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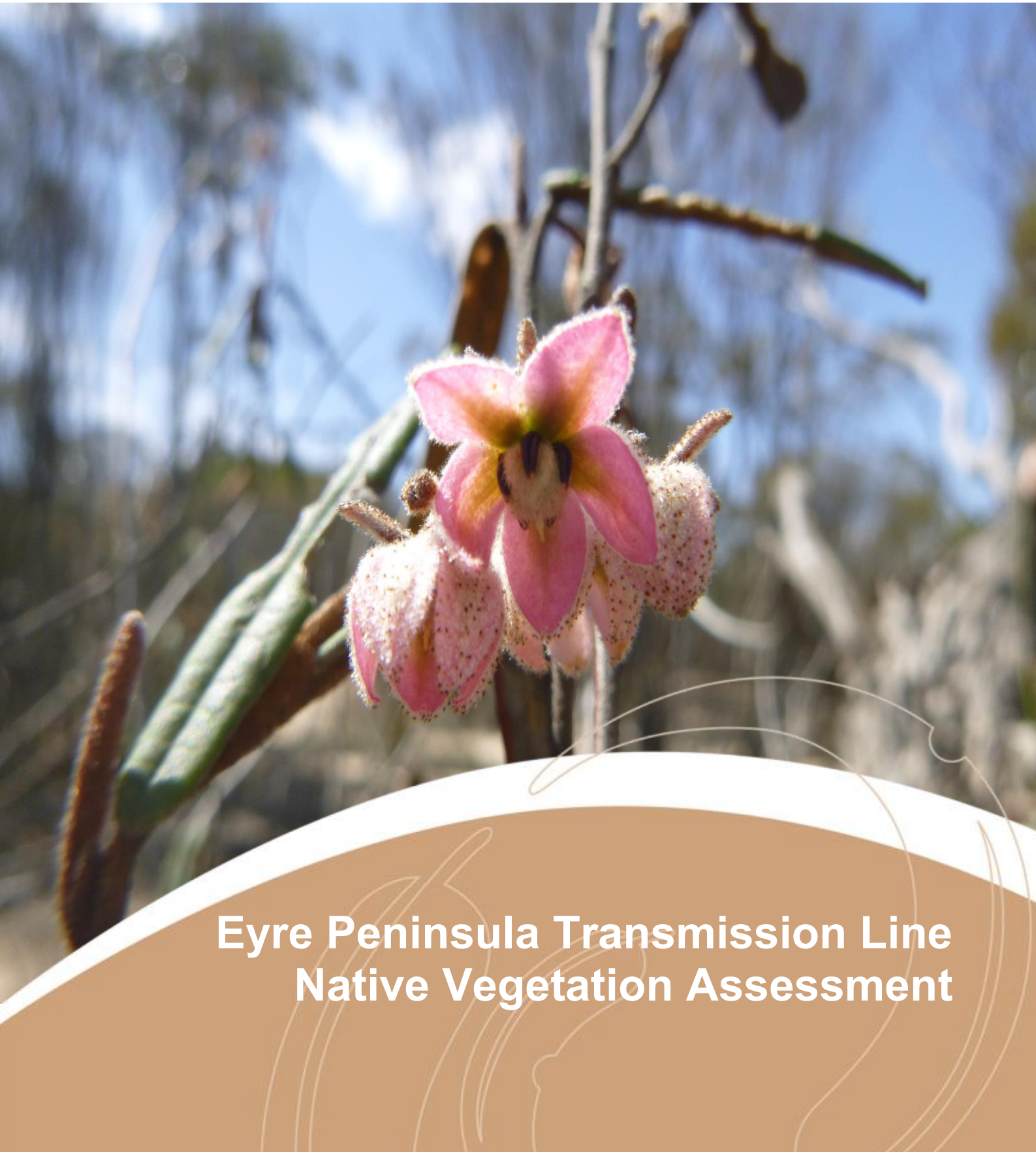

Eyre Peninsula Transmission Line Native Vegetation Assessment

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20 December 2019

Version 2

Prepared by EBS Ecology for ElectraNet

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GLOSSARY AND ABBREVIATION OF TERMS

BAM	Bushland Assessment Method
BDBSA	Biological Database of South Australia (maintained by DEW)
DEH	Department for Environment and Heritage (now DEW)
DEW	Department for Environment and Water (South Australia)
DotE	Department of the Environment (now DotEE) (Commonwealth)
DotEE	Department of the Environment and Energy (Commonwealth)
EBS	Environment and Biodiversity Services Pty Ltd – trading as EBS Ecology
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ha	Hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
km	Kilometre(s)
kV	Kilovolt(s)
m	Metre(s)
m^2	Square metre(s)
MNES	Matter(s) of National Environmental Significance (under the EPBC Act)
NCSSA	Nature Conservation Society of South Australia
NatureMaps	Initiative of DEW that provides a common access point to maps and geographic information about South Australia's natural resources in an interactive online mapping format.
NPW Act	*National Parks and Wildlife Act 1972*
NRM	Natural Resources Management
NRM Act	*Natural Resources Management Act 2004*
NV Act	*Native Vegetation Act 1991*
NVC	Native Vegetation Council
NVF	Native Vegetation Fund
NVMU	Native Vegetation Management Unit
pers. comm.	Personal communication
PMST	Protected Matters Search Tool (under the EPBC Act, maintained by DotEE)
Project	The replacement of the existing and soon to be insufficient Eyre Peninsula transmission line
Project Area	The proposed Eyre Peninsula transmission line corridor from Port Lincoln to Cultana (100 m easement)

SA	South Australia(n)
SEB	Significant Environmental Benefit
sp.	species
spp.	species (plural)
ssp.	sub-species
TEC	Threatened Ecological Community
var.	Variety – a taxonomic rank below that of species and subspecies, but above that of form
WoNS	Weeds of national significance

Table of Contents

List of Tables

List of Figures

1 APPLICATION INFORMATION

The native vegetation clearance application information for the proposed replacement Eyre Peninsula Transmission Line is provided in Table 1.

Table 1. Native vegetation clearance application information for the proposed Eyre Peninsula transmission line.

<table>
<tr><td>Applicant:</td><td colspan="4">ElectraNet Pty Ltd
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08 8404 7966</td></tr>
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<tr><td>Accredited Consultant contact:</td><td colspan="4">EBS Ecology
125 Hayward Avenue, Torrensville SA 5031
08 7127 5607
info@ebservices.com.au</td></tr>
<tr><td>Landowner:</td><td colspan="4">Multiple – please refer to Attachment 1 – Property List.</td></tr>
<tr><td>Site address:</td><td colspan="4">Multiple – please refer to Attachment 1 – Property List.</td></tr>
<tr><td>Map</td><td colspan="4">See Figure 1 and Figure 12 to Figure 25.</td></tr>
<tr><td>Local Government Area:</td><td>Lower Eyre Peninsula
Tumby Bay
Cleve
Franklin Harbour
Whyalla</td><td rowspan="3">Hundreds:</td><td colspan="3" rowspan="3">Lincoln, Louth, Koppio, Hutchison, Stokes, Yaranyacka, Moody, Butler, Verran, Roberts, Yadnarie, Campoona, Mangalo, Heggaton, James, Glynn, Nilginee, Moonabie, Ash, Randell, Cultana</td></tr>
<tr><td>Certificate of title:</td><td>Multiple – please refer to Attachment 1 – Property List.</td></tr>
<tr><td>Section/Allotment:</td><td>Multiple – please refer to Attachment 1 – Property List.</td></tr>
<tr><td colspan="5">Summary of proposed clearance</td></tr>
<tr><td>Proposed clearance area:</td><td colspan="4">This application involves the linear clearance of 192.021 ha of native vegetation for a transmission line and associated infrastructure, and construction access requirements. This is approximately 42% of the 454.35 ha construction impact area, which also constitutes cropped areas, pasture and planted vegetation.</td></tr>
<tr><td>Applicable regulation and purpose of the clearance:</td><td colspan="4">Regulation 12(34)—Infrastructure
Clearance required for the development of a transmission line.</td></tr>
<tr><td>Level of risk:</td><td colspan="4">4</td></tr>
<tr><td>Proposed SEB offset:</td><td colspan="4">ElectraNet is considering and investigating potential on-ground SEB offsets. The SEB offset will likely be a combination of an on-ground SEB and an SEB payment.</td></tr>
</table>

2 INTRODUCTION

EBS Ecology (EBS) was engaged by ElectraNet to undertake a native vegetation clearance assessment for the proposed Eyre Peninsula Transmission Line (the Project), which is to replace the existing and soon to be insufficient transmission line between Port Lincoln and Cultana. The proposed replacement transmission line is planned to broadly follow a similar alignment to the existing 132 kilovolt (kV) line (Project Area).

Between 2012 and 2014, EBS completed an extensive biodiversity assessment of the Project Area (EBS 2014), which included vegetation association mapping and condition assignment under the Significant Environmental Benefit (SEB) ratio method, developed by the Native Vegetation Council (NVC).

Following the introduction of the *Native Vegetation Regulations 2017*, the SEB ratio method was superseded by the Bushland Assessment Method (BAM), endorsed by the NVC (NVC 2019a). Based on this change, and the time elapsed since the SEB ratio assessment of the Project Area was undertaken, a native vegetation clearance assessment under the BAM was required.

2.1 Objectives

The objectives of the native vegetation clearance assessment were to:

- Update the desktop assessment of the likelihood of occurrence and status of threatened flora, fauna and ecological communities protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *National Parks and Wildlife Act 1972* (NPW Act), which were previously assessed by EBS (2014);
- Assess native vegetation within the Project Area for clearance using the BAM and Rangelands Assessment Method (RAM);
- Calculate the SEB offset for the Project, which is required for approval to clear native vegetation under Division 5 of the *Native Vegetation Regulations 2017*;
- Identify, describe and map Commonwealth and State threatened flora, fauna and ecological communities, and significant weeds, across the Project Area; and
- Determine the potential impacts of the proposed development on flora, fauna and ecological communities, particularly those threatened at the Commonwealth and State level.

3 BACKGROUND INFORMATION

3.1 Project rationale

The Eyre Peninsula has a single main radial electrical transmission supply of 132 kV, with radial 132 kV transmission lines extending from the Cultana to Yadnarie substations and from Yadnarie substation west to Wudinna and south to the Port Lincoln substation.

Electricity supply to Port Lincoln is supported by three generators located at the Port Lincoln substation and in recent years, demand has steadily increased as a result of agricultural, residential, commercial, mining and industrial development. In addition, forecasted demand has also increased due to proposed spot load mining developments and associated infrastructure projects such as new ports and processing facilities.

Therefore, it is anticipated that current electricity network infrastructure will become insufficient to accommodate for future load at Port Lincoln and across the peninsula. Furthermore, the age and condition of the existing 132 kV radial line means that replacement of sections of conductor will likely be required from 2019 onwards, with replacement works between Yadnarie and Port Lincoln substations anticipated to take approximately 10 years to complete.

As such, and after significant investigation of various options to ensure adequate supply, ElectraNet propose to construct a new transmission line from Cultana to Port Lincoln to replace the existing and soon to be insufficient transmission line.

3.2 Project Area

The proposed replacement transmission line is planned to broadly follow a similar alignment to the existing 132 kV line. The transmission line will be approximately 290 km long, with the final route alignment and distance dependent on any route constraints. A 100 m corridor was assessed, which encompassed the 454.35 ha construction impact area, of which 192.021 ha (approximately 42%) constitutes native vegetation, with the remaining areas made up of cropped areas, pasture and planted vegetation.

The line runs north from Port Lincoln to the Cultana substation, just north-west of Whyalla, Eyre Peninsula. The preliminary plans require new 275/132 kV substations at Yadnarie and a location north of Port Lincoln.

3.2.1 Administrative boundaries

The Project Area is located within the Eyre Peninsula and South Australian Arid Lands Natural Resources Management (NRM) regions, Flinders, Jervois and York counties and the Lower Eyre Peninsula, Tumby Bay, Cleve, Franklin Harbour and Whyalla local government areas.

Figure 1. Eyre Peninsula transmission line Project Area.

3.3 Infrastructure impact requirements

A summary of the infrastructure impact requirements, including the required construction footprints and permanent impact areas following rehabilitation (see Section 8.4), for the Project is provided in Table 2.

Table 2. Summary of the infrastructure impact requirements for the proposed Eyre Peninsula Transmission Line.

Component	Description	Construction impact area (ha)[1]	Permanent impact area (ha)[2]	Permanent impact area in native veg. (ha)[3]
Transmission Line Structures (e.g. poles/towers) Cultana to Yadnarie – approximately 136 km	• Poles/towers will be located every 400 – 500 m over approximately 136 km. • Approximately 280 poles/towers will be required. • Each pole/tower will require a 30 m x 40 m (1200 m^2) construction footprint and within this, a likely permanent footprint of 15 m x 15 m (225 m^2). • Construction footprint: 280 poles/towers x 1200 m^2 = 33.6 ha • Permanent footprint: 280 poles/towers x 225 m^2 = 6.30 ha	**33.60**	**6.30**	**4.66**
Transmission Line Structures (e.g. poles/towers) Yadnarie to Port Lincoln – approximately 126 km	• Poles/towers will be located every 400 – 500 m over approximately 126 km. • Approximately 256 poles/towers will be required. • Each pole/tower will require a 30 m x 30 m (900 m^2) construction footprint and within this, a likely permanent footprint of 10 m x 10 m (100 m^2). • Construction footprint: 256 poles/towers x 900 m^2 = 23.04 ha • Permanent footprint: 256 poles/towers x 100 m^2 = 2.56 ha	**23.04**	**2.56**	**0.55**
Stringing Pads (for stringing of transmission line cables)	• Approximately 141 stringing areas will be required. • Each stringing area will require a maximum of 50 m x 50 m (2500 m^2). • Construction footprint: 141 stringing areas x 2500 m^2 = 352,500 m^2 or 35.25 ha (GIS calculation = 32.11 ha).	**32.11**	**0**	**0**
Stringing Access Corridor	• 10 m wide along the entire 262 km long transmission line. • Construction footprint: 10 m x 262 km = 262 ha (GIS calculation = 262.13 ha). • From Cultana to Structure 30, through Department of Defence land, a 5 m wide and 15 km long (75,000 m^2 or 7.50 ha) access track (within the Stringing Access Corridor impact area) will remain in place to provide maintenance access to structures. • All other Stringing Access Corridor impact areas will be rehabilitated.	**262.13**	**7.50**	**6.76**
Spur Tracks	• Approximately 214 spur tracks from the existing transmission line access track to each new pole/tower will be required during construction and maintenance. • Spur tracks will be 5 m wide and of various lengths (approximately ≤ 100 m), depending on the location of each new pole/tower relative to the existing transmission line access track (approximately 500 m^2 per spur track). • Construction footprint: 214 x 500 m^2 = 107,000 m^2 or 10.70 ha (GIS calculation = 9.71 ha).	**9.71**	**9.71**	**7.55**

Component	Description	Construction impact area (ha)[1]	Permanent impact area (ha)[2]	Permanent impact area in native veg. (ha)[3]
Substations	• Existing substations at Whyalla (Cultana), Yadnarie and Port Lincoln will be upgraded. • A new substation (Yadnarie North) will also be constructed adjoining Yadnarie substation on the North side. • Substation sites will also serve as major laydown sites during construction. • The laydown areas (approximately 5.40 ha) will be rehabilitated.	**17.32**	**11.92**	**7.39**
Construction Laydown Areas	• Ten construction laydown areas (approximately 64.70 ha) will be required during construction and will be rehabilitated after.	**64.70**	**0**	**0**
Construction Camps	• Two construction camps, approximately 2.00 ha each, (4.00 ha total) will be required during construction and will be rehabilitated after.	**4.00**	**0**	**0**
Temporary Transmission Lines	• Approximately 6116 m of transmission line and 52 structures (poles/towers) will be required temporarily. • Each pole/tower will require a 30 m x 30 m (900 m^2) construction footprint, which will also be used for stringing. • Approximately 6116 m of 5 m wide access track (30,580 m^2) will be required = 3.06 ha. • Construction footprint: (52 structures x 900 m^2 = 4.68 ha) + 3.06 ha access track = 7.74 ha • All temporary transmission line impacts will be rehabilitated.	**7.74**	**0**	**0**
	Total	**454.35**	**37.99**	**26.91**

1. **Construction Impact Area (in ha) calculations sourced from GIS data provided to EBS Ecology by ElectraNet and/or general information provided by ElectraNet (i.e. outside of GIS data) as the design is still evolving. Construction Impact Areas are expected to be reduced during the detailed design phase.**
2. **Permanent Impact Area (ha) calculations sourced from GIS data provided to EBS Ecology by ElectraNet and/or general information provided by ElectraNet (i.e. outside of GIS data) as the design is still evolving. Construction Impact Areas are expected to be reduced during the detailed design phase.**
3. **Permanent Impact Area (ha) in Native Vegetation calculated in GIS system, which has 15 m x 15 m permanent structure footprints for entire transmission line (rather than 10 m x 10 m permanent structure footprints for the Yadnarie to Port Lincoln section), by intersecting with Native Vegetation data (mapped by EBS Ecology). Therefore, Permanent Impact Area in Native Vegetation figures are expected to be less than calculated and are also expected to be reduced during the detailed design phase.**

3.4 Previous ecological assessments

The previous ecological assessments undertaken for the Project are summarised in Table 3 and are detailed in the *Eyre Peninsula Transmission Line – Biodiversity Assessment Report* (EBS 2014 – Attachment 2), which should be read in conjunction with this report. The findings, conclusions and recommendations expressed by EBS (2014) were based solely upon information in existence at the time of the assessment (2012-2014). Furthermore, the native vegetation assessments in 2012-2013 were undertaken prior to the current *Native Vegetation Regulations 2017* and associated assessment methods (see Sections 4.2.1 and 4.2.2).

Table 3. Summary of the previous ecological assessments undertaken for the Project.

Assessment	Description	Date	Reference
Baseline flora surveys	Undertaken to obtain a greater understanding of the vegetation associations, vegetation condition (assessed under the *Native Vegetation Regulations 2003* SEB ratio method), flora species, and threatened flora and ecological communities within the Project Area. Surveyed all accessible vegetation within the proposed transmission line corridor.	Dec 2012 Jan 2013 Feb – Mar 2013	EBS (2014)
Dedicated bird surveys	Point counts undertaken at 2 km intervals within the proposed transmission line corridor in remnant vegetation, or within remnant patches of vegetation in south/central Eyre Peninsula.		
Targeted threatened flora surveys	Targeted surveys in remnants selected based on previously mapped condition ratings over 4:1 (Moderate condition) and habitat suitability for threatened species. Smaller remnants (<10 ha) search thoroughly on foot. Larger remnants (>10 ha) were partially traversed on foot, whereby a vehicle was to move to each change in vegetation association where representative areas were thoroughly searched.	Aug 2013 Aug 2013 Sep – Oct 2013 Nov 2013	
Targeted Southern Emu-wren surveys	Initial desktop assessment including review of current knowledge and records in proximity of the proposed transmission line corridor was undertaken, as well as a review of vegetation mapping to identify all potential habitat areas. Suitable habitat was then targeted within known historically ranges. The use of call play back and active searching of the areas were employed for 20 minutes by two observers, during two morning periods.		
Targeted Malleefowl survey	Utilised LiDAR to assess ground features and isolate anomalies that could be Malleefowl. This technique allowed for analysis of Malleefowl mounds in close proximity to the proposed transmission line corridor as well as further away in a less disturbed area of Mallee, allowing a comparison of densities to be established. Ground truthing of potential mounds was then undertaken for approximately 80% of all mounds identified.	30 Nov 2013 – 26 Feb 2014	Ecological Horizons (2014a) – see Appendix 4 in EBS (2014)
Targeted Sandhill Dunnart survey	Desktop habitat assessment conducted for the likelihood of Sandhill Dunnart occurrence within the proposed transmission line corridor based on fire and vegetation characteristics. Information collected from more than 70 previous Sandhill Dunnart survey sites was also analysed to provide underlying models to predict likely habitat utilisation by the Sandhill Dunnart. The assessment of likely habitat suitability was considered more valuable than trapping for Sandhill Dunnarts based on the changing nature of its suitable habitat and the elusiveness of the species, among other factors.	Apr 2009 – May 2013	Ecological Horizons (2014b) – see Appendix 3 in EBS (2014)
Bat surveys	AnaBat detectors set within four main habitat types within the transmission line corridor. Bat density and diversity on the Eyre Peninsula also obtained from Brandle (2010) who undertook a large scale biodiversity survey of the Eyre	Sep – Oct 2013 Nov 2013	Brandle (2010) EBS (2014)

	Peninsula between 2001 and 2005, which included 37 dedicated bat surveys using both harp traps and AnaBats.		
EPBC referral and summary report	Referral to the Australian Government Minister for the Environment in accordance with the EPBC Act, based on the potential impact to matters of national environmental significance (MNES) located within the proposed transmission line corridor. Summary report to ElectraNet includes significant impact assessments for each MNES.	Nov 2019	EBS (2019)

3.5 Compliance and legislative summary

A summary of Commonwealth and State legislation relevant to the Project is provided in Appendix 1.

3.6 Environmental setting

3.6.1 Region

The Project Area is located on Eyre Peninsula, South Australia. The landforms spanning the Project Area are dominated by low hills and ranges, shallow freshwater creeks and drainage lines through the Cleve Hills and Koppio Hills in the south, and undulating limestone plains overlain by longitudinal dune systems in the more arid northerly sections (Brandle 2010).

3.6.2 Existing land use

Land in the southern section of the Project Area is utilised for cropping, grazing and residential purposes, with small areas devoted to revegetation and conservation, whilst land in the northern section is mainly confined to pastoral activities and conservation.

3.6.3 Climate

Eyre Peninsula is characterised by a Mediterranean climate, having predominantly cool wet winters and hot dry summers. The southern section of the Project Area experiences relatively mild moist coastal climates that define the south and southwest of the region, whilst the northern and central sections are subject to the warm drier inland climates of the north and northeast of the region. The mean annual rainfall is approximately 500 mm in the south of the region, and exhibits a general decrease to approximately 250 mm in the northeast. Cleve can receive a rise to over 400 mm due to a slight increase in elevation (BOM 2019; Matthews et al. 2001).

3.6.4 Protected areas

The region supports some extremely sensitive environmental areas, including large tracks of remnant vegetation, conservation parks and reserves, which include a number that the Project Area intersects. Furthermore, a total of 35 Heritage Agreements occur within a 10 km buffer of the Project Area, seven of which the Project Area intersects (Figure 2 and Figure 3).

3.6.5 Interim Biogeographical Regionalisation of Australia

The Interim Biogeographical Regionalisation of Australia (IBRA) identifies geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The bioregions are further refined into subregions and environmental associations (DotE 2012).

The Project Area is located in the Eyre Yorke Block IBRA bioregion – Eyre Hills and Eyre Mallee subregions (Table 4), and Gawler IBRA bioregion – Myall Plains subregion (Table 5) (Figure 4). Relevant environmental associations for the Eyre Block bioregion are summarised in Table 4. The environmental associations for the Gawler bioregion have not been updated for the IBRA V7.0.

Native vegetation remnancy figures for IBRA subregions and environmental associations are useful for setting regional landscape targets. For the Eyre York Block IBRA bioregion, approximately 29% (338,248 ha) of the Eyre Hills subregion and approximately 38% (877,417 ha) of the Eyre Mallee subregion is mapped as remnant vegetation. Of this, 44% (149,029 ha) and 54% (473,079 ha) is formerly conserved and protected within National Parks and Wildlife reserves and private Heritage Agreements under the NV Act, respectively. Native vegetation remnancy and percentage (%) conserved for each of the environmental associations is shown in Table 4.

For the Gawler IBRA bioregion, approximately 97% (1,050,684 ha) of the Myall Plains subregion is mapped as remnant vegetation, of which 8% (81,146 ha) is formerly conserved and protected within National Parks and Wildlife reserves and private Heritage Agreements under the NV Act (Table 5).

Figure 2. Conservation reserves and Heritage Agreements in proximity to the south of the Project Area.

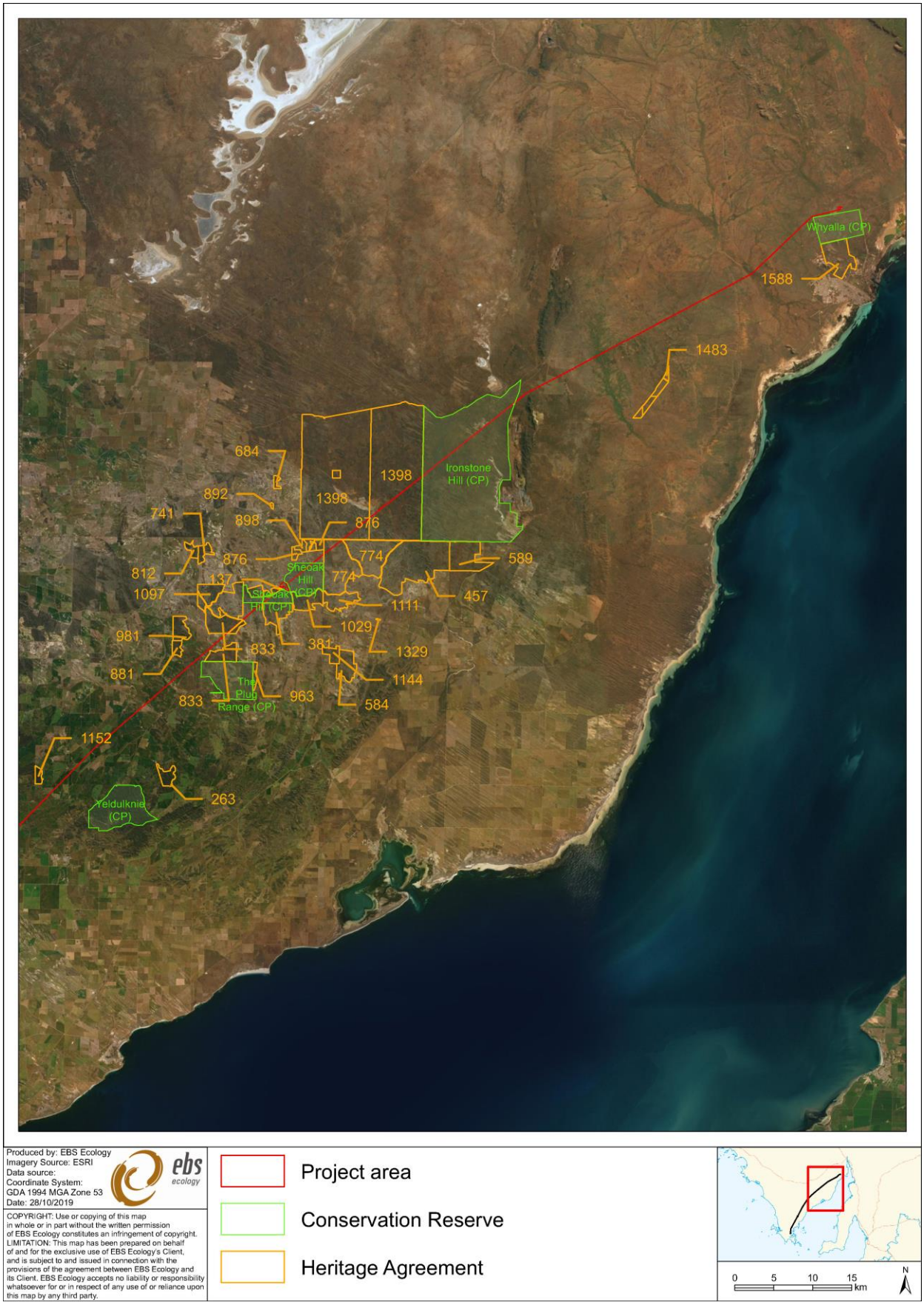

Figure 3. Conservation reserves and Heritage Agreements in proximity to the north of the Project Area.

Table 4. Eyre York Block IBRA bioregion, subregion, and environmental association environmental landscape summary.

Eyre Yorke Block IBRA bioregion	
Archaean basement rocks and Proterozoic sandstones overlain by undulating to occasionally hilly calcarenite and calcrete plains and areas of aeolian quartz sands, with mallee woodlands, shrublands and heaths on calcareous earths, duplex soils and calcareous to shallow sands, now largely cleared for agriculture.	
Eyre Hills IBRA subregion	
This subregion consists of the southern section of the uplands along the east coast of the Eyre Peninsula, and the undulating to low hilly plains to the west. The uplands rise abruptly from a narrow coastal foreland to altitudes of between 200m and 400m then slope gradually to the west where they merge into the undulating plain. The eastern and highest section of the uplands is formed of metasediments, predominantly quartzite, and is mainly hilly while the slightly lower-lying western part constitutes a dissected laterite plateau. Moderately deep yellow duplex soils with lateritic concretions occur on the uplands and support low open woodland of Eucalyptus cladocalyx, E. odorata and E. leucoxylon. The plains to the south and west are formed predominantly on old alluvium, or on calcarenite near the coastal fringe where some dunes and cliffs occur. Shallow reddish loams with rock outcrops support E. incrassata / Melaleuca uncinata mallee on the plains or Melaleuca lanceolata woodland along the coastal fringe. Lincoln National Park occupies the south eastern tip of the subregion and consists of 15 971ha of coastal mallee. The majority of this subregion is cleared for winter cereal cultivation and grazing livestock.	
Remnant vegetation	Approximately 29% (338248 ha) of the subregion is mapped as remnant native vegetation, of which 44% (149029ha) is formally conserved.
Landform	Low limestone dune ridges: small granitic islands with dunes.
Geology	Ripon Calcrete; Loveday Soil in aeolian sand sheets, dune sand, red soils (terra rossa).
Soil	Sands soils of minimal pedologic development, Brown calcareous earths, Brown sand soils, Shallow red brown sandy soils, Sandy soils with yellow clayey mottled subsoil.
Vegetation	Mallee heath and shrublands.
Conservation significance	102 species of threatened fauna, 155 species of threatened flora. 7 wetlands of national significance.
Yalunda IBRA environmental association	
Remnant vegetation	Approximately 20% (21573 ha) of the association is mapped as remnant native vegetation, of which 9% (2014ha) is formally conserved
Landform	Low hills derived from the dissection of a former lateritic plateau.
Geology	Laterite and alluvium.
Soil	Hard pedal mottled-yellow duplex soils and grey calcareous loams.
Vegetation	Woodland of SA blue gum and sugar gum and low open forest of sugar gum.
Conservation significance	19 species of threatened fauna, 57 species of threatened flora. 1 wetlands of national significance.
Mt Gawler IBRA environmental association	
Remnant vegetation	Approximately 9% (1660 ha) of the association is mapped as remnant native vegetation, of which 2% (35ha) is formally conserved
Landform	Rounded hills and low ranges on metasediments.
Geology	Metasediments and alluvium.
Soil	Hard pedal mottled-yellow duplex soils and brown weakly structured sandy soils.
Vegetation	Grasslands and open parkland of peppermint box.

Conservation significance	19 species of threatened fauna, 16 species of threatened flora. 1 wetlands of national significance.
Butler IBRA environmental association	
Remnant vegetation	Approximately 7% (5064 ha) of the association is mapped as remnant native vegetation, of which 0% (0ha) is formally conserved
Landform	Undulating plain on partly calcreted alluvium with isolated quartzite hills, ending in low cliffs along the coastline.
Geology	Alluvium, calcrete, quartzite and metasediments.
Soil	Hard pedal mottled-yellow duplex soils, red friable loams and crusty red duplex soils.
Vegetation	Open scrub of ridge-fruited mallee and broombush and chenopod shrubland of samphire and nitrebush.
Conservation significance	17 species of threatened fauna, 13 species of threatened flora. 0 wetlands of national significance.
Cleve IBRA environmental association	
Remnant vegetation	Approximately 17% (16796 ha) of the association is mapped as remnant native vegetation, of which 17% (2795ha) is formally conserved
Landform	Gently sloping sandy plains and footslopes with some dunes and low cliffs along the coastline.
Geology	Sand and metasediments.
Soil	Red calcareous earths, hard pedal red duplex soils, brownish sands and whitish calcareous sands.
Vegetation	Open scrub of beaked red mallee and yorrell, sometimes with ridge-fruited mallee and broombush, open heath of coast daisy bush, coast beard heath and coastal wattle.
Conservation significance	28 species of threatened fauna, 23 species of threatened flora. 1 wetlands of national significance.
Mt Desperate IBRA environmental association	
Remnant vegetation	Approximately 38% (33299 ha) of the association is mapped as remnant native vegetation, of which 16% (5455ha) is formally conserved
Landform	Hills on metasediments with short footslopes and fans.
Geology	Metasediments, colluvium and alluvium.
Soil	Dense brown loams, hard pedal red duplex soils and hard pedal mottled-yellow duplex soils.
Vegetation	Open scrub of beaked red mallee, yorrell, ridge-fruited mallee and broombush and low woodland of drooping sheoak.
Conservation significance	18 species of threatened fauna, 32 species of threatened flora. 0 wetlands of national significance.
Messenger IBRA environmental association	
Remnant vegetation	Approximately 32% (61287 ha) of the association is mapped as remnant native vegetation, of which 50% (30630ha) is formally conserved
Landform	Undulating plain with isolated dunes, and narrow strike ranges on outcropping quartzite.
Geology	Sand, metasediments, quartzite and alluvium.
Soil	Hard pedal red duplex soils, dense brown loams, hard pedal mottled-yellow duplex soils and yellow-brown sands.

