilgais on raised (relict) alluvial plains. Occurs on black, brown, red-brown or grey clay or clay loam soils.	No. Not found during field survey

Table A2 – Likelihood of Occurrence – Threatened flora

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
<i>Dichanthium setosum</i>	Bluegrass	V	V	In NSW, found on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes.	Cleared woodland, grassy roadside remnants and highly disturbed pasture, on heavy basaltic black soils and red-brown loams with clay subsoil.	No. Not found during field survey
<i>Lepidium monoplacoides</i>	Winged Peppergrass	E	E	Semi-arid western plains regions of NSW. Large numbers of historical records (from Broken Hill, Bourke, Cobar, Urana, Lake Cargelligo, Balranald, Wanganella and Deniliquin) but few recent collections. (Hay Plain, south-eastern Riverina, and near Pooncarie).	Open woodland dominated by <i>Allocasuarina luehmannii</i> and/or eucalypts, wetland-grassland, or <i>Maireana pyramidata</i> shrubland. Occurs on seasonally moist to waterlogged sites, with heavy fertile soils.	No suitable habitat
<i>Swainsona murrayana</i>	Slender Darling Pea	V	V	Recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree.	Bladder saltbush, black box and grassland communities, remnant native grasslands or grassy woodlands on heavy clay-based soils, on level plains, floodplains and depressions.	No suitable habitat

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Likelihood of Occurrence
<i>Swainsona recta</i>	Small Purple-pea	E	E	Queanbeyan and Wellington-Mudgee areas. Historically also recorded at Carcoar, Culcairn and Wagga Wagga.	Grassland, open woodland and open forests dominated by <i>Eucalyptus blakelyi</i> (Blakely's Red Gum), <i>E. melliodora</i> (Yellow Box), <i>E. rubida</i> (Candlebark Gum) and <i>E. goniacalyx</i> (Long-leaf Box).	No suitable habitat
<i>Tylophora linearis</i>		V	E	In NSW, found in the Barraba, Mendooran, Temora and West Wyalong districts in the northern and central western slopes. Records include Crow Mountain near Barraba, Goonoo, Pilliga West, Cumbil, and Eura State Forests, Coolbaggie Nature Reserve, Goobang National Park, and Beni Conservation Area	Dry scrub, open forest, dry woodlands of <i>Eucalyptus fibrosa</i> , <i>Eucalyptus sideroxylon</i> , <i>Eucalyptus albens</i> , <i>Callitris endlicheri</i> , <i>Callitris glaucophylla</i> and <i>Allocasuarina luehmannii</i> .	No suitable habitat

Table A3 – Likelihood of Occurrence – Threatened fauna

Scientific Name	Common Name	BC Act Status	EPBC Act status	Distribution	Habitat	Likelihood of Occurrence
<i>Actitis hypoleucos</i>	Common Sandpiper	M		Summer migrant. In NSW, widespread along coastline and also occurs in many areas inland.	Coastal wetlands and some inland wetlands, especially muddy margins or rocky shores. Also estuaries and deltas, lakes, pools, billabongs, reservoirs, dams and claypans, mangroves.	No suitable habitat

Scientific Name	Common Name	BC Act Status	EPBC Act status	Distribution	Habitat	Likelihood of Occurrence
<i>Anseranas semipalmata</i>	Magpie Goose	V		In NSW, found in central and northern parts of the state, with vagrants as far as south-eastern NSW.	Shallow wetlands, floodplains, grasslands, pastures, dams and crops.	No suitable habitat
<i>Anthochaera phrygia</i>	Regent Honeyeater	E	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions.	Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of <i>Casuarina cunninghamiana</i> (River Oak).	No suitable habitat. Not mapped important areas
<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	V	V	In NSW, only known from the Central and Southern Tablelands, and the South Western Slopes.	Sloping, open woodland areas with predominantly native grassy groundlayers, rocky outcrops or scattered, partially buried rocks.	No suitable habitat. No rocks due to cultivation
<i>Ardeotis australis</i>	Australian Bustard	E		In NSW, mainly found in the north-west corner and less often in the lower western and central west plains regions. Occasional vagrants as far east as the western slopes and Riverine plain.	Tussock and hummock grasslands, low shrublands and low open grassy woodlands; occasionally seen in pastoral and cropping country, golf courses and near dams.	No suitable habitat
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Found over most of NSW except for the far north-west.	Permanent freshwater wetlands with tall, dense vegetation, particularly <i>Typha</i> spp. (bullrushes) and <i>Eleocharis</i> spp. (spikerushes).	No suitable habitat
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper		M	Summer migrant. Widespread in most regions of NSW, especially in coastal areas, but sparse in the south-central Western Plain and east Lower Western Regions.	Shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	No suitable habitat
<i>Calidris melanotos</i>	Pectoral Sandpiper		M	Summer migrant to Australia. Widespread but scattered in NSW. East of the Great Divide, recorded from Casino and Ballina, south to	Shallow fresh to saline wetlands, including coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes,	No suitable habitat

Scientific Name	Common Name	BC Act Status	EPBC Act status	Distribution	Habitat	Likelihood of Occurrence
				Ulladulla. West of the Great Divide, widespread in the Riverina and Lower Western regions.	river pools, creeks, floodplains and artificial wetlands.	
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes.	Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	No suitable habitat
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V		From eastern through central NSW, west to Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell.	Eucalypt woodlands and dry open forest.	No suitable habitat
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	No suitable habitat
<i>Falco hypoleucos</i>	Grey Falcon	E		Arid and semi-arid zones. In NSW, found chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Shrubland, grassland and wooded watercourses, occasionally in open woodlands near the coast, and near wetlands.	No suitable habitat
<i>Falco subniger</i>	Black Falcon	V		Sparsely distributed in NSW, occurring mostly in inland regions.	Woodland, shrubland and grassland, especially riparian woodland and agricultural land. Often associated with streams or wetlands.	No suitable habitat
<i>Gallinago hardwickii</i>	Latham's Snipe		M	Migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW.	Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	No suitable habitat
<i>Grantiella picta</i>	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas.	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	No suitable habitat. No mistletoe.

