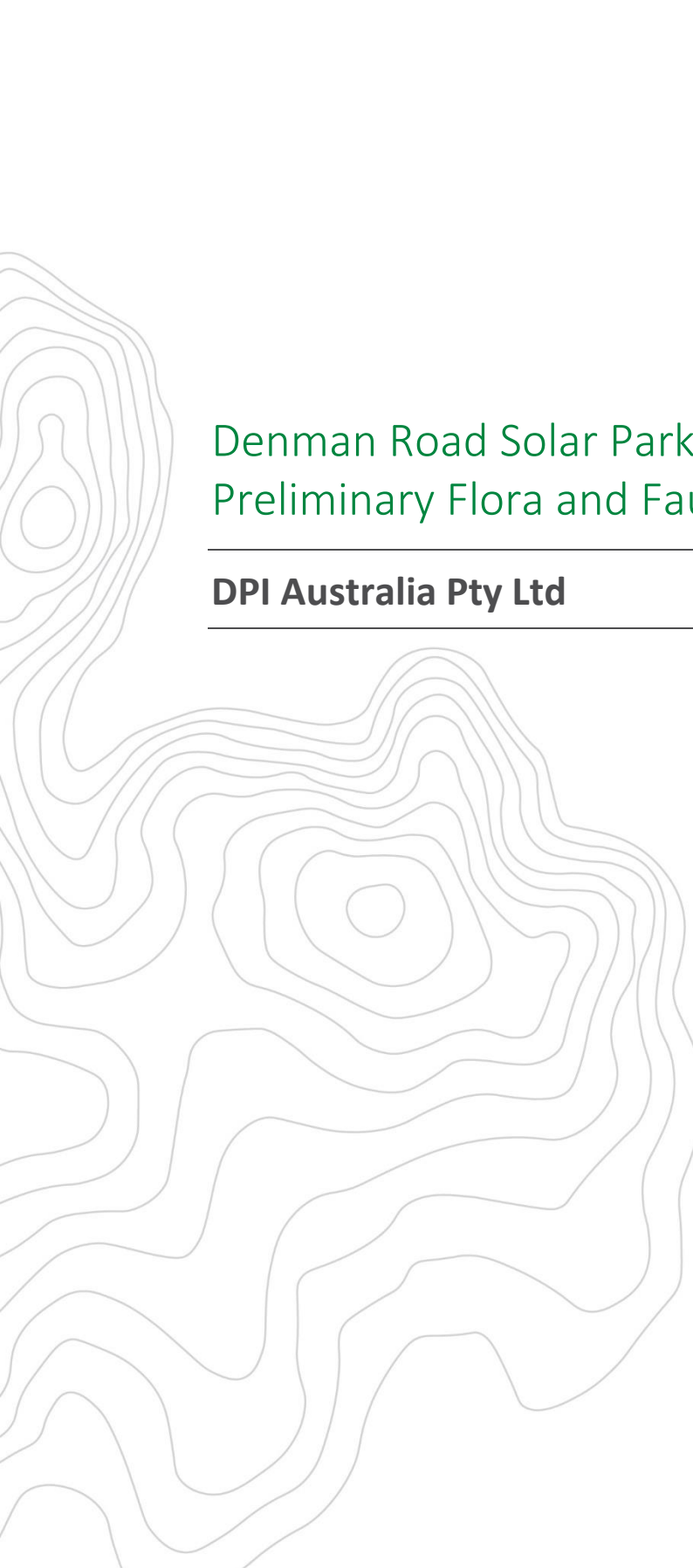


A stylized topographic map with green contour lines is positioned on the left side of the page, extending from the top left towards the bottom left.

Denman Road Solar Park Preliminary Flora and Fauna Assessment

DPI Australia Pty Ltd

DOCUMENT TRACKING

Project Name	Denman Road Solar Park Preliminary Flora and Fauna Assessment
Project Number	19MUD / 14425
Project Manager	Andrew Butler
Prepared by	Kate Maslen; Cheryl O'Dwyer
Reviewed by	Andrew Butler; Kalya Abbey
Approved by	Andrew Butler
Status	Final
Version Number	V3
Last saved on	20 November 2020

This report should be cited as 'Eco Logical Australia 2020. Denman Road Solar Park Preliminary Flora and Fauna Assessment . Prepared for DPI Australia Pty Ltd.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from DPI Australia Pty Ltd

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and DPI Australia Pty Ltd. The scope of services was defined in consultation with DPI Australia Pty Ltd, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the study area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Template 2.8.1

Contents

1. Introduction	1
1.1 Study area.....	1
1.2 Report objectives.....	3
1.3 Legislative context	3
2. Methods	5
2.1 Literature and data review	5
2.2 Field survey.....	6
2.2.1 Koala Habitat Assessment.....	6
3. Results	8
3.1 Literature review and data audit	8
3.2 Vegetation communities.....	8
3.3 Threatened flora.....	9
3.4 Threatened fauna	9
3.5 SEPP (Koala Habitat Protection).....	10
4. Impact mitigations and recommendations	12
5. Conclusion.....	13
6. Reference List.....	14
Appendix A Likelihood Table.....	15
Appendix B Assessment of significance for BC Act listed species	26
Appendix C Flora species List	31

List of Figures

Figure 1: Study Area for the Denman Road Solar Park	2
Figure 2: Heavily grazed and cultivated land located within the Study Area	9
Figure 3: Habitat features identified within the Study Area	11

List of Tables

Table 1: Legislation relevant to the proposed works.....	3
Table 2: Weather conditions six days leading up to and during the field survey Rainfall from Station number 61363 and Temperature from station number 61423 (BOM 2020)	6
Table 3: Hollow bearing trees located within the Study Area	10

Abbreviations

Abbreviation	Description
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
CEEC	Critically Endangered Ecological Community (EPBC Act)
DA	Development Application
DAWE	Commonwealth Department of Agriculture, Water and the Environment
EEC	Endangered Ecological Community (BC Act)
EIA	Environmental Impact Assessment
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFA	Flora and Fauna Assessment
HBT	Hollow-bearing Tree
LEP	Local Environment Plan
LGA	Local Government Area
MNES	Matters of National Environmental Significance
MSC	Muswellbrook Shire Council
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
SEED	Sharing and Enabling Environmental Data
SEPP	<i>State Environmental Planning Policy</i>
SOEE	Statement of Environmental Effects
TEC	Threatened Ecological Community

1. Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by DPI Australia Pty Ltd (DPI) through ASLAT Consulting to undertake a preliminary Flora and Fauna Assessment (FFA) for the proposed Denham Road Solar Park (the Project), located on Denman Road, Muswellbrook NSW. The FFA is required to provide supporting information for the preparation of a Statement of Environmental Effects (SOEE) as part of a Development Application (DA) to Muswellbrook Shire Council (MSC). The DA is for the development of a solar Photovoltaic (PV) generation and storage facility (Solar Park) including network connection to the adjoining 66kv Ausgrid Power line.