Vegetation	Open scrub of beaked red mallee and yorrell, ridge-fruited mallee and broombush sometimes with a low woodland of drooping sheoak.
Conservation significance	15 species of threatened fauna, 42 species of threatened flora. 0 wetlands of national significance.
Yalarna IBRA environmental association	
Remnant vegetation	Approximately 68% (15985 ha) of the association is mapped as remnant native vegetation, of which 82% (13171ha) is formally conserved
Landform	Calcreted plain and occasional low hills, mainly overlain by parabolic dunes.
Geology	Sand, calcrete and quartzite.
Soil	Whitish sands and brown calcareous earths.
Vegetation	Open scrub of ridge-fruited mallee, narrow-leaved mallee and broombush.
Conservation significance	1 species of threatened fauna, 6 species of threatened flora. 0 wetlands of national significance.
Eyre Mallee IBRA subregion	
This subregion is distinguished climatically by being more arid than regions to the south. The mallee that once dominated this subregion has been cleared for wheat cultivation. The northern margin is formed by the dunefields of the Great Victoria Desert and the eastern margin of the Gawler Ranges. The region consists of an undulating plain with an extensive cover of dunes and sand sheets. A mallee association of Eucalyptus socialis and E. gracilis occurs on the shallow calcareous earths or deeper duplex soils of the plains with E. incrassata/Melaleuca uncinata mallee on the dune sands. To the east the subregion includes hilly uplands on metasediments small intramontane basins. Isolated quartzite ranges and granite outcrops form prominent inselbergs such as Darke Peake and Wudinna Hill which occur throughout the region. Livestock grazing and cereal cropping has resulted in the clearance and/or degradation of much of the native vegetation in this subregion.	
Remnant vegetation	Approximately 38% (877417 ha) of the subregion is mapped as remnant native vegetation, of which 54% (473079ha) is formally conserved
Landform	Stable NW-SE longitudinal dunes, locally broken by granite hills and ridges of metamorphic rocks. Dunes closely spaced.
Geology	Vast dune sand & interdune corridors of clay, silt & very fine sand; evaporate deposits in numerous salt lakes (gypsum, halite); kopi ridges & dunes; some silcrete & calcrete (rare)
Soil	Sandy soils with weak pedologic development, Red calcareous earths, Red siliceous sands.
Vegetation	Mallee heath and shrublands.
Conservation significance	85 species of threatened fauna, 114 species of threatened flora. 4 wetlands of national significance.
Hincks IBRA environmental association	
Remnant vegetation	Approximately 82% (23702 ha) of the association is mapped as remnant native vegetation, of which 92% (21795ha) is formally conserved
Landform	Plain with a thick sand cover forming high parabolic dunes.
Geology	Sand.
Soil	Brownish sands.
Vegetation	Open scrub of coastal mallee and open scrub of coastal mallee, ridge-fruited mallee, narrow leaved mallee and broombush.
Conservation significance	5 species of threatened fauna, 14 species of threatened flora. 0 wetlands of national significance.

Wharminda IBRA environmental association	
Remnant vegetation	Approximately 9% (6059 ha) of the association is mapped as remnant native vegetation, of which 3% (156ha) is formally conserved
Landform	Undulating plain with sand sheets and dunes, and isolated hills.
Geology	Sand, calcrete, quartzite, alluvium and calcarenite.
Soil	Sandy pedal mottled-yellow duplex soils, brownish sands, dense brown loams, crusty red duplex soils and whitish calcareous sands.
Vegetation	Chenopod shrubland of samphire and nitrebush.
Conservation significance	4 species of threatened fauna, 10 species of threatened flora. 1 wetlands of national significance.
Hambidge IBRA environmental association	
Remnant vegetation	Approximately 28% (99466 ha) of the association is mapped as remnant native vegetation, of which 74% (73409ha) is formally conserved
Landform	Extensive undulating plain with parallel dunes and occasional low inselbergs and with tidal flats and sand dunes on the coastal margin.
Geology	Sand, calcrete, inselberg, alluvium and metamorphics.
Soil	Sandy pedal mottled-yellow duplex soils, brownish sands, dense brown loams, grey calcareous loams and whitish calcareous sands.
Vegetation	Open scrub of ridge-fruited mallee, narrow leaved mallee and broombush, low woodland of mangroves, low chenopod shrubland of samphire and low shrubland of coastal wattle and coast beard heath.
Conservation significance	18 species of threatened fauna, 57 species of threatened flora. 0 wetlands of national significance.

Table 5. Gawler IBRA bioregion, subregion, and environmental association environmental landscape summary.

Gawler IBRA bioregion	
Semi-arid to arid, flat topped to broadly rounded hills of the Gawler Range Volcanics and Proterozoic sediments, low plateaux on sandstone and quartzite with an undulating surface of aeolian sand or gibbers and rocky quartzite hills with colluvial footslopes, erosional and depositional plains and salt encrusted lake beds, with black oak (belah) and Myall low open woodlands, open mallee scrub, bluebush/saltbush open chenopod shrublands and tall mulga shrublands on shallow loams, calcareous earths and hard red duplex soils.	
Myall Plains IBRA subregion	
Gently undulating calcrete plains and occasional quartzite or granite hills. Includes a zone of salt lakes and gypsum dunes at Lake Gillies and steep strike ranges at the Middleback Ranges. To the east out cropping conglomerate occurs with mangrove flats along the coastal margin. Acacia papyrocarpa / Casuarina pauper low woodland is found on grey brown calcareous earths, red calcareous earths and dense brown loams on the plains. Rocky outcrops support Eucalyptus incrassata / Melaleuca uncinata open scrub and Allocasuarina verticillata low woodland on dense brown loams. The lowest areas support chenopod shrubland of Halosarcia halocnemoides on grey calcareous loams. Light grazing occurs in most areas.	
Remnant vegetation	Approximately 97% (1050684 ha) of the subregion is mapped as remnant native vegetation, of which 8% (86146ha) is formally conserved
Landform	Gently undulating calcrete plains and occasional hills. Includes a zone of salt lakes and gypsum dunes at Lake Gillies and steep strike ranges at the Middleback Ranges.
Geology	Calcrete development; gypsum dunes; play lakes with silt & clay deposits & evaporites
Soil	Red calcareous earths, Sandy soils with mottled yellow clayey subsoils.
Vegetation	Assumed native vegetation cover.
Conservation significance	59 species of threatened fauna, 40 species of threatened flora. 4 wetlands of national significance.

Figure 4. IBRA subregions that the Project Area intersects.

4 METHODS

4.1 Desktop Assessment

A desktop assessment was conducted to determine the potential for any threatened and protected species and ecological communities (both Commonwealth and State listed) to occur within the Project Area. This was achieved by undertaking database searches using a 10 km buffer of the Project Area.

4.1.1 EPBC Act Protected Matters Search Tool (PMST)

A Protected Matters Search Tool (PMST) report was generated on 19 February 2019 to identify Matters of National Environmental Significance (MNES) under the EPBC Act relevant to the Project Area (DotEE 2019). The PMST is maintained by the Department of the Environment and Energy (DotEE) and was used to identify any flora and fauna species or ecological communities of national environmental significance that may occur or may have suitable habitat within the Project Area. A 10 km buffer was applied to the search (DotEE 2019).

4.1.2 Biological Database of South Australia (BDBSA)

A data extraction from the Biological Database of South Australia (BDBSA), which is maintained by DEW, was obtained to identify flora and fauna species that have been recorded within 10 km of the Project Area (DEW 2019, accessed 1302/2018, Recordset number DEWNRBDBSA190213-1). The BDBSA is comprised of an integrated collection of species records from the South Australian Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia and the Australasian Wader Study Group, which meet DEW standards for data quality, integrity and maintenance.

4.1.3 Likelihood of occurrence assessment

The likelihood of occurrence for each threatened species and community within the Project Area was conducted. Each of the threatened species and communities identified in the PMST report and BDBSA data extract were assigned a rating (Known, Highly Likely, Likely, Possible and Unlikely), which described their likelihood of occurrence with the Project Area. The following criteria were considered when assigned a likelihood rating:

- Date of the most recent record (taking into consideration the date of the last surveys conducted in the area);
- Proximity of the records (distance to the Project Area);
- Landscape location of the records, vegetation remnancy and vegetation type of the record location (taking into consideration the landscape, remnancy and vegetation type of the Project Area, with higher likelihood assigned to species that were found in similar locations/condition/vegetation associations); and
- Knowledge of the species' habitat preferences, causes of its decline, the conspicuousness of the species and local population trends.

A summary of the likelihood criteria is shown in Table 6.

Table 6. Likelihood rating and criteria for the presence of threatened species.

Likelihood	Criteria
Highly Likely/Known	• Records in the last 10 years, the species does not have highly specific niche requirements, the habitat is largely intact and falls within the known range of the species distribution; • The species was recorded as part of project surveys.
Likely	• Records within the previous 20 years, the area falls within the known distribution of the species and the area provides species habitat which is largely intact.
Possible	• Records within the previous 20 years, the area falls inside the known distribution of the species but the area does not provide species habitat which is largely intact. • Records within 20 -40 years, survey effort is considered adequate, habitat is present and intact and species of similar habitat needs have been recorded in the area.
Unlikely	• Records within 20 -40 years, however suitable habitat does not occur and species of similar habitat requirements have not been recorded in the area. • No records within the previous 40 years despite suitable habitat being known to occur in the area or, • No records despite adequate survey effort.

4.2 Native vegetation assessment

The native vegetation assessment was undertaken by Native Vegetation Council (NVC) Accredited Consultant Mark Laws and assisted by Ecologist Jesse Carpenter, from 16 September to 1 October 2019. The assessment was conducted in accordance with the BAM and the RAM, both endorsed by the NVC (NVC 2019a, 2019b).

4.2.1 Bushland Assessment Method (BAM)

The BAM was developed by the Native Vegetation Management Unit (NVMU) to assess areas of native vegetation requiring clearance and to calculate the SEB requirements. The method is derived from the Nature Conservation Society of South Australia's (NCSSA) Bushland Condition Monitoring methodology (Croft *et al.* 2005-2009) and is suitable for native vegetation assessments in South Australia's agricultural regions, include the Eyre Peninsula NRM region. The BAM requires quantitative on ground and desktop assessments of native vegetation and ecological values.

When using the BAM, each area to be assessed (i.e. each application area) is termed a 'Block', which is stratified into 'Sites'. Each Site relates to a vegetation association found within the Block, which are assessed in a representative 1 ha quadrats and compared to NCSSA 'benchmark' vegetation communities. Multiple sample point locations within each Site were assessed where required to account for variation in vegetation condition, with the scores and SEB calculations averaged across the Site.

Three components of the biodiversity value of the Site are measured and scored:

- Landscape context;
- Vegetation condition; and
- Conservation value.

The factors that influence each of these components and their score ranges are described in Table 7. The scores of these three components are combined to provide the Unit Biodiversity Score (per hectare) and then multiplied by the size (ha) of each Site to provide the Total Biodiversity Score for each Site.

Table 7. Factors that influence the value of the three components used to calculate the total SEB area and value in the BAM (NVC 2019a).

Component	Factors
Landscape context	• Percentage vegetation cover within 5 km; • Block shape (cleared perimeter:area ratio); • Native vegetation remnancy of IBRA association; • Percentage of native vegetation protected within the IBRA association; and • The presence of riparian vegetation, swamps or wetlands.
Vegetation condition	• Native plant species diversity; • Number of native lifeforms and their cover; • Number of regenerating species; • Weed cover and the level of invasiveness of dominant weed species; • Mature tree health, fallen timber, hollow-bearing trees and tree canopy; and • Native:exotic understorey biomass.
Conservation value	• The presence of federal or state listed threatened ecological communities, and their conservation rating; • Number of threatened plant species recorded at the site, and their conservation rating; and • Number of threatened fauna species and their conservation rating or potential habitat occurs within the site.

4.2.2 Rangeland Assessment Method (RAM)

The RAM was developed by the NVMU for the purpose of assessing areas of native vegetation requiring clearance and to calculate SEB requirements in the arid zone of South Australia. This includes the section of the Project Area that is located within the South Australian Arid Lands NRM region.

The RAM aligns with the methods used for the assessment of land and vegetation condition developed by Natural Resources South Australia Arid Lands, requiring quantitative on ground and desktop assessment of landscape, native vegetation and ecological values.

Each area to be assessed is termed a ‘Block’, which is further stratified into ‘Sites’, with each Site relating to a vegetation association found within the Block. Sites can also be stratified by paddocks, landform types and grazing gradient, represented by distance from watering points. Within each Site, ‘Sample Points’ are established.

Three components of the biodiversity value of the Site are measured and scored:

- Landscape context;
- Vegetation condition (including measure of land condition); and
- Conservation value.

The factors that influence each of these components and their score ranges are described in Table 8. Scores for each component are combined to provide the Unit Biodiversity Score (per hectare) and then multiplied by the size (ha) of each Site to provide the Total Biodiversity Score for each Site.

Table 8. Factors that influence the value of the three components used to calculate the total SEB area and value in the RAM (NVC 2019b).

Component	Factors
Landscape context	• Number of land form features present; • Size of the area being affected; • Presence of wetland features; and • Level of protection of native vegetation in the IBRA subregion.
Vegetation condition	• Utilisation of perennial species (Intact, Modified, Over-utilised); • Biotic and physical disturbance (e.g. presence of litter mats (positive influence), bare scalds (negative influence)); • Vegetation strata present and notably absent (i.e. removed); • Presence of declared plant species; and • Introduced plant species cover.
Conservation value	• Presence of Commonwealth or State listed threatened ecological communities, and their conservation rating; • Number of threatened plant species recorded (directly and historically), and their conservation rating; and • Number of threatened fauna species recorded (directly and historically), and their conservation rating, and potential habitat within the site.

4.2.3 Block determination

Given that the linear Project Area intersected several small patches of vegetation in the south of the Project Area, these small patches were grouped into Blocks, with the area of the Block and cleared perimeter determined by adding the area and cleared perimeter of all Sites together. A summary of the factors that determined which Sites were aggregated into each Block is provided in Table 9.

Table 9. Summary of the factors that were used to aggregate Sites into each Block.

Block	Factors
A	Sites highly fragmented and dominated by patches of *Eucalyptus cladocalyx* (Sugar Gum) Woodland, *Eucalyptus odorata* (Peppermint Box) Mallee Woodland and *Acacia* spp. (Wattle) Tall Shrubland, and wetlands/creeklines dominated by *Juncus* spp. (Rush) and *Gahnia* spp. (Cutting) Sedgelands, sometimes with an overstorey of *Melaleuca halmaturorum* (Swamp Paper-bark) Tall Shrubland.
B	Sites more contiguous and dominated by *Eucalyptus cladocalyx* (Sugar Gum) Woodland, nationally endangered *Eucalyptus petiolaris* (Eyre Peninsula Blue Gum) Woodland and *Allocasuarina verticillata* (Drooping Sheoak) Woodland.
C	Sites highly fragmented and dominated by mixed Mallee communities over sclerophyll shrub understories, *Melaleuca uncinata* (Broombush) Tall Shrublands, *Callitris gracilis* (Southern Cypress Pine) Woodlands and *Tecticornia* spp. (Samphire) Low Shrublands.
D	Block made of up contiguous Sites dominated by large dune complexes characterized by mixed Mallee communities over *Triodia* spp. (Spinifex) sclerophyll shrub understories and *Melaleuca uncinata* (Broombush) Tall Shrubland west of the Middleback Range, and *Acacia papyrocarpa* (Western Myall) and *Casuarina pauper* (Black Oak) Woodlands with scattered patches of *Alectryon oleifolius* ssp. *canescens* (Bullock Bush) Low Woodlands and chenopod shrublands east of the Middleback Range.

4.2.4 BAM and RAM scoresheets

The conservation significance scores were calculated from direct observations of flora and direct and historical observations of fauna species of conservation significance. Historical fauna observations within 10 km of the Project Area were obtained from the PMST and BDBSA. Only BDBSA records no more than 20 years old and with a locational reliability of <1 km were used (NVC 2019a).

Normally the conservation significance scores in the RAM are calculated from direct and historical observations of flora and fauna species of conservation significance within 50 km of the Project Area (NVC 2019b). However, given the substantial survey effort within the section of the Project Area assessed under the RAM, the above method to calculate the conservation significance scores was used for the entire Project Area.

Due to the linear Project Area, the percentage of vegetation within 5 km and mean annual rainfall (mm) entered into each BAM scoresheet were obtained using the respective NatureMaps layers selected at each sample point location (DEW 2019b).

4.2.5 SEB calculations

Several Sites spanned across multiple NRM regions (Figure 5) and economies of scale zones, and within and outside protected areas. Given that all these factors influence the SEB calculation, the vegetation (Site) mapping was intersected with spatial data for each factor to determine the area of each Site within the different NRM regions and economies of scale zones, and within and outside protected areas. Scoresheets were duplicated where necessary to calculate the SEB requirements for each intersected area, which were then summed to calculate the SEB requirements for the entire Site.

Where Sites were intersected, they were named as follows:

- D5-RAM-4-PA (Block D, Site 5, assessed under RAM, economies of scale factor 4, within protected area).

Sites assessed under the RAM were labelled to distinguish them from Sites assessed under the BAM, which were not labelled. Only Sites that contained areas of different economies of scale factors were labelled.

4.2.6 Sandalwood survey

Seven *Santalum spicatum* (Sandalwood), which is Vulnerable under the NPW Act, were observed when traversing from a vehicle access track to Site D26 during the native vegetation assessment. This Site was located in the Department of Defence land where the proposed replacement transmission line route veers away from the existing transmission line and access track, which allowed the species to be easily mapped from the vehicle.

Avoidance of remnants of this species is important since only scattered individuals remain in this region and recruitment is low due to poor seed dispersal, the need for a suitable host plant (Sandalwood is an obligate hemiparasitic tree), complex germination (softening of the hard seed coat is required to increase the chance of germination), and grazing of seedlings by stock and native grazers.

Therefore, an additional survey was undertaken to map occurrences of Sandalwood. This involved two ecologists traversing a 200 m wide corridor along the section (approximately 12 km) of the proposed replacement transmission line route where vehicle access was restricted (Cultana Training Area – Department of Defence). A waypoint was collected for every individual observed. The wider 200 m corridor was surveyed to allow for lateral micro-siting of infrastructure if required.

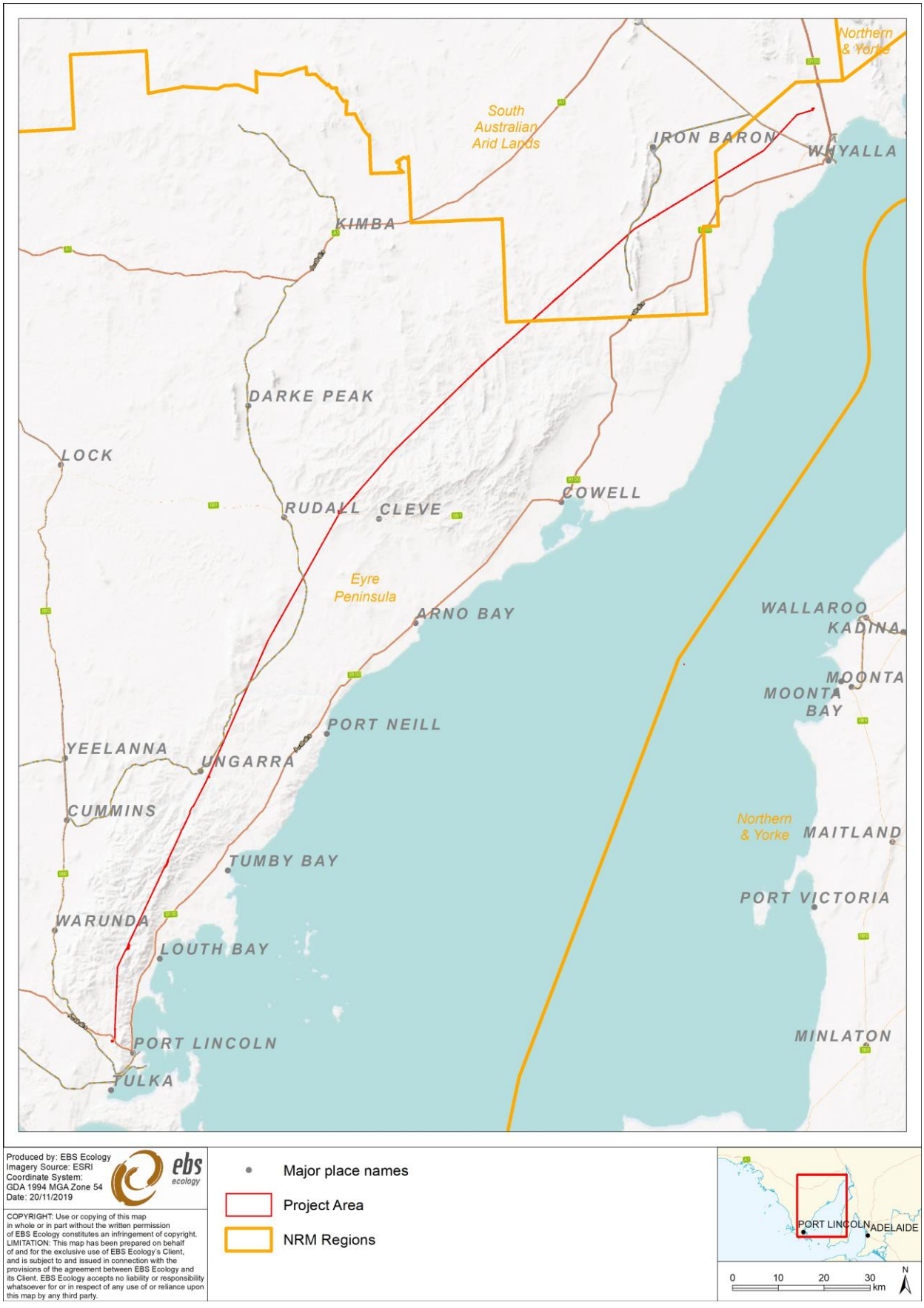

Figure 5. Project Area location within the Eyre Peninsula and South Australian Arid Lands NRM regions.

4.3 Fauna assessment

In addition to the previous fauna assessments undertaken by EBS (2014), bird surveys were undertaken at each vegetation assessment sample point location and incidental sightings of fauna were recorded throughout the Project Area. Particular attention was paid to searching for fauna species of Commonwealth and State conservation significance, predicted as potentially occurring in the Project Area as part of the desktop assessment.

4.3.1 Birds

A bird survey was undertaken at each vegetation assessment sample point location. Surveys used the area search method whereby each 1 ha vegetation survey site was searched for a period of 20 minutes using a random meander pattern of searching throughout the site. Each site was searched once only at varying times throughout the day.

Each species of bird that could be identified by sight or call within the site was recorded, as well as the number of individuals seen. Birds observed outside the survey sites were recorded as incidental sightings.

4.3.2 Mammals and reptiles

All other fauna observed during the area searches and when moving through the Project Area was recorded. Fauna was identified through observation of animals, as well as tracks and signs such as scats, burrows and diggings. No formal trapping survey was undertaken.

4.4 Limitations

4.4.1 Desktop assessment limitations

Flora and fauna records were sourced from the BDBSA. The BBDSA only includes verified flora and fauna records submitted to DEW or partner organisations. It is recognised that knowledge is poorly captured, and it is possible that threatened species occur that are not reflected by database records. Hence, the BDBSA results that have been clipped to a 10 km buffer of the Project Area may not highlight all potential threatened flora and fauna species that may occur in the Project Area.

Although much of the BDBSA data has been through a variety of validation processes, the lists may contain errors and should be used with caution. DEW gives no warranty that the data is accurate or fit for any particular purpose of the user or any person to whom the user discloses the information.

BDBSA flora and fauna records were limited to a 10 km buffer around the Project Area. The reliability of the BDBSA data ranges from 100 m to over 100 km. Fauna species, in particular birds, can traverse distances more than the 10 km search buffer, and therefore, additional species may occur.

The findings and conclusions expressed by EBS are based solely upon information in existence at the time of the assessment.

4.4.2 Native vegetation assessment limitations

Due to the large size and landform of the Project Area, and access limitations, not all vegetation patches could be searched; instead a representative sample was surveyed. As such, additional threatened plants

may be present and potential infrastructure areas will need to be microsited in detail for the presence of threatened flora species.

Although the assessment was undertaken in spring, some flora species lacked distinguishable features and were only able to be identified to genus. Furthermore, some flora species may have gone undetected (e.g. if they were dormant, inconspicuous or lacked distinguishable features such as flowers or seed at the time of the survey). However, flora data collected during the 2019 native vegetation assessment, combined with the results of desktop assessment and 2012 and 2013 flora surveys (EBS 2014), is considered to provide a detailed assessment of the flora species that occur and are likely to occur within the Project Area.

4.4.3 Fauna survey limitations

It is likely that not all fauna present in the Project Area were observed due to the following limitations:

- Each site was surveyed once only at varying times of the day. No allowance was made for species that might be active at different times of the day or seasonal variations;
- No nocturnal searching was carried out;
- Trapping or acoustic detection of any kind was not undertaken; and
- Survey sites were chosen primarily as BAM and RAM sample points. Areas of more suitable habitat for some fauna were not necessarily targeted, other than incidental observations.

However, fauna data collected during the 2019 native vegetation assessment, combined with the results of desktop assessment and 2012 and 2013 fauna surveys (EBS 2014), is considered to provide a detailed assessment of the fauna species that occur and are likely to occur within the Project Area.

5 DESKTOP ASSESSMENT RESULTS

5.1 Matters of National Environmental Significance (MNES)

The results of the PMST report are summarised in Table 10. The requirement of an EPBC Referral for the Project has been addressed in *Eyre Peninsula Transmission Line EPBC Assessment* (EBS 2019). Relevant MNES are discussed in further detail below. Marine species, which are not also listed as threatened or migratory, only require EPBC Referral if they are likely to be significantly impacted within a Commonwealth Marine Area. As Commonwealth Marine Areas commence three nautical miles from shore, marine species are not relevant to this Project and have been excluded from further assessment. Furthermore, fauna that complete their life cycle in marine habitats, such as sharks and whales, have also been excluded from further assessment due to their irrelevance to the Project, which is located on terrestrial land.

Table 10. Summary of the results of the EPBC Act Protected Matters Search (DotEE 2019).

Search Area (10 km buffer[1])	MNES under the EPBC Act	
 This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010 Coordinates Buffer: 10.0Km	World Heritage Properties	None
	National Heritage Properties	None
	Wetlands of International Significance	None
	Great Barrier Reef Marine Park	None
	Commonwealth Marine Areas	None
	Threatened Ecological Communities	3
	Threatened Species	58
	Migratory Species	37
	Listed Marine Species	73
	Whales and other Cetaceans	11
	Other matters protected by the EPBC Act	
	Commonwealth Lands	5
	Commonwealth Heritage Places	None
	Critical Habitats	None
	Commonwealth Reserves Terrestrial	None
	Commonwealth Reserves Marine	None
	Extra information	
	State and Territory Reserves	45
	Regional Forest Agreements	None
	Invasive Species	31
	Nationally Important Wetlands	2
	Key Ecological Features (Marine)	None

1. ***Project Area based on GIS data provided by ElectraNet prior to generation of EPBC Act PMR on 19/02/2019.**

5.1.1 Threatened ecological communities (TECs)

Three nationally threatened ecological communities (TECs) were identified by the PMST report as having potential to occur within 10 km of the Project Area (Table 11). Only one TEC is considered to possibly occur within the Project Area: Eyre Peninsula Blue Gum (*Eucalyptus petiolaris*) Woodland. The remaining two TECs are considered unlikely to occur due to the location of the Project Area and vegetation associations present (EBS 2019).

Table 11. Nationally threatened ecological communities potentially occurring within 10 km of the Project Area.

TEC	EPBC status[1]	Occurrence in Project Area	Rationale
Eyre Peninsula Blue Gum (*Eucalyptus petiolaris*) Woodland	EN	Possible	A number of patches of *Eucalyptus petiolaris* Woodland were mapped within the Project Area during previous surveys (EBS 2014), but were not assessed under the Approved Conservation Advice (TSSC 2013) at the time. Approximately 8.5 ha of the community, which was mapped within a 120 m wide assessment corridor, was recorded in moderate condition and considered to possibly qualify as the TEC.
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia	CE	Unlikely	Although *Eucalyptus odorata* Woodland occurs in the south of the Project Area (EBS 2014), the EPBC listing advice excludes occurrences of Peppermint Box that are a part of Mallee Eucalyptus woodlands with a shrubby understorey, and grassy woodlands dominated by other Eucalypt species, particularly *Eucalyptus leucoxylon*, in which Peppermint Box is a sub-dominant species. These excluded ecological communities mainly occur in the northern Flinders Ranges, Eyre Peninsula and the south-eastern parts of South Australia (TSSC 2007). Therefore, this TEC is considered unlikely to occur within the Project Area.
Subtropical and Temperate Coastal Saltmarsh	VU	Unlikely	Unlikely to occur due to the distance of the Project Area from the coast, where this TEC usually occurs. In order to qualify as this TEC, there must be some form of tidal connection (which may be by groundwater) to this habitat. Furthermore, as this TEC is only listed as Vulnerable, any impact to it does not require EPBC Referral (see Section 1.3 of EBS (2019)).

1. **CE: Critically Endangered. EN: Endangered. VU: Vulnerable.**

5.1.2 Nationally threatened flora

The PMST report identified 22 nationally threatened flora species as potentially occurring within 10 km of the Project Area. Twelve of these species had BDBSA records within 10 km of the Project Area (Table 12).

Six species are known to occur in the Project Area from previous field surveys (EBS 2014):

- *Acacia enterocarpa (*Jumping-jack Wattle);
- *Acacia pinguifolia* (Fat-leaf Wattle);
- *Caladenia macroclavia* (Large-club Spider-orchid);
- *Caladenia tensa* (Greencomb Spider-orchid / Rigid Spider-orchid);
- *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush*)*; and
- *Pultenaea trichophylla* (Tufted Bush-pea).

Three nationally threatened flora species are highly likely to occur within the Project Area:

- *Acacia cretacea* (Chalky Wattle);
- *Acacia rhetinocarpa* (Resin Wattle); and
- *Swainsona pyrophila* (Yellow Swainson-pea).

Acacia praemorsa (Senna Wattle) is likely to occur within the Project Area, while nine species could possibly occur and three species are unlikely to occur within the Project Area.

The likelihood of occurrence of each nationally threatened flora species in the Project Area and the rationale behind this are summarised in Table 12. Nationally threatened flora species BDBSA records within 5 km of the Project Area are mapped in Figure 6 and Figure 7.

Table 12. National and State threatened flora identified in the PMST report and BDBSA data extract as potentially occurring within the Project Area. Only BDBSA records within the last 20 years and with a spatial reliability <1 km have been included.