Scientific Name	Common Name	BC Act Status	EPBC Act status	Distribution	Habitat	Likelihood of Occurrence
<i>Grus rubicunda</i>	Brolga	V		Sparsely distributed across the southern part of its range, which includes central NSW to western Victoria.	Open wetlands, grassy plains, coastal mudflats and irrigated croplands and, on the coast, mangrove-studded creeks and estuaries.	No suitable habitat
<i>Lathamus discolor</i>	Swift Parrot	E	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes.	Box-ironbark forests and woodlands.	No suitable habitat. Not mapped as important habitat.
<i>Leipoa ocellata</i>	Malleefowl	E	V	Arid and semi-arid zones. In NSW, populations occur in the south west mallee centred on Mallee Cliffs NP and extending east to near Balranald; in the Scotia mallee west of the Darling River; and in the Goonoo forest near Dubbo. Recorded less recently in the Pilliga forests, around Cobar and Goulburn River NP.	Predominantly mallee communities. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands, or other woodlands dominated by Mulga or native Cypress Pine species.	No suitable habitat
<i>Motacilla flava</i>	Yellow Wagtail		M	Regular summer migrant to mostly coastal Australia. In NSW recorded Sydney to Newcastle, the Hawkesbury and inland in the Bogan LGA.	Swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land, lawns.	No suitable habitat
<i>Myiagra cyanoleuca</i>	Satin Flycatcher		M	In NSW, widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains.	Eucalypt-dominated forests, especially near wetlands, watercourses, and heavily-vegetated gullies.	No suitable habitat
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat	V	V	Distribution coincides approximately with the Murray Darling Basin; the Pilliga Scrub region is the distinct stronghold for this species.	Mallee, <i>Allocasuarina luehmannii</i> (bulloke) and box eucalypt-dominated communities, especially box/ironbark/cypress-pine vegetation.	No suitable habitat
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria.	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths	No suitable habitat

Scientific Name	Common Name	BC Act Status	EPBC Act status	Distribution	Habitat	Likelihood of Occurrence
					and swamps as well as urban gardens and cultivated fruit crops.	
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys.	Swamps, dams and nearby marshy areas.	No suitable habitat

A2 Appendix B - Recorded Flora species list

Family	Scientific Name	Common Name	Native / Exotic	High Threat Weed#
Poaceae	<i>Avena fatua</i>	Wild oats	Exotic	
Asteraceae	<i>Bidens pilosa</i>	Cobblers Pegs	Exotic	Y
Malvaceae	<i>Brachychiton populneus</i>	Kurrajong	Exotic	
Brassicaceae	<i>Brassica rapa</i>	Wild Mustard	Exotic	
Poaceae	<i>Bromus sp</i>	Brome Grass	Exotic	
Asteraceae	<i>Carduus nutans</i>	Nodding thistle	Exotic	
Poaceae	<i>Chloris gayana</i>	Rhodes Grass	Exotic	Y
Poaceae	<i>Chloris truncata</i>	Windmill Grass	Exotic	
Asteraceae	<i>Chondrilla juncea</i>	Skeleton weed	Exotic	
Asteraceae	<i>Chrysocephalum apiculatum</i>	Common everlasting	Native	
Asteraceae	<i>Conyza bonariensis</i>	Fleabane	Exotic	
Poaceae	<i>Cynodon dactylon</i>	Bermuda grass	Native	
Poaceae	<i>Echinochloa colona</i>	Awnless Barnyard Grass	Native	
Chenopodiaceae	<i>Einadia trigonos</i>	Fishweed	Native	
Poaceae	<i>Eragrostis cilianensis</i>	stinkgrass	Exotic	
Myrtaceae	<i>Eucalyptus populnea</i>	Poplar Box	Native	
Rutaceae	<i>Geijera parviflora</i>	Wilga	Native	
Asteraceae	<i>Hypochaeris sp</i>	Flatweed	Exotic	
Asteraceae	<i>Lactuca serriola</i>	Prickly lettuce	Exotic	
Poaceae	<i>Panicum effusum</i>	Hairy panic	Native	
Rosaceae	<i>Rosa rubiginosa</i>	Sweet briar	Exotic	Y
Asteraceae	<i>Taraxacum officinale</i>	Dandelion	Exotic	
Verbenaceae	<i>Verbena bonariensis</i>	Purpletop vervain	Exotic	
Campanulaceae	<i>Wahlenbergia sp</i>	Bluebells	Native	
Asteraceae	<i>Xanthium spinosum</i>	Bathurst burr	Exotic	Y

#High Threat weeds as per NSW Biodiversity Assessment Method (BAM).