The Project is located on Lot 400 DP 791860, a single 40ha site. The Project will have a potential peak power generation of up to 20 megawatts (MWAC) and will comprise:

- a photovoltaic (PV) Solar Park
- an on-site step-up transformer and associated facilities to connect to the Ausgrid Network
- a small control room and operation/maintenance facility with car parking for up to 5 vehicles.

This FFA has been prepared to identify the biodiversity values of the land which may be impacted by the Project. Desktop assessments and a one-day field survey were undertaken to identify threatened species, populations, critical habitat and ecological communities that may be impacted by the proposed development. Recommendations for mitigation and or remediation of potential impacts are provided.

1.1 Study area

The Project study area is located wholly within the Muswellbrook Local Government Area (LGA) approximately 13 km south-west of Muswellbrook and 10 km north-east of Denman (Figure 1). The study area is zoned RU1 primary production under the Muswellbrook Local Environmental Plan (MSC; 2009).

The study area consists of 40 ha of cleared, grazing land, parts of which have been cultivated for agriculture. Infrastructure present within the study area includes farm tracks, portable sheep yards and fencing. For the purposes of this FFA, it is assumed that the entire 40 ha will be impacted by the installation of solar panels and associated infrastructure for the Project.

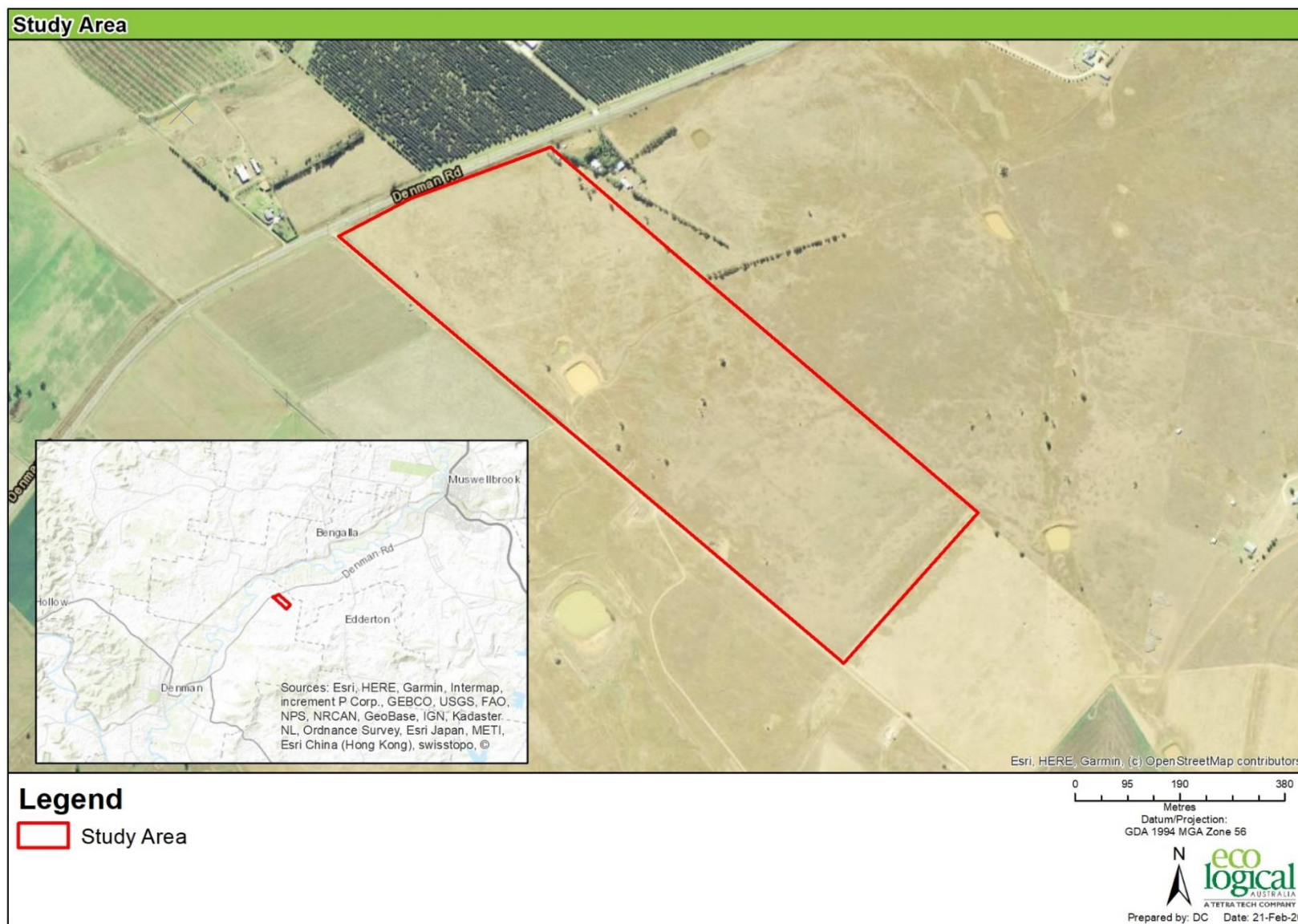


Figure 1: Study Area for the Denman Road Solar Park

1.2 Report objectives

The aims of this FFA are to:

- Provide a description of the ecological values of the study area.
- Assess the impact of the Project on threatened flora and fauna species, populations and ecological communities that occur or are likely to occur in the Study Area, through significance assessments in accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.3 Legislative context

Relevant legislation is identified in Table 1.

Table 1: Legislation relevant to the proposed works

Name	Relevance to the project
Commonwealth	
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	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. MNES have been identified near the site. This report assesses impacts to MNES and concludes that the development is not likely to have a significant impact on MNES.
State	
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	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. The project is development permitted with consent under the NSW State Environmental Planning Policy (SEPP) (Infrastructure) 2007 and is to be assessed under Part 4 of the EP&A Act 1979.
<i>Biodiversity Conservation Act 2016</i> (BC Act)	The purpose of the BC Act is to maintain a healthy and productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Assessments of significance for the impact to threatened species and endangered ecological communities in accordance with s7.3 of the Act have been completed for the proposed works. It is concluded that the development is not likely to result in a significant impact.
<i>Biosecurity Act 2015</i>	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. 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. Appendix 1 of the Hunter Regional Strategic Weed Management Plan identifies the priority weeds for control at a regional scale.

Name	Relevance to the project
Planning Instruments	
<i>State Environment Planning Policy (Koala Habitat Protection) 2019</i>	The SEPP <i>Koala Habitat Protection</i> encourages the conservation and management of areas of natural vegetation providing habitat for <i>Phascolarctos cinereus</i> (koala). Schedule 1 of the SEPP lists local government areas to which the plan applies. The development area is greater than 1 hectare and an approved koala plan of management does not apply to the land. A Koala Habitat Assessment is required. No Core Koala habitat is located in the Study Area. No key feed tree species listed under Schedule 2 of the SEPP for the Central Coast koala management area occur in the Study Area.
<i>Muswellbrook Shire Council Local Environmental Plan (LEP)</i>	Muswellbrook Shire Council LEP aims to make local environmental planning provisions for land in Muswellbrook in accordance with the relevant standard environmental planning instrument under section 3.20 of the EP&A Act.