Species name	Common name	Conservation status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
		Aus	SA					
Acacia cretacea	Chalky Wattle	EN	E	1, 2	2005	No	Highly Likely	Endemic to Eyre Peninsula. Grows in low shrubland and mallee scrub dominated by *Eucalyptus incrassata* (Ridge-fruited Mallee), *Melaleuca uncinata* (Broombush), *Triodia irritans* (Spinifex) and *Phebalium bullatum* (Silvery Phebalium) on deep red sand in gently undulating country, with low sand ridges.
Acacia dodonaeifolia	Hop-bush Wattle		R	2	2013	Yes	Known	Usually grows on undulating hills on clay loams or sandy clay loams, in eucalypt woodland and open forest (not in Mallee communities according to P. Lang, *pers. comm.*). It is tolerant of calcareous soils.
Acacia enterocarpa	Jumping-jack Wattle	EN	E	1, 2	2013	Yes	Known	The species occurs as a disjunct population on Eyre Peninsula. Recorded from *Eucalyptus incrassata* (Ridge-fruited Mallee) / *E. socialis* (Beaked Red Mallee) Mallee Woodland; *Eucalyptus calycogona* (Square-fruit Mallee) +/- *E. phenax* ssp. *phenax* (White Mallee) Mallee Woodland; *E. gracilis* (Yorrell) +/- *E. dumosa* (White Mallee) +/- *E. brachycalyx* (Gilja) +/- *E. oleosa* (Red Mallee) Mallee.
Acacia hexaneura	Six-nerve Spine-bush		R	2	2014	Yes	Known	Endemic to Eyre Peninsula. Restricted to area between Cowell and Kimba. Grows in gravelly loam and sandy soils dominated by *Eucalyptus dumosa* (White Mallee) / *E. gracilis* (Yorrell) / *Melaleuca uncinata* (Broombush) over a sclerophyllous shrub understorey.
Acacia imbricata	Feathery Wattle		R	2	2016	Yes	Known	Endemic to Eyre Peninsula. Restricted to areas between Ungarra, Cummins and Wanilla extending southeast into the Koppio Hills. Grows usually in sand in open forest, woodland or open scrub.
Acacia iteaphylla	Flinders Ranges Wattle		R	2	2016	No	Likely	Occurs on Eyre Peninsula from Gairdner-Torrens eastwards to the southern Flinders Ranges. Prefers hillsides amongst rocky outcrops or valleys along rocky creek banks. Recent record 1 km NNW of Koppio.
Acacia montana	Mallee Wattle		R	2	2010	No	Likely	Occurs in the north-east of the Eyre Peninsula. Grows in a variety of soils, often in *Eucalyptus gracilis* (Yorrell) and *E. socialis* (Beaked Red Mallee) Mallee.
Acacia pinguifolia	Fat-leaf Wattle	EN	E	1, 2	2004	Yes	Known	Known from disjunct sub-populations on Eyre Peninsula, where it grows in undulating terrain with a westerly aspect in association with a range of mallee species including *Eucalyptus odorata* (Peppermint Box), *E. incrassata* (Ridge-fruited Mallee), *E. dumosa* (White Mallee), *E. foecunda* (Hooked Mallee), *E. calycogona* (Square-fruited Mallee), *E. cooperiana* (Coopers

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
								Mallee), *E. flocktoniae* (Merrit) and *E. pileata* (Capped Mallee). Also occurs in *Melaleuca uncinata* (Broombush) Shrubland. Sub-populations are known to occur near Cockaleechie, Ungarra and Butler, with many located on roadsides and rail reserves.
Acacia praemorsa	Senna Wattle	VU	E	1		No	Likely	Endemic to Eyre Peninsula where it occurs in localised populations in the ranges north-east of Cleve. Occurs in mallee woodlands, open scrubs and open heath scrubs dominated by *Melaleuca uncinata* (Broombush), *Acacia calamifolia* (Wallowa), *Eucalyptus odorata* (Peppermint Box) and other mallee species. Has been found on the lower slopes of small gullies in low, rocky ranges, on exposed north-facing slopes in thick, low scrub and in shady, sheltered sites in open mallee woodlands at the base of steep gullies.
Acacia rhetinocarpa	Resin Wattle	VU	V	1, 2	2006	No	Highly Likely	Grows in disjunct sub-populations on Eyre Peninsula on dune crests and dunes/hills, plains and swales. It is also known to survive in degraded sites largely devoid of remnant vegetation. Normally associated with low mallee of *Eucalyptus dumosa* (White Mallee), *E. foecunda* (Hooked Mallee), *E. calycogona* (Square-fruited Mallee), *E. incrassata* (Ridge-fruited Mallee) and *E. brachycalyx* (Gilja). Occurs from Kimba to just north of Arno Bay, Cleve and Lock. Sub-populations are known to survive within roadside and rail reserve vegetation.
Acacia rhigiophylla	Dagger-leaf Wattle		R	2	2002	Yes	Known	Small occurrences on Eyre Peninsula in open scrub associated with *Eucalyptus gracilis* (Yorrell) and *E. socialis* (Beaked Red Mallee).
Acacia whibleyana	Whibley's Wattle	EN	E	1, 2	2018	No	Possible	Endemic to Eyre Peninsula where it is restricted to near-coastal areas near Tumby Bay. Grows on limestone and loam, sometimes near salt swamps. Although records occur within 5 km, the current extent of occurrence is southeast of Project Area, towards Tumby Bay.
Caladenia brumalis	Winter Spider-orchid	VU	V	1		No	Possible	Endemic to South Australia. Found in association with mallee-broombush associations, *Allocasuarina verticillata* (Drooping Sheoak) Woodland, *Eucalyptus diversifolia* ssp. *diversifolia* (Coastal White Mallee) Mallee Woodland and *E. cladocalyx* (Sugar Gum) Woodlands.
Caladenia conferta	Coast Spider-orchid	EN	E	1		No	Unlikely	Currently known from two distinct localities in the upper south-east of South Australia and on Yorke Peninsula. There is one record from 1968 from Hincks Wilderness Protection Area, but this sub-population is now considered extinct. Another collection,

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
								from Carrappee Hill, may not be *Caladenia conferta* and is possibly a subspecies of *C. toxochila*.
Caladenia macroclavia	Large-club Spider-orchid	EN	E	1		Yes	Known	Endemic to South Australia and rare on Eyre Peninsula. Records from Port Lincoln and Port Lincoln National Park. Favours fertile shallow loams in mallee-broombush associations, usually where other orchids are numerous.
Caladenia tensa	Inland Green-comb Spider-orchid	EN		1, 2	2003	Yes	Known	Widespread in South Australia including throughout Eyre Peninsula and the adjacent pastoral zone. Occurs in dry woodland, mallee-heath, low scrub and about rock outcrops in a variety of soil types.
Calochilus pruinosus	Plains Beard-orchid		R	2	2003	No	Possible	Several more recent records within and close to Hincks Wilderness Protection Area. Prior to settlement, this species was widespread across the Western Australia wheat belt and adjacent pastoral country wherever there were white sandhills with broombush cover, flowering mostly after fires but never common. Now more common in South Australia than Western Australia.
Daviesia benthamii ssp. *humilis*	Mallee Bitter-pea		R	2	2003	Yes	Known	Numerous recent records from Hincks Wilderness Protection Area to The Plug Range Conservation Park. Habitat preferences include *Eucalyptus phenax* ssp. *phenax* (White Mallee) Low Mallee over *Melaleuca uncinata* (Broombush), *E. incrassata* (Ridge-fruited Mallee) Low Mallee and *E. oleosa* (Red Mallee) / *E. brachycalyx* (Gilja) Mallee.
Daviesia pectinata	Zig-zag Bitter-pea		R	2	2014	Yes	Known	Numerous recent records widespread from Port Lincoln to Heggaton Conservation Park. Habitat includes *Eucalyptus dumosa* (White Mallee) / *E. calycogona* (Square-fruited Mallee) Low Mallee, *E. dumosa* (White Mallee) / *E. calycogona* Low Mallee over *Melaleuca uncinata* (Broombush), *M. uncinata* / *Ozothamnus retusus* (Notched-bush Everlasting) Shrubland and *E. incrassata* (Ridge-fruited Mallee) / *E. calycogona* / *M. lanceolata* (Dryland Teatree) Low Woodland.
Drosera striaticaulis	Erect Sundew		V	2	2012	No	Possible	Records mainly confined to around the southern portion of the Project Area, with one recent outlying record from Dark Range Conservation Park. Occurs within *Eucalyptus cretata* (Darke Peak Mallee) / *E. odorata* (Peppermint Box) Mallee, granite rock run-off areas, damp clay/sand in water retentive soils, drainage lines in *E. camaldulensis* (River Red Gum) Woodlands.
Eremophila barbata	Blue Range Emubush		R	2	2006	No	Possible	Endemic to Eyre Peninsula. Populations located around Ungarra and north and east of Hincks Wilderness Protection Area. Found with *Eucalyptus calycogona* (Square-fruited Mallee) / *E. socialis*

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
								(Beaked Red Mallee) Mallee over *Melaleuca uncinata* (Broombush), growing on rocky slopes and alongside creeklines.
Eremophila gibbifolia	Coccid Emubush		R	2	2002	Yes	Known	Two disjunct populations on Eyre Peninsula, in the Koppio and Cleve Hills. Normally associated with mallee associations on stony hills.
Eucalyptus conglobata ssp. *conglobata*	Port Lincoln Mallee		R	2	2008	No	Unlikely	Occurs in dense mallee scrub on the southern tip of Eyre Peninsula and on adjacent Taylor and Boston Islands.
Eucalyptus cretata	Darke Peak Mallee		R	2	2013	Yes	Highly Likely	Endemic to Eyre Peninsula. Numerous records across upper Eyre Peninsula from Caralue Bluff to Lock and Cowell in the south, but particularly common in Darke Peak and Carappee Hill. Mainly associated with *Eucalyptus calycogona* (Square-fruited Mallee), *E. porosa* (Mallee Box) and *E. brachycalyx* (Gilja) Low Mallee over *Melaleuca uncinata* (Broombush) / *Melaleuca lanceolata* (Dryland Teatree).
Frankenia plicata		EN		1		No	Possible	Occurs in South Australia, from north of Port Augusta along the Stuart Highway to the Northern Territory border and from Port Augusta north-east to Maree (outside Project Area). It is likely that the species has been under reported due to difficulty of identification of *Frankenia* spp. No records in Eyre Hills or Eyre Mallee subregions. Grows in a range of habitats, including on small hillside channels, which take the first run-off after rain, and from swales of loamy sands to clay. Found in a wide range of vegetation communities that have good drainage.
Goodenia benthamiana	Bentham's Goodenia		R			Yes	Known	Located north of Cowell and Cleve, with additional subpopulations north of Kimba. Associated with *Eucalyptus calycogona* (Square-fruited Mallee) / *E. oleosa* (Red Mallee) Open Mallee. Also found on limestone outcropping and growing near *Melaleuca uncinata* (Broombush) Shrubland and in *E. incrassata* (Ridge-fruited Mallee) / *M. uncinata* / *Leptospermum coriaceum* (Dune Teatree) Mallee.
Haeckeria cassiniiformis	Dogwood Haeckeria		R	2	2007	No	Possible	Populations scattered across Eyre Peninsula. Associated with sandy mallee associations.
Lepidosperma gahnioides			R	2	2013	No	Possible	Small sub-population growing in Verran Tanks Conservation Park. Known from red clay loam with ironstone gravel growing near *Melaleuca uncinata* (Broombush), *Eucalyptus calycogona* (Square-fruited Mallee) and *Lepidosperma viscidum* (Sticky Sword-sedge).
Leucopogon clelandii	Cleland's Beard-heath		R	2	2003	No	Likely	Eyre Peninsula sub-populations located near Wanilla and south of and in Hincks Wilderness Protection Area. Found growing in sandy soil associated with mallee communities.

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
Maireana suaedifolia	Lax Bluebush		R	2	2010	Yes	Highly Likely	Subpopulation located between Cowell, Kimba and Whyalla. Associated with mallee with *Senna* spp. (Senna), *Olearia* spp. (Daisy-bush) and *Lomandra effusa* (Scented Mat-rush) on coarse red sands. Also, mallee-chenopod low open woodland and in seasonally damp alluvial heavy clay over calcrete with *Eucalyptus gracilis* (Yorrell), *Disphyma crassifolium* (Round-leaf Pigface) and *Roepera eremaea.*
Melaleuca oxyphylla	Pointed-leaf Honey-myrtle		R	2	2002	No	Possible	Endemic to Eyre Peninsula. Numerous records across upper Eyre Peninsula from Sheoak Hill Conservation Park to Gawler Ranges National Park. Mainly associated with rocky skeletal loams with *Melaleuca uncinata* (Broombush) Shrubland, *Eucalyptus brachycalyx* (Gilja), *E. phenax* ssp. *phenax (*White Mallee) *E. calycogona* (Square-fruited mallee) Open Mallee over *M. uncinata*.
Microtis eremaea	Slender Onion-orchid		E	2	2011	No	Possible	Found on the Eyre Peninsula growing on rock outcrops and along ephemeral watercourses.
Olearia adenolasia	Musk Daisy-bush		R	2	2002	Yes	Known	Few individuals recorded along the Project Area. Sub-population located between Cowell and Kimba. Found in sandy soil associated with *Melaleuca acuminata* (Mallee Honey-myrtle) / *Eucalyptus socialis* (Beaked Red Mallee) / *E. dumosa* (White Mallee) Open Scrub.
Olearia pannosa ssp. *pannosa*	Silver Daisy-bush	VU	V	1, 2	2011	Yes	Known	Two main sub-populations on Eyre Peninsula occurring in the Cleve Hills to Coolanie Range area, north-west of Cowell, and in the Koppio Hills and Greenpatch area, lower Eyre Peninsula. Southern population associated with *Eucalyptus cladocalyx* (Sugar Gum), *Allocasuarina verticillata (*Drooping Sheoak) and *Melaleuca uncinata (*Broombush), and less often with *Callitris* spp. (Native Pine). Northern population associated with *A. verticillata* Low Woodland, *E. odorata* (Peppermint Box) +/- *E. phenax* ssp. *phenax* (White Mallee*)* Mid Mallee Woodland, *E. porosa* (Mallee Box) Mid Open Mallee, *E. incrassata* (Ridge-fruited Mallee) +/- *E. socialis* (Beaked Red Mallee) Mid Mallee Woodland.
Olearia picridifolia	Rasp Daisy-bush		R	2	2013	No	Possible	Found mainly in mallee and heath on alkaline soils derived from limestone or dunes. Three recent records near Verran.
Philotheca angustifolia ssp. *angustifolia*	Narrow-leaf Wax-flower		R	2	2016	Yes	Known	Associated with the Cleve Hills and the Koppio Hills Woodland environments.
Pimelea williamsonii	Williamson's Riceflower		R	2	2014	No	Possible	Scattered records from Hincks and Hambridge Wilderness Protection Areas, and Heggaton Conservation Park. Prefers

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
								recently burnt areas associated with sandy eucalypt woodlands and heathlands.
Prasophyllum fecundum	Self-pollinating Leek-orchid		R	2	2004	No	Possible	Scattered across southern Eyre Peninsula in mallee heathland and *Callitris* spp. (Native Pine) Woodland, or on rock outcrops in the wheat belt in sandy or loamy soils.
Prasophyllum goldsackii	Goldsack's Leek-orchid	EN	E	1, 2	2004	No	Possible	Found from 14 small populations on Eyre and Yorke Peninsulas. Not exceeding 500-1000 individuals. Occurs largely on limestone, in shallow soil pockets but also in calcareous sands. Found in *Eucalyptus cladocalyx* (Sugar Gum) Forest, as well as *Allocasuarina verticillata* (Drooping Sheoak) Low Woodlands and *Melaleuca uncinata* (Broombush) Tall Open Shrublands.
Prasophyllum laxum	Lax Leek-orchid	CE		1		No	Possible	Only known from one location in private property (Cockatoo Hill) near Koppio where it grows in sparse/open woodland, approximately 2.3 km from the proposed transmission line. There is a second (unconfirmed) record from Ungarra (approximately 1.5 km from the Project Area). Due to records within close proximity of the Project Area, it is possible that this species may occur in suitable habitat (i.e. woodland), particularly in the Koppio or Ungarra areas.
Prostanthera calycina	West Coast Mintbush	VU	V	1		No	Possible	Endemic to Eyre Peninsula where it is restricted to western coast from Port Lincoln to Streaky Bay. The southern populations in close proximity to the Project Area grow in association with *Eucalyptus incrassata* (Ridge-fruited Mallee) Mid Mallee Woodland over *Melaleuca uncinata* (Broombush) / *Leptospermum coriaceum* (Dune Tea-tree), and *E. diversifolia* ssp. *diversifolia* (Coastal White Mallee) +/- *Allocasuarina verticillata* (Drooping Sheoak) Mid Mallee Woodland over *M. lanceolata* (Dryland Tea-tree).
Pterostylis mirabilis	Nodding Rufoushood	VU		1		No	Possible	Occurs in coastal areas to areas about 100 km inland, in the high country (75–200 m above sea level) between Cleve and Kimba. This species grows mostly among rocks on hilly slopes, in *Melaleuca uncinata* (Broombush) Shrubland, but it is also known to occur in Native Pine and Eucalypt woodland, usually in stony brown loams. There are records for this species within close proximity to the Project Area (near Cleve) and therefore this species may occur within suitable habitat.

Species name	Common name	Conservation status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
		Aus	SA					
Pterostylis sp. Hale (R. Bates 21725)	Hale Dwarf Greenhood	EN		1		No	Unlikely	Occurs in mallee, broombush and native pine communities. It also occurs in understorey dominated by heath. There are records over 10 km from the Project Area from 1993. Therefore, this species is unlikely to occur.
Ptilotus beckerianus	Ironstone Mulla Mulla	VU	V	1, 2	2007	No	Possible	Disjunct populations on Eyre Peninsula. Found in association with *Eucalyptus cladocalyx* (Sugar Gum) Forest, as well as *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland and *E. diversifolia* ssp. *diversifolia* (Coastal White Mallee) +/- *E. incrassata* (Ridge-fruited Mallee) +/- *E. leptophylla* (Narrow-leaf Mallee) +/- *E. peninsularis* (Cummins Mallee) Mallee.
Pultenaea trichophylla	Tufted Bush-pea	EN	R	1, 2	2013	Yes	Known	Endemic to Eyre Peninsula. Numerous recent records from 20 subpopulations in the Koppio Hills between Tod River Reservoir to just north of Ungarra, mainly along the western side to the Project Area. Commonly associated with *Eucalyptus cladocalyx* (Sugar Gum) Woodland, *E. peninsularis* (Cummins Mallee) Low Woodland / Mallee, *Allocasuarina verticillata* (Drooping Sheoak) Low Open Woodland, and *E. odorata* (Peppermint Box) / *E. angulosa* (Coast Ridge-fruited Mallee) / *E. foecunda* (Hooked Mallee) Mallee over *Melaleuca uncinata* (Broombush). Also occurs in all shrublands dominated by *M. uncinata* and *Acacia* spp. (Wattle).
Santalum spicatum	Sandalwood		V	2	2004	Yes	Known	Found along the Project Area within the semi-arid pastoral areas. Occurs in tall Acacia woodlands and shrublands over chenopods, *Callitris gracilis* (Southern Cyperus Pine) Low Woodlands and semi-arid mallee communities.
Schoenus sculptus	Gimlet Bog-rush		R	2	2007	No	Possible	Eyre Peninsula records scattered across upper Eyre Peninsula and concentrated around Edillilie and Wanilla on lower Eyre Peninsula. Mainly associated with stream channels, granite outcropping, clay loam and sandy soils with *Melaleuca armillaris* ssp. *akineta* (Needle-leaf Honey-myrtle) Low Closed Forest and *M. brevifolia* (Mallee Honey-myrtle), *M. decussata* (Totem Poles) and *M. uncinata* (Broombush) Shrublands, sometimes with *Gahnia trifida* (Rough Cutting-Grass).
Spyridium bifidum ssp. *bifidum*	Marble Range Spyridium		V	2	2005	Yes	Unlikely	Endemic to the Marble Range on Eyre Peninsula, where it occurs in open mallee shrubland on quartzite and sometimes on sand over laterite. BDBSA and EBS (2014) record likely to be *Spyridium stenophyllum* ssp. *renovatum* (Forked Spyridium), which is widespread across eastern Eyre Peninsula. The *S. bifidum – S. halmaturinum* complex was revised in 2012 (Kellerman & Barker 2012).

Species name	Common name	Conservation status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Rationale
Spyridium erymnocladum	Cloaked Spyridium		V	2	2013	Yes	Known	Endemic to Eyre Peninsula. Occurs in mallee / broombush associations, with some populations occurring within roadside vegetation around and within Hincks Wilderness Protection Area.
Spyridium leucopogon	Silvery Spyridium		R	2	2009	Yes	Known	Endemic to Eyre Peninsula. Confined to lower Eyre Peninsula where it is associated with mallee associations including *Eucalyptus incrassata* (Ridge-fruited Mallee) Mallee, *E. odorata* (Peppermint Box) Very Open Mallee over *Melaleuca uncinata* (Broombush), and *E. dumosa* (White Mallee) / *E. foecunda* (Hooked Mallee) Mallee.
Spyridium spathulatum	Spoon-leaf Spyridium		R	2	2017	Yes	Known	Eyre Peninsula population mainly from lower Eyre Peninsula, with small sub-populations located north-west of Port Kenny, Cowell and north-east of Cleve. Associated with clayey sands dominated by *Melaleuca uncinata* (Broombush) Tall Shrubland with emergent mallee species.
Swainsona pyrophila	Yellow Swainson-pea	VU	R	1, 2	2010	No	Highly Likely	Occurs across the Eyre Peninsula. Known to occur on sandy or loamy soil in mallee scrub and is usually found after fire.
Tecticornia flabelliformis	Bead Glasswort	VU		1		No	Unlikely	Mainly confined to coastal habitats. Records from Arno Bay and historically from Todd Reservoir.
Thelymitra epipactoides	Metallic Sun-orchid	EN	E	1, 2	2008	No	Possible	Approximately half of all known sub-populations, including the largest sub-population, are located on roadsides and rail reserves in lower Eyre Peninsula. Habitat is mainly confined to *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland, *Eucalyptus cladocalyx* (Sugar Gum) Woodland, *E. angulosa* (Coast Ridge-fruited Mallee), *E. diversifolia* ssp. *diversifolia* (Coastal White Mallee) Mid Mallee Woodland +/- *Melaleuca lanceolata* (Dryland Tea-tree) +/- *M. uncinata* (Broombush), and *M. uncinata* Tall Open Shrubland.
Thelymitra flexuosa	Twisted Sun-orchid		R	2	2000	No	Possible	Widespread but uncommon across the southern, coastal, higher rainfall districts, including on Eyre Peninsula. Mostly in nitrogen deficient soils that are boggy in winter, in low heath and scrub, forest clearings and swamp margins where more obvious after fire or disturbance.
Thysanotus wangariensis	Eyre Peninsula Fringe-lily		R	2	2001	No	Possible	Found on dunes/consolidated dune with *Eucalyptus incrassata* (Ridge-fruited Mallee) Low Mallee and other open mallee and shrublands on Eyre Peninsula.
Wurmbea decumbens	Trailing Nancy		R	2	2007	No	Possible	Widespread and locally common on Eyre Peninsula. Mainly associated with rocky hills on central Eyre Peninsula, mostly on sheltered southern slopes at the base of rocks.

1. **Aus: Australia (EPBC Act). SA: South Australia (NPW Act). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.**
2. **1: PMST report generated 19/02/19. 2: BDBSA data extract 13/02/2019.**

5.1.3 Nationally threatened fauna

The PMST report identified 27 nationally threatened fauna species as potentially occurring within 10 km of the Project Area (Table 13). Eight of these species and a further two species were identified in the BDBSA data extract.

Three species are known to occur in the Project Area from previous assessments (EBS 2014; Ecological Horizons 2014a, 2014b):

- *Leipoa ocellata* (Malleefowl);
- *Sminthopsis psammophila* (Sandhill Dunnart); and
- *Amytornis textilis myall* (Western Grasswren (Gawler Ranges).

One nationally threatened fauna species, *Stipiturus malachurus parimeda* (Southern Emu-wren (Eyre Peninsula)), could possibly occur within the Project Area, while five nationally threatened migratory bird species could possibly occur as fly-over species. Twenty nationally threatened species are unlikely to occur.

The likelihood of occurrence of each nationally threatened fauna species in the Project Area and the rationale behind this are summarised in Table 13. Nationally threatened fauna species BDBSA records within 5 km of the Project Area are mapped in Figure 8 and Figure 9.

5.1.4 Migratory fauna

The PMST report identified 25 migratory species, 14 of which are also nationally threatened, as potentially occurring within 10 km of the Project Area (Table 13). Seven of these species and a further 15 species, one of which is also nationally threatened, were identified in the BDBSA data extract.

Twenty-seven migratory species could possibly occur in the Project Area as fly-over species, while 13 are unlikely to occur in the Project Area.

The likelihood of occurrence of each migratory species in the Project Area and the rationale behind this are summarised in Table 13. Migratory species BDBSA records within 5 km of the Project Area are mapped in Figure 8 and Figure 9.

Table 13. National and State threatened fauna identified in the PMST report and BDBSA data extract as potentially occurring within the Project Area. Only BDBSA records within the last 20 years and with a spatial reliability <1 km have been included.

Species name	Common name	Conservation Status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
		Aus	SA					
AVES	**Birds**							
Acanthiza iredalei iredalei	Slender-billed Thornbill (Western)		R	2	2011	Yes	Highly Likely	Distributed across arid and semi-arid western South Australia, occurring near Port Pirie and in the Gawler Ranges and upper Eyre Peninsula, with a stronghold across the Nullarbor. Generally, inhabits treeless chenopod shrublands dominated by *Maireana* spp. (Bluebush) and *Atriplex* spp. (Saltbush), and saline flats associated with salt lakes, particularly where there is *Halosarcia* spp. (Glasswort).
Actitis hypoleucos	Common Sandpiper	Mi	R	1, 2	2002	No	Possible (Fly-over)	Possible fly-over species during migration from Eurasia. Found in a variety of habitats from coastal areas to inland wetlands. Tends to avoid wide open mudflats, but spends time on narrow edges of dams and billabongs.
Amytornis striatus	Striated Grasswren		R	2	2008	Yes	Highly Likely	Found in mallee woodlands over well-established *Triodia* spp. (Spinifex). Most widespread Grasswren in Australia, with numerous small fragmented populations known in South Australia, including populations in the Middleback Ranges and Pinkawillinie Conservation Park.
Amytornis textilis myall	Western Grasswren (Gawler Ranges)	VU		1, 2	2003	Yes	Known	Distributed across north-eastern Eyre Peninsula. Prefers low-lying areas of *Maireana pyramidata* (Black Bluebush) and spiny shrubs including *Lycium australe* (Australian Boxthorn) and *Scaevola spinescens* (Spiny Fanflower), either as a shrubland or understorey of *Acacia papyrocarpa* (Western Myall) Low Open Woodland. Often observed in drainage line systems where large *M. pyramidata* and spiny shrubs with a dense structure extending to the ground occur. Known to occur in Project Area with five individuals observed at three sites by EBS (2014) in December 2012. Suitable habitat observed in Department of Defence land within the Project Area by EBS during native vegetation clearance assessment in 2019. One individual observed <1 km west of the Project Area adjacent to Iron Knob Road by EBS during *Santalum spicatum* (Sandalwood) survey in October 2019.
Anas rhynchotis rhynchotis	Australasian Shoveler		R	2	2015	No	Possible	Occurs in all kinds of wetlands, but prefers large undisturbed heavily vegetated swamps.

Species name	Common name	Conservation Status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
		Aus	SA					
Apus pacificus	Fork-tailed Swift	Mi		1		No	Possible (Fly-over)	More common in coastal and sub-coastal areas, however, regularly occurs in inland Australia. Almost exclusively aerial in Australia, flying over a range of habitats including open plains, forests and built up areas.
Ardenna carneipes	Flesh-footed Shearwater	Mi		1		No	Unlikely	Pelagic species that commonly visits waters of the continental shelf and continental slope off southern Australia. Pairs breed on Smith Island off the south-eastern coast of Eyre Peninsula.
Ardenna tenuirostris	Short-tailed Shearwater	Mi		2	2010	No	Possible (Fly-over)	Pelagic species that could possibly fly-over the Project Area during migration to coastal waters during summer months.
Ardeotis australis	Australian Bustard		V	2	2016	No	Likely	Widely distributed across continental Australia with current strongholds in the north, but declining populations in the south and south-east. Occurs in tussock and hummock grasslands, grassy woodlands and low shrublands, also using denser habitat that has been opened up by recent fire.
Arenaria interpres	Ruddy Turnstone	Mi	R	2	2014	No	Possible (Fly-over)	Widespread in coastal areas of Australia during non-breeding period of year, with occasional inland records. Strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed.
Biziura lobata	Musk Duck		R	2	2014	No	Unlikely	More common in wetter, fertile areas in the south of Australia, tending to avoid arid regions in the north. Prefer deep, still lakes and wetlands with areas of both open water and dense reed beds on the fringes.
Bubulcus ibis coromandus	Eastern Cattle Egret		R	2	2016	No	Possible	Not common in South Australia, but widespread where conditions are suitable. Occurs in grasslands, woodlands and wetlands, and will use pastures, croplands and garbage dumps. Often seen with cattle and other stock.
Burhinus grallarius	Bush Stonecurlew		R	2	2014	No	Possible	Commonly inhabits lightly timbered open forest and woodland. Key habitat components include fallen dead timber and leaf litter, which assist in camouflage, and an open ground layer with short sparse grass and few to no shrubs, which improves predator detection.
Calamanthus (Hylacola) cautus cautus	Shy Heathwren (EP, MM, upper SE, YP, FR)		R	2	2008	Yes	Highly Likely	Found in heathy areas and generally dense thickets. Uncommon throughout its range, however has been noted in good numbers by Brandle (2010) on southern Eyre Peninsula.
Calidris acuminata	Sharp-tailed Sandpiper	Mi		1, 2	2016	No	Possible (Fly-over)	In Australia, this species is widespread in inland and coastal habitats, occurring mostly in the south-east of the continent. Prefers muddy edges of shallow fresh and brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.

Species name	Common name	Conservation Status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
		Aus	SA					
Calidris alba	Sanderling	Mi	R	2	2016	No	Possible (Fly-over)	In Australia, this species almost always found on the coast, mostly on open sandy beaches exposed to open sea-swell.
Calidris canutus	Red Knot	EN, Mi		1, 2	2016	No	Possible (Fly-over)	In Australia, this species mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts, and in estuaries, bays, inlets, lagoons and harbours. Rarely use inland lakes or swamps. In South Australia, the species is found mostly from The Coorong, north and west to Yorke Peninsula and Port Pirie.
Calidris ferruginea	Curlew Sandpiper	CE, Mi		1, 2	2017	No	Possible (Fly-over)	In South Australia, this species occurs in widespread coastal and sub-coastal areas east of Streaky Bay, occasionally occurring in inland areas mainly south of the Murray River. Mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast.
Calidris melanotos	Pectoral Sandpiper	Mi		1		No	Possible (Fly-over)	In South Australia, this species is found mostly in the south-east, from north to the Murray River and west to Yorke Peninsula. Outside of this region the species is occasionally recorded in Innamincka, Welcome Bore and Mintabie. Prefers shallow fresh to saline wetlands including coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.
Calidris ruficollis	Red-necked Stint	Mi		2	2017	No	Possible (Fly-over)	Distributed along most of the Australian coastline and is also found inland when conditions are suitable. Mostly occurs in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats. Occasionally recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals. Also occur in ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in salt flats.
Calidris subminuta	Long-toed Stint	Mi	R	2	2015	No	Possible (Fly-over)	Found on the southern end of Eyre Peninsula. In Australia, this species occurs in a variety of terrestrial wetlands, preferring shallow freshwater or brackish lakes, swamps, river floodplains, streams and lagoons.
Calidris tenuirostris	Great Knot	CE, Mi	R	2	2016	No	Possible (Fly-over)	In Australia, this species prefers sheltered coastal habitats, with large intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Rarely occurs in inland lakes and swamps.
Calyptorhynchus (Zanda) funereus whiteae	Yellow-tailed Black Cockatoo		V	2	2008	No	Likely	Diverse woodland species. Eyre Peninsula sub-species have distinct migratory pattern, spending summer breeding in *Eucalyptus cladocalyx* (Sugar Gum) Woodlands in the Koppio Hills

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
								before heading north to Wudinna area. Unfortunately, small population affected by stochastic event, and now few individuals remain.
Cereopsis novaehollandiae novaehollandiae	Cape Barren Goose		R	2	2016	Yes	Highly Likely	Breeds on offshore islands such as the Sir Joseph Banks Group off Eyre Peninsula, but is a frequent visitor to the mainland where it is usually observed in close proximity to livestock and in pastures.
Charadrius bicinctus	Double-banded Plover	Mi		2	2012	No	Possible (Fly-over)	Common in southern Australian during the non-breeding season where it can be found in both coastal and inland areas in littoral, estuarine and fresh or saline terrestrial wetlands.
Charadrius veredus	Oriental Plover	Mi		1		No	Possible (Fly-over)	Shorebird species that inhabits coastal and inland areas. Found in coastal habitats such as estuarine mudflats and sandbanks, on sandy or rocky ocean beaches or nearby reefs, or in near-coastal grasslands. When inland, they occur in semi-arid or arid grasslands, where the grass is short and sparse, and interspersed with hard, bare ground, such as claypans, dry paddocks, playing fields, lawns and cattle camps.
Cladorhynchus leucocephalus	Banded Stilt		V	2	2004	No	Likely	Salt lakes along the coast as well as inland areas. Congregates in large flocks, and will breed on many usual dry large inland lakes such as Lake Torrens or Lake Eyre. Very dispersive species.
Corcorax melanorhamphos	White-winged Chough		R	2	2016	No	Known	Found in open Eucalypt woodlands, this species lives in small closely bonded family groups of up to 20 individuals. Tend to be locally common, but rather fragmented. Observed during the 2019 native vegetation clearance assessment.
Coturnix ypsilophora	Brown Quail		V	2	2015	No	Possible	Occurs in rank grasses near wetlands, drains, green pastures, clover, lucerne, rice and other stubbles, swampy coastal heaths, bracken, sword grass, *Melaleuca* spp. (Honey-myrtle) and *Banksia* spp. (Banksia) Thickets, and *Triodia* spp. (Spinifex) Savanna. Patchy and limited records on Eyre Peninsula.
Diomedea antipodensis	Antipodean Albatross	VU		1		No	Unlikely	Pelagic species endemic to New Zealand, however forages widely in open water in the south-west Pacific Ocean, Southern Ocean and the Tasman Sea, notably off the coast of New South Wales.
Diomedea epomophora	Southern Royal Albatross	VU		1		No	Unlikely	Pelagic species that breeds on islands in the New Zealand region, however is relatively common in offshore waters of southern Australia.
Diomedea exulans	Wandering Albatross	VU, Mi		1		No	Unlikely	Pelagic species that breeds on six subantarctic island groups and feeds throughout the Southern Ocean, including Australian portions.

