

Charlie Sammoun
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Barrack Place, 151 Clarence Street,
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September 30, 2024

Dear Charlie,

RE: Flora and Fauna Assessment Report for Proposed Solar Farm and Battery Storage at 1000 Burkes Creek Road, The Rock, NSW 2655 (Lot 107//DP754363).

Introduction

This Flora and Fauna Assessment (FFA) has been undertaken as part of the Development Application for the proposed solar farm and battery storage facility located at 1000 Burkes Creek Road, The Rock, NSW (Lot 107//DP754363) (study area) (see Appendix A).

The study area is within the Wagga Wagga Local Government Area (LGA) and is approximately 6 km northeast of the village of The Rock and 20 km southwest of Wagga Wagga.

The study area is approximately 11 hectares, and the current land use is broadacre cropping.

This assessment is required to comply with various environmental legislative frameworks, including the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *NSW Environmental Planning and Assessment Act 1979* (EP&A Act), *NSW Biodiversity Conservation Act (BC Act) 2016*, and the *Wagga Wagga Local Environmental Plan 2010* (WLEP 2010). In addition, pollution risks associated with construction must be managed in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act). The purpose of this assessment is to evaluate the current biodiversity within the site, assess the potential impacts from both construction and operational phases of the project, and propose mitigation measures.

Method

To assess the potential biodiversity impacts associated with the proposed development, a combination of desktop review and field survey methods was employed. A summary of each method is provided below, ensuring that the assessment accurately reflects the ecological conditions of the study area and the potential impacts of the proposed development.

Desktop Review

A desktop review of relevant spatial data was conducted to identify potential ecological constraints that may affect the proposed development. The review included the following resources:

- Protected Matters Search Tool (PMST) to address requirements of EPBC 1999.
- State Vegetation Type Mapping – Riverina to address requirements of NSW BC Act 2016.
- BIONET Threatened Species Sightings Database to address requirements of NSW BC Act 2016.
- Wagga Wagga Local Environmental Plan (LEP) mapping, specifically Clause 7.3 Biodiversity and Clause 7.5 Riparian Lands and Waterways to address requirements of WLEP 2010.

Field Assessment

Following the desktop review, a field assessment was carried out to validate the results and document the fauna and flora species observed within the study area. The assessment involved inspecting the perimeter and areas of proposed infrastructure on foot, recording and mapping observed species, and confirming the native vegetated communities present.

Results

Desktop Review

The results of the Protected Matters Search indicate that several entities listed under the EPBC Act are present in the region of the proposed development (see Appendix D), including:

- Four RAMSAR wetlands
- Three Endangered Ecological Communities (EECs)
- 30 threatened species
- Eight migratory species

A review of the State Vegetation Type Mapping shows no native vegetation is mapped within the study area (see Appendix A).

A search of the BIONET threatened species database found no records of threatened species or species protected under migratory bird agreements within the study area.

Additionally, a review of the Wagga Wagga LEP revealed no biodiversity or riparian land and waterway constraints affecting the proposed development area.

Field Assessment

Field assessment confirmed the study site is currently used for wheat cropping and at the time of assessment, a wheat (*Triticum sp.*) crop was in and was the dominant species across the study area (see Appendix B).

Although the review of native vegetation mapping indicated no vegetation within the study area, the field assessment identified a small remnant patch (approximately 0.11 ha) of *Eucalyptus blakelyi* (Blakely's Red Gum) surrounding what appears to be a historical farm dam. The estimated age of these trees is less than 80 years, as only one tree contained a hollow, which showed clear signs of occupancy, likely by a nesting pair of Galahs (*Eolophus roseicapilla*) (see Appendix C).

The ground cover within this remnant and on the margins of the cropped land was predominantly composed of exotic species, including *Malva sp.* (Marsh Mallow), *Arctotheca calendula* (Capeweed), and *Lolium rigidum* (Annual Ryegrass).

Fauna recorded within the study area during the field assessment included Nankeen Kestrel (*Falco cenchroides*), Galah (*Eolophus roseicapilla*), Australian Magpie (*Gymnorhina tibicen*), and Eastern Grey Kangaroo (*Macropus giganteus*).