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 BC Act and/or the EPBC Act with the potential to be present within the Study Area. The following databases were reviewed prior to conducting the field surveys:

- EPBC Act protected matters search, for Matters of National Environmental Significance using a radius of 10 km around coordinates -32.33143, 150.76809 (Department of the Environment and Energy [DoEE¹] 2020)
- BioNet (Wildlife Atlas) search for threatened species/populations listed under the NSW BC Act previously recorded within 10 km radius around co-ordinates latitude -32.28 to -32.38 and longitude 150.72 to 150.82 (OEH 2020a)
- Muswellbrook LEP 2009 (MSC 2009)
- Biodiversity Values Map (OEH 2020b)
- NSW Threatened Species Profiles (OEH 2020c)
- Department of Agriculture, Water and the Environment (DAWE) (2020) Species Profile and Threats Database.

Aerial photography of the Study Area and surrounds was 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. **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. Five terms for the likelihood of occurrence of species are used in this report, as 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.

¹ DoEE renamed Department of Agriculture Water and Environment (DAWE) in February 2020 after the EPBC Act protected matters search was conducted.

2.2 Field survey

A one-day field survey was undertaken on 14 February 2020 by ELA Ecologist Daniel McKenzie. The survey involved traversing the entire Study Area on foot to:

- validate and map the extent and condition of vegetation communities. Vegetation communities were assessed using rapid assessment points
- determine the presence and potential habitat for threatened flora and fauna listed under the BC Act and EPBC Act. The presence of, or potential habitat for, threatened flora and fauna (including hollow-bearing trees, large woody debris) were recorded
- determine whether any plant communities meet the listing criteria of Endangered Ecological Community (EEC) under the BC Act and/or Critically Endangered Ecological Community (CEEC) under the EPBC Act
- determine whether the Study Area contains Core Koala Habitat as prescribed by the SEPP (Koala Habitat Protection)
- observe and record opportunistic fauna observations.

The temperature and rainfall conditions preceding and during the field survey are presented in Table 2. Due to the high level of rainfall preceding the survey period, the site was wet, and therefore the entire survey was done on foot.

Table 2: Weather conditions six days leading up to and during the field survey Rainfall from Station number 61363 and Temperature from station number 61423 (BOM 2020)

Date	Temp Max (°C)	Temp Min (°C)	Rainfall (mm)
8 th February 2020	25.7	19.5	10
9 th February 2020	24.0	18.9	50
10 th February 2020	28.6	16.5	22
11 th February 2020	31.9	17.7	0
12 th February 2020	29.5	20.2	23
13 th February 2020	28.5	21.2	0
14 th February 2020	29.0	19.5	1

2.2.1 Koala Habitat Assessment

An assessment of Koala habitat was undertaken to determine whether the study site constituted Core Koala Habitat as outlined under the SEPP (Koala Habitat Protection).

Core Koala Habitat is defined as:

- an area of land which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment of the land as highly suitable koala habitat, or

- an area of land which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.

A survey of the study site was completed to determine the presence of core Koala habitats (including the presence of Koala feed trees listed within the Central Coast Koala management area within Schedule 2 of the SEPP). A BioNet search was completed to determine if Koalas have been recorded as being present in the previous 18 years.

3. Results

3.1 Literature review and data audit

The BioNet database and EPBC Act Protected Matters Search Tool identified three threatened ecological communities (TEC), 37 threatened fauna and migratory species, and 12 threatened flora species known, or considered likely or having potential, to occur within a 10 km radius of the Study Area (**Appendix A**).

The Study Area is not land identified as “Biodiversity” on the *Terrestrial Biodiversity Map* in the LEP (MSC 2009) and is not identified on the Biodiversity Values Map (OEH 2020b).

3.2 Vegetation communities

The Study Area is located in the Sydney Basin bioregion, Hunter subregion (DoEE 2020). A review of current State Vegetation mapping (NSW 2020) identified that the vegetated areas within the surrounding landscape were characterised by the broad vegetation type “Grassy Woodland”, dominated by the canopy species *Eucalyptus moluccana* (Grey Box) and/or *E. crebra* (Narrow-leaved Ironbark).

Three Plant Community Types (PCTs) occur within the surrounding landscape as determined by SEED State Vegetation Mapping:

- PCT 796 – Derived grasslands of the NSW South Western Slopes
- PCT 1608 – Grey Box-Grey Gum-Rough-barked Apple – Blakely’s Red Gum grassy open forest of the central Hunter
- PCT 1691 – Narrow-leaved Ironbark – Grey Box grassy woodlands of the central and upper Hunter

All three PCTs correspond to listed Threatened Ecological Communities (TECs) under the BC Act and/or the EPBC Act.

The Study Area has been cleared of all native over-storey, other than a few scattered *Allocasuarina luehmannii*, and shrub vegetation and is heavily grazed (Figure 2Error! Reference source not found.). The soil has been cultivated and the vegetation consists only of a very heavily grazed ground layer species, dominated by exotic plants. Only three native grasses and 10 herbs were recorded over the entire Study Area. The range of Pre-European PCTs that existed on this site would likely have included those listed above. Due to the highly degraded nature of the Study Area and the fact that it has been cleared of native over-storey, mid-storey and understory, no PCT can be allocated to the Study Area.

No TECs occur within the Study Area and therefore the proposed development is unlikely to have a significant impact on TECs listed under the BC Act.



Figure 2: Heavily grazed and cultivated land located within the Study Area

3.3 Threatened flora

The current vegetation at this site consisted of a heavily grazed herb layer with no mid- or upper-storey. Exotic species such as *Heliotropium amplexicaule* (Blue Heliotrope), *Schkuhria pinnata* (Dwarf Marigold) and *Panicum sp.* (Panic) dominated the area and occurred across most of the site. Three species of native grasses (*Aristida sp.*, *Austrostipa sp.* and *Chloris truncata*) occur across the site, however, the cover was limited. *Aristida sp.* (Wiregrass) was found in small patches in the southern section of the Lot. A full list of flora species identified during the field survey is provided in **Appendix C**.

Threatened flora species identified in the desktop audit were actively searched for during the field survey. No threatened flora species were observed and given the recent agricultural activities including cultivation and grazing on site, it was determined that suitable habitat does not exist for these species and they are unlikely to occur on site. Therefore, Assessment of Significance under the BC Act or EPBC Act were not required for threatened flora species.