Species name	Common name	Conservation Status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
		Aus	SA					
Diomedea sanfordi	Northern Royal Albatross	EN, Mi		1		No	Unlikely	Pelagic species that ranges widely over the Southern Ocean, with individuals seen in Australian waters off south-eastern Australia, regularly feeding in Tasmanian and South Australian waters.
Egretta garzetta	Little Egret		R	2	2015	No	Possible	Prefers wetlands, both fresh and saline, usually foraging within the shallows of these areas. Widespread, and can be classed as nomadic or migratory.
Egretta sacra	Pacific Reef Heron (Eastern Reef Egret)		R	2	2017	No	Unlikely	Found on the coast and islands of most of Australia, however not as common in South Australia and elsewhere as the Queensland coast. Found on beaches, rocky shores, tidal rivers inlets, mangroves and exposed coral reefs.
Falco peregrinus	Peregrine Falcon		R	2	2013	Yes	Highly Likely	Found throughout a wide variety of habitat types across Australia, however are never classed as common. Nests on cliffs, and has adapted to utilise human structures such as communication towers, mines or buildings. As such, can be found in areas that once were unfavourable.
Gallinago hardwickii	Latham's Snipe	Mi		1		No	Possible (Fly-over)	Non-breeding visitor to south-eastern Australia, migrating through northern Australia. Inhabits freshwater and brackish and wetlands extensive vegetation cover such as samphire, reeds, rushes and grasses.
Gerygone fusca fusca	Western Gerygone (EP)		R	2	2016	No	Likely	Woodland species usually restricted to central arid Australia and areas of Western Australia and Queensland. A small fragmented population persist in and around the southern Eyre Peninsula, particularly the Tod Reservoir.
Haematopus fuliginosus	Sooty Oystercatcher		R	2	2016	No	Unlikely	Found around the entire Australian coast, including offshore islands. Prefers rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.
Haematopus longirostris	(Australian) Pied Oystercatcher		R	2	2017	No	Unlikely	Occurs around the entire Australian coastline. Prefers intertidal flats of inlets and bays, open beaches and sandbanks.
Haliaeetus leucogaster	White-bellied Sea Eagle		E	2	2016	No	Possible	Usually coastal, however can head inland, and may follow rivers or visit flooded lagoons or lakes.
Halobaena caerulea	Blue Petrel		VU	1		No	Unlikely	Pelagic species distributed throughout the southern oceans from the pack ice edge up to about 30 degrees south. Breeds on sub-Antarctic islands, including Macquarie Island (Australia).
Hydroprogne caspia	Caspian Tern	Mi		2	2017	No	Possible (Fly-over)	Widespread and found in both coastal and inland habitat such as coastal waters, mudflats, estuaries, beaches and saltfields. In South Australia, the species occurs from Carpenters Rocks to Nuyts Archipelago and Ceduna, as well as inland along the Murray River.
Leipoa ocellata	Malleefowl	VU	V	1, 2	2017	No	Known	Found in scattered locations through semi-arid rangelands and dry-land cropping zones in the south-east of South Australia,

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
								Murray region, Yorke Peninsula and Eyre Peninsula. Principally found in mallee eucalypt woodland and scrub as well as dry forest dominated by other eucalypts, mulga, and other *Acacia* spp. (Wattle).
Lichenostomus cratitius occidentalis	Purple-gaped Honeyeater (mainland SA)		R	2	2015	No	Likely	Occurs in disjunct populations across southern Australia east from southern Western Australia, with the eastern population largely occurring south of the Murray River. Inhabits mallee heathlands and less commonly in associated mallee with a more open understorey (such as Spinifex associations). Occasionally recorded in River Red Gums bordering waterways.
Limosa lapponica baueri	Bar-tailed Godwit (Baueri)	VU, Mi	R	1, 2	2015	No	Possible (Fly-over)	Shorebird species that inhabits coastal environments including beaches, tidal mudflats and saltfields.
Limosa lapponica menzbieri	Bar-tailed Godwit (Menzbieri)	CE, Mi		1		No	Unlikely	Shorebird species that inhabits coastal environments including beaches, tidal mudflats and saltfields. This subspecies very rarely occurs in South Australia.
Limosa limosa	Black-tailed Godwit	Mi	R	2	1999	No	Possible (Fly-over)	Sheltered bays and lagoons, however will also visit sewerage ponds. More common in Northern Australia.
Macronectes giganteus	Southern Giant Petrel	EN, Mi		1		No	Unlikely	Pelagic species that breeds on six subantarctic and Antarctic islands in Australian territory.
Macronectes halli	Northern Giant Petrel	VU, Mi		1		No	Unlikely	Pelagic species that breeds in the sub-Antarctic, and visits areas off the Australian mainland mainly during the winter months.
Motacilla cinerea	Grey Wagtail	Mi		1		No	Unlikely	Vagrant to South Australia with very few records in the state. Inhabits wetlands and/or boggy vegetated areas, including irrigated lawns.
Motacilla flava	Yellow Wagtail	Mi		1		No	Unlikely	Vagrant to South Australia with very few records in the state. Inhabits wetlands and/or boggy vegetated areas, including irrigated lawns.
Myiagra inquieta	Restless Flycatcher		R	2	2017	No	Likely	Occurs in open woodlands, River Red Gums near water, inland/coastal scrub and open areas such as farms. Can be classed as sedentary throughout its range.
Neophema elegans	Elegant Parrot		R	2	2000	No	Highly Likely	Occurs in eastern parts of South Australia, north to the Flinders Ranges and west to the Eyre Peninsula. Found in a wide variety of habitats, including grasslands, shrublands, mallee, woodlands and thickets, bluebush plains, heathlands, saltmarsh and farmland.
Neophema petrophila	Rock Parrot		R	2	2015	No	Unlikely	Restricted to coastlines and offshore rocky islands, frequenting windswept coastal dunes, mangroves, saline swamps and rocky islets. Seldom seen more than a few hundred metres from the sea.

Species name	Common name	Conservation Status[1]		Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
		Aus	SA					
Numenius madagascariensis	Far Eastern Curlew	CE, Mi		1		No	Possible (Fly-over)	Primarily coastal distribution within Australia where it feeds on intertidal mudflats. Patchily distributed from the Coorong north-west to the Streaky Bay area. Rarely recorded inland.
Oxyura australis	Blue-billed Duck		R	2	2016	No	Possible	Breeds in deep permanently vegetated lakes and dams. Spends winters on more open waters.
Pachycephala inornata	Gilbert's Whistler		R	2	2017	Yes	Highly Likely	Found in mallee habitats, as well as mulga, with a dense understorey. Can be nomadic in movements, and uncommon throughout their range.
Pachyptila turtur subantarctica	Fairy Prion (Southern)	VU		1		No	Unlikely	Pelagic species that breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. Some individuals may migrate towards New Zealand and southern Australia in winter.
Pandion haliaetus	Osprey	Mi	E	1, 2	2004	No	Possible (Fly-over)	Usual coastal, however will follow rivers many kilometres inland to well established pools and water courses. More common in Northern Australia.
Pedionomus torqatus	Plains-wanderer	CE		1		No	Unlikely	Ground-dwelling bird that lives in the grasslands of Queensland, New South Wales, Victoria and South Australia. Inhabits sparse native grasslands and are often absent from areas where grass becomes too dense or too sparse. They nest amongst native grasses and herbs, or sometimes amongst crops. Very few records for Eyre Peninsula.
Petroica boodang boodang	Scarlet Robin (SE, MLR, FR, EP)		R	2	2016	No	Likely	Occurs predominantly in Eucalypt woodlands and forests. Good leaf litter, perches 1-2 m in height and fallen logs are important components of habitat. Recent reliable record and suitable habitat present within Project Area.
Pezoporus occidentalis	Night Parrot	EN		1		No	Unlikely	Highly elusive nocturnal ground dwelling parrot found in the arid and semi-arid zones of Australia. Thought to be extinct but in 2013 it was rediscovered in Queensland (Pullen Pullen Reserve). Current distribution remains unknown. Most habitat records are of *Triodia* spp. (Spinifex) grasslands and/or chenopod shrublands in the arid and semi-arid zones.
Phoebetria fusca	Sooty Albatross	VU, Mi		1		No	Unlikely	Pelagic species that breeds on islands in the southern Indian and Atlantic Oceans, and is sometimes observed foraging in inshore waters in southern Australia.
Pluvialis fulva	Pacific Golden Plover	Mi	R	2	2016	No	Possible (Fly-over)	Widespread in coastal regions when in Australia, though there are also a number of inland records (in all states), sometimes far inland and usually along major river systems, especially the Murray and Darling Rivers and their tributaries. In South Australia, they are recorded at many sites between the Coorong and Streaky Bay, including the coasts of Gulf St Vincent and Spencer Gulf.

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
								Prefer beaches, mudflats and sandflats in sheltered areas including harbours, estuaries and lagoons.
Pluvialis squatarola	Grey Plover	Mi		2	2016	No	Possible (Fly-over)	Found along the coasts when in Australia, especially abundant in South Australia between The Coorong and western beaches of the Eyre Peninsula in South Australia, as well as the Western Australian coast. Occur almost entirely in coastal areas, preferring sheltered bays, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons.
Podiceps cristatus	Great Crested Grebe		R	2	2006	No	Unlikely	Prefers well vegetated margins and reedbed channels near open waters. These tend to lakes or reservoirs. Strong hold of the species is the far south-east of Australia, but can disperse during non-breeding. Rarely seen on small farm stock dams or lakes.
Psophodes nigrogularis leucogaster	Western Whipbird (Eastern)	VU	E	1		No	Unlikely	Occurs in three isolated regional populations in southern South Australia, including on the southern Eyre Peninsula where it is restricted to sites around Coffin Bay and Lincoln National Parks.
Pterodroma mollis	Soft-plumaged Petrel	VU		1		No	Unlikely	Pelagic species generally found over temperate and subantarctic waters in the South Atlantic, southern Indian and western South Pacific Oceans. The species is a regular and quite common visitor to southern Australian seas, but is more common in the west than in the south and south-east.
Rostratula australis	Australian Painted Snipe	EN		1		No	Unlikely	Most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland, New South Wales, Victoria and south-eastern South Australia. Recorded less frequently at fewer and more scattered locations farther west in South Australia. Prefers shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans.
Stagonopleura guttata	Diamond Firetail		V	2	2016	Yes	Known	Inhabits open forests with grassy understoreys; commonly along the sides of watercourses or roadways. Can be found in pastoral areas or cropping land. Patchy occurrence, including on the Eyre Peninsula. Observed during the 2019 native vegetation clearance assessment.
Sterna hirundo	Common Tern	Mi	R	2	2000	No	Possible (Fly-over)	Non-breeding migrant to Australia, where it is widespread and common on the eastern coast south to eastern Victoria, and common on parts of the northern coast, mainly east of Darwin. Rarely recorded in South Australia.
Sternula nereis nereis	Australian Fairy Tern	VU	E	1, 2	2017	No	Unlikely	Found on isolated sandy inlets and along the coast from Dampier Archipelago, Western Australia, southward to Tasmania and Victoria, and is only vagrant to the east coast. Most common in

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
								Western Australia. Found on coastal beaches, inshore and offshore islands, sheltered inlets, sewage farms, harbours, estuaries and lagoons.
Stercorarius parasiticus	Parasitic Jaeger (Arctic Jaeger)	Mi		2	2006	No	Possible (Fly-over)	Predominantly coastal when in Australia, but will migrate over land.
Stipiturus malachurus parimeda	Southern Emu-wren (Eyre Peninsula)	VU	E	2	2004	No	Possible	Endemic to South Australia where it is confined to the extreme south of the Eyre Peninsula. Occurs in three types of habitat: shrubland or heathland (especially along creeklines), mallee and sedgeland. These habitats are characterised by one or two layers of dense vegetation up to 3 m in height. Population in Koppio Hills decimated by fire in 2005.
Thalassarche cauta cauta	Shy Albatross	VU, Mi		1		No	Unlikely	Pelagic species that occurs widely in the southern oceans and breeds on islands off Australia and New Zealand. Occasionally occurs in continental shelf waters, bay and harbours of mainland Australia.
Thalassarche cauta steadi	White-capped Albatross	VU, Mi		1		No	Unlikely	Pelagic species that occurs in subantarctic and subtropical waters and breeds on islands south of New Zealand. Common off the coast of south-eastern Australia throughout the year.
Thalassarche impavida	Campbell Albatross	VU, Mi		1		No	Unlikely	Pelagic species that inhabiting sub-Antarctic and subtropical waters. Non-breeding visitor to Australian waters most commonly foraging over the oceanic continental slopes off Tasmania, Victoria and New South Wales.
Thalassarche melanophris	Black-browed Albatross	VU, Mi		1		No	Unlikely	Pelagic species that breeds within Australian jurisdiction on a number of islands, during which it is an uncommon visitor to the continental shelf-break of southern Australia. Common in the non-breeding period at the continental shelf and shelf-break of South Australia.
Thinornis cucullatus cucullatus	Hooded Plover (Eastern), Eastern Hooded Dotterel	VU	V	1, 2	2016	No	Unlikely	Widely dispersed in south-eastern Australia from Jervis Bay in New South Wales to Fowlers Bay in South Australia. Inhabits ocean beaches, particularly wide beaches backed by dunes with large amounts of seaweed, creek mouths and inlet entrances. May also occur on near-coastal saline and freshwater lakes and lagoons, tidal bays and estuaries, on rock platforms, or on rocky or sandy reefs close to shore.
Tringa brevipes	Grey-tailed Tattler	Mi	R	2	2015	No	Possible (Fly-over)	Found in most coastal regions within Australia, however has a primarily northern coastal distribution. Uncommonly recorded along South Australian coasts between Port MacDonnell and Denial Bay, and also found west of Streaky Bay. Found on sheltered coasts with reefs and rock platforms or with intertidal mudflats.

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
Tringa nebularia	Common Greenshank	Mi		1, 2	2017	No	Possible (Fly-over)	Non-breeding visitor to Australia where it has the widest distribution of any shorebird. Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity, as well as sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass.
Tringa stagnatilis	Marsh Sandpiper	Mi		2	2000	No	Possible (Fly-over)	Found on coastal and inland wetlands throughout Australia. On Eyre Peninsula the species has been recorded from Whyalla to Little Swamp and Coffin Bay. Prefers in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks.
Turnix varius	Painted Buttonquail		R	2	2015	No	Possible	Occurs almost continuously in suitable habitat from northern Queensland, round the coast to Eyre Peninsula. Prefer temperate forests and woodlands with closed canopies, some understorey and deep leaf litter.
MAMMALIA	**Mammals**							
Sminthopsis psammophila	Sandhill Dunnart	EN	V	1, 2	2012	No	Known	Occurs in semi-arid mallee habitats in the central, east and north west regions of Eyre Peninsula. Recently recorded in Pinkawillinie Conservation Park and Hincks Wilderness Protection Area, and west of the Middleback Ranges. Further survey work is required to determine the species' distribution on Eyre Peninsula, where it prefers habitats characterised by parallel sand dunes with associations of open mallee with a diverse shrub layer and *Triodia* spp. (Spinifex).
Trichosurus vulpecula	Common Brushtail Possum		R	2	2012	No	Possible	A solitary, nocturnal and arboreal marsupial, endemic to Australia. Prefer to make a nest in a tree-hole, but in their absence will make a nest in hollow logs, abandoned burrows and roof spaces. Small population exists on Eyre Peninsula, including the Koppio Hills.
REPTILIA	**Reptiles**							
Echiopsis curta	Bardick		R	2	2002	No	Likely	Widely distributed from the coast and interior of south-western Western Australia, through southern Australia to western Victoria and south-western New South Wales. Inhabits hummock grasslands, mallee areas and tall shrublands on sandy or loamy soils, usually in association with run-off slopes and drainage from local sites. A variety of shelter sites are used, including under fallen timber and rocks, dense matted vegetation, among leaf-litter, and beneath the overhanging foliage of shrubs, grass tussocks or hummocks.

Species name	Common name	Conservation Status[1] Aus	SA	Source[2]	Most recent BDBSA record	Recorded by EBS (2014) in 2012-13	Occurrence in Project Area	Likelihood rationale*
Morelia spilota	Carpet Python		R	2	2000	No	Possible	Found throughout Australia in a variety of habitats, this species is found on the northern Eyre Peninsula mainly within unburnt mallee vegetation, with a number of records from in and around the Middleback Ranges and Ironstone Hill Conservation Park.
Neelaps bimaculatus	Western Black-naped Snake		R	2	2015	No	Likely	Restricted to sandy areas supporting heaths, shrublands and woodlands. Reliable record within last 10 years and suitable habitat occurs within the Project Area.
AMPHIBIA	**Amphibians**							
Pseudophryne bibronii	Brown Toadlet		R	2	2001	No	Likely	Found in damp areas containing logs and pebbles, common in east coast states and Kangaroo Island and south-east South Australia, rare in Mount Lofty Ranges. Few records exist on Eyre Peninsula, one 15 km north-northwest of Port Lincoln, and one potential call recorded in Koppio Hills (Brandle 2010).

1. Aus: Australia (EPBC Act). SA: South Australia (NPW Act). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.

***2.* 1: PMST report generated 19/02/19. 2: BDBSA data extract 13/02/2019.**

5.2 Matters of State Significance

5.2.1 State threatened flora

The BDBSA data extract identified 45 State threatened flora species, 11 of which are also nationally threatened, with records within 10 km of the Project Area (Table 12). These included:

- Seventeen species known to occur in the Project Area;
- Five species highly likely to occur;
- Three species likely to occur;
- Eighteen species possibly occurring; and
- Two species unlikely to occur.

The likelihood of occurrence of each State threatened flora species in the Project Area and the rationale behind this are summarised in Table 12. State threatened flora species BDBSA records within 5 km of the Project Area are mapped in Figure 6 and Figure 7. All BDDSA flora records within 10 km of the Project Area are provided in Attachment 3.

Although there were no BDBSA records for *Goodenia benthamiana* (Bentham's Goodenia) within 10 km of the Project Area, this species was included in the likelihood of occurrence in the Project Area assessment (Table 12) since it was recorded by EBS (2014) and during the 2019 native vegetation clearance assessment. A further 21 species were recorded by EBS (2014) in 2012 and 2013.

5.2.2 State threatened fauna

The BDBSA data extract identified 52 State threatened fauna species, seven and 11 of which are also nationally threatened and migratory, respectively, with records within 10 km of the Project Area (Table 13). This included:

- Four species known to occur in the Project Area;
- Seven species highly likely to occur;
- Ten species likely to occur;
- Twenty-two species possibly occurring; and
- Eight species unlikely to occur.

The likelihood of occurrence of each State threatened fauna species in the Project Area and the rationale behind this are summarised in Table 13. State threatened fauna species BDBSA records within 5 km of the Project Area are mapped in Figure 8 and Figure 9. All BDDSA fauna records within 10 km of the Project Area are provided in Attachment 3.

Figure 6. Threatened flora species BDBSA records within 5 km of the south of the Project Area (DEW 2019a).

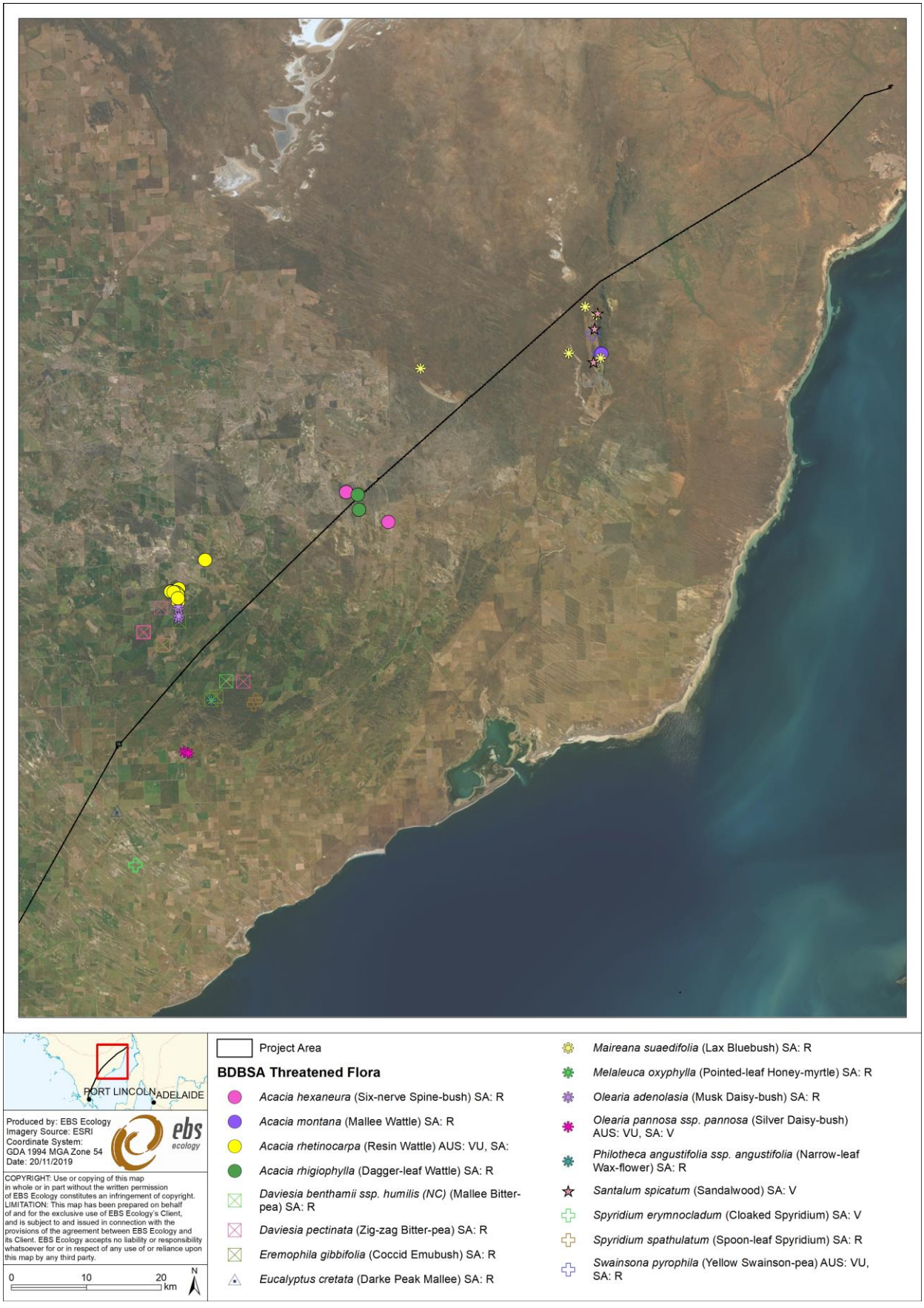

Figure 7. Threatened flora species BDBSA records within 5 km of the north of the Project Area (DEW 2019a).

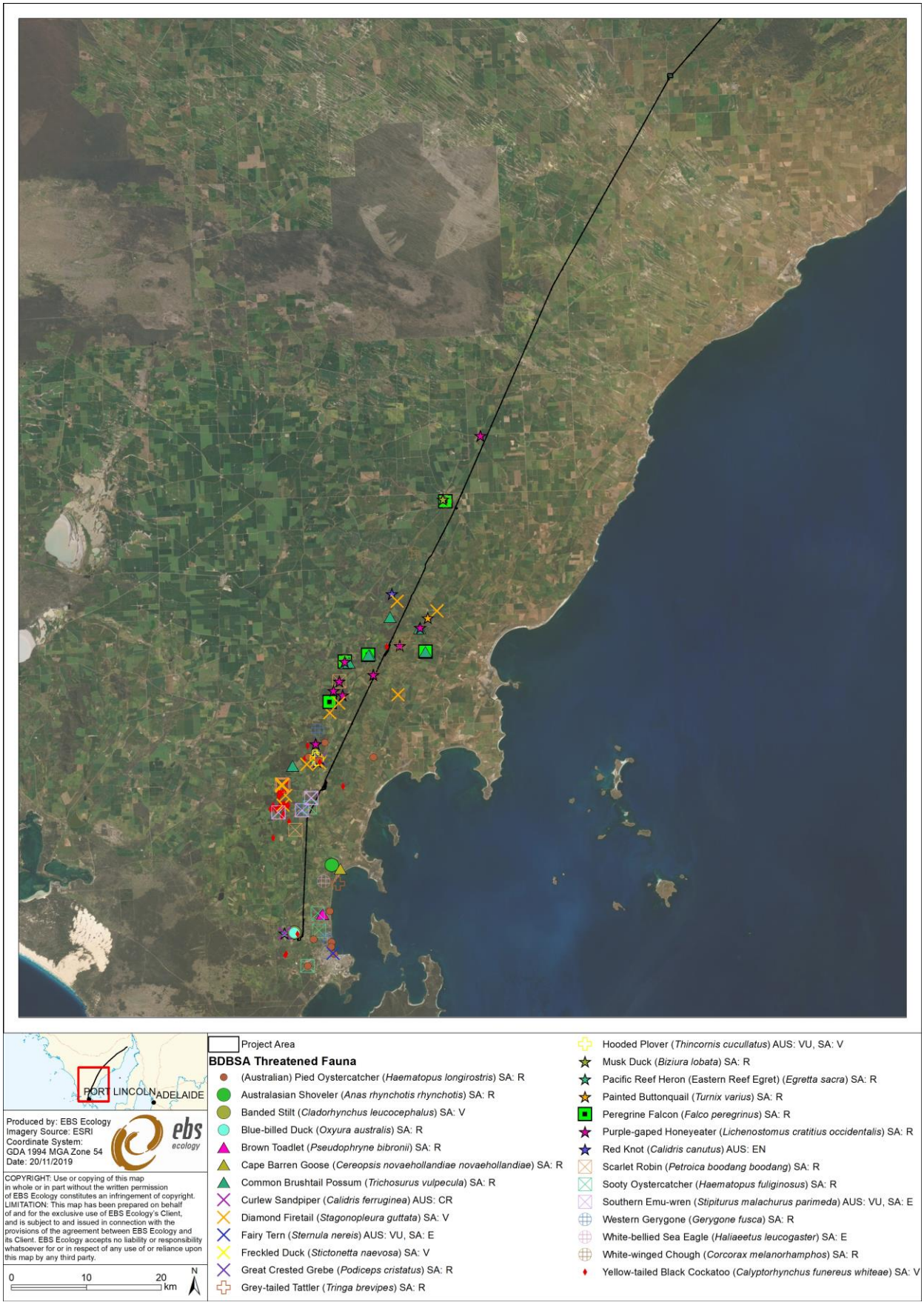

Figure 8. Threatened fauna species BDBSA records within 5 km of the south of the Project Area (DEW 2019a).

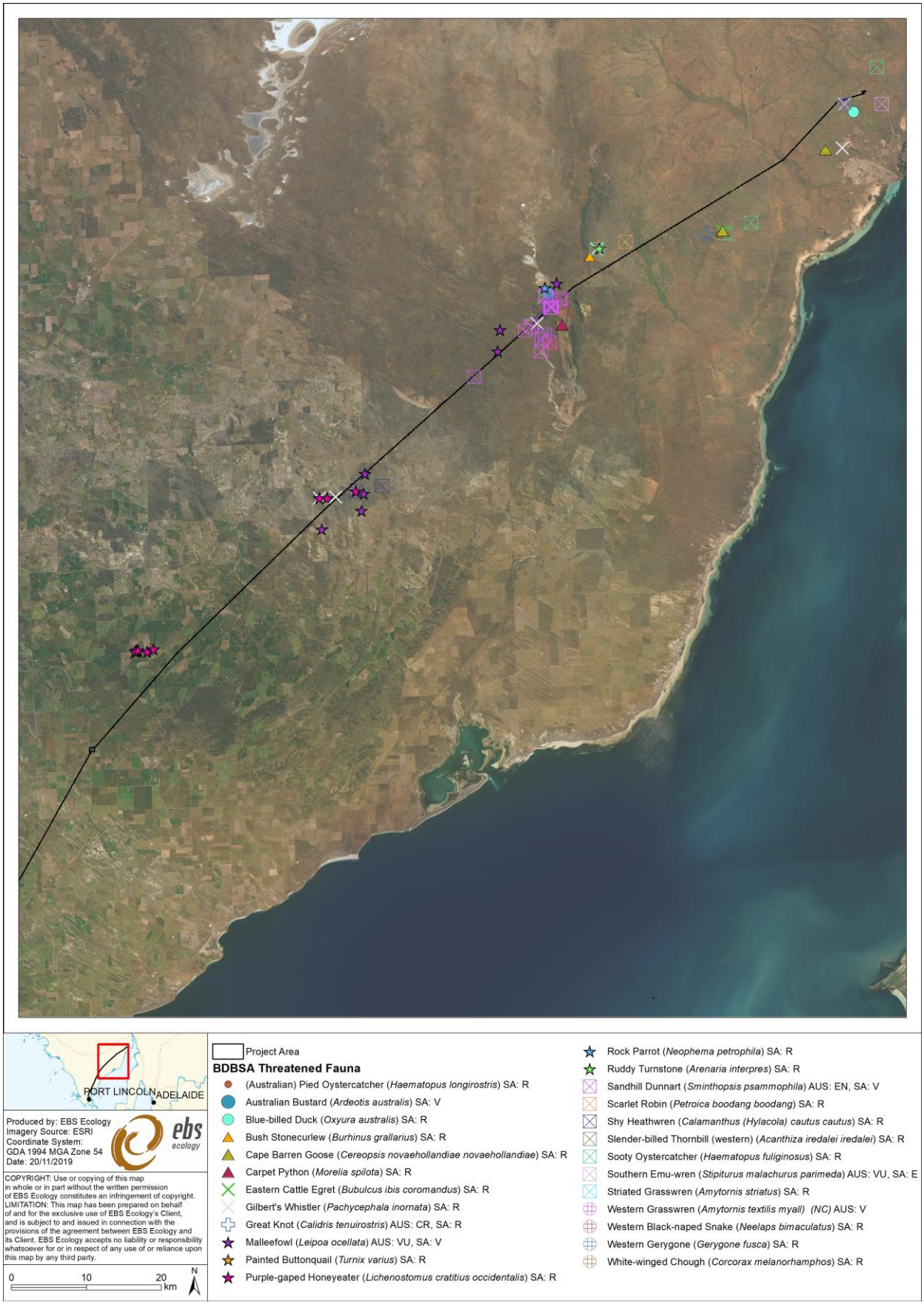

Figure 9. Threatened fauna species BDBSA records within 5 km of the north of the Project Area (DEW 2019a).