Inspection of vegetation adjacent to the western and northern boundaries confirmed that PCT 267 - White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW Southwestern Slopes Bioregion which is considered a Critically Endangered Ecological Community (CEEC) under both EPBC Act and BC Act. Although this vegetation is not within the study area, care must be taken not to disturb this community in the construction and operational phases of the proposed development.

Assessment of Potential Impacts

Construction and operational phase impacts are assessed to ensure that potential negative effects on biodiversity are identified and mitigated. During construction, activities such as vegetation removal or trimming, habitat disruption, and noise pollution can significantly affect local ecosystems and species.

Similarly, during the operational phase, ongoing impacts like changes in water flow, pollution, and human activity may pose long-term risks. Assessing these phases helps to minimise harm, comply with environmental regulations, and promote sustainable development practices.

Construction Phase

Although the small patch of Blakely's Red Gum trees is not proposed to be disturbed, the construction phase poses several risks to the local flora and fauna, though they are generally minimal given the current land use of cropping and the absence of native vegetation within the footprint. However, the following impacts could occur.

Vegetation and Habitat Disturbance

While no native vegetation will be removed within the development footprint, care must be taken to avoid damage to the remnant Blakely's Red Gum patch and adjacent patches of PCT267. Construction activities, particularly near the small dam and remnant patch, may cause accidental damage to these trees and associated fauna.

It is proposed that the gateway to the site is upgraded which may require trimming of the trees at the location. These trees are within the road reserve and not assessed by this FFA, and consent must be obtained from the maintaining authority which is likely Wagga Wagga City Council.

This assessment concludes the risk of harm to native vegetation is minimal.

Soil Erosion and Sediment Runoff

Construction activities, are likely to expose soil, increasing the risk of erosion and sediment-laden runoff entering local waterways. This runoff could impact downstream ecosystems, especially during rain events, and must be mitigated with appropriate erosion control measures.

This assessment concludes the risk of erosion and sedimentation is moderate and mitigation is required to minimise risks.

Fauna Displacement

The project area is used by some common fauna species, such as the Eastern Grey Kangaroo, Galah, and Nankeen Kestrel. While the loss of habitat is minimal, construction noise, increased human activity, and machinery operation may temporarily displace these species from the site.

This assessment concludes the risk of harm to native fauna is minimal as all species recorded on site are highly mobile and are likely to use the site opportunistically.

Operational Phase

The operational phase of the solar farm introduces different potential impacts compared to the construction phase. These include:

Stormwater Management and Soil Erosion

It is becoming evident for examples throughout Australia, that during operation, the large impervious surfaces created by solar panels can lead to concentrated runoff, increasing the

risk of soil erosion. Without proper stormwater management systems in place, this erosion could impact the stability of the land and nearby ecosystems over time. There is a risk that this may occur at site causing erosion soils in the development and adjoining paddocks, and depositing sediment to intercepting farm dams and receiving waterways.

This assessment concludes the risk of erosion and sedimentation is moderate and mitigation is required to minimise risks.

Impact on Wildlife Movement

The presence of fencing, particularly if barbed wire is used, could create barriers to the movement of small mammals, including the endangered Squirrel Glider (*Petaurus norfolcensis*), large Owls and microbats. Given that Squirrel Gliders and several threatened birds and mammals are associated with PCT 267, barbed wire, used as the top strains on security fencing could pose a direct threat to these animals as they are often caught in fencing and suffer severe injuries.

This assessment concludes the risk of harm to native fauna is minimal - moderate and mitigation measures are recommended to reduce the risk.

Recommendations

Strategies to Minimise Environmental Impacts

The following mitigation measures are recommended to ensure the development proceeds with minimal environmental disturbance in both the construction and operational phases.

1. Erosion and Sediment Control

During construction, effective erosion and sediment control measures should be implemented, including silt fences, sediment traps, and stabilizing exposed soils. These measures will prevent sediment-laden runoff from entering nearby watercourses and impacting aquatic ecosystems, in compliance with the POEO Act.