3.4 Threatened fauna

Habitat features onsite include seven (7) hollow bearing trees (HBT) containing 63 hollows within the Study Area (Table 3, Figure 3). The majority of hollows were small, less than 10 cm in diameter. No fauna habitat in the form of large woody debris or rocky outcrop was identified within the Study Area.

Table 3: Hollow bearing trees located within the Study Area

Habitat tree species	HBTs	Number of hollows		
		Small	Medium	Large
<i>Allocasuarina luehmannii</i>	6	54	2	0
<i>Casuarina sp.</i>	1	7	0	0
Total	7	61	2	0

Common farm birds were observed within the Study Area during the field survey. Whilst no threatened fauna were observed there is potential foraging habitat on site for threatened raptors including *Hieraaetus morphnoides* (Little Eagle) and *Circus assimilis* (Spotted harrier). Potential habitat may also exist for *Glossopsitta pusilla* (Little Lorikeet), *Tyto novaehollandiae* (Masked Owl) and *Micronomus norfolkensis* (Eastern Coastal Freetail Bat) due to the presence of suitable sized hollows. The HBT present within the Study Area may provide habitat for a range of fauna but given the current grazing activities occurring within the Study Area, and the isolated nature of the HBTs, these are unlikely to be utilised by threatened fauna species.

Assessment of significances under the BC Act were undertaken for species that have been identified as likely or with the potential to be present in the Study Area due to the presence of suitable habitat (**Appendix B**). These assessments concluded that the proposal was unlikely to have a significant impact on any threatened species under the BC Act. No EPBC Act listed fauna species were identified within the likelihood table as potentially or likely occurring on site therefore no EPBC assessment of significance was completed.

3.5 SEPP (Koala Habitat Protection)

Koalas are known to occur within the Muswellbrook LGA. An assessment of Koala habitat was undertaken to determine whether the Study Area constituted Core Koala Habitat as outlined under the SEPP.

None of the trees identified in the Study Area that were considered koala feed trees as listed in Schedule 2 of the SEPP. There are no Bionet records of Koala located within the Study area. Therefore, the proposed Solar Park does not constitute Core Koala Habitat.

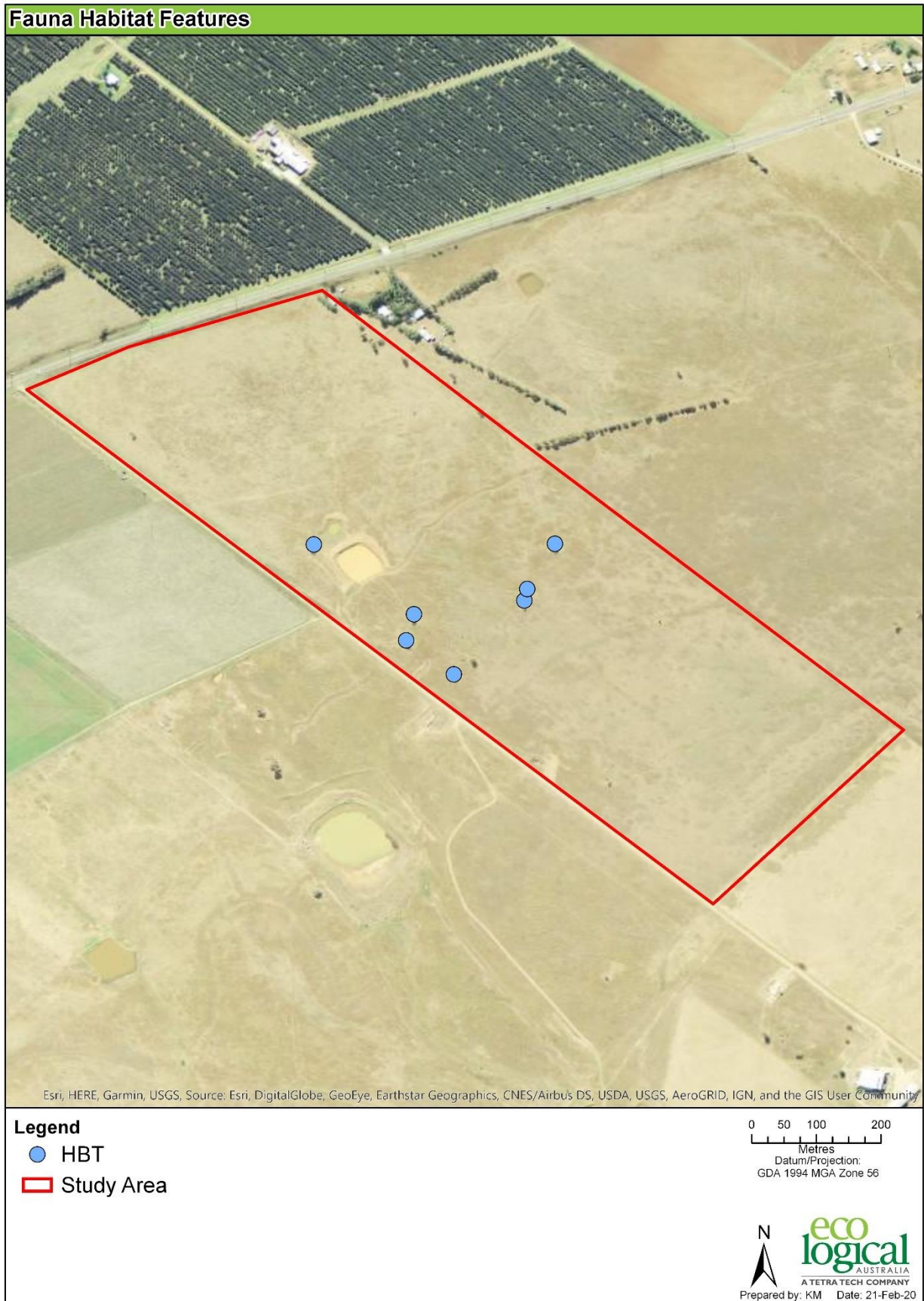


Figure 3: Habitat features identified within the Study Area

4. Impact mitigations and recommendations

Impacts from the proposed Project will be limited to construction disturbance and shading to degraded exotic dominated vegetation, and the removal of seven potential habitat trees. No native vegetation will be removed, there is no habitat potential for threatened flora, and assessments of the significance of impact to threatened fauna species through the removal of the potential habitat trees has concluded no significant impact will occur.

The following mitigation measures are recommended for the proposed works:

- Hollow-bearing trees have been recorded using a handheld GPS and where possible the removal of hollow-bearing trees and limbs should be avoided. The implementation of a tree clearing protocol should be considered to avoid unnecessary disturbance to any nesting or roosting fauna.

A suggested clearing protocol may involve shaking trees with machinery prior to clearing to encourage arboreal mammals to move to an alternative site. Habitat trees should be felled by soft pushing the tree to the ground with the objective of causing minimal impact to the any roosts. Once felled, trees should be left overnight to allow any remaining fauna time to exit. Any occupied nests present in area to be cleared or any fauna which are inadvertently injured during clearing should be reported to the NSW Wildlife Information, Rescue and Education Service Inc. (WIRES) or a similar organisation and relocated from the works area by a suitably qualified fauna handler.