6 NATIVE VEGETATION ASSESSMENT RESULTS

6.1 Flora

A total of 330 flora species were recorded within the Project Area across 55 vegetation associations. This included 275 native and 55 exotic flora species. This is lower than the 352 native flora species, and higher than the 24 exotic flora species that were recorded in the Project Area during field surveys undertaken by EBS (2014) in 2012 and 2013, bearing in mind that these surveys included targeted searches for threatened flora species.

It is expected that additional flora species are present within the Project Area, particularly in inaccessible areas. Furthermore, it is likely that some annual species were inconspicuous at the time of the survey.

Refer to Appendix 2 for the list of flora species recorded during the 2019 native vegetation assessment, and EBS (2014) for the list of flora species recorded in the 2012 and 2013 flora surveys.

6.1.1 Threatened flora

Nine State threatened flora species were recorded within the Project Area including:

- *Acacia dodonaeifolia* (Hop-bush Wattle) – Rare;
- *Acacia hexaneura* (Six-nerve Spine-bush) – Rare;
- *Acacia imbricata* (Feathery Wattle) – Rare;
- *Daviesia pectinata* (Zig-zag Bitter-pea) – Rare;
- *Eremophila gibbifolia* (Coccid Emubush) – Rare;
- *Goodenia benthamiana* (Bentham's Goodenia) – Rare;
- *Maireana excavata* (Bottle Fissure-plant) – Vulnerable;
- *Olearia adenolasia* (Musk Daisy-bush) – Rare; and
- *Santalum spicatum* (Sandalwood) – Vulnerable.

This is lower than the five flora species of national conservation significance and 19 of State conservation significance recorded in the Project Area during the flora surveys undertaken by EBS (2014) in 2012 and 2013, which included targeted searches for threatened flora species. Threatened flora records from the 2019 native vegetation assessment and 2012 and 2013 flora surveys are shown in Figure 10 and Figure 11. This includes the 41 Sandalwood records from the additional survey undertaken in the Cultana Training Area (Department of Defence land).

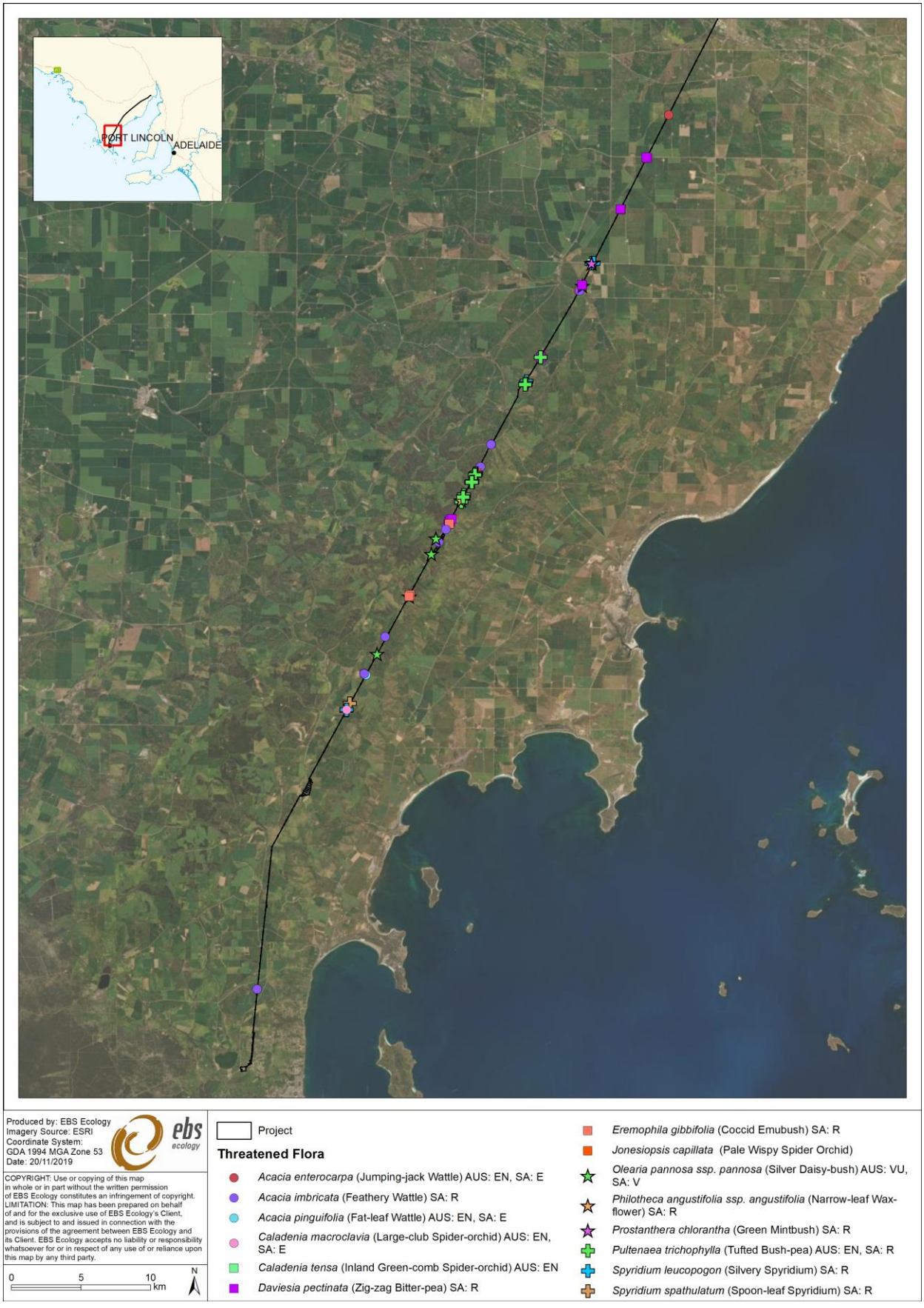

Figure 10. Threatened flora species recorded within the south of the Project Area during the 2019 native vegetation assessment and 2012 and 2013 flora surveys.

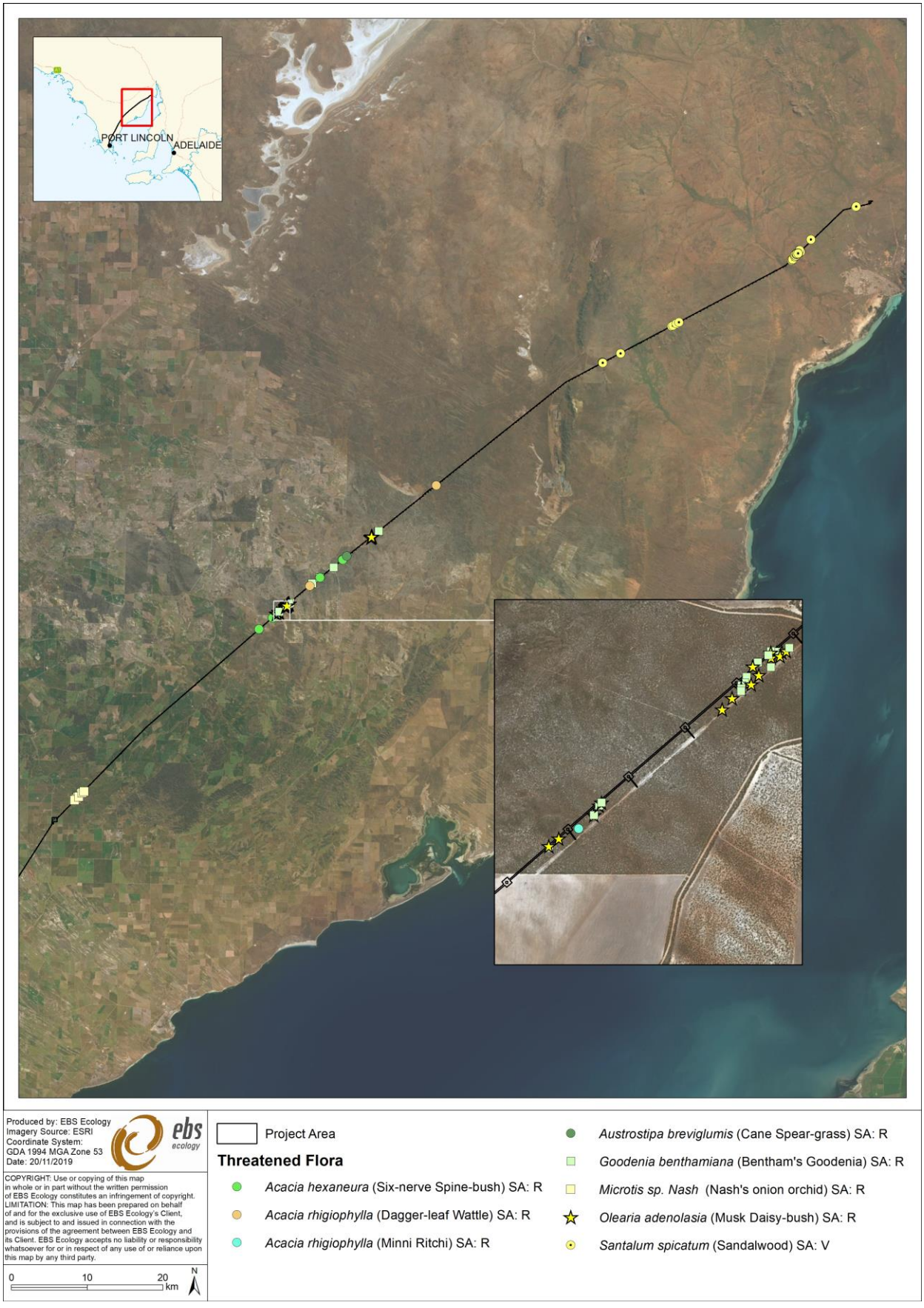

Figure 11. Threatened flora species recorded within the north of the Project Area during the 2019 native vegetation assessment and 2012 and 2013 flora surveys.

6.1.2 Exotic flora

Fifty-five exotic flora species were recorded within the Project Area. This included nine species declared under the *Natural Resources Management Act 2004* (NRM Act), four of which are also weeds of national significance (WoNS) and 21 environmental weeds (Appendix 2).

Understoreys in the south of the Project Area were dominated by the declared and WoNS *Asparagus asparagoides* (Bridal Creeper) and *Lycium ferocissimum* (African Boxthorn), as well as environmental weeds species including *Arctotheca calendula* (Capeweed), *Avena barbata* (Beared Oat), *Ehrarta calycina* (Perennial Veldt Grass), *Ehrharta longiflora* (Annual Veldt Grass), and Salvia verbenaca (Wild Sage).

In contrast, there were very few to nil weeds observed within the intact stand of Mallee between Sheaok Conservation Park and the Middleback Range, with the environmental weed *Carrichtera annua* (Wards Weed) only occurring throughout the pastoral country east of the Middleback Range.

6.2 Vegetation associations

The Eyre Peninsula has significant areas of remnant native vegetation and contains important habitats dominated by woodland and mallee communities, with shrublands, grasslands and sedgelands. The vegetation communities across the Project Area varied greatly given the distance from the southern extent at Port Lincoln and the northern extent near Whyalla.

Remnant patches in the southern section of the Project Area were highly fragmented and dominated by stands of mature *Eucalyptus cladocalyx* (Sugar Gum) Woodland, *Eucalyptus odorata* (Peppermint Box) Mallee Woodland and scattered patches of *Acacia* spp. (Wattle) Tall Shrubland. The Project Area intersected several creeklines in the southern section that were frequently dominated by *Juncus* spp. (Rush) Sedgeland, nationally endangered *Eucalyptus petiolaris* (Eyre Peninsula Blue Gum) Woodland, and *Melaleuca halmaturorum* (Swamp Paper-bark) Tall Shrubland, sometimes over *Juncus* spp. (Rush) and *Gahnia* spp. (Cutting Grass) Sedgeland.

The northern semi-arid regions were largely dominated by Acacia and Casuarina woodlands with scattered patches of Bullock Bush low woodlands and chenopod shrublands grading into tall shrublands dominating the rocky hills associated with the Middleback range. On the lower slopes of the ranges mallee and chenopod communities became more prominent. These areas were frequently interspersed with large dune complexes characterized by mixed mallee communities over *Triodia* (Spinifex) understories, *Melaleuca uncinata* (Broombush), *Senna* spp. (Cassia) and *Dodonaea* spp. (Hopbush) tall shrublands.

A total of 55 vegetation associations have been described, mapped and assessed as BAM and RAM sites across the Project Area (Table 14). Refer to *Eyre Peninsula Transmission Line – Biodiversity Assessment Report* (EBS 2014) for comments relating to each vegetation association. Some associations have been broadly grouped together where the dominant overstorey was similar and the understorey assemblages differed slightly. Each association is mapped in Figure 12 to Figure 25, and photos of each Site are provided in Attachment 4 – Photo File.

Table 14. Summary of each BAM/RAM site (vegetation association) within the Project Area.

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
A	A1	*Eucalyptus diversifolia* Mallee	0.167			1.06	16.01	1.04	17.65	2.95
	A2	*Eucalyptus odorata* Woodland	0.525			1.14	14.66	1.04	17.38	9.13
	A3	*Gahnia* spp. / *Juncus kraussii* Sedgeland +/- *Eucalyptus petiolaris*	1.181		E	1.14	30.35	1.30	44.98	53.12
	A4	*Allocasuarina verticillata* Low Woodland	0.345		V	1.13	11.88	1.24	16.64	5.74
	A5	*Eucalyptus cladocalyx* Woodland / Open Woodland	1.103			1.13	32.25	1.14	41.54	45.82
	A6a	*Melaleuca halmaturorum* Tall Open Shrubland over *Juncus kraussii* and *Juncus pallidus*	0.167			1.13	51.31	1.08	62.62	10.46
	A6b					1.17	11.24	1.08	14.2	2.37
	A6 mean					1.15	31.28	1.08	38.41	6.42
	A7a	*Juncus* spp. Sedgeland	0.468			1.13	8.32	1.12	10.53	4.93
	A7b					1.13	38.75	1.08	47.29	22.13
	A7 mean					1.13	23.54	1.10	28.91	13.53
	A8	*Acacia dodonaeifolia* Tall Shrubland	0.011			1.17	4.14	1.12	5.42	0.06
	A9a	*Acacia paradoxa* Shrubland +/- *Eucalyptus* spp.	1.493			1.17	3.52	1.08	4.45	6.65
	A9b					1.17	28.62	1.12	37.51	56.00
	A9 mean					1.17	16.07	1.10	20.98	31.325
	A10	*Rytidosperma* spp. / *Austrostipa* ssp. +/- *Themeda triandra* Tussock Grassland	0.088		E	1.17	3.06	1.30	4.66	0.41
	A11	*Eucalyptus odorata* +/- *Eucalyptus pileata* / *Eucalyptus leptophylla* Mallee over *Melaleuca uncinata*	1.649			1.17	55.09	1.08	69.61	114.78
	A total		**7.197**							**283.85**
B	B1a		5.645			1.17	46.50	1.22	66.37	374.68

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	B1b	Eucalyptus cladocalyx Woodland / Open Woodland				1.15	58.88	1.14	77.19	435.71
	B1 mean					1.16	52.69	1.18	71.78	405.20
	B1b-PA		1.255			1.15	58.88	1.14	77.19	96.87
	B1 total		6.900							502.07
	B2a	*Eucalyptus cladocalyx* Very Open Woodland over scattered native shrubs and exotics	2.211			1.14	59.46	1.10	74.56	164.85
	B2b					1.15	53.44	1.06	65.14	144.03
	B2 mean					1.15	56.45	1.08	69.85	154.44
	B3	*Eucalyptus petiolaris* +/- *Eucalyptus odorata* +/- *Allocasuarina verticillata* Open Grassy Woodland	1.269	EN	E	1.15	44.20	1.44	73.2	92.88
	B4a	*Allocasuarina verticillata* Low Woodland	0.760		V	1.15	51.22	1.22	71.86	54.61
	B4b					1.15	50.46	1.26	73.11	55.56
	B4 mean					1.15	50.84	1.24	72.49	55.09
	B4b-PA		0.780			1.15	50.46	1.26	73.11	57.03
	B4 total		1.540							112.12
	B5	*Eucalyptus incrassata* var. *angulosa* Mallee over *Melaleuca uncinata*	0.368			1.14	50.94	1.10	63.88	23.51
	B5-PA		0.175			1.14	50.94	1.10	63.88	11.18
	B5 total		0.543							34.69
	B total		**12.464**							**896.19**
C	C1a-1	*Melaleuca uncinata* Tall Shrubland	0.176			1.13	64.44	1.02	74.27	13.07
	C1b-2		2.259			1.10	54.52	1.04	62.37	140.89
	C1 total		2.435							153.96

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	C2	*Eucalyptus odorata +/- Eucalyptus pileata / Eucalyptus leptophylla* Mallee over *Melaleuca uncinata*	0.295			1.12	41.22	1.04	48.01	14.16
	C3	*Tecticornia sp.+/- Melaleuca halmaturorum Shrubland* over *exotic* grasses and emergents	0.119			1.12	14.19	1.02	16.21	1.93
	C4	*Eucalyptus odorata +/- Eucalyptus pileata Mallee* over *Acacia imbricata* and *Melaleuca uncinata*	0.119			1.11	51.38	1.24	70.71	8.41
	C5a-1	*Eucalyptus socialis / Eucalyptus oleosa / Eucalyptus brachycalyx +/- Eucalyptus leptophylla Mallee*	0.186			1.14	50.71	1.08	62.43	11.61
	C5a-2		2.716			1.08	50.71	1.08	59.14	160.63
	C5a total		2.901							172.24
	C5b-3		1.111			1.05	45.28	1.04	49.45	54.94
	C5c-3					1.15	34.59	1.04	41.37	45.97
	C5bc mean					1.1	39.94	1.04	45.41	50.46
	C5 total		4.013							222.70
	C6	*Eucalyptus diversifolia +/- Eucalyptus incrassata* Mallee over exotics and *Enchylaena tomentosa*	0.358			1.14	34.58	1.04	41.00	14.68
	C7a	*Eucalyptus peninsularis +/- Eucalyptus dumosa Mallee* over *Enchylaena tomentosa and emergents*	0.287			1.15	40.61	1.08	50.44	14.48
	C7b					1.16	48.13	1.04	58.07	16.66
	C7 mean					1.16	44.37	1.06	54.26	15.57
	C8	*Eucalyptus peninsularis +/- Eucalyptus dumosa Mallee* over *Gahnia deusta* and herbaceous annual spp.	0.522			1.15	57.04	1.04	68.22	35.61
	C9-1	*Tecticornia sp.* Low Open Shrubland	0.214			1.16	34.19	1.02	40.45	8.66
	C9-2		0.185			1.16	34.19	1.02	40.45	7.48

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	C9-3		0.229			1.16	34.19	1.02	40.45	9.26
	C9 total		0.628							25.40
	C10	*Eucalyptus incrassata* +/- *Melaleuca uncinata* +/- *Melaleuca lanceolata* Mallee over *Ehrharta calycina*	1.323			1.16	25.5	1.04	30.76	40.70
	C11	*Eucalyptus incrassata* +/- *Melaleuca uncinata* +/- *Melaleuca lanceolata*	0.264			1.16	47.29	1.04	57.05	15.06
	C11-PA		1.589			1.16	47.29	1.04	57.05	90.65
	C11 total		1.853							105.71
	C12-2	*Melaleuca lanceolata* +/- *Eucalyptus phenax ssp. phenax* Tall Shrubland over exotic grasses	0.118			1.15	16.88	1.00	19.41	2.29
	C12-3		0.196			1.15	16.88	1	19.41	3.80
	C12 total		0.314							6.09
	C13-2	*Eucalyptus calycogona ssp. calycogona* +/- *Eucalyptus phenax ssp. phenax* Mallee over *Maireana brevifolia* and exotics	0.044			1.11	26.6	1.04	30.71	1.35
	C13-3		0.110			1.11	26.6	1.04	30.71	3.38
	C13 total		0.154							4.73
	C14	*Callitris gracilis* Low Woodland over *Geijera linearifolia* +/- *Allocasuarina verticillata* +/- *Pittosporum angustifolium*	3.931			1.11	28.20	1.00	31.31	123.06
	C15	*Eucalyptus odorata* Woodland over *Leptospermum coriaceum* +/- *Callistemon rugulosus*	0.221			1.10	31.81	1.04	36.39	8.04
	C16a	*Eucalyptus incrassata* +/- *Callitris verrucosa* Mallee over *Melaleuca uncinata* and *Calytrix tetragona*	0.909			1.10	20.3	1.04	23.22	21.11
	C16b					1.09	49.79	1.04	56.44	51.31
	C16 mean					1.10	35.045	1.04	39.83	36.21
	C17	*Eucalyptus porosa* Open Woodland +/- *Acacia notabilis*	0.436			1.10	39.00	1.04	44.62	19.45

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	C18	*Melaleuca uncinata* Tall Shrubland +/- *Eucalyptus incrassata* and *Eucalyptus brachycalyx*	0.231			1.10	13.06	1.04	14.94	3.45
	C19	*Callitris gracilis* Very Open Woodland over *Austrostipa spp.*	1.916			1.09	39.60	1.00	43.16	82.70
	C total		**20.064**							**937.24**
D	D1	*Melaleuca uncinata* Tall Shrubland	0.017			1.08	63.21	1.04	71.00	1.21
	D1-PA		0.931			1.08	63.21	1.04	71.00	66.10
	D1 total		0.948							67.31
	D2-2	*Eucalyptus socialis / Eucalyptus oleosa / Eucalyptus brachycalyx +/- Eucalyptus leptophylla Mallee*	4.343			1.08	60.00	1.14	73.87	320.83
	D2-2-PA		7.324			1.08	60.00	1.14	73.87	541.04
	D2-RAM-4		2.846			1.11	57.53	1.10	70.25	199.93
	D2-RAM-4-PA		1.039			1.11	57.53	1.10	70.25	72.99
	D2-RAM-5		12.104			1.11	57.53	1.10	70.25	850.28
	D2 total		27.656							1985.07
	D3	*Eucalyptus brachycalyx +/- Callitris verrucosa Mallee* over *Calytrix involucrata* and *Phebalium bullatum*	2.301			1.08	62.61	1.14	77.08	177.36
	D4	*Eucalyptus incrassata +/- Callitris verrucosa Mallee* over *Melaleuca uncinata* and *Calytrix tetragona*	0.831			1.08	65.59	1.12	79.33	65.93
	D4-PA		3.498			1.08	65.59	1.12	79.33	277.51
	D4 total		4.329							343.44
	D5-2-PA	*Eucalyptus oleosa / Eucalyptus brachycalyx Mallee*	2.876			1.08	56.64	1.12	68.52	197.05
	D5-RAM-4		1.019			1.11	59.19	1.08	70.96	72.31

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	D5-RAM-4-PA		19.067			1.11	59.19	1.08	70.96	1352.95
	D5-RAM-5		0.894			1.11	59.19	1.08	70.96	63.44
	D5 total		23.857							1685.75
	D6-2	*Melaleuca uncinata* Tall Shrubland +/- *Eucalyptus incrassata* and *Eucalyptus brachycalyx*	0.031			1.08	64.50	1.04	72.45	2.25
	D6-2-PA		1.395			1.08	64.50	1.04	72.45	101.06
	D6-RAM-4-PA		1.107			1.11	56.39	1.04	65.10	72.07
	D6 total		2.533							175.38
	D7-2-PA	*Acacia wilhelmiana +/- Senna artemisioides ssp. coriacea +/- Eucalyptus gracilis +/- Melaleuca uncinata* Tall Shrubland over *Triodia spp. +/- Eucalyptus incrassata +/- Eucalyptus brachycalyx*	1.875			1.08	44.85	1.10	53.28	99.90
	D7-RAM-4-PA		3.193			1.11	62.73	1.10	76.59	244.57
	D7 total		5.068							344.47
	D8-2-PA	*Eucalyptus incrassata +/- Callitris verrucosa Mallee over Leptospermum coriaceum, Phebalium bullatum, Triodia spp.* and *Calytrix tetragona*	0.771			1.08	56.15	1.08	65.49	50.49
	D8-RAM-4-PA		4.141			1.11	57.35	1.08	68.75	284.68
	D8 total		4.912							335.17
	D9-RAM-PA	*Callitris gracilis* Low Woodland over *Alyxia buxifolia and Beyeria lechenaultii +/- Alectryon oleifolius ssp. canescens +/- Dodonaea viscosa ssp. angustissima*	0.578			1.11	53.06	1.02	60.08	34.72
	D10-RAM-PA	*Eucalyptus porosa Mallee* over *Dodonaea viscosa ssp. angustissima, Senna artemisioides ssp. coriacea, Acacia wilhelmiana*	1.449			1.11	54.72	1.08	65.60	95.05

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	D11-RAM-PA	*Geijera linearifolia +/- Senna artemisioides ssp. coriacea +/- Callitris gracilis +/- Acacia notabilis +/- Alyxia buxifolia* Shrubland	0.956			1.11	57.83	1.02	65.48	62.60
	D12-RAM-PA	*Eucalyptus leptophylla +/- Eucalyptus oleosa +/- Melaleuca lanceolata* Mixed Mallee over *Cratystylis conocephala* and *Atriplex vesicaria*	2.568			1.11	60.38	1.08	72.39	185.89
	D13-RAM	*Senna artemisioides ssp. coriacea, Dodonaea lobulata Tall Shrubland +/- Myoporum platycarpum, Dodonaea viscosa ssp. angustissima and Acacia oswaldii*	0.434			1.11	61.19	1.12	76.07	33.02
	D14-RAM	*Eucalyptus oleosa +/- Eucalyptus spp. Mallee* over *Maireana sedifolia*	1.345			1.13	52.40	1.04	61.58	82.82
	D15-RAM	*Eremophila oppositifolia, Eremophila alternifolia, Dodonaea lobulata, Acacia nyssophylla* Open Shrubland over *Maireana sedifolia* and *Rhagodia ulicina*	0.518			1.13	49.27	1.16	64.58	33.45
	D16-RAM	*Maireana sedifolia* Low Shrubland *+/- Myoporum platycarpum, Acacia papyrocarpa, Eucalyptus gracilis, Alectryon oleifolius ssp. canescens*	5.060			1.13	40.49	1.12	51.24	259.28
	D17	*Acacia papyrocarpa* Low Open Woodland over *Maireana sedifolia / Atriplex vesicaria / Maireana pyramidata*	23.838			1.06	66.58	1.10	77.64	1850.72
	D17-RAM		11.892			1.13	42.56	1.12	53.86	640.52
	D17 total		35.730							2491.24
	D18-RAM	*Eremophila alternifolia* Tall Shrubland over *Aristida contorta, Austrostipa nitida, Maireana sedifolia* and *Ptilotus incanus/obovatus*	0.084			1.13	41.50	1.10	51.58	4.33
	D19-RAM	*Atriplex vesicaria* Low Shrubland	2.696			1.13	40.19	1.04	47.23	127.33

Block	Site	Vegetation association	Area (ha)	TEC status[1]		Landscape Score	Conservation Score	Vegetation Score	Unit Biodiversity Score	Total Biodiversity Score
				Aus	SA					
	D20-RAM	*Maireana pyramidata* Low Shrubland +/- *Myoporum platycarpum, Acacia papyrocarpa, Alectryon oleifolius ssp. canescens*	1.660			1.13	45.04	1.08	54.97	91.25
	D21-RAM	*Triodia spp.* Hummock Grassland over *Austrostipa spp., Aristida contorta, Sida petrophila*	0.937			1.13	45.95	1.04	54.00	50.60
	D22	*Acacia papyrocarpa +/- Alectryon oleifolius ssp. canescens +/- Myoporum platycarpum* Mixed Low Open Woodland over *Atriplex vesicaria / Austrostipa spp.*	4.333			1.06	69.50	1.02	75.14	325.60
	D22-RAM		2.377			1.13	51.14	1.12	64.72	153.84
	D22 total		6.710							479.44
	D23	*Alectryon oleifolius* ssp. *canescens* Low Woodland over *Atriplex vesicaria / Maireana sedifolia*	3.110		V	1.06	66.24	1.22	85.66	266.41
	D24	*Casuarina pauper* Low Woodland over *Maireana sedifolia* and *Atriplex vesicaria*	2.531			1.06	56.00	1.10	65.30	165.26
	D25	*Maireana sedifolia* Low Shrubland +/- *Acacia papyrocarpa* over *Austrostipa* spp. and *Rytidosperma caespitosa*	13.342			1.06	59.99	1.12	71.21	950.14
	D26	*Acacia burkittii / Acacia oswaldii* Tall Shrubland over *Dodonaea lobulata / Senna artemisioides* ssp. *artemisioides*	0.624			1.06	56.76	1.20	72.20	45.05
	D27	*Maireana pyramidata / Atriplex vesicaria +/- Maireana sedifolia* Low Open Shrubland	0.362			1.06	53.45	1.08	61.19	22.15
	D total		**152.296**							**10593.98**
TOTAL			**192.021**							**12711.26**

1. **TEC: Threatened Ecological Community. Aus: Australia (EPBC Act). SA: Provisional List of Threatened Ecosystems of South Australia (DEH in progress). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.**

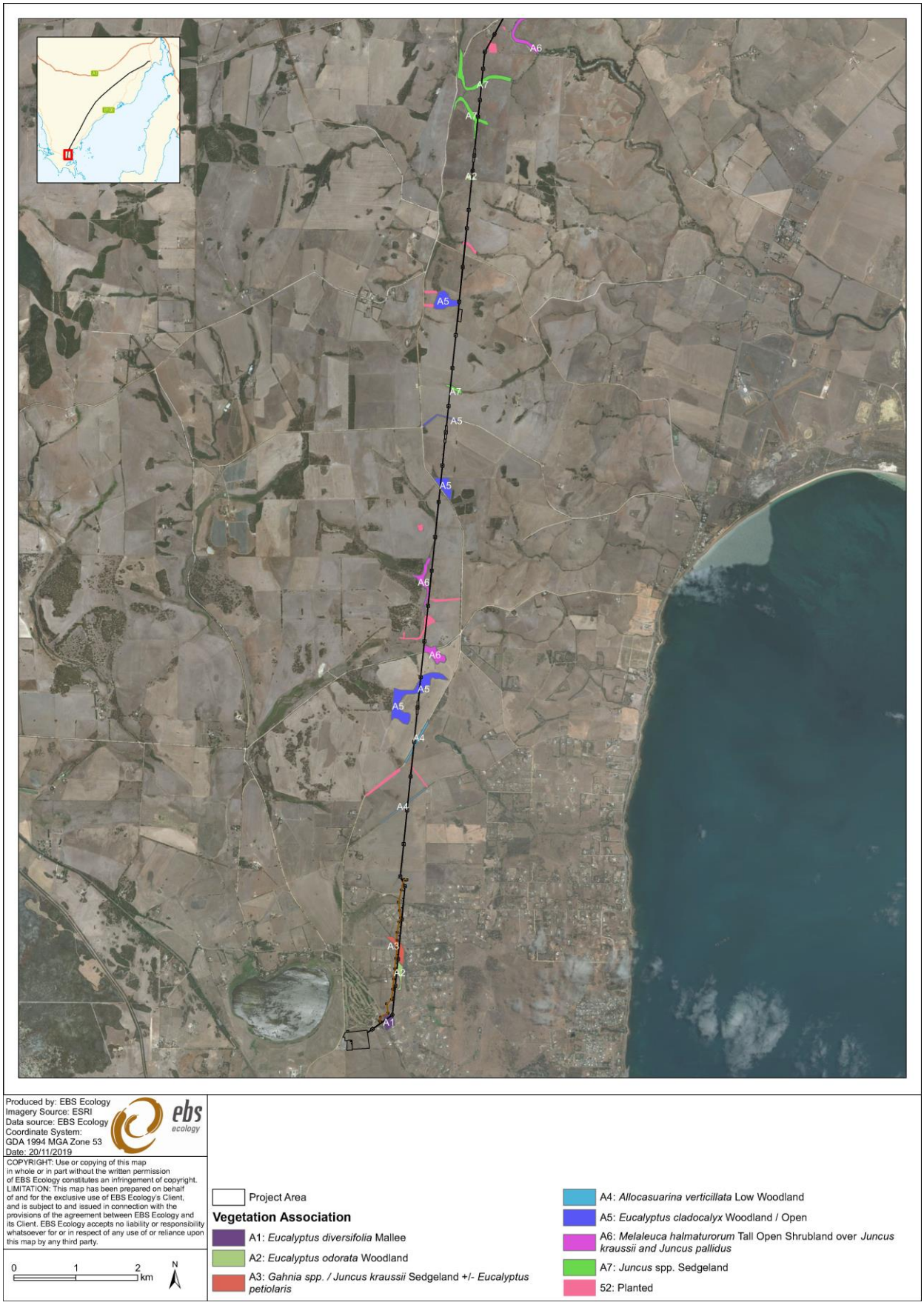

Figure 12. Vegetation associations (Sites) within the Project Area (map 1/14).