It is recommended a Construction and Environmental Management Plan (CEMP) is developed that details how sediment and erosion will be implemented during the construction phase.

2. Stormwater Management

Appropriate stormwater treatment systems should be installed to manage runoff from the solar panels, reducing the risk of erosion and ensuring water quality. This will prevent long-term soil degradation and protect surrounding ecosystems during the operational phase.

It is recommended a Construction and Environmental Management Plan (CEMP) is developed that details how stormwater will be managed during the operational phase.

3. Barbed Wire Exclusion

Barbed wire should be avoided in boundary fencing, as it poses a significant risk to the endangered Squirrel Glider and other species which may attempt to traverse the development area from the adjacent native vegetation. Installing wildlife-friendly fencing will reduce this risk and protect local fauna.

It is recommended a Construction and Environmental Management Plan (CEMP) is developed that details the construction of fencing to reduce the potential harm to native fauna⁴.

4. Revegetation with Native Species

The revegetation of the study site with native grasses and forbs will reduce the need for ongoing weed control and enhance local biodiversity. In addition to supporting the recovery of local ecosystems, this approach will promote soil stabilisation and reduce erosion risks, contributing to a positive environmental outcome for the project. Planting native ground covers under solar panels will further reduce the maintenance burden, as these species are better adapted to local conditions and require less intervention to manage. This strategy not only has potential to minimise operational costs but also leads to a nature-positive outcome by fostering a healthier and more resilient ecosystem around the solar infrastructure.

It is recommended a Vegetation Management Plan (VMP) is developed that provides detail on revegetation and management of vegetation across the site.

Conclusion

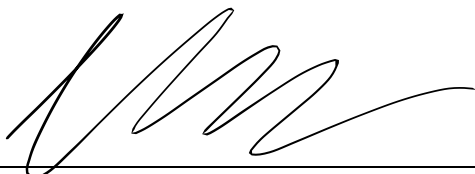
The Flora and Fauna Assessment confirms that the proposed solar farm and battery storage facility at 1000 Burkes Creek Road, The Rock, NSW, presents minimal risk to native vegetation within and adjacent to the study area, with the remnant patch of Blakely's Red Gum to be preserved.

The risk to fauna within the study area is also minimal; however, the use of barbed wire on fencing poses a moderate risk to species such as Squirrel Gliders, owls, and microbats. Mitigation measures have been recommended to address this threat.

Additionally, the potential for erosion and sedimentation during both the construction and operational phases presents a moderate risk, and mitigation measures have been suggested. By implementing these recommended measures—such as erosion control, stormwater management, and the exclusion of barbed wire—the project can be executed in compliance with the relative legislation and provide a nature positive outcome for the site.

If you have questions, please contact me on the details below.

Kind regards,



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References

Department of Climate Change, Energy, the Environment and Water (2024) Protected Matters Search Tool accessed September 29, 2024.