- Construction activities should be undertaken in a manner to avoid damage to any adjacent vegetation.
- Felled trees should be retained as large woody debris in the buffer strip to be established around the site boundary where it is practical and safe to do so. If this is impractical, felled trees should be mulched/chipped and used onsite where possible, e.g. in erosion mitigation.
- Erosion and sediment control measures should be established before works begin and maintained in effective working order throughout the duration of the works and until the site has been stabilised to prevent off-site transport of eroded sediments. If the small dam on site is to be retained, it could be integrated into the sediment and erosion control plan for the site.
- Machinery coming from outside the works area should be managed to reduce the risk of introducing weed species and pathogens. Existing priority weeds should be managed through a program of weed control.

5. Conclusion

The proposed development of the Solar Park within Lot 400 DP 791860, Denman Road, Muswellbrook NSW. It is located on approximately 40 ha within a rural agricultural block that has been cultivated, shows signs of 'pasture' improvements and has been heavily grazed by sheep. As such, the study area is dominated by exotic plant species and whilst fauna habitat is present in the form of seven hollow-bearing trees, the area is highly degraded and disconnected from surrounding native vegetation, and therefore unlikely to support any threatened species populations. This report identified that the proposed development will not have a significant impact upon any threatened species, populations or communities listed under NSW *Biodiversity Conservation Act 2016* or on matters of national environmental significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

6. Reference List

- Bureau of Meteorology (BOM), 2020. *Station number 61363 – Daily Weather Observations*. Website: http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=136&p_display_type=dailyDataFile&p_startYear=&p_c=&p_stn_num=61363. Accessed 20/02/2020
- Department of the Environment & Energy 2020. *Protected Matters Search Tool*. Website: <http://www.environment.gov.au/epbc/pmst/index.html>. Accessed 22/01/2020.
- Department of Agriculture, Water & Environment 2020. *Species Profile and Threats Database*. Website: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>. Accessed 22/02/2020
- Muswellbrook Shire Council 2009. *Local Environmental Plan*. <https://legislation.nsw.gov.au/#/view/EPI/2009/129>
- NSW Government 2020. *Sharing and Enabling Environmental Data*. Available from https://geo.seed.nsw.gov.au/Public_Viewers/index.html?viewer=Public_Viewers&locale=en-AU
- Office of Environment and Heritage 2020a. *BioNet Atlas Search*. Website: http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS/_AtlasSearch.aspx. Accessed 03/02/2020
- Office of Environment and Heritage 2020b. *Biodiversity Values Map*. Website: <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>. Accessed 19/02/2020.
- Office of Environment and Heritage 2020c. *Threatened Species Profile Search*. Website: <http://www.threatenedspecies.environment.nsw.gov.au>. Accessed 20/02/2020.

Appendix A Likelihood Table

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. 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 proposal site, 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.

An assessment of significance was conducted for threatened species or ecological communities that were recorded within the site. An assessment of significance was also conducted for threatened species that had a high likelihood of occurring, were not recorded during the site visit, and have the potential to be significantly impacted. It is noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the site intermittently for foraging. For these fauna species, the habitat present and likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, for these species, an assessment of significance in reference to State or Commonwealth legislation was not considered necessary.

Information provided in the ‘distribution and habitat’ column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database (DAWE 2020a), NSW Threatened Species Profiles (OEH 2019c) and BioNet (OEH 2019a).

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

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
ECOLOGICAL COMMUNITIES						
Central Hunter Valley eucalypt forest and woodland		E	CE	The ecological community is an open forest or woodland, typically dominated by one or more of the following four eucalypt species: <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), <i>Corymbia maculata</i> (Spotted Gum), <i>Eucalyptus dawsonii</i> (Slaty Gum) and <i>Eucalyptus moluccana</i> (Grey Box). This community occurs in the Hunter Valley region (primarily in the Central Hunter), mainly in the Muswellbrook and Singleton LGA. Occurs on Permian-derived soils, typically medium in fertility, often of medium clay content, although some are sandy (OEH 2019b).	No	No
Hunter Valley Weeping Myall (<i>Acacia pendula</i>) Woodland		E	CE	Currently known from parts of the Muswellbrook and Singleton Local Government Areas but may occur elsewhere in the bioregion. It may also occur in the Upper Hunter Local Government Area within the Brigalow Belt South bioregion. This community Typically has a dense to open tree canopy up to about 15 m tall, dominated by <i>Acacia pendula</i> (Weeping Myall), which may occur within <i>Eucalyptus crebra</i> and <i>Acacia salicina</i> . Understorey shrubs may include <i>Canthium buxifolium</i> , <i>Dodonaea viscosa</i> , <i>Geijera parviflora</i> , <i>Notelaea microphylla</i> var. <i>microphylla</i> and <i>Senna zygophylla</i> .	No	No
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		E	CE	Characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of <i>Eucalyptus albens</i> (White Box), <i>Eucalyptus melliodora</i> (Yellow Box) and <i>Eucalyptus blakelyi</i> (Blakely's Red Gum). This community occurs in areas where rainfall is between 400 and 1200 mm per annum, on moderate to highly fertile soils at altitudes of 170 m to 1200 m (OEH 2019b).	No	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
FAUNA						
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	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) (OEH 2019b)	No (Suitable habitat for this species does not exist within the Study Area)	No
<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. Occurs on sloping, open woodland areas with predominantly native grassy ground layers, rocky outcrops or scattered, partially buried rocks (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Artamus cyanopterus</i>	Dusky Woodswallow	V		Occurs throughout most of New South Wales. Primarily inhabit dry, open eucalypt forests and woodlands with an open or sparse understorey. Also found in farmland, at edges of forest or woodland (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	This species is found over most of NSW. It occurs within permanent freshwater wetlands with tall dense vegetation.	No (No suitable habitat for freshwater wetlands)	No
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland (OEH 2019b).	Unlikely (No suitable littoral or estuarine habitat)	No
<i>Circus assimilis</i>	Spotted Harrier	V		Found throughout the Australian mainland, except in densely forested or wooded habitats. Grassy open woodland, inland riparian woodland, grassland, shrub steppe, agricultural land and edges of inland wetlands. Foraging habitat exists for this species in the form of open grassland	Potential (Foraging habitat only)	Yes