Figure 13. Vegetation associations (Sites) within the Project Area (map 2/14).

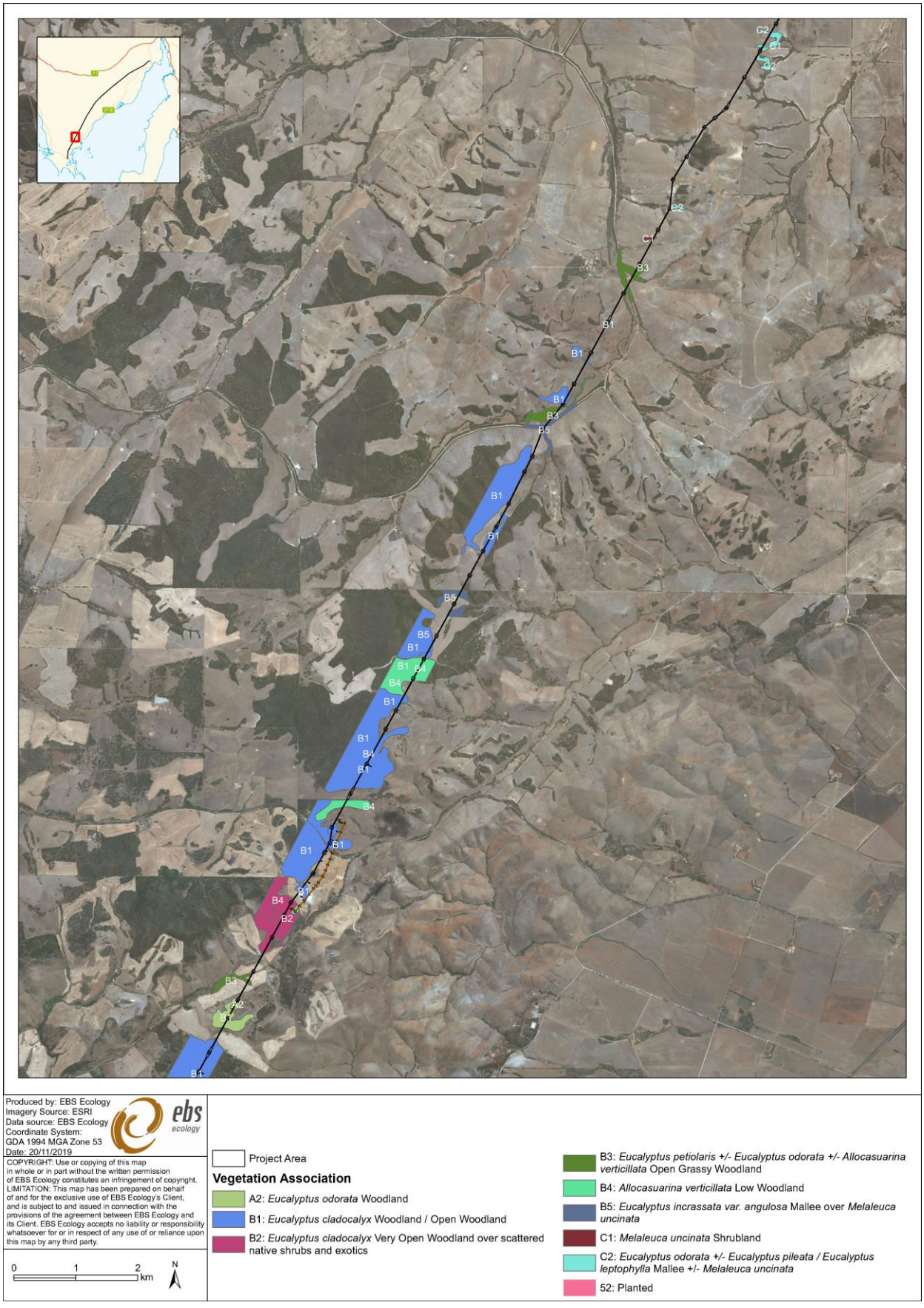

Figure 14. Vegetation associations (Sites) within the Project Area (map 3/14).

Figure 15. Vegetation associations (Sites) within the Project Area (map 4/14).

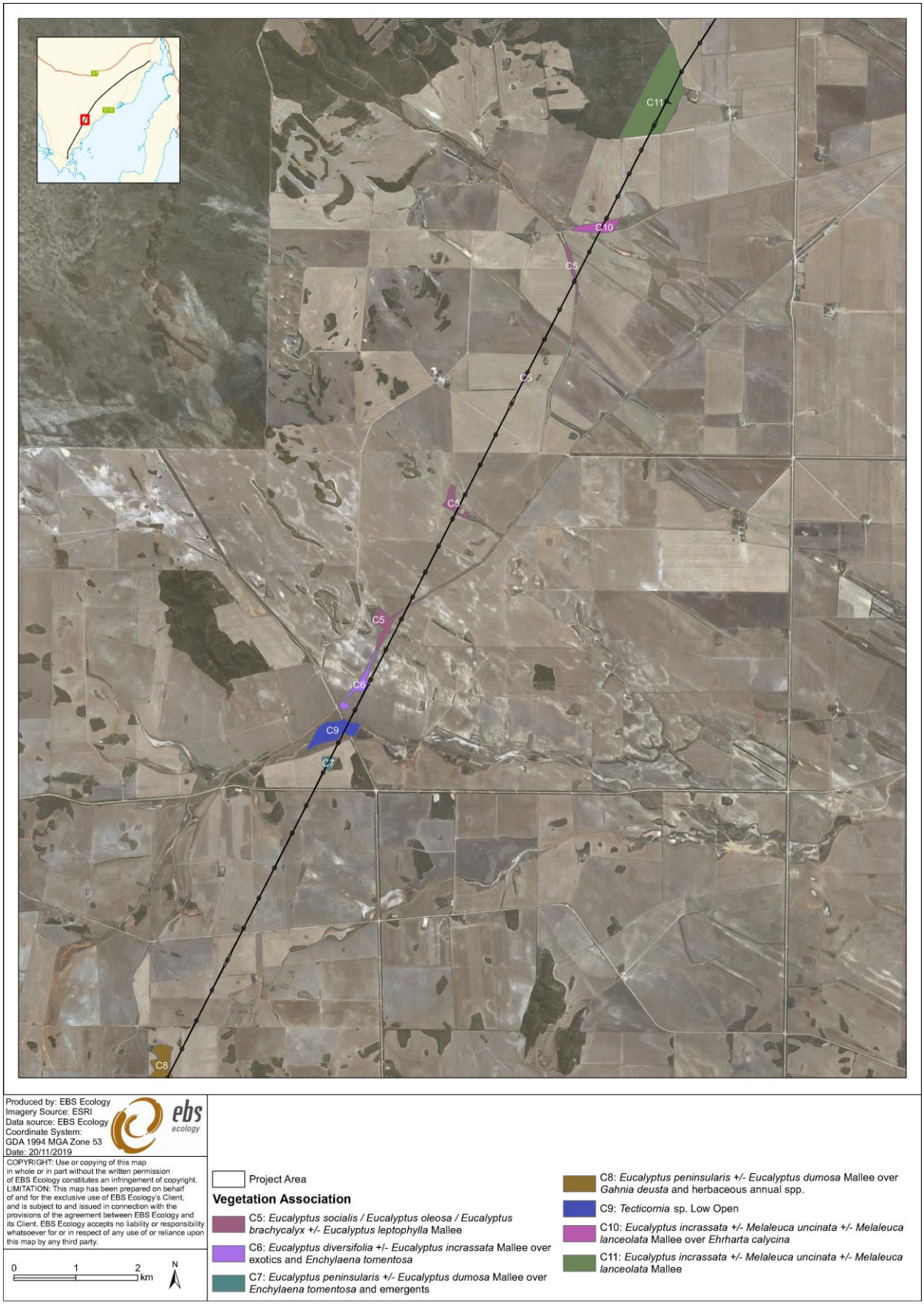

Figure 16. Vegetation associations (Sites) within the Project Area (map 5/14).

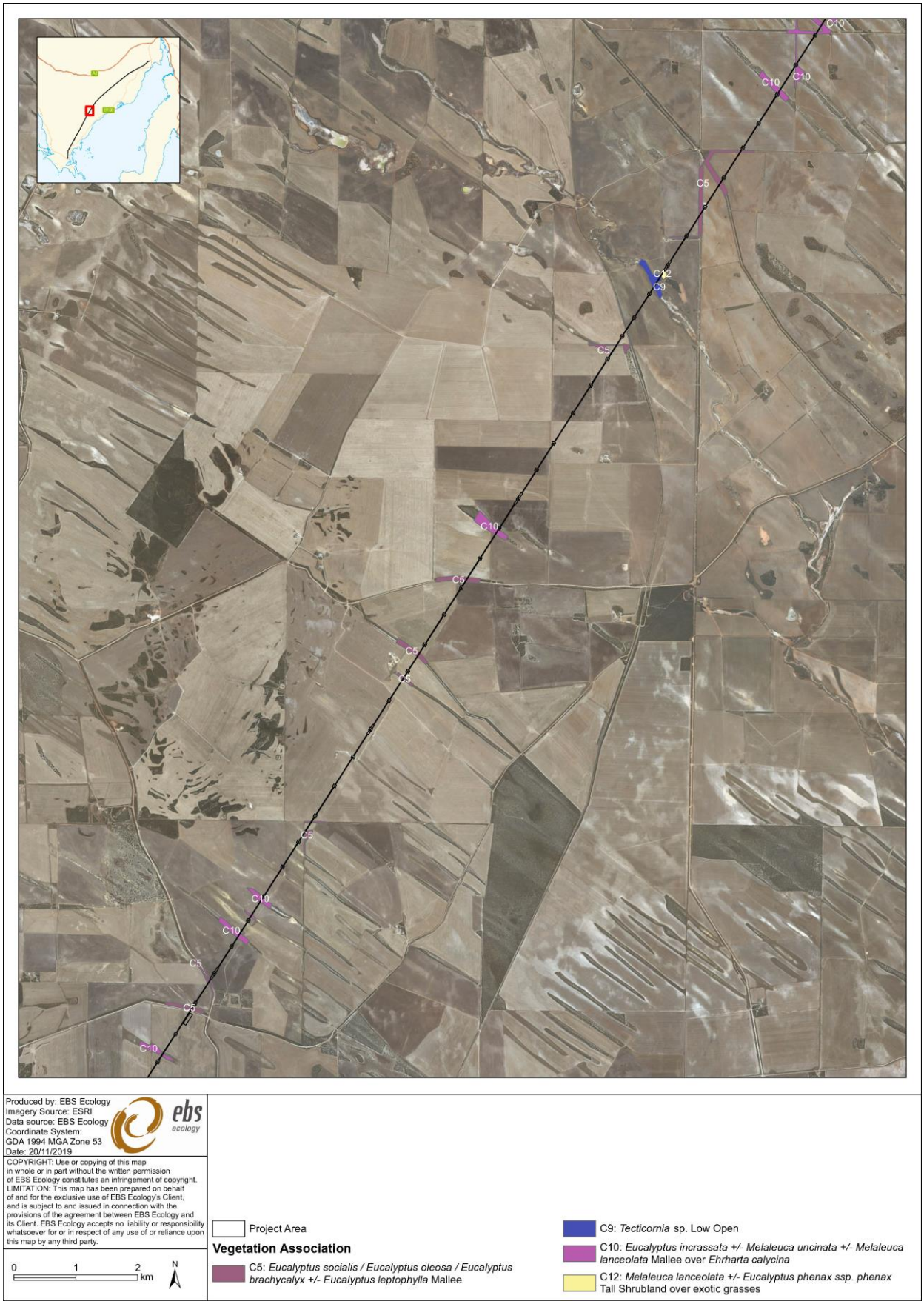

Figure 17. Vegetation associations (Sites) within the Project Area (map 6/14).

Figure 18. Vegetation associations (Sites) within the Project Area (map 7/14).

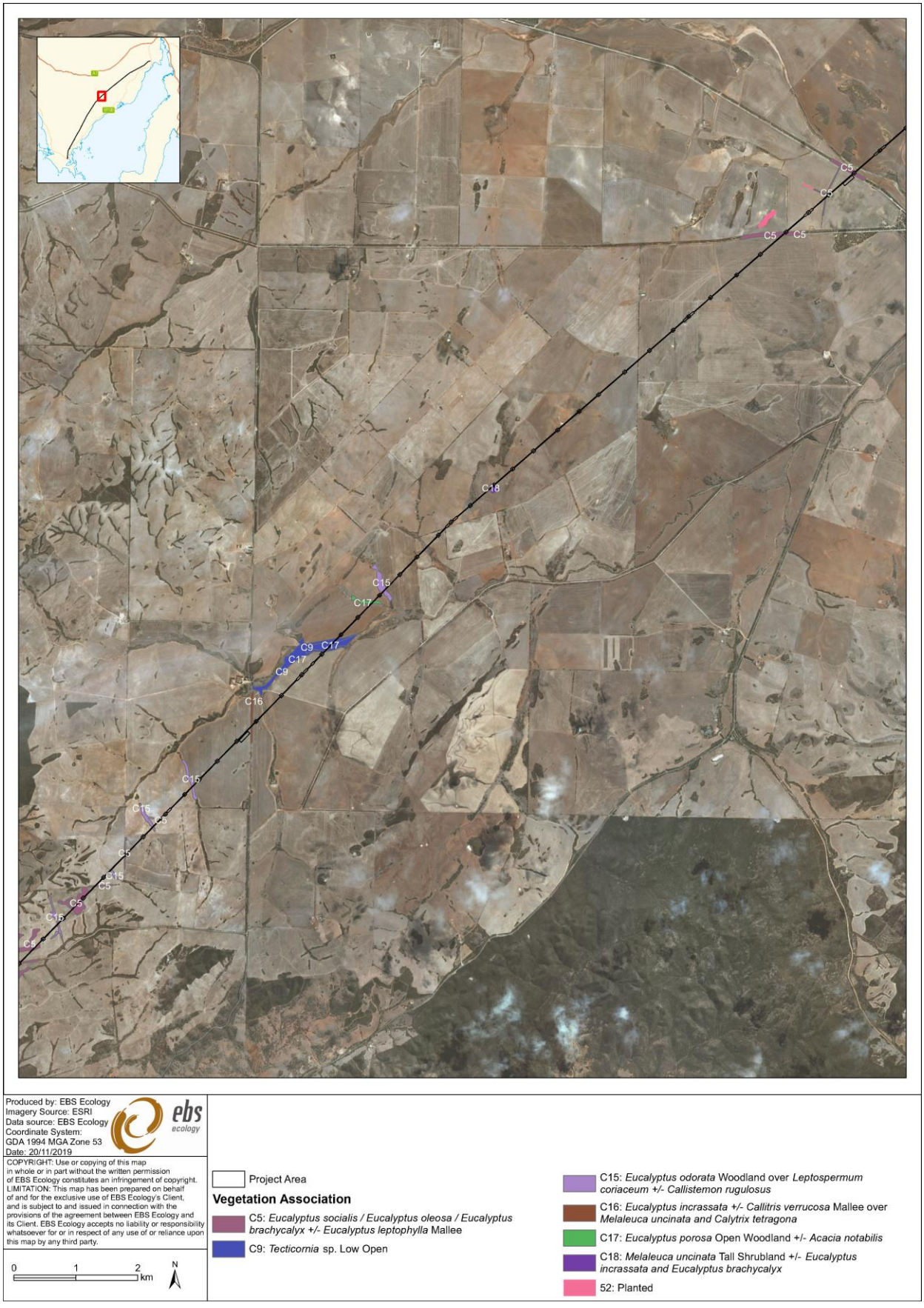

Figure 19. Vegetation associations (Sites) within the Project Area (map 8/14).

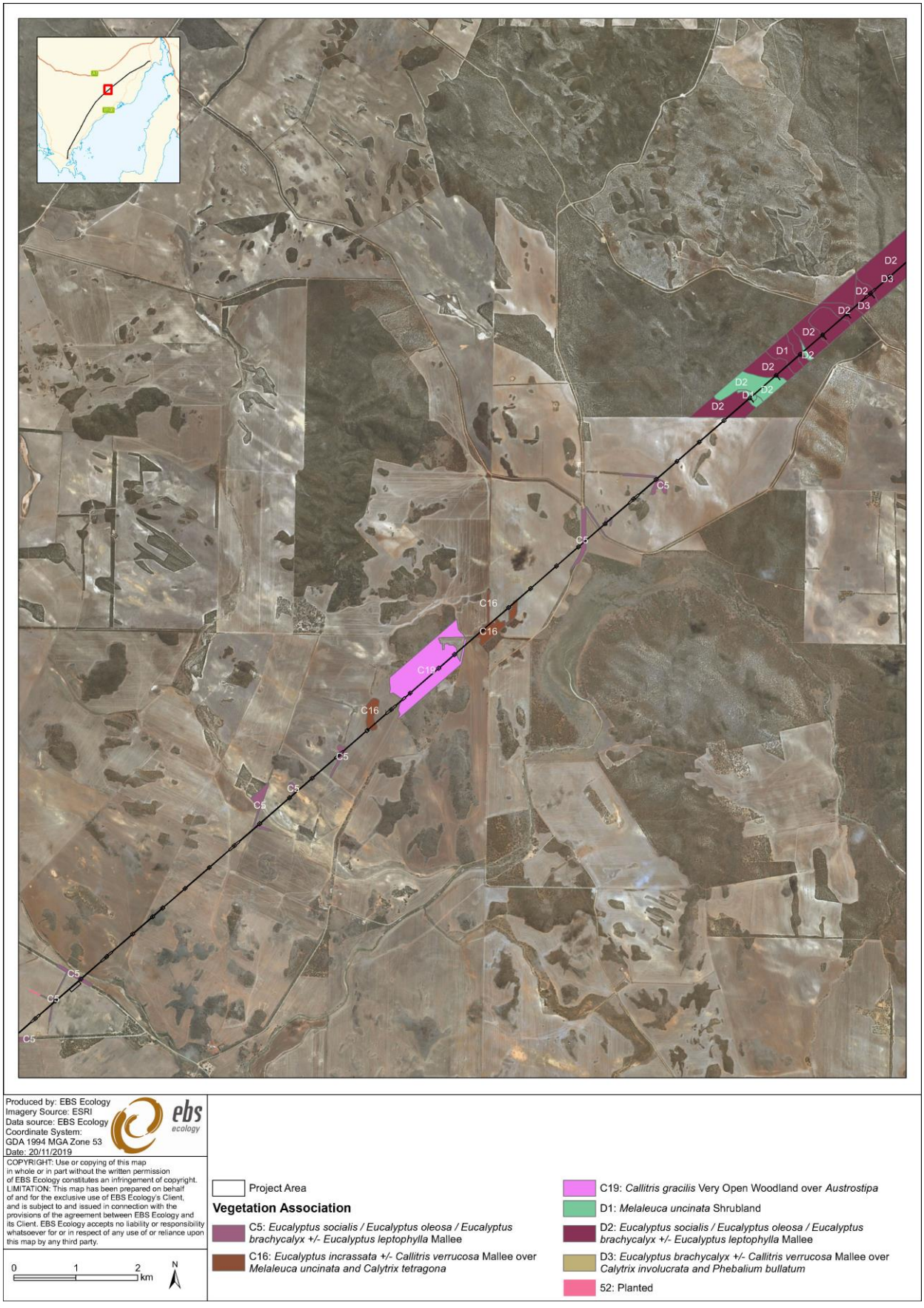

Figure 20. Vegetation associations (Sites) within the Project Area (map 9/14).

Figure 21. Vegetation associations (Sites) within the Project Area (map 10/14).

Figure 22. Vegetation associations (Sites) within the Project Area (map 11/14).

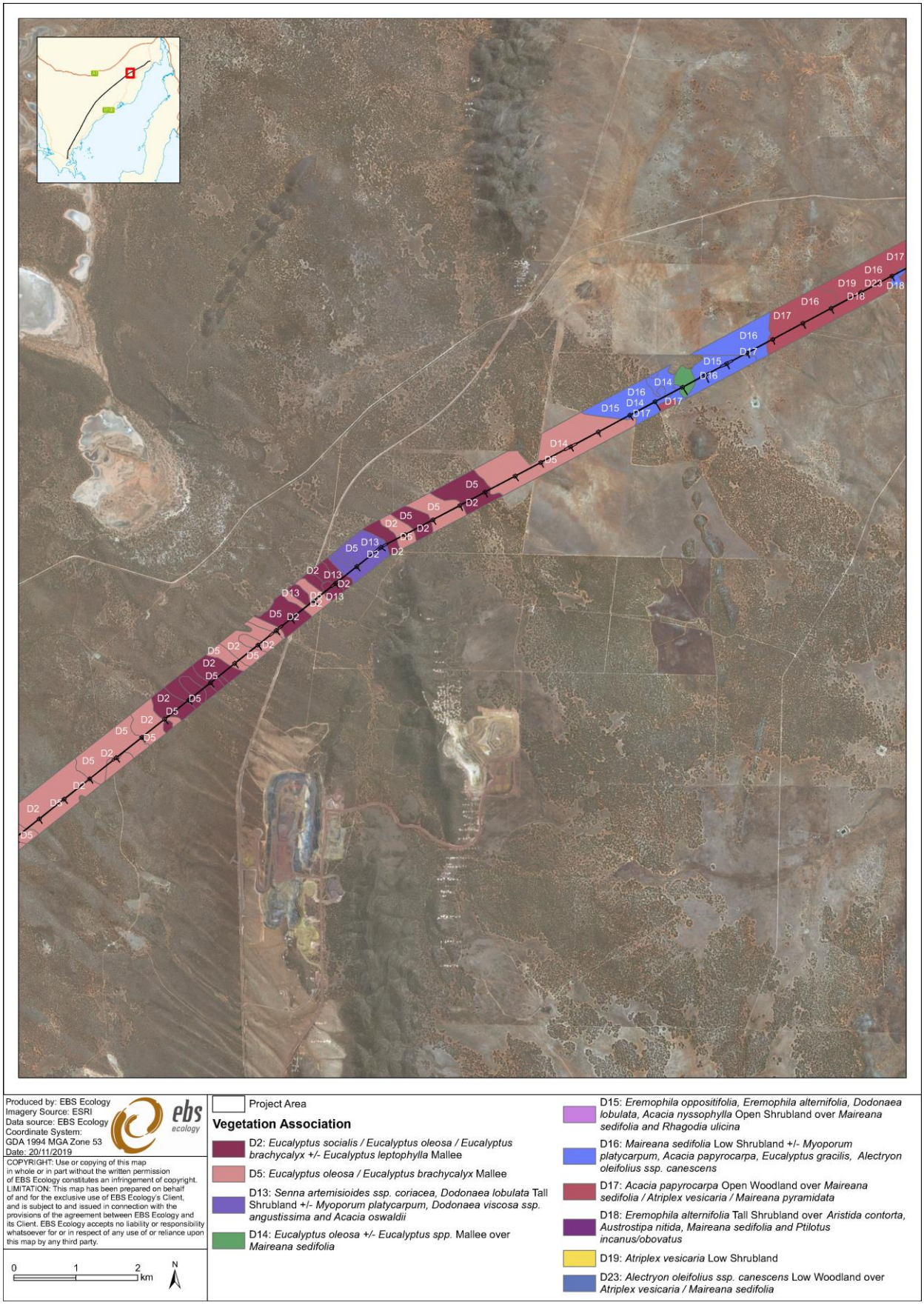

Figure 23. Vegetation associations (Sites) within the Project Area (map 12/14).

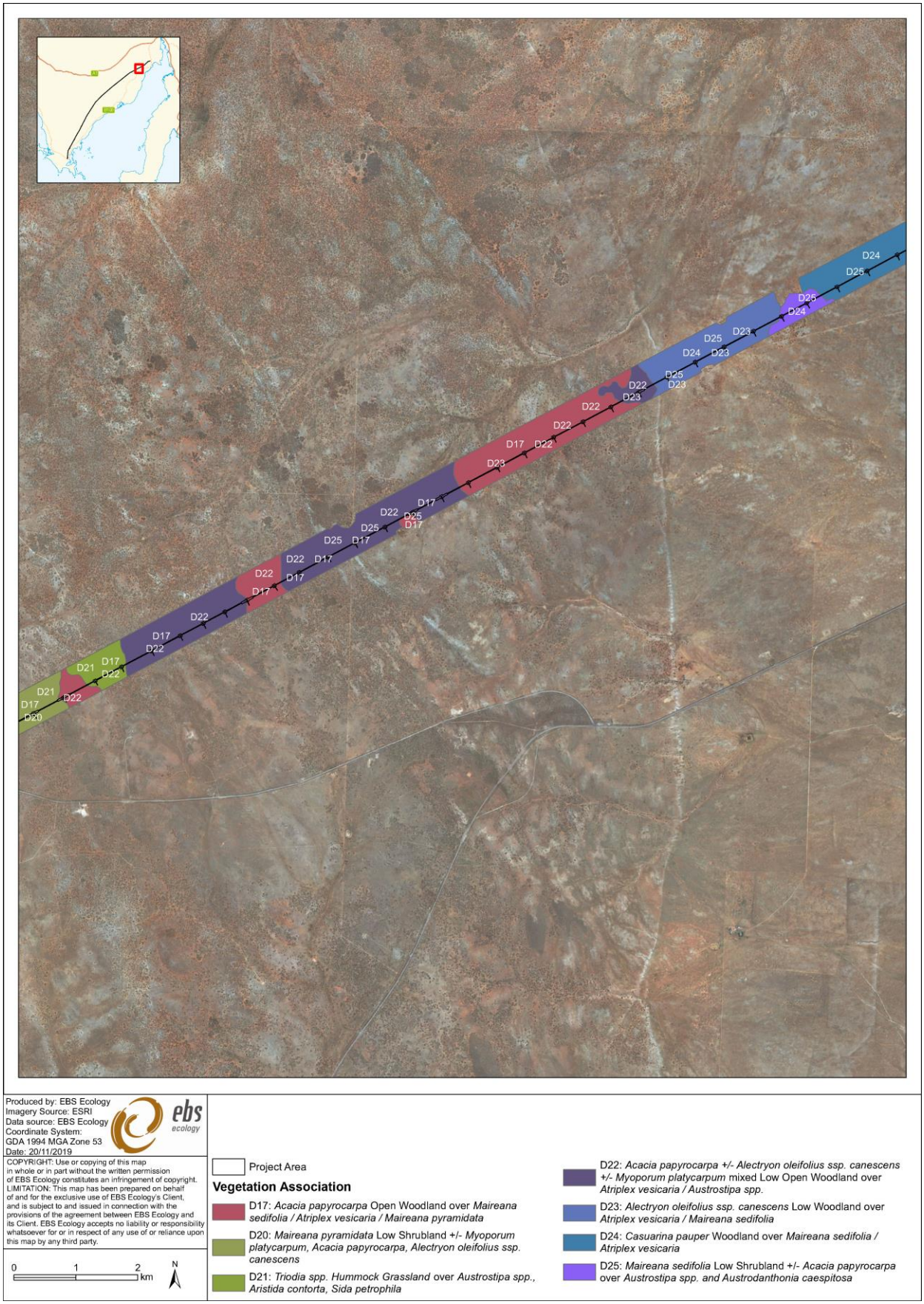

Figure 24. Vegetation associations (Sites) within the Project Area (map 13/14).

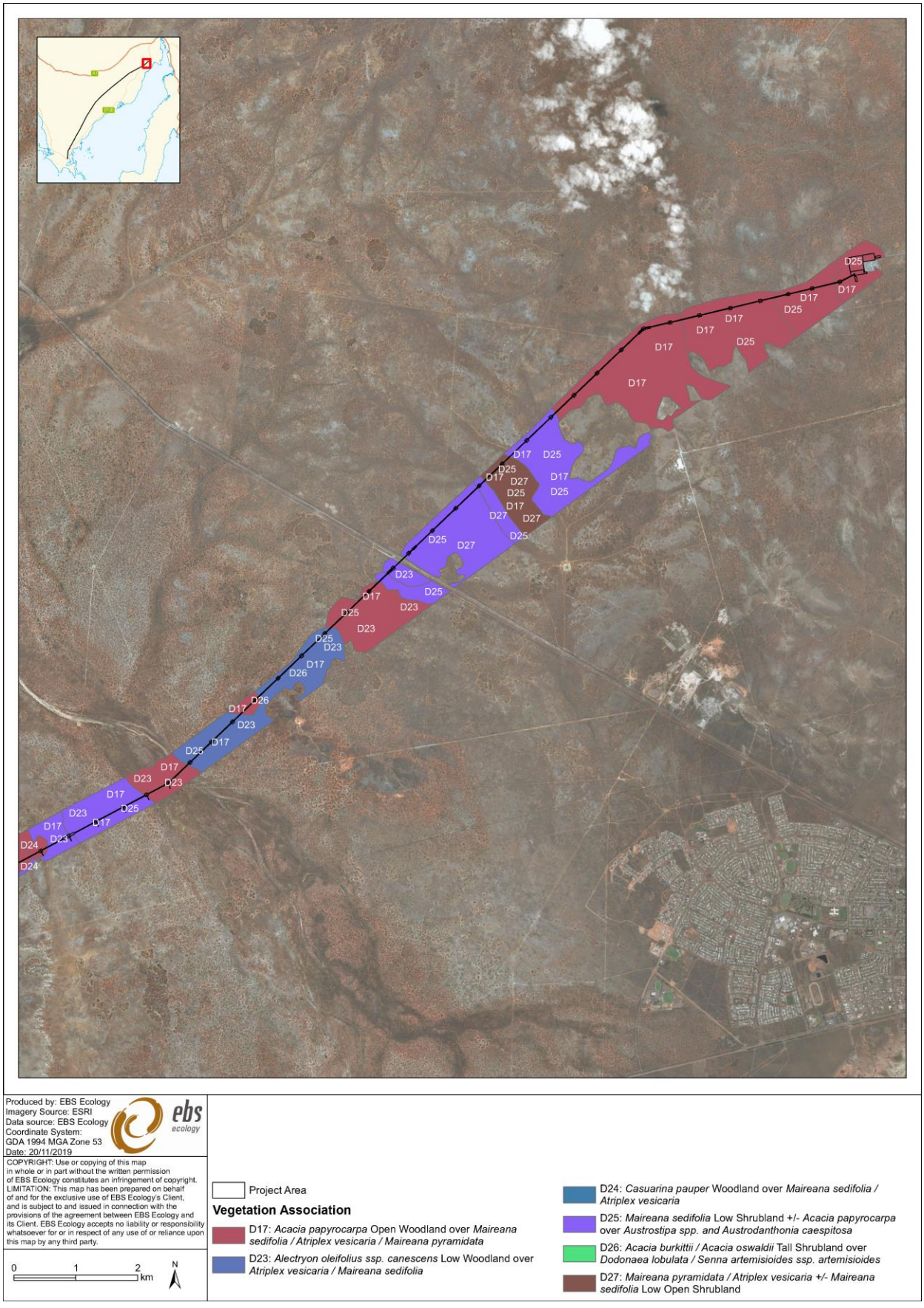

Figure 25. Vegetation associations (Sites) within the Project Area (map 14/14).

6.3 Threatened ecological communities (TECs)

Eyre Peninsula Blue Gum (*Eucalyptus petiolaris*) Woodland was not listed under the EPBC Act at the time of the 2012 and 2013 flora surveys, but was listed as Endangered shortly after in August 2013 (also listed as Endangered under the South Australian *Provisional List of Threatened Ecosystems* (DEH in progress)), and subsequently included in the *Eyre Peninsula Transmission Line – Biodiversity Assessment Report* (EBS 2014).

Eyre Peninsula Blue Gum Woodland is endemic to the Eyre Peninsula and a number of patches were mapped along the alignment during the initial surveys (EBS 2014), but were not assessed under the Approved Conservation Advice (TSSC 2013) at the time. Approximately 8.5 ha of the community, which was mapped within the 120 m wide assessment corridor, was recorded in moderate condition and considered to possibly qualify as the TEC.