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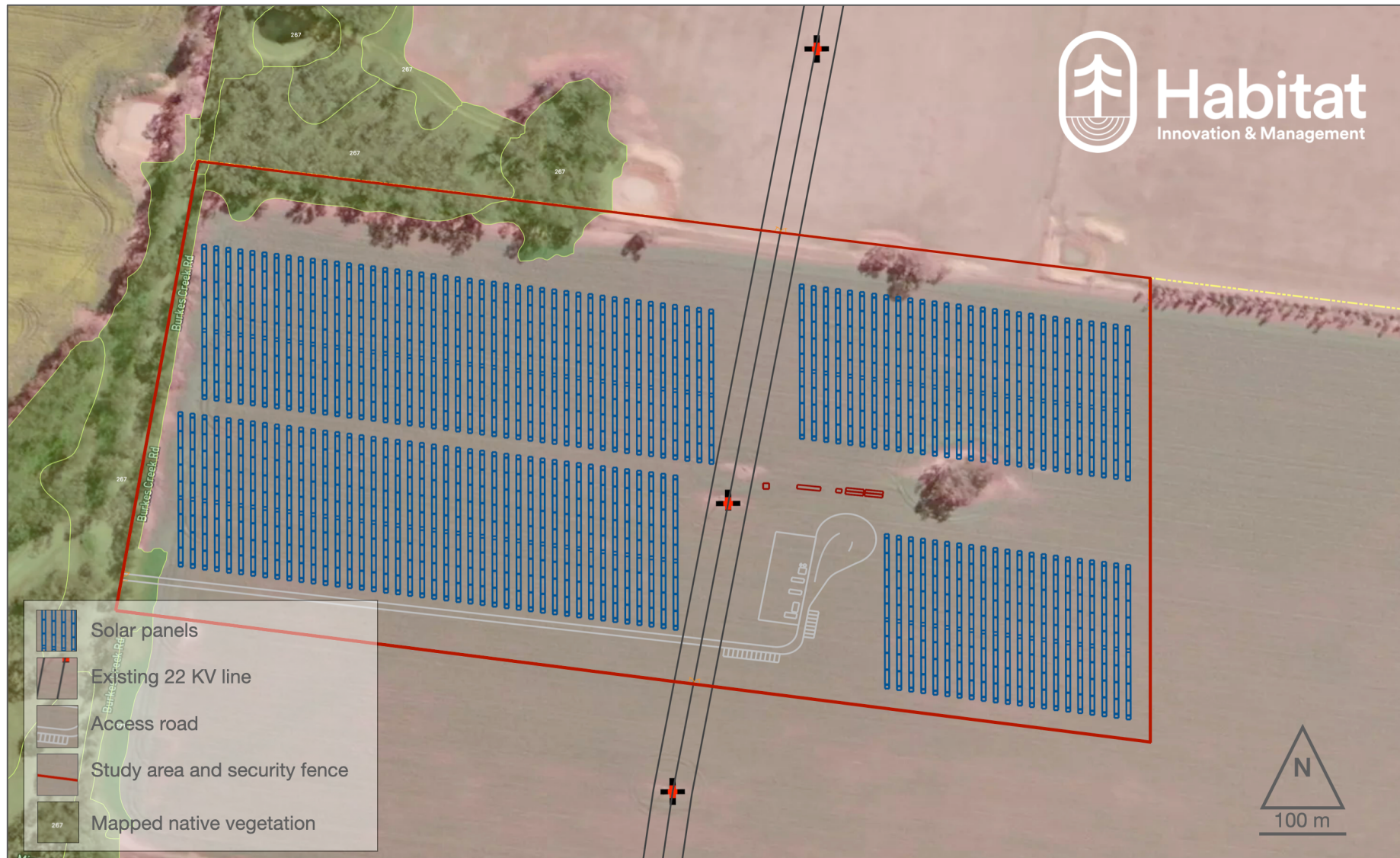
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Appendix A – Study Area Map.



Appendix B – Wheat crop within the study area.



Appendix C – Blakleys Red Gum patch and active tree hollow in study area.



Appendix D – PMST Report.



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 30-Sep-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	30
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	
Banrock station wetland complex	600 - 700km upstream from Ramsar site	
Hattah-kulkyne lakes	400 - 500km upstream from Ramsar site	
Riverland	500 - 600km upstream from Ramsar site	
The coorong, and lakes alexandrina and albert wetland	600 - 700km upstream from Ramsar site	

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species	[<u>Resource Information</u>]	
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.		
Scientific Name	Threatened Category	Presence Text
BIRD		

Scientific Name	Threatened Category	Presence Text
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat may occur within area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat may occur within area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
FROG		
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Litoria raniformis		
Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat may occur within area
MAMMAL		
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Species or species habitat likely to occur within area
PLANT		
Brachyscome muelleroides		
Mueller Daisy [15572]	Vulnerable	Species or species habitat may occur within area
Prasophyllum petilum		
Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
REPTILE		
Aprasia parapulchella		
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		

Scientific Name	Threatened Category	Presence Text
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area

Extra Information

EPBC Act Referrals		[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Not controlled action (particular manner)			
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

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Please feel free to provide feedback via the [Contact us](#) page.

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