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<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 (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Chthonicola sagittata</i>	Speckled Warbler	V		From south-eastern Qld, the eastern half of NSW and into Victoria, as far west as the Grampians, mostly on hills and tablelands of the Great Dividing Range and rarely on coast. Eucalyptus-dominated communities with a grassy understorey and sparse shrub layer, often on rocky ridges or in gullies (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<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 (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Erythroriorchis radiatus</i>	Red Goshawk	E	V	This species is confined to the Northern river's region north of the Clarence river. The Red Goshawk occurs within open woodland and forest often along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, melaleuca swamp forest and coastal riparian Eucalyptus forest	No (Wrong distribution)	No
<i>Glossopsitta pusilla</i>	Little Lorikeet	V		In NSW, found from the coast westward as far as Dubbo and Albury. Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation (OEH 2019b).	Potential	Yes
<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. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Hieraaetus morphnoides</i>	Little Eagle	V		Throughout the Australian mainland, with the exception of the most densely forested parts of the Dividing Range escarpment. Open eucalypt forest, woodland or open woodland, including sheoak or Acacia woodlands and riparian woodlands of interior NSW (OEH 2019b).	Potential	Yes
<i>Hirundapus caudacutus</i>	White-throated Needletail		M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No
<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 (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	This species now occurs within scattered sites within its former range. This species will occur within Marshes, dams and stream-sides, particularly those containing <i>Typha spp.</i> or <i>Eleocharis spp.</i> Some populations occur in highly disturbed areas.	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Litoria booroolongensis</i>	Booroolong Frog	E	E	Restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. Several populations have recently been recorded in the Namoi catchment. Permanent streams with some fringing vegetation cover such as ferns, sedges or grasses (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V		This species is found along the east coast from south QLD to southern NSW. It occurs within Dry sclerophyll forest, woodland, swamp forests east of the Great Dividing Range.	Potential	Yes
<i>Miniopterus orianae oceanensis</i>	Large Bent-wing-bat	V		In NSW it occurs on both sides of the Great Dividing Range, from the coast inland to Moree, Dubbo and Wagga Wagga. Rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland (OEH 2019b).	No (Suitable habitat for this species does not exist within the Study Area)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Monarcha melanopsis</i>	Black-faced Monarch		M	In NSW, occurs around the eastern slopes and tablelands of the Great divide, inland to Armidale, Widden Valley, Wollemi National Park and Wombeyan Caves .Occurs within rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, Brigalow scrub, coastal scrub, mangroves, parks and gardens.	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<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 (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<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 (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<i>Neophema pulchella</i>	Turquoise Parrot	V	-	Occurs along the length of NSW from the coastal plains to the western slopes of the Great Dividing Range. Eucalypt and cypress pine open forests and woodlands, ecotones between woodland and grassland, or coastal forest and heath (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<i>Numenius madagascariensis</i>	Eastern Curlew		CE, M	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<i>Nyctophilus corbeni</i>	Corben's Long-eared Bat	V	V	Distribution coincides approximately with the Murray-Darling Basin the Pilliga scrub region in the distinct stronghold for this species. Occurs within Mallee, <i>Allocasuarina luehmannii</i> (bulloke) and box eucalypt- dominated communities, especially box/ironbark/cypress-pine vegetation.	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Petaurus norfolcensis</i>	Squirrel glider	V		This species is sparsely distributed on both sides of the great dividing range in eastern Australia, from northern QLD. Occurs within Mature to Old growth Box and Ironbark Woodlands and river red gum forests west of the great dividing range and within Blackbutt bloodwood forests within heath understorey within coastal areas.	No (Suitable habitat for this species does not exist within the Study Area)	No
<i>Petauroides Volans</i>	Greater Glider		V	This population on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway and cleared land exceeding 700 m in width to the west. Eucalypt forests and woodlands.	No (No suitable habitat for this species exists within the Study Area)	No
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E	V	In NSW they occur from the Qld border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges (OEH 2019b).	No (No suitable habitat for this species exists within the Study Area)	No
<i>Phascolarctos cinereus</i>	Koala	V	V	Eucalypt forest and woodland communities, including coastal forests, rainforest, riparian areas, swamp sclerophyll forests, heathland and shrubland.	Unlikely (No suitable habitat for this species exists within the Study Area)	No
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V		In NSW, occurs on the western slopes of the Great Dividing Range, and as far as Louth and Balranald on the western plains. Also occurs in woodlands in the Hunter Valley and in some locations on the north coast. Open woodland habitats; favours Box-gum woodlands on the slopes and Box-cypress and open Box woodlands on alluvial plains (OEH 2019b).	Unlikely (No suitable habitat for this species exists within the Study Area)	No
<i>Pseudomys novaehollandiae</i>	New Holland Mouse		V	This species has a fragmented distribution across eastern NSW. Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No
<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 and swamps as well as urban gardens and cultivated fruit crops (OEH 2019b).	Unlikely (Suitable habitat for this species does not exist within the Study Area)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Rhipidura rufifrons</i>	Rufous Fantail		M	Coastal and near coastal districts of northern and eastern Australia, including on and east of the Great Divide in NSW. Wet sclerophyll forests, subtropical and temperate rainforests. Sometimes drier sclerophyll forests and woodlands (OEH 2019b).	Unlikely (No suitable habitat for this species exists within the Study Area)	No
<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 (OEH 2019b).	No (No suitable habitat for this species exists within the Study Area)	No
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		This species occurs on both sides of the great divide. It occurs within Woodland, Moist and dry eucalypt forests and rainforests. This species usually roosts in tree hollows	No (No suitable habitat for this species exists within the Study Area)	No
<i>Tyto novaehollandiae</i>	Masked Owl	V		Recorded over approximately 90% of NSW, excluding the most arid north-western corner. Most abundant on the coast but extends to the western plains. Dry eucalypt forests and woodlands from sea level to 1100 m (OEH 2019b).	Potential	Yes
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V		Found in a broad band on both sides of the Great Dividing Range south to Kempsey, with records from the New England Tablelands and the upper north coast of NSW. The western limit appears to be the Warrumbungle Range, and there is a single record from southern NSW, east of the ACT. Dry open forest and woodland, near cliffs or rocky overhangs, cliff-lines in wet eucalypt forest and rainforest (OEH 2019b).	No (No suitable habitat for this species exists within the Study Area)	No
FLORA						
<i>Acacia pendula</i>		E		This population is known to occur as far east as Warkworth and extends northwest to Muswellbrook and to the west of Muswellbrook at Wybong. Only recorded to date at 6 locations: Jerrys Plains, Edderton, Wybong, Appletree Creek, Warkworth and Appletree Flat. This species will occur within heavy soils, sometimes on the margins of small floodplains, but also in more undulating locations.	No (Not detected within the field)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Cymbidium canaliculatum</i>		E		The Hunter population occurs as far south as Weston and Pokolbin in the Lower Hunter, but is centred in the Upper Hunter, predominantly north of Singleton. Isolated occurrences are also known from the Merriwa plateau, Bylong valley and the Gungal area near Goulburn River. Grows on trees in sclerophyll forest or woodland, where its host trees typically occur on Permian sediments of the Hunter Valley floor. Within the Hunter Catchment, most commonly found in <i>Eucalyptus albens</i> (White Box) dominated woodlands.	No (No suitable habitat for this species exists within the Study Area)	No
<i>Diuris tricolor</i>		E, V		The population in the Muswellbrook LGA, in the upper Hunter Valley, comprises a number of occurrences within an area less than 50 km ² . Sclerophyll woodland and derived grassland on flats or small rises. The study area is highly degraded and dominated with exotic species. Therefore, this habitat is deemed unsuitable for this species, and it is unlikely to occur within the study area.	No (No suitable habitat for this species exists within the Study Area)	No
<i>Eucalyptus camaldulensis</i>		E		Disjunct population occurring from Bylong, south of Merriwa, to the east at Hinton, on the bank of the Hunter River. Riparian and floodplain woodland, often with <i>Eucalyptus tereticornis</i> , <i>Eucalyptus melliodora</i> , <i>Casuarina cunninghamia</i> and <i>Angophora floribunda</i>	No (Not detected within the field)	No
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	Only on the north coast of NSW. Found near Casino and farther south, from Taree to Broke, west of Maitland. Occurs within grassy woodland and dry eucalypt forest on deep, moderately fertile and well-watered soils.	No (Not detected within the field)	No
<i>Euphrasia arguta</i>		CE	CE	In NSW, recently recorded only from Nundle area of the north western slopes and tablelands, from near the Hastings River and from the Barrington Tops. Eucalypt forest with a mixed grass and shrub understorey, disturbed areas, along roadsides (OEH 2019b). This species flowers from January to April. The study area is highly degraded and dominated with exotic species. Therefore, this habitat is deemed unsuitable for this species, and it is unlikely to occur within the study area.	No (Not detected within the field)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Lasiopetalum longistamineum</i>		V	V	Found within the Mt Dangar - Gungal area within Merriwa and Muswellbrook Local Government Areas. Also recorded within the Goulburn River National Park. Known to occur in grassy woodlands and dry sclerophyll forests and rainforests on rich alluvial deposits. This species flowers during spring. The study area is highly degraded and dominated with exotic species. Therefore, this habitat is deemed unsuitable for this species, and it is unlikely to occur within the study area.	No (Not detected within the field)	No
<i>Pomaderris reperta</i>		CE	CE	This species occurs along a single ridgeline near Denman within the Hunter Valley. This species is in association with <i>Eucalyptus crebra</i> , <i>Eucalyptus blakelyi</i> , <i>Notelaea microcarpa</i> and <i>Allocasuarina littoralis</i> on sandy loams. This species flowers from early September to late October. The study area is highly degraded and dominated with exotic species. Therefore, this habitat is deemed unsuitable for this species, and it is unlikely to occur within the study area.	Unlikely (No suitable habitat for this species exists within the Study Area)	No
<i>Prasophyllum sp.</i> <i>Wybong (C. Phelps ORG 5269)</i>	A leek-orchid		CE	Endemic to NSW. Occurs near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga. Known to occur in open eucalypt woodland and grassland.	No	No
<i>Prostanthera cryptandroides</i> subsp. <i>cryptandroides</i>	Wollemi Mint-bush	V	V	Between Lithgow and Sandy Hollow on the NSW central west slopes, central tablelands and western parts of the central coast botanical regions. One record for the northern tablelands near Tenterfield. Occurs within Dry sclerophyll forests often on rocky sites.	No (Wrong Distribution)	No
<i>Pterostylis gibbosa</i>	Illawarra Greenhood	E	E	Known from a small number of populations in the Hunter region (Milbrodale), the Illawarra region (Albion Park and Yallah) and the Shoalhaven region (near Nowra). Occurs within Open forests or woodlands, on flat or gently sloping land with poor drainage. The study area is highly degraded and dominated with exotic species. Therefore, this habitat is deemed unsuitable for this species, and it is unlikely to occur within the study area.	No (No suitable habitat for this species exists within the Study Area)	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution and habitat	Likelihood of Occurrence	Impact Assessment Required
<i>Thesium australe</i>	Austral Toadflax	V	V	In eastern NSW it is found in very small populations scattered along the coast, and from the Northern to Southern Tablelands. Grassland on coastal headlands or grassland and grassy woodland away from the coast (OEH 2019b).	No (Wrong Distribution)	No