During the 2019 native vegetation assessment a representative patch of Eyre Peninsula Blue Gum Woodland (B3: *Eucalyptus petiolaris* +/- *Eucalyptus odorata* +/- *Allocasuarina verticillata* Open Grassy Woodland) was assessed. Based on the results of this assessment and the condition categories and thresholds for the Eyre Peninsula Blue Gum Woodland TEC (TSSC 2013), the seven patches (Figure 26, Figure 27 and Figure 28) of this association intersected by the Project Area highly likely qualify as Category C1 of the TEC, which describes communities of medium quality, with good native vegetation cover and diverse native species in the understorey. Indeed, all seven patches were greater than 0.2 ha in size, native vegetation cover in the mid and ground layers of the representative site comprised of greater than 50%, and seven native species from Appendix B, Table B1 in TSSC (2013) were recorded in the representative site. Furthermore, there were large hollows observed in more than 20 trees per hectare in the representative site.

A further five associations listed under the South Australian *Provisional List of Threatened Ecosystems* (DEH in progress) were observed in the Project Area:

- *Alectryon oleifolius* ssp. *canescens* Tall Shrubland on alluvial soils of plains (Vulnerable; Site D23);
- *Allocasuarina verticillata* Grassy Low Woodland on clay loams of low hills (Vulnerable; Sites A4 and B4);
- *Eucalyptus peninsularis*, *E. dumosa* complex Mallee on loams or clay-loams on flats (Endangered; Sites C7 and C8);
- *Gahnia trifida* Sedgeland in drainage lines and depressions (Endangered; Site A3);
- *Themeda triandra* +/- [*Rytidosperma* spp.] Tussock Grassland on heavy, fertile soils of plains and hill slopes (Endangered; Site A10).

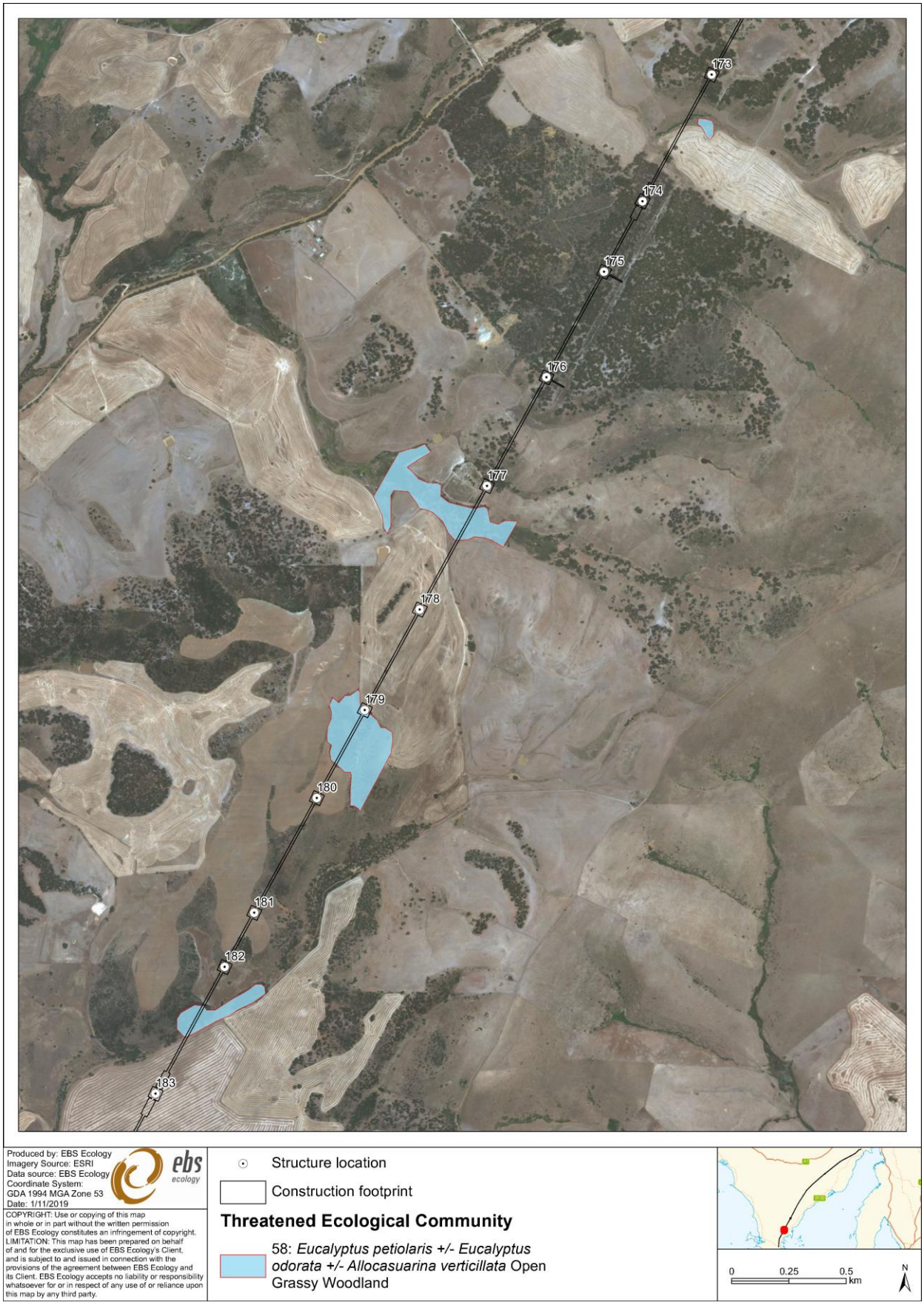

Figure 26. Eyre Peninsula Blue Gum Woodland TEC within the Project Area (map 1/3).

Figure 27. Eyre Peninsula Blue Gum Woodland TEC within the Project Area (map 2/3).

Figure 28. Eyre Peninsula Blue Gum Woodland TEC within the Project Area (map 3/3).

6.4 Fauna assessment results

6.4.1 Birds

Eighty-one bird species were recorded across the Project Area (Appendix 3). The most abundant species recorded was the introduced Common Starling (*Sturnus vulgaris*), with 80 individuals recorded over 18 survey sites. Nine species were recorded only once during the survey period.

The most commonly recorded native species was the Galah (*Eolophus roseicapilla*). Galahs were recorded at 18 survey sites, with 78 individuals counted. While the Singing Honeyeater (*Gavicalis virescens*) was found at 26 survey sites, more than any other species, the count of individuals was less than some other species.

Five species of State conservation significance were recorded:

- Diamond Firetail (*Stagonopleura guttata*);
- White-winged Chough (*Corcorax melanorhamphos*);
- Western Gerygone (*Gerygone fusca*);
- Slender-billed Thornbill (western) (*Acanthiza iredalei* iredalei); and
- Malleefowl (*Leipoa ocellata*) (also listed as Vulnerable under the EPBC Act).

The numbers of individuals of threatened bird species observed and the sites at which they were recorded at are shown in Table 15. As well as the four White-winged Choughs observed, an active nest was observed (Table 15). Despite searching suitable habitat within the proposed easement, the Western Grasswren (*Amytornis textilis myall*) was not detected during the survey. However, a single bird was recorded incidentally while accessing the Project Area west of Whyalla. Although outside the Project Area, the record has been included in Table 15. Threatened fauna species recorded during the 2019 native vegetation assessment and 2012 and 2013 fauna surveys are mapped in .

Four introduced species were recorded; Common Starling, House Sparrow (*Passer domesticus*), Eurasian Songlark (*Alauda arvensis*) and Common Blackbird (*Turdus nerula*).

Table 15. Threatened fauna species and conservation significant records made during the survey.

Scientific name	Common name	Conservation status[1]		Survey Sites	Number Recorded	Incidental sighting/Nest Location	
		Aus	SA			Easting	Northing
Stagonopleura guttata	Diamond Firetail		V	A1, A6a, B5	7	Nesting not recorded	
Corcorax melanorhamphos	White-winged Chough		R	E2	4	575094.04	6166315.76
Gerygone fusca	Western Gerygone		R	A5, B4b	2	Nesting not recorded	
Amytornis textilis myall	Western Grasswren	V		Incidental	1	728595.22	6349537.89
Leipoa ocellata	Malleefowl	V	E	Incidental	Tracks	674179.33	6310948.81

1. **Aus: Australia (EPBC Act). SA: South Australia (NPW Act). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.**

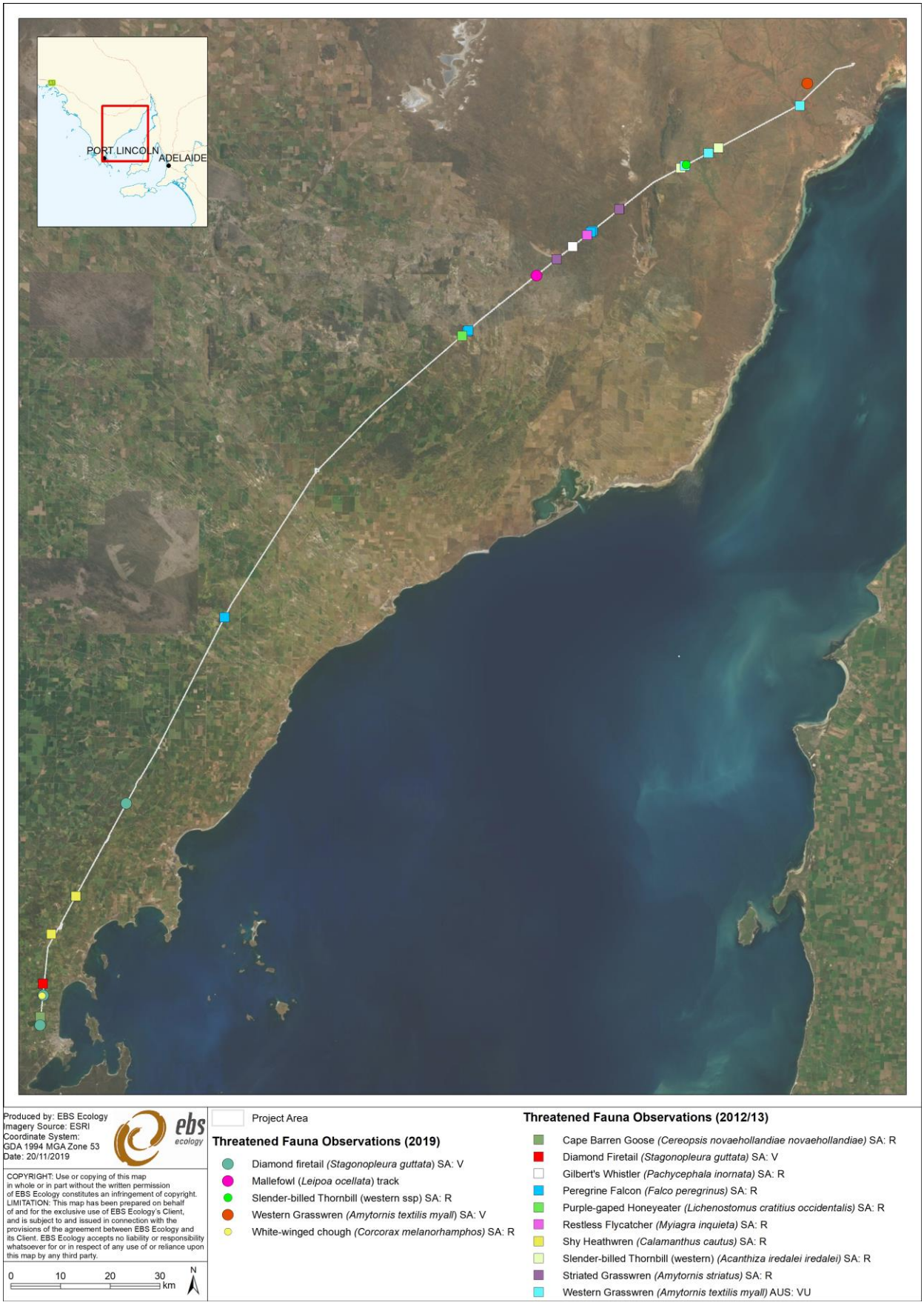

Figure 29. Threatened fauna species recorded within the Project Area during the 2019 native vegetation assessment and 2012 and 2013 fauna surveys.

6.4.2 Mammals

Five species of mammal were recorded during the survey, including three introduced species and only two native species (Appendix 3). The two native species were both large macropods, Red Kangaroo (*Macropus rufus*) and Western Grey Kangaroo (*Macropus fuliginosus*). Introduced species included the herbivores Feral Goat (*Capra hircus*) and European Rabbit (*Oryctolagus cuniculus*). The Red Fox (*Vulpes Vulpes*) was also observed on several occasions. No mammals of state or national conservation significance were recorded.

6.4.3 Reptiles

Five reptiles were observed, both on survey sites and as incidental records (Appendix 3). The Sleepy Lizard (*Tiliqua rugosa*) was common throughout the Project Area and was regularly observed both within the Project Area and while travelling to and from the area. Other species observed included Burton's Snake-lizard (*Lialis burtonis*), Sand Goanna (*Varanus gouldii*) and two dragon species, including Peninsula Dragon (*Ctenophorus fionii*). No reptiles of state or national conservation significance were observed.

7 REQUIREMENTS OF THE REGULATION

An assessment against the Native Vegetation Clearance Principles is not required as the clearance associated with the project is in accordance with Division 5 of the *Native Vegetation Regulations 2017*, which allows for the clearance of native vegetation in relation to specific activities as set out in Schedule 1, Parts 4, 5 or 6. The Project is considered to be exempt under the following regulation:

Regulation 12(34)—Infrastructure

(1) Clearance of vegetation—

(a) incidental to the construction or expansion of a building or infrastructure where the Minister has, by instrument in writing, declared that the Minister is satisfied that the clearance is in the public interest; or

(b) required in connection with the provision of infrastructure or services to a building or proposed building, or to any place,

provided that any development authorisation required by or under the *Development Act 1993* has been obtained.

7.1 Risk assessment

The proposed Project involves level 4 clearance as the Total Biodiversity Score is greater than 250 (7937.90) in the Eyre Peninsula NRM region, and greater than 2500 (4758.68) in the South Australian Arid Lands NRM region.

The proposed clearance is 'Seriously at Variance' with Principles of Clearance 1(b), 1(c) or 1(d), as summarised below for each Principle.

7.1.1 Principle (b) It has significance as a habitat for wildlife

Several Sites have a Threatened Fauna Score of >0.05 and therefore clearance is 'Seriously At Variance' with Principle (b) in these locations.

7.1.2 Principle (c) It includes plants of a rare, vulnerable or endangered species

Several Sites have a Threatened Flora Score of >0.05 and therefore clearance is 'Seriously At Variance' with Principle (c) in these locations.

7.1.3 Principle (d) The vegetation comprises the whole, or part, of a plant community that is Rare, Vulnerable or Endangered

Two State Vulnerable and Three State Endangered (one of which is also Endangered under the EPBC Act) plant communities are present in the Project Area and therefore clearance is 'Seriously at Variance' with Principle (d) in these locations.

8 MITIGATION HIERARCHY

When making a decision on an application to clear vegetation under Division 5 of the *Native Vegetation Regulations 2017*, the NVC must have regard to the mitigation hierarchy. The NVC will assess the measures taken to avoid and minimise impacts on biodiversity and rare or threatened species or ecological communities within the project boundary or in the immediate vicinity of the development as part of the project assessment.

The following information relating to the measures taken, or to be taken, to avoid, minimise, rehabilitate or restore, and offset the clearance of native vegetation has been provided by ElectraNet.

8.1 Background

The route of the proposed replacement transmission line runs almost parallel to the existing transmission line, on its western side. The route was identified through engineering, research, technical field studies and direct engagement with landowners and the broader Eyre Peninsula community.

As part of the Project, some temporary transmission lines will be constructed which will ensure power supply can be maintained to the Eyre Peninsula while the new line is being built.

The scoresheets provided as part of the clearance application have been completed with data from the Project Area and then refined to represent the worst-case clearance area based on the current construction footprint and assumptions made for the Preliminary Design.

The final construction footprint and therefore final clearance area will be influenced by micro-siting of structure pads and access tracks during the Detailed Design process with the aim of minimising impact on good quality vegetation and important habitat while also minimising impacts on cultural heritage.

8.2 Avoidance

It is not possible to altogether avoid clearance of native vegetation for the Project. Vegetation will need to be cleared for the purposes of constructing the proposed replacement transmission line. However, a number of management measures have been defined to detect and avoid important habitat for species of conservation significance that are known or likely to occur within the Project Area.

The project alignment was developed in 2014 using a multi-criteria analysis with extensive community engagement. The proposed replacement transmission line alignment:

- Generally, follows an existing infrastructure easement (the existing Cultana to Port Lincoln Transmission Line) which provides opportunities to use existing in-easement tracks, pastoral tracks and waterway crossings where possible;
- Was developed with consideration of a range of planning requirements to develop the best solution including:
    - Environmental constraints analysis (including identification of important habitat and surface water features);
    - Social constraints analysis (e.g. cultural heritage, buildings, sensitive receptors, land uses);

- Infrastructure constraints analysis (e.g. roads, pipelines, electricity transmission infrastructure);
- Future planned infrastructure; and
- Prescribed centreline clearance distances for buildings and structures and infrastructure (as per the Electricity (General) Regulations 2012 (SA)).

- Achieves an optimal balance of environmental, cultural, social, land use, engineering and cost criteria;
- Reflects community preferences to contain the new and old infrastructure within the same corridor, to the west of the existing line. This was the strongest preference in landowner feedback to ElectraNet;
- Has the least environmental impact (including by using existing access tracks to minimise vegetation clearance);
- Minimises impacts on culturally sensitive sites. Cultural heritage will be managed through a project-specific Aboriginal Cultural Heritage Management Plan; and
- Achieves the lowest long-run cost for consumers as it is the shortest, most direct route between its fixed connection points.

8.3 Minimisation

A number of design controls and environmental management measures have been identified in to minimise impacts upon ecological values.

8.3.1 Design

Vegetation and important habitat (including EPBC listed species) have been mapped using GIS and provided to the design team as a constraint. Where possible, the vegetation has been avoided. The alignment of the in-easement access track, location of spur tracks and the position of the towers and stringing pads has been adjusted to avoid or minimise the clearance of higher value habitat. Further micro-siting of structure pads and tracks during the Detailed Design phase is anticipated to further reduce clearance within higher value habitat and also reduce the overall clearance footprint.

ElectraNet proposes to avoid impacting watercourses and waterbodies by either by spanning across them or by using pre-disturbed areas within the existing line easement.

Vegetation assessments, including canopy height measurement, are used during the detailed engineering phase to design the line profile. Where possible, conductor heights will be set to avoid or minimise vegetation clearance both during construction and ongoing maintenance. Where vegetation clearance is unavoidable and to minimise the risk of power outages, damage to transmission lines or fire starts, vegetation management works are undertaken to make sure that clearance distances between vegetation and transmission lines are established and maintained in accordance with the *Electricity (Principles of Vegetation Clearance) Regulations 2010* (SA).

All efforts will be made to minimise clearance of native vegetation.

8.3.2 Construction

A Construction Environmental Management Plan (CEMP) will be implemented during construction works. The CEMP will identify land clearance mitigation measures to minimise impacts on vegetation, including:

- Restricting the disturbance footprint to the minimum necessary to safely carry out the required construction activities;
- Using existing access tracks wherever possible;
- Preferential rolling and/or trimming of vegetation for structure pads, stringing pads, laydowns and camps (i.e. no dozer blades in the ground) to maintain the topsoil, seedbank and low vegetation (grasses, herbs and shrubs);
- Trimming overhanging branches rather than clearance for spur tracks;
- Using existing disturbed or degraded areas where practicable (e.g. for laydown areas);
- If important habitat for nationally threatened flora and fauna are detected, the area will be marked with flagging and a buffer will be created to avoid clearance or disturbance where practicable; and
- If important habitat for nationally threatened flora and fauna cannot be avoided site specific mitigation measures will be provided in the CEMP to manage those specific areas (e.g. walking stringing cables through an area to avoid vehicle impacts).

While rolling will be preferred over dozing wherever possible, in some cases clearance will be required. The following clearance limitation will be implemented:

- Clearance for structure pads will be limited to 30 x 30 m in areas where native vegetation is present (with a total 50 x 50 m pad pegged to allow for some laydown of larger tower pieces);
- Final width of permanent access tracks will be limited to 5 m wide (including shoulder and windrow); and
- Stringing access will be provided by rolling and/or trimming of vegetation wherever possible. Where clearance cannot be avoided, the clearance will be considered temporary and the contractor will be required to rehabilitate the stringing track (see Rehabilitation below, Section 8.4).

Structure and Stringing Pads

Vegetation at structure and stringing pads will be rolled or cleared to allow structure installation. Cleared topsoil and vegetation will be stockpiled for use in rehabilitation.

Access Tracks

In non-agricultural land, where the proposed transmission line follows existing power lines and access tracks for the majority of the alignment (except for a short section out of Cultana substation), the existing access track will be used with spur tracks constructed to provide the shortest possible access to the new structures. Spur tracks will be designed around larger trees where possible, depending on the density of the vegetation.

In agricultural land, a temporary construction access track will be developed on the centreline. This track will return to cropping use after completion of the project.

Stringing Access

During cable stringing, there will be a need to clear or roll a path between structures to enable pulling of the draw wire. Wherever possible, vegetation clearance will be avoided for the stringing easement.

Laydowns and Camp Areas

Several temporary laydown and storage areas, each of approximately 1 ha, will be required along the transmission line corridor. These areas would be used for temporary storage of materials and equipment. They may also form a mobile construction depot and include temporary offices and ablution facilities and moveable concrete batching plants.

Temporary laydown and storage yards would typically be in areas with limited native vegetation and clearance for laydowns, camps and offices will be restricted to cropping areas. If laydowns are required in areas of native vegetation, they would be prepared by lightly grading to form a level surface. Imported material may be used to cap the surface if the natural soil does not provide a suitable substrate.

Following construction, these areas would be rehabilitated by removing construction material and waste, surface contouring and scarifying where required and respreading topsoil and cleared vegetation to encourage natural recruitment of vegetation.

Weed Management

Mitigation and management measures for weeds include:

- Weed identification as part of the vegetation survey;
- Minimising new clearance and associated risk of weed incursions;
- Use of existing tracks wherever possible;
- Development of both an Agricultural Weed Management Plan and a Non-Agricultural Weed Management Plan in association with local stakeholders;
- Implementation of weed management measures during construction (inspections, wash-downs, exclusion zones);
- A pre and post disturbance survey including photo points to identify weed infestations; and
- Regular inspections and auditing by site based environmental and landholder liaison staff.

8.4 Rehabilitation or restoration

Disturbed construction areas which are not required for the operation and maintenance of the transmission line (i.e. undergoing temporary clearance only) will be rehabilitated at the end of the construction phase.

Cleared areas will be progressively rehabilitated to a land condition broadly equivalent to (or confidently trending towards) the surrounding land condition.

Vegetation and cleared topsoil will be stockpiled adjacent the infrastructure. Each structure would require a temporary stockpile of around 200 m^3, with stockpiles limited to approximately 2 m in height and approximately 15 m x 15 m in area with the exact dimensions varying to fit within the available cleared

area (i.e. no further land disturbance is required for the stockpiles). Stockpiles would be located outside of defined watercourses to reduce the potential for surface water erosion impacts to creek lines and may be temporarily covered with cleared vegetation to reduce the potential for wind erosion.

Following the completion of construction activities, the stockpiled topsoil and subsoil would be respread over the cleared area with the cleared vegetation, and the sites left to naturally revegetate. If compaction has occurred, the site will be scarified prior to re-spreading the topsoil.

Given the semi-arid environment for this project, rehabilitation success is related to the baseline structure of the vegetation (e.g. ability to release seed, regeneration potential), climatic conditions during rehabilitation (rainfall) and method of construction (e.g. low impact blading, rolling of vegetation).

Methods that will ultimately facilitate rehabilitation include:

- Low impact access preparation;
- Low impact clearance methods / micro-siting during design;
- Stockpiling of topsoil and cleared vegetation for re-spreading over areas of temporary disturbance;
- Locate soil stockpiles out of potential flow paths; and
- Rehabilitation procedures including ground scarification to facilitate accumulation of organic materials and water.

Rehabilitated sites are monitored during operations for soil stability, presence of weeds and vegetation recruitment success and remedial measures undertaken where required, including active reseeding should this be required.

8.5 Offset

Based on current calculations, the payment into the Native Vegetation Fund (NVF) would be $3,743,711.41, which includes an administration fee of $195,169.79 (which is GST inclusive).

ElectraNet is currently looking into options for land-based SEB offset on the Eyre Peninsula.

The result of this investigation may be a combination of land-based offset and payment into the NVF. Further information will be provided to the Native Vegetation Council when available.

9 SIGNIFICANT ENVIRONMENTAL BENEFIT

9.1 Determination of the SEB Obligation

The total SEB points required for the clearance of 192.021 ha of native vegetation is 16,972.85, which equates to an SEB offset area of 2,121.62 ha (Table 16). Alternatively, the total payment into the NVF required is $3,743,711.41, which includes an administration fee of $195,169.79 (which is GST inclusive). See Table 16 for the breakdown of the assessment of clearance for each Site.

The SEB requirements are based on the maximum, worst case clearance area. The proponent intends to reduce the impact footprint during detailed design and construction planning, which may involve the use of aerial stringing (via helicopter or drone) where possible, which would clearance associated with stringing of transmission line cables. Upon completion of the Project, the proponent will assess clearance and provide a report and spatial data showing the actual clearance in order to revise the SEB requirement.

9.2 Achieving the SEB

The proponent intends to achieve the SEB by:

☒ Establishing a new SEB Area on land owned by the proponent.

☐ Using SEB Credit that the proponent has established. SEB Credit Ref. No. _____

☒ Applying to have SEB Credit assigned from another person or body. The application form needs to be submitted with this Data Report.

☒ Applying to have an SEB to be delivered by a Third Party. The application form needs to be submitted with this Data Report.

☒ Payment into the Native Vegetation Fund (if the implementation of a new SEB Area(s) is not viable).

The proponent is currently investigating various options (see above) to achieve the SEB, which will be detailed in an SEB Strategy report. The proponent proposes a 30% SEB Payment upfront that can be applied to an on-ground offset or paid into the NVF.

Due to the linear extent of the vegetation clearance, over approximately 290 km and across multiple land systems and vegetation communities, a combination of SEB offset options may be required, particularly to offset local impacts appropriately. The proponent will continue to liaise with the NVC during the preparation of the SEB Strategy report to advise on any potential third party/SEB credit arrangements.

An on-ground offset(s), delivered through a third party agreement or SEB credits, is the proponent's primary focus, with payment into the NVF considered the least preferred option that will only be considered if an on-ground SEB offset(s) is determined to be unviable. The proponent requests a period of at least 6 months from the date of approval to finalise the SEB arrangement.

The proponent may include further information regarding the proposed rehabilitation and a monitoring program for rehabilitated areas in the SEB Strategy report to determine if the proposed actions meet the requirements to have a reduction factor applied to the SEB calculations.

Table 16. Summary of the SEB calculations for each Site within the Project Area.

Block	Site	Area (ha)	Protected area loading	SEB Points required	Ha required	Economies of scale factor	Mean annual rainfall (mm)	Payment (GST exclusive)	Admin fee (GST inclusive)	Total payment
A	A1	0.167		3.09	0.39	0.5	530	$2,132.76	$117.30	$2,250.06
	A2	0.525		9.58	1.2	0.5	508	$6,330.04	$348.15	$6,678.19
	A3	1.181		55.78	6.97	0.5	508	$36,846.14	$2,026.54	$38,872.68
	A4	0.345		6.63	0.83	0.5	516	$4,448.69	$244.68	$4,693.37
	A5	1.103		48.11	6.01	0.5	515	$32,220.54	$1,772.13	$33,992.67
	A6a	0.167		10.98	1.37	0.5	512	$7,310.14	$402.06	$7,712.20
	A6b			2.49	0.31		465	$1,505.74	$82.82	$1,588.56
	A6 mean			6.74	0.84		488.5	$4,407.94	$242.44	$4,650.38
	A7a	0.468		5.17	0.65	0.5	522	$3,511.27	$193.12	$3,704.39
	A7b			23.24	2.90		503	$15,199.46	$835.97	$16,035.43
	A7 mean			14.21	1.78		512.5	$9,355.37	$514.55	$9,869.91
	A8	0.011		0.06	0.01	0.5	475	$38.66	$2.13	$40.79
	A9a	1.493		6.98	0.87	0.5	464	$4,210.91	$231.60	$4,442.51
	A9b			58.80	7.35		464	$35,474.54	$1,951.10	$37,425.64
	A9 mean			32.89	4.11		464	$19,842.73	$1,091.35	$20,934.08
	A10	0.088		0.43	0.05	0.5	465	$260.35	$14.32	$274.67
	A11	1.649		120.52	15.07	0.5	489	$76,635.37	$4,214.95	$80,850.32
	A total	**7.197**		**298.03**	**37.26**			**$192,518.58**	**$10,588.54**	**$203,107.12**
B	B1a	5.645		393.42	49.18	0.5	471	$240,946.45	$13,252.05	$254,198.50
	B1b			457.50	57.19		476	$283,166.29	$15,574.15	$298,740.44
	B1 mean			425.46	53.19		474	$262,056.37	$14,413.10	$276,469.47
	B1b-PA	1.255	1	203.42	25.43		476	$125,907.42	$6,924.91	$132,832.33
	B1 total	6.900		628.88	78.62			$387,963.79	$21,338.01	$409,301.80
	B2a	2.211		173.09	21.64	0.5	464	$104,433.25	$5,743.83	$110,177.08
	B2b			151.23	18.9		474	$93,208.17	$5,126.45	$98,334.62
	B2 mean			162.16	20.27		469	$98,820.71	$5,435.14	$104,255.85
	B3	1.269		97.53	12.19	0.5	472	$59,858.15	$3,292.20	$63,150.35

Block	Site	Area (ha)	Protected area loading	SEB Points required	Ha required	Economies of scale factor	Mean annual rainfall (mm)	Payment (GST exclusive)	Admin fee (GST inclusive)	Total payment
	B4a	0.760		57.34	7.17	0.5	475	$35,418.56	$1,948.02	$37,366.58
	B4b			58.34	7.29		491	$37,249.07	$2,048.70	$39,297.77
	B4 mean			57.84	7.23		483	$36,333.82	$1,998.36	$38,332.18
	B4b-PA	0.780	1	119.76	14.97		491	$76,458.62	$4,205.22	$80,663.84
	B4 total	1.540		177.60	22.20			$112,792.44	$6,203.58	$118,996.02
	B5	0.368		24.68	3.09	0.5	414	$13,288.43	$730.86	$14,019.29
	B5-PA	0.175	1	23.48	2.93		414	$12,638.45	$695.11	$13,333.56
	B5 total	0.543		48.16	6.02			$25,926.88	$1,425.97	$27,352.85
	B total	**12.464**		**1114.33**	**139.30**			**$685,361.97**	**$37,694.90**	**$723,056.87**
C	C1a-1	0.176		13.72	1.72	0.5	451	$8,048.78	$442.68	$8,491.46
	C1b-2	2.259		147.94	18.49	0.35	395	$53,188.69	$2,925.38	$56,114.07
	C1 total	2.435		161.66	20.21			$61,237.47	$3,368.06	$64,605.53
	C2	0.295		14.87	1.86	0.5	394	$7,618.48	$419.02	$8,037.50
	C3	0.119		2.03	0.25	0.5	360	$948.17	$52.15	$1,000.32
	C4	0.119		8.84	1.10	0.5	371	$4,262.40	$234.43	$4,496.83
	C5a-1	0.186		12.19	1.52	0.5	359	$5,691.60	$313.04	$6,004.64
	C5a-2	2.716		168.67	21.08	0.35	397	$60,948.69	$3,352.18	$64,300.87
	C5a total	2.901		180.86	22.6			$66,640.29	$3,665.22	$70,305.51
	C5b-3	1.111		57.68	7.21	0.29	339	$14,747.55	$811.12	$15,558.67
	C5c-3			48.26	6.03		339	$12,339.79	$678.69	$13,018.48
	C5bc mean			52.97	6.62		339	$13,543.67	$744.91	$14,288.58
	C5 total	4.013		233.83	29.22			$80,183.96	$4,410.13	$84,594.09
	C6	0.358		15.41	1.93	0.5	358	$7,174.99	$394.62	$7,569.61
	C7a	0.287		19.42	2.43	0.5	360	$9,091.27	$500.02	$9,591.29
	C7b			22.55	2.82		334	$9,791.64	$538.54	$10,330.18
	C7 mean			20.99	2.63		347	$9,441.46	$519.28	$9,960.74
	C8	0.522		37.39	4.67	0.5	363	$17,648.42	$970.66	$23,989.97
	C9-1	0.214		9.09	1.14	0.5	333	$3,935.40	$216.45	$4,151.85