Appendix B Assessment of significance for BC Act listed species

Under Section 7.3 of the NSW BC Act, the test of significance is to be considered for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. This test has been applied to ecological communities and species listed under the BC Act that are considered to be potentially impacted by the proposal.

Species that have been assessed against the test of significance were identified through the development of the Likelihood of Occurrence (**Appendix A**). The following species are assessed below:

- *Glossopsitta pusilla* (Little Lorikeet)
- *Hieraaetus morphnoides* (Little Eagle)
- *Circus assimilis* (Spotted Harrier)
- *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat)
- *Tyto novaehollandiae* (Masked Owl)

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

1. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
2. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
 - a. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
 - b. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
3. in relation to the habitat of a threatened species or ecological community:
 - a. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
 - b. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
 - c. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,
4. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),
5. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Table 4: BC Act Assessments of Significance

Species Name	Common Name	1.	2.	3.	4.	5.	Impact Significance
<i>Glossopsitta pusilla</i>	Little Lorikeet	The disturbed nature of the study area, lack of breeding habitat and small scale of the proposed works compared to available habitat in the locality make it unlikely to impact the life cycle of this species. Therefore, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of species is likely to be placed at risk of extinction.	N/A	The proposed Solar Park will clear approximately 40 ha of potential foraging habitat. These potential foraging habitat types are extensive in the locality, and the disturbance represents a very small proportion of potential foraging habitat for this species. Due to the highly mobile nature of this species, the proposal is not expected to fragment or isolate potential foraging habitat for this species. The study area consists of a large, open grassland with few paddock trees and no large woody debris. Therefore, the potential foraging habitat to be modified is unlikely to represent particularly important foraging habitat for the long-term survival of the species in the locality.	N/A	Key threatening processes for this species include fragmentation and degradation of habitat. 7 paddock trees present will be removed; however, this species is unlikely to utilise them. Therefore, the proposal is unlikely to increase the impact of these key threatening processes in the long-term.	No significant impact
<i>Hieraaetus morphnoides</i>	Little Eagle	The disturbed nature of the study area, lack of breeding habitat and small scale of the proposed works compared to available habitat in the locality make it unlikely to impact the life cycle of this species. No remnant open woodland, woodland or forest is present at the site. Therefore, the proposal is unlikely to have an adverse effect on the life cycle of the species such that a viable local	N/A	The proposed works will impact 40 ha of potential foraging habitat. This species is highly mobile, and potential habitat is extensive in the locality. The proposal is not expected to fragment or isolate potential foraging habitat for this highly mobile species and the potential foraging habitat to be modified is unlikely to represent important foraging habitat for the long-	N/A	A key threatening process for this species is 'clearing and degradation of foraging and breeding habitat'. The proposed development will involve the clearing of 7 paddock trees and 40 ha of foraging habitat. This species is highly mobile, and potential habitat is extensive in the locality.	No Significant Impact

Species Name	Common Name	1.	2.	3.	4.	5.	Impact Significance
		population of species is likely to be placed at risk of extinction.		term survival of the species in the locality.		Therefore, the proposal is unlikely to increase the impact of this key threatening process in the long-term.	
<i>Circus assimilis</i>	Spotted Harrier	The proposal involves removal of 40 ha of potential foraging habitat for this species through clearing of grasslands. Due to the highly mobile nature of this species and small scale of the proposed works compared to available habitat in the locality make the proposed development unlikely to impact the life cycle of this species such that a viable local population of species is unlikely to be placed at risk of extinction.	N/A	The proposal involves removal of 40 ha of potential foraging habitat for this species through clearing of grasslands. These potential foraging habitat types are extensive in the locality, and the disturbance represents a very small proportion of potential foraging habitat for this species. Due to the highly mobile nature of this species, the proposal is not expected to fragment or isolate potential foraging habitat for this species. The study area consists of a cleared area with 7 paddock trees canopy trees, therefore the potential foraging habitat to be modified is unlikely to represent particularly important foraging habitat for the long-term survival of the species in the locality.	N/A	A key threatening process for this species is 'clearing of native vegetation'. The proposal involves removal of 40 ha of potential foraging habitat for this species through clearing of grasslands This species is highly mobile, and potential habitat is extensive in the locality. Therefore, the proposal is unlikely to increase the impact of this key threatening process in the long-term.	No Significant Impact
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	The proposal involves the removal of potential roosting habitat with the removal of 7 paddock trees with hollows. Due to the highly mobile nature of this species and small scale of the proposed works compared to available habitat in the locality make the proposed development unlikely to impact the life cycle of this species such	N/A	The proposal involves the removal of potential roosting habitat with the removal of 7 paddock trees with hollows. The disturbance represents a very small proportion of potential roosting habitat for this species. Due to the highly mobile nature of this species, the proposal is not expected to fragment or isolate potential roosting	N/A	Key threatening processes for this species include: 'loss of hollow-bearing trees' – the proposed development will result in the clearing of 7 isolated paddock trees with hollows. 'loss of foraging habitat' – no foraging habitat is present	No Significant Impact

Species Name	Common Name	1.	2.	3.	4.	5.	Impact Significance
		that a viable local population of species is unlikely to be placed at risk of extinction.		habitat for this species. The potential roosting habitat to be modified is unlikely to represent particularly important roosting habitat for the long-term survival of the species in the locality.		<i>'application of pesticides in or adjacent to foraging areas'</i> – the proposed development does not involve the use of pesticides <i>'artificial light sources spilling onto foraging and / or roosting habitat'</i> <i>'large scale wildfire or hazard reduction burns on foraging and or roosting habitat'</i> – large scale wildfire or hazard reduction burns will not occur as part of the proposed development Therefore, the proposal is unlikely to increase the impact of these key threatening processes in the long-term.	
<i>Tyto novaehollandiae</i>	Masked Owl	The proposal involves removal of 40 ha of potential foraging habitat for this species through clearing of grasslands. No roosting habitat for this species is present. Due to the highly mobile nature of this species and small scale of the proposed works compared to available habitat in the locality make the proposed development unlikely to impact the life cycle of this species such that a viable local population of species is unlikely to be placed at risk of extinction.	N/A	The proposal involves removal of 40 ha of potential foraging habitat for this species through clearing of grasslands. These potential foraging habitat types are extensive in the locality, and the disturbance represents a very small proportion of potential foraging habitat for this species. Due to the highly mobile nature of this species, the proposal is not expected to fragment or isolate potential foraging habitat for this species. The study area consists of a cleared area with 7 paddock trees canopy trees, therefore the potential foraging habitat to be	N/A	Key threatening processes for this species include: <i>'loss of mature hollow-bearing trees and changes to forest and woodland structure, which leads to fewer such trees in the future'</i> – no roosting habitat present. <i>'clearing of habitat for grazing, agriculture, forestry or other development'</i> – approximately 40 ha of potential foraging habitat will be cleared. The surrounding landscape is highly modified. <i>'a combination of grazing and regular burning is a threat,</i>	No Significant Impact

Species Name	Common Name	1.	2.	3.	4.	5.	Impact Significance
--------------	-------------	----	----	----	----	----	------------------------

modified is unlikely to represent particularly important foraging habitat for the long-term survival of the species in the locality.

through the effects on the quality of groundcover for mammal prey, particularly in open, grassy forests' – no grazing or regular burning proposed.

Therefore, the proposal is unlikely to increase the impact of these key threatening processes in the long-term.

Appendix C Flora species List

Family	Scientific Name	Common Name	Exotic/Native
Acanthaceae	<i>Brunoniella australis</i>	Blue Trumpet	Native
Aizoaceae	<i>Galenia pubescens</i>	Galenia	Exotic
Anacardiaceae	<i>Schinus molle</i>	Pepper tree	Exotic
Asteraceae	<i>Chrysocephalum apiculatum</i>	Common Everlasting	Native
Asteraceae	<i>Schkuhria pinnata</i>	Dwarf Marigold	Exotic
Boraginaceae	<i>Heliotropium amplexicaule</i>	Blue Heliotrope	Exotic
Cactaceae	<i>Opuntia stricta</i>	Prickly Pear	Exotic
Campanulaceae	<i>Wahlenbergia sp.</i>	Native Bluebell	Native
Casuarinaceae	<i>Allocasuarina luehmannii</i>	Bull Oak	Native
Chenopodiaceae	<i>Einadia nutans subsp. linifolia</i>	Climbing saltbush	Native
Chenopodiaceae	<i>Enchylaena tomentosa</i>	Ruby Saltbush	Native
Chenopodiaceae	<i>Sclerolaena birchii</i>	Galvanised Burr	Native
Concolculaceae	<i>Dichondra repens</i>	Kidney Weed	Native
Euphorbiaceae	<i>Euphorbia dallachyana</i>	Caustic weed	Native
Fabaceae	<i>Glycine sp.</i>		Native
Malvaceae	<i>Sida corrugata</i>	Corrugated Sida	Native
Malvaceae	<i>Sida rhombifolia</i>	Paddy's Lucerne	Exotic
Myrtaceae	<i>Eucalyptus sideroxylon</i>	Mugga Ironbark	Native
Poaceae	<i>Aristida sp.</i>	Wiregrass	Native
Poaceae	<i>Austrostipa sp.</i>		Native
Poaceae	<i>Chloris truncata</i>	Windmill grass	Native
Poaceae	<i>Eragrostis sp.</i>		Native/Exotic
Poaceae	<i>Panicum sp.</i>	Panic	Native/Exotic
Pteridaceae	<i>Cheilanthes sieberi</i>	Rock Fern	Native
Solanaceae	<i>Lycium ferocissimum</i>	African boxthorn	Exotic