Block	Site	Area (ha)	Protected area loading	SEB Points required	Ha required	Economies of scale factor	Mean annual rainfall (mm)	Payment (GST exclusive)	Admin fee (GST inclusive)	Total payment
	C9-2	0.185		7.86	0.98	0.35	333	$2,381.47	$130.98	$2,512.45
	C9-3	0.229		9.73	1.22	0.29	333	$2,442.52	$134.35	$2,576.87
	C9 total	0.628		26.68	3.34			$8,759.39	$481.78	$9,241.17
	C10	1.323		42.73	5.34	0.29	336	$10,829.18	$595.61	$11,424.79
	C11	0.264		15.81	1.98		338	$4,031.10	$221.71	$4,252.81
	C11-PA	1.589		190.36	23.8	0.29		$48,525.87	$2,668.92	$51,194.79
	C11 total	1.853		206.17	25.78			$52,556.97	$2,890.63	$55,447.60
	C12-2	0.118		2.40	0.30	0.35	317	$693.77	$38.16	$731.93
	C12-3	0.196		3.99	0.50	0.29		$954.82	$52.52	$1,007.34
	C12 total	0.314		6.39	0.80			$1,648.59	$90.68	$1,739.27
	C13-2	0.044		1.42	0.18	0.35	337	$435.17	$23.93	$459.10
	C13-3	0.110		3.55	0.44	0.29		$901.42	$49.58	$951.00
	C13 total	0.154		4.97	0.62			$1,336.59	$73.51	$1,410.10
	C14	3.931		129.21	16.15	0.35	363	$42,693.81	$2,348.16	$45,041.97
	C15	0.221		8.44	1.06	0.35	402	$3,089.83	$169.94	$3,259.77
	C16a	0.909		22.17	2.77	0.35	396	$9,367.96	$515.24	$9,883.20
	C16b			53.87	6.73		336	$16,475.77	$906.17	$17,381.94
	C16 mean			38.02	4.75		366	$12,921.87	$710.71	$13,632.57
	C17	0.436		20.43	2.55	0.35	387	$7,194.87	$395.72	$7,590.59
	C18	0.231		3.62	0.45	0.35	384	$1,266.87	$69.68	$1,336.55
	C19	1.916		86.84	10.85	0.35	342	$27,032.01	$1,486.76	$38,518.77
	C total	**20.064**		**1079.31**	**134.91**			**$362,936.21**	**$19,961.52**	**$392,897.73**
D	D1	0.017		1.27	0.16	0.35	343	$387.58	$21.32	$408.90
	D1-PA	0.931	1	138.81	17.35			$42,451.88	$2,334.85	$44,786.73
	D1 total	0.948		140.08	17.51			$42,839.46	$2,356.17	$45,195.63
	D2-2	4.343		336.87	42.11	0.35	331	$101,492.22	$5,582.07	$107,074.29
	D2-2-PA	7.324	1	568.09	71.01			$171,155.66	$9,413.56	$180,569.22
	D2-RAM-4	2.846		209.92	26.24	0.23	309	$38,799.26	$2,133.96	$40,933.22

Block	Site	Area (ha)	Protected area loading	SEB Points required	Ha required	Economies of scale factor	Mean annual rainfall (mm)	Payment (GST exclusive)	Admin fee (GST inclusive)	Total payment
	D2-RAM-4-PA	1.039	1	153.27	19.16			$28,329.19	$1,558.11	$29,887.30
	D2-RAM-5	12.104		892.80	111.60	0.11		$78,919.13	$4,340.55	$83,259.68
	D2 total	27.656		2160.95	270.12			$418,695.46	$23,028.25	$441,723.71
	D3	2.301		186.23	23.28	0.35	324	$54,921.58	$3,020.69	$57,942.27
	D4	0.831		69.22	8.65			$21,611.91	$1,188.65	$22,800.56
	D4-PA	3.498	1	582.78	72.85	0.35	343	$181,945.72	$10,007.01	$191,952.73
	D4 total	4.329		652.00	81.50			$203,557.63	$11,195.66	$214,753.29
	D5-2-PA	2.876	1	413.81	51.73	0.35	311	$117,140.78	$6,442.74	$123,583.52
	D5-RAM-4	1.019		75.92	9.49	0.23		$14,032.21	$771.77	$14,803.98
	D5-RAM-4-PA	19.067	1	2841.19	355.15		309	$525,126.91	$28,881.98	$554,008.89
	D5-RAM-5	0.894		66.61	8.33	0.11		$5,887.82	$323.83	$6,211.65
	D5 total	23.857		3397.53	424.70			$662,187.72	$36,420.32	$698,608.04
	D6-2	0.031		2.36	0.29	0.35	315	$676.12	$37.19	$713.31
	D6-2-PA	1.395	1	212.23	26.53			$60,850.85	$3,346.80	$64,197.65
	D6-RAM-4-PA	1.107	1	151.34	18.92	0.23	312	$28,242.78	$1,553.35	$29,796.13
	D6 total	2.533		365.93	45.74			$89,769.75	$4,937.34	$94,707.09
	D7-2-PA	1.875	1	209.80	26.22	0.35	309	$59,007.02	$3,245.39	$62,252.41
	D7-RAM-4-PA	3.193	1	513.59	64.20	0.23	318	$97,689.34	$5,372.91	$103,062.25
	D7 total	5.068		723.39	90.42			$156,696.36	$8,618.30	$165,314.66
	D8-2-PA	0.771	1	106.03	13.25	0.35	304	$29,340.41	$1,613.72	$30,954.13
	D8-RAM-4-PA	4.141	1	597.83	74.73	0.23	292	$104,415.26	$5,742.84	$110,158.10
	D8 total	4.912		703.86	87.98			$133,755.67	$7,356.56	$141,112.23
	D9-RAM-PA	0.578	1	72.92	9.12	0.23	312	$13,608.75	$748.48	$14,357.23
	D10-RAM-PA	1.449	1	199.60	24.95	0.23	311	$37,130.99	$2,042.20	$39,173.19
	D11-RAM-PA	0.956	1	131.46	16.43	0.23	310	$24,375.07	$1,340.63	$25,715.70
	D12-RAM-PA	2.568	1	390.37	48.80	0.23	292	$68,180.39	$3,749.92	$71,930.31
	D13-RAM	0.434		34.67	4.33	0.23	283	$5,868.08	$322.74	$6,190.82
	D14-RAM	1.345		86.96	10.87	0.11	284	$7,064.95	$388.57	$7,453.52

Block	Site	Area (ha)	Protected area loading	SEB Points required	Ha required	Economies of scale factor	Mean annual rainfall (mm)	Payment (GST exclusive)	Admin fee (GST inclusive)	Total payment
	D15-RAM	0.518		35.12	4.39	0.11	285	$2,863.68	$157.50	$3,021.18
	D16-RAM	5.060		272.24	34.03	0.11	280	$21,806.49	$1,199.36	$23,005.85
	D17	23.838		1943.26	242.91	0.11	251	$139,532.10	$7,674.27	$147,206.37
	D17-RAM	11.892		672.55	84.07		272	$52,331.67	$2,878.24	$55,209.91
	D17 total	35.730		2615.81	326.98			$191,863.77	$10,552.51	$202,416.28
	D18-RAM	0.084		4.55	0.57	0.11	266	$346.21	$19.04	$365.25
	D19-RAM	2.696		133.69	16.71	0.11	261	$9,982.12	$549.02	$10,531.14
	D20-RAM	1.660		95.81	11.98	0.11	267	$7,318.06	$402.49	$7,720.55
	D21-RAM	0.937		53.13	6.64	0.11	283	$4,301.13	$236.56	$4,537.69
	D22	4.333		341.88	42.73	0.11	264	$25,819.22	$1,420.06	$27,239.28
	D22-RAM	2.377		161.53	20.19		287	$13,261.93	$729.41	$13,991.34
	D22 total	6.710		503.41	62.92			$39,081.15	$2,149.47	$41,230.62
	D23	3.110		279.73	34.97	0.11	261	$20,886.06	$1,148.73	$22,034.79
	D24	2.531		173.53	21.69	0.11	256	$12,708.04	$698.94	$13,406.98
	D25	13.342		997.65	124.71	0.11	255	$72,775.87	$4,002.67	$76,778.54
	D26	0.624		47.30	5.91	0.11	253	$3,423.69	$188.30	$3,611.99
	D27	0.362		23.26	2.91	0.11	258	$1,716.73	$94.42	$1,811.15
	D total	**152.296**		**14481.18**	**1810.16**			**$2,307,724.86**	**$126,924.84**	**$2,434,649.70**
TOTAL		**192.021**		**16972.85**	**2121.62**			**$3,548,541.62**	**$195,169.79**	**$3,743,711.41**

10 RECOMMENDATIONS

The following recommendations are provided to avoid, minimise and/or mitigate potential direct and indirect impacts on native vegetation:

- Ensure the mitigation hierarchy outlined in Section 8 is understood and implemented;
- Avoid individual remnants of *Santalum spicatum* (Sandalwood) (SA: Vulnerable) where possible;
- Undertake micro-siting surveys to identify and locate threatened flora species, particularly *Santalum spicatum* (Sandalwood) (SA: Vulnerable), EPBC listed flora species, EPBC listed TECs and South Australian provisional threatened ecosystems (DEH in progress):
    - All EPBC listed flora species potentially occurring within the Project Area should be targeted during micro-siting surveys, which should focus on remnant patches over 10 ha within the distribution of each species (remnant patches less than 10 ha were thoroughly searched by EBS (2014) during targeted surveys in 2013); and
    - Micro-siting surveys should be undertaken by a suitably qualified ecological consultant at the most appropriate time of year for each species (EBS 2014).
- Where possible, relocate and/or micro-site the final location of specific project infrastructure (such as poles/towers, stringing pads, the stringing access corridor and spur tracks as outlined in Table 2) to avoid and/or minimise impacts to native vegetation, particularly EPBC listed TECs and flora species, as well as other threatened flora species detected during micro-siting surveys, South Australian provisional threatened ecosystems (DEH in progress), protected areas and Sites in better condition (i.e. Unit Biodiversity Score >60);
- Ensure the environmental management plan (Section 8.3.2) to be implemented during construction works, outlines specific actions and management measures to avoid, minimise and/or mitigate potential impacts on native vegetation and the environment in general (including but not limited to: clearing control measures; identification of protection areas and no go zones; drainage, erosion and sediment control measures; and weed control measures); and
- Establish on-ground SEB offsets as much as possible. Where this is not possible, or where not all SEB can be achieved on-ground, achieve the remaining SEB via payment into the Native Vegetation Fund.

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12 APPENDICES

Appendix 1. Summary of relevant Commonwealth and State legislation.

Legislation	Summary	Relevance
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999	The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the Act as matters of national environmental significance (MNES). The nine MNES to which the EPBC Act applies are: • World heritage properties; • National heritage places; • Wetlands of international importance (listed under the Ramsar Convention); • Listed threatened species and ecological communities; • Migratory species protected under international agreements; • Commonwealth marine areas; • The Great Barrier Reef Marine Park; • Nuclear actions (including uranium mines); and • A water resource, in relation to coal seam gas development and large coal mining development.	Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment. The Minister will decide whether assessment and approval is required under the EPBC Act. An action is defined broadly in the EPBC Act and includes: a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. The significant impact guidelines provide overarching guidance on determining whether an action is likely to have a significant impact on a matter of national environmental significance protected by the EPBC Act. The MNES relevant to the Project include: • Listed threatened species and ecological communities; and • Migratory species protected under international agreements. Also, of relevance is the protection of the environment, where actions proposed are on, or will affect Commonwealth land and the environment.
South Australia		
National Parks and Wildlife Act 1972	The *National Parks and Wildlife Act 1972* (NPW Act): • Allows for the protection of habitat and wildlife through the establishment of parks and reserves (both on land and in State waters); • Provides for the protection of native flora and fauna; • Identifies flora and fauna species considered to be of conservation significance (under Schedules 7, 8, and 9 of the Act); and • Provides for the use of approved wildlife through a system of permits allowing certain actions, i.e. keeping and selling (s.58), harvesting (s.60G), farming (s.60C), hunting (s.68A), releasing (s.55) and undertaking scientific research (s.53) on/of native fauna species, and for the taking of plants (s.49).	A person must not "take" a native plant, protected animal or the eggs of a protected animal without approval (s.48A). Significant penalties apply. To take a native plant means to remove the plant or part of the plant, from the place in which it is growing; or to damage the plant. To take a protected animal means to remove, hunt, catch, restrain, kill or injure an animal, or attempt to do so. A person may take non-prescribed plant species from private land with the consent of the owner; however, these species may also be covered under the *Native Vegetation Act 1991*. There are a number of non-complying activities in parks and reserves that result in penalty (parts 4-6).
Native Vegetation Act 1991	The *Native Vegetation Act 1991* (NV Act) provides protection for native vegetation in South Australia and sets out a process for applying to clear vegetation. The *Native Vegetation Regulations 2017* allow certain clearance activities to be exempt from the Act.	Approval is required for the clearance of native vegetation. Clearance activities include but are not limited to: • The killing, destruction or removal of whole plants;

	The *Native Vegetation (Credit for Environmental Benefits) Regulations 2015* relate to Credit and Third Party SEB Offsets and the SEB Register. This NV Act applies on public and private land throughout South Australia, with the exception of some areas of metropolitan Adelaide. Native vegetation refers to any naturally occurring local plant species that is indigenous to South Australia, from small ground covers and native grasses to large trees and water plants. It also includes naturally occurring regrowth and in certain circumstances, dead trees. In some circumstances, the management of native vegetation is protected by legislation. The Native Vegetation Council (NVC) is responsible for providing advice and making decisions about the removal and re-establishment of native vegetation in line with the Act. The NVC will take into account the impacts of the proposed clearance and may grant consent, refuse consent or grant consent subject to certain conditions. Applications will usually be denied when the vegetation is considered an 'intact stratum', meaning it has not been seriously degraded by human activity within the last 20 years. A net environment benefit is generally conditional on an approval being granted.	• The removal of branches, limbs, stems or trunks (including brushcutting and woodcutting); • The burning, poisoning and slashing of native vegetation; • Any other substantial damage to native vegetation including activities such as drainage for reclamation of wetlands or flooding of land; and • Grazing by animals (in some circumstances). When assessing an application to clear native vegetation, the NVC must consider the principles of clearance as set out in the Act, except where the vegetation has been considered exempt under the *Native Vegetation Regulations 2017*. Significant penalties apply if a person clears native vegetation without consent. The NVC can also take civil enforcement proceedings in the District Court for an order that the native vegetation be re-instated. The Act also provides the opportunity for landholders to enter into voluntary "Heritage Agreement(s)" to ensure vegetation on private land is protected for perpetuity.
Natural Resources Management Act 2004	The *Natural Resources Management Act 2004* (NRM Act) promotes and facilitates integrated and sustainable management of all natural resources (water, soil, biodiversity, etc.), and provides for arrangements to involve the community in the development and implementation of regional initiatives to improve the management of the natural resources. Key components of the Act include: • The establishment of regional Natural Resource Management (NRM) Boards and development of regional NRM Plans; • The ability to control water use through prescription, allocations and restrictions; and • Requirement to control pest plants and animals, and activities that might result in land degradation. Section 188(5) of the Act requires that the NRM Board must take into account any relevant provision of the regional NRM plan. The NRM Board may appoint authorised officers to administer and enforce the Act. Authorised officers possess powers of entry, powers to give directions, powers to collect evidence and seize and remove animals and plants. An authorised officer may issue a protection order for the purpose of securing compliance with specified provisions of the Act.	A 'duty of care' is a fundamental component of this Act, i.e. ensuring one's environmental and civil obligation by taking reasonable steps to prevent land and water degradation. Persons can be prosecuted if they are considered negligent in meeting their obligations. An owner of land who is, or is likely to be, in breach of the general statutory duty under the Act resulting or likely to result in land degradation may be required to prepare an action plan. Failure to comply with a notice requiring preparation of an action plan is an offence. An NRM authority or a State authorised officer may issue a reparation order in certain circumstances where a person has caused harm to a natural resource and repair is necessary. Enforcement action in the Environment, Resources and Development Court can be taken if necessary.

Note: this summary is not intended to be a substitute for particular legal advice and does not address the legal implications of every set of circumstances.

Appendix 2. Flora species observed within the Project Area during the 2019 native vegetation assessment.

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Acacia acanthoclada ssp. acanthoclada	Harrow Wattle		
	Acacia ancistrophylla var. lissophylla	Hook-leaf Wattle		
	Acacia burkittii	Pin-bush Wattle		
	Acacia calamifolia	Wallowa		
	Acacia continua	Thorn Wattle		
	Acacia dodonaeifolia	Hop-bush Wattle		R
	Acacia gillii	Gill's Wattle		
	Acacia halliana	Hall's Wattle		
	Acacia hexaneura	Six-nerve Spine-bush		R
	Acacia imbricata	Feathery Wattle		R
	Acacia ligulata	Umbrella Bush		
	Acacia notabilis	Notable Wattle		
	Acacia nyssophylla	Spine Bush		
	Acacia oswaldii	Umbrella Wattle		
	Acacia papyrocarpa	Western Myall		
	Acacia paradoxa	Kangaroo Thorn		
	Acacia pycnantha	Golden Wattle		
	Acacia rigens	Nealie		
	Acacia rupicola	Rock Wattle		
E	*Acacia saligna*	Golden Wreath Wattle		
	Acacia sclerophylla var. sclerophylla	Hard-leaf Wattle		
	Acacia sericophylla	Wirewood		
	Acacia sp.	Wattle		
	Acacia spinescens	Spiny Wattle		
	Acacia verticillata ssp. ovoidea	Prickly Moses		
	Acacia wilhelmiana	Dwarf Nealie		
	Acaena echinata	Sheep's Burr		
	Acrotriche patula	Prickly Ground-berry		
	Alectryon oleifolius ssp. canescens	Bullock Bush		
	Allocasuarina muelleriana ssp.	Common Oak-bush		
	Allocasuarina verticillata	Drooping Sheoak		
	Alyxia buxifolia	Sea Box		
	Amyema quandang var. quandang	Grey Mistletoe		
	Anacampseros australiana	Australian Anacampseros		
*	*Anagallis sp.*			
	Aotus subspinescens	Mallee Aotus		
E	*Arctotheca calendula*	Cape Weed		
D, WoNS	*Asparagus asparagoides f.*	Bridal Creeper		
D, WoNS	*Asparagus declinatus*			
E	*Asphodelus fistulosus*	Onion Weed		
	Atriplex semibaccata	Berry Saltbush		
	Atriplex stipitata	Bitter Saltbush		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Atriplex vesicaria	Bladder Saltbush		
	Austrostipa elegantissima	Feather Spear-grass		
	Austrostipa nitida	Balcarra Spear-grass		
	Austrostipa sp.	Spear-grass		
E	*Avena barbata*	Bearded Oat		
	Baeckea crassifolia	Desert Baeckea		
	Beyeria lechenaultii	Pale Turpentine Bush		
	Boronia coerulescens ssp. coerulescens	Blue Boronia		
	Brachyscome ciliaris var.	Variable Daisy		
E	*Brassica tournefortii*	Wild Turnip		
*	*Briza maxima*	Large Quaking-grass		
*	*Bromus diandrus*	Great Brome		
*	*Bromus rubens*	Red Brome		
	Bulbine bulbosa	Bulbine-lily		
	Bursaria spinosa	Bursaria		
	Caladenia aurulenta			
	Calandrinia eremaea	Dryland Purslane		
	Callistemon rugulosus	Scarlet Bottlebrush		
	Callitris gracilis	Southern Cypress Pine		
	Callitris verrucosa	Scrub Cypress Pine		
	Calytrix involucrata	Cup Fringe-myrtle		
	Calytrix tetragona	Common Fringe-myrtle		
	Carex tereticaulis	Rush Sedge		
E	*Carrichtera annua*	Ward's Weed		
E	*Carthamus lanatus*	Saffron Thistle		
	Cassytha melantha	Coarse Dodder-laurel		
	Cassytha sp.	Dodder-laurel		
	Casuarina pauper	Black Oak		
*	*Cerastium glomeratum*	Common Mouse-ear Chickweed		
	Chamaescilla corymbosa var. corymbosa	Blue Squill		
	Cheilanthes austrotenuifolia	Annual Rock-fern		
	Cheilanthes lasiophylla	Woolly Cloak-fern		
	Cheilanthes sp.	Rock-fern		
	Cheiranthera alternifolia	Hand-flower		
	Chenopodium curvispicatum	Cottony Goosefoot		
	Chenopodium desertorum ssp.	Desert Goosefoot		
	Chrysocephalum apiculatum	Common Everlasting		
	Clematis microphylla	Old Man's Beard		
	Comesperma volubile	Love Creeper		
	Convolvulus sp.	Bindweed		
	Correa reflexa var.			
	Craspedia variabilis	Billy-buttons		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Cratystylis conocephala	Bluebush Daisy		
	Cryptandra sp. Floriferous (W.R.Barker 4131)	Pretty Cryptandra		
	Cryptandra tomentosa	Heath Cryptandra		
	Cyperus sp.	Flat-sedge		
	Dampiera rosmarinifolia	Rosemary Dampiera		
	Daviesia benthamii ssp. humilis	Mallee Bitter-pea		
	Daviesia brevifolia	Leafless Bitter-pea		
	Daviesia pectinata	Zig-zag Bitter-pea		R
	Daviesia ulicifolia	Gorse Bitter-pea		
	Dianella revoluta var. revoluta	Black-anther Flax-lily		
	Disphyma crassifolium ssp. clavellatum	Round-leaf Pigface		
	Distichlis distichophylla	Emu-grass		
	Dodonaea bursariifolia	Small Hop-bush		
	Dodonaea hexandra	Horned Hop-bush		
	Dodonaea lobulata	Lobed-leaf Hop-bush		
	Dodonaea stenozyga	Desert Hop-bush		
	Dodonaea viscosa ssp. angustissima	Narrow-leaf Hop-bush		
	Drosera peltata s.str.	Swamp Sundew		
D	*Echium plantagineum*	Salvation Jane		
E	*Ehrharta calycina*	Perennial Veldt Grass		
E	*Ehrharta longiflora*	Annual Veldt Grass		
	Einadia nutans	Climbing Saltbush		
	Enchylaena tomentosa	Ruby Saltbush		
	Enneapogon nigricans	Black-head Grass		
	Epacridaceae sp.	Heath Family		
	Eremophila alternifolia	Narrow-leaf Emubush		
	Eremophila behriana	Rough Emubush		
	Eremophila crassifolia	Thick-leaf Emubush		
	Eremophila gibbifolia	Coccid Emubush		R
	Eremophila glabra ssp. glabra	Tar Bush		
	Eremophila oppositifolia ssp. oppositifolia	Opposite-leaved Emubush		
	Eremophila scoparia	Broom Emubush		
*	*Erodium moschatum*	Musky Herons-bill		
	Erodium sp.	Heron's-bill/Crowfoot		
	Eucalyptus brachycalyx	Gilja		
	Eucalyptus calycogona	Square-fruit Mallee		
	Eucalyptus camaldulensis ssp. camaldulensis	River Red Gum		
	Eucalyptus cladocalyx ssp. cladocalyx	Sugar Gum		
	Eucalyptus diversifolia ssp. diversifolia	Coastal White Mallee		
	Eucalyptus gracilis	Yorrell		
	Eucalyptus incrassata	Ridge-fruited Mallee		
	Eucalyptus intertexta	Gum-barked Coolibah		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Eucalyptus leptophylla	Narrow-leaf Red Mallee		
	Eucalyptus odorata	Peppermint Box		
	Eucalyptus oleosa	Red Mallee		
	Eucalyptus peninsularis	Merrit		
	Eucalyptus petiolaris	Eyre Peninsula Blue Gum		
	Eucalyptus phenax ssp. phenax	White Mallee		
	Eucalyptus pileata	Capped Mallee		
	Eucalyptus porosa	Mallee Box		
	Eucalyptus socialis ssp. socialis	Beaked Red Mallee		
	Eucalyptus socialis ssp. viridans	Beaked Red Mallee		
	Eucalyptus viminalis ssp. cygnetensis	Rough-bark Manna Gum		
	Euphorbia drummondii group			
*	*Euphorbia peplus*	Petty Spurge		
D	*Euphorbia terracina*	False Caper		
	Eutaxia microphylla	Common Eutaxia		
	Exocarpos aphyllus	Leafless Cherry		
	Ficinia nodosa	Knobby Club-rush		
E	*Freesia cultivar*	Freesia		
	Gahnia deusta	Limestone Saw-sedge		
	Gahnia filum	Thatching Grass		
	Gahnia lanigera	Black Grass Saw-sedge		
E	*Galenia pubescens var. pubescens*	Coastal Galenia		
	Geijera linearifolia	Sheep Bush		
	Geranium potentilloides var. potentilloides	Downy Geranium		
	Geranium sp.	Geranium		
	Glischrocaryon behrii	Golden Pennants		
	Gonocarpus elatus	Hill Raspwort		
	Gonocarpus mezianus	Broad-leaf Raspwort		
	Gonocarpus sp.	Raspwort		
	Goodenia benthamiana	Bentham's Goodenia		R
	Goodenia cycloptera	Serrated Goodenia		
	Goodenia ovata	Hop Goodenia		
	Goodenia willisiana	Silver Goodenia		
	Grevillea aspera	Rough Grevillea		
	Grevillea huegelii	Comb Grevillea		
	Grevillea ilicifolia complex	Holly-leaf Grevillea		
	Grevillea juncifolia ssp. juncifolia	Honeysuckle Grevillea		
	Hakea cycloptera	Elm-seed Hakea		
	Hakea francisiana	Bottlebrush Hakea		
	Hakea leucoptera ssp. leucoptera	Silver Needlewood		
	Hakea rugosa	Dwarf Hakea		
	Hakea sp.	Hakea/Needlewood		
	Halgania cyanea	Rough Blue-flower		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Helichrysum leucopsideum	Satin Everlasting		
	Hibbertia devitata	Smooth Guinea-flower		
	Hibbertia riparia	Bristly Guinea-flower		
	Hibbertia sericea	Silky Guinea-flower		
	Hibbertia virgata	Twiggy Guinea-flower		
*	*Holcus lanatus*	Yorkshire Fog		
*	*Hordeum leporinum*	Wall Barley-grass		
	Hovea sp.	Hovea		
	Hyalosperma glutinosum ssp. glutinosum	Golden Sunray		
*	*Hypochaeris radicata*	Rough Cat's Ear		
	Hypoxis glabella	Yellow Star-lily		
	Hysterobaeckea behrii	Silver Broombush		
D	*Juncus acutus*	Sharp Rush		
	Juncus kraussii	Sea Rush		
	Juncus pallidus	Pale Rush		
*	*Lagurus ovatus*	Hare's Tail Grass		
	Lasiopetalum behrii	Pink Velvet-bush		
*	*Lepidium africanum*	Common Peppercress		
	Lepidosperma carphoides	Black Rapier-sedge		
	Lepidosperma sp.	Sword-sedge/Rapier-sedge		
	Lepidosperma viscidum	Sticky Sword-sedge		
	Leptorhynchos sp.	Buttons		
	Leptorhynchos squamatus ssp. squamatus	Scaly Buttons		
	Leptospermum coriaceum	Dune Tea-tree		
	Leucopogon cordifolius	Heart-leaf Beard-heath		
	Limonium lobatum	Winged Sea-lavender		
*	*Limonium sinuatum*	Notch-leaf Sea-lavender		
	Lissanthe strigosa ssp. subulata	Peach Heath		
E	*Lolium sp.*	Ryegrass		
	Lomandra collina	Sand Mat-rush		
	Lomandra effusa	Scented Mat-rush		
	Lomandra leucocephala ssp. robusta	Woolly Mat-rush		
	Lomandra micrantha	Small-flower Mat-rush		
	Lycium australe	Australian Boxthorn		
D, WoNS	*Lycium ferocissimum*	African Boxthorn		
	Lysiana exocarpi ssp. exocarpi	Harlequin Mistletoe		
	Maireana brevifolia	Short-leaf Bluebush		
	Maireana erioclada	Rosy Bluebush		
	Maireana excavata	Bottle Fissure-plant		V
	Maireana pentatropis	Erect Mallee Bluebush		
	Maireana pyramidata	Black Bluebush		
	Maireana sedifolia	Bluebush		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Maireana turbinata	Top-fruit Bluebush		
E	*Malva parviflora*	Small-flower Marshmallow		
*	*Malva sp.*	Mallow		
D	*Marrubium vulgare*	Horehound		
*	*Medicago polymorpha*	Burr-medic		
	Medicago polymorpha var. polymorpha	Burr-medic		
	Melaleuca acuminata ssp. acuminata	Mallee Honey-myrtle		
	Melaleuca decussata	Totem-poles		
	Melaleuca halmaturorum	Swamp Paper-bark		
	Melaleuca lanceolata	Dryland Tea-tree		
	Melaleuca uncinata	Broombush		
E	*Mesembryanthemum crystallinum*	Common Iceplant		
*	*Mesembryanthemum nodiflorum*	Slender Iceplant		
	Microcybe pauciflora ssp. pauciflora	Yellow Microcybe		
	Microseris lanceolata	Yam Daisy		
	Microtis sp.	Onion-orchid		
	Minuria cunninghamii	Bush Minuria		
*	*Moraea setifolia*	Thread Iris		
	Myoporum platycarpum	False Sandalwood		
*	*Olea europaea*	Olive		
	Olearia adenolasia	Musk Daisy-bush		R
	Olearia lepidophylla	Clubmoss Daisy-bush		
	Olearia muelleri	Mueller's Daisy-bush		
	Olearia pimeleoides	Pimelea Daisy-bush		
	Olearia ramulosa	Twiggy Daisy-bush		
	Opercularia turpis	Twiggy Stinkweed		
	Oxalis perennans	Native Sorrel		
*	*Oxalis pes-caprae*	Soursob		
*	*Papaver hybridum*	Rough Poppy		
	Pauridia glabella var. glabella	Tiny Star		
E	*Phalaris aquatica*	Phalaris		
	Phebalium bullatum	Silvery Phebalium		
	Pimelea glauca	Smooth Riceflower		
	Pimelea octophylla	Woolly Riceflower		
	Pimelea sp.	Riceflower		
	Pimelea stricta	Erect Riceflower		
	Pittosporum angustifolium	Native Apricot		
*	*Pittosporum crassifolium*			
	Pomaderris paniculosa ssp. paniculosa	Mallee Pomaderris		
	Prostanthera florifera	Gawler Ranges Mintbush		
	Prostanthera serpyllifolia ssp. microphylla	Small-leaf Mintbush		
	Prostanthera serpyllifolia ssp. serpyllifolia	Thyme Mintbush		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
	Prostanthera sp.	Mintbush		
	Prostanthera spinosa	Spiny Mintbush		
	Pterostylis plumosa	Bearded Greenhood		
	Ptilotus obovatus	Silver Mulla Mulla		
	Ptilotus spathulatus	Pussy-tails		
	Pultenaea pedunculata	Matted Bush-pea		
	Pultenaea teretifolia var.	Terete-leaf Bush-pea		
	Rhagodia candolleana	Sea-berry Saltbush		
	Rhagodia crassifolia	Fleshy Saltbush		
	Rhagodia parabolica	Mealy Saltbush		
	Rhagodia spinescens	Spiny Saltbush		
	Rhagodia ulicina	Intricate Saltbush		
	Rhodanthe floribunda	White Everlasting		
	Rinzia orientalis	Desert Heath-myrtle		
	Roepera ammophila	Sand Twinleaf		
	Roepera apiculata	Pointed Twinleaf		
	Roepera crenata	Notched Twinleaf		
	Roepera eremaea			
	Roepera sp.	Twinleaf		
E	*Romulea rosea var. australis*	Common Onion-grass		
D	*Rosa canina*	Dog Rose		
D, WoNS	*Rubus fruticosuc aggregate*	Blackberry		
	Rytidosperma caespitosum	Common Wallaby-grass		
	Rytidosperma sp.	Wallaby-grass		
E	*Salvia verbenaca*	Wild Sage		
	Santalum acuminatum	Quandong		
	Santalum spicatum	Sandalwood		V
E	*Scabiosa atropurpurea*	Pincushion		
	Scaevola linearis	Rough Fanflower		
	Scaevola sp.	Fanflower		
	Scaevola spinescens	Spiny Fanflower		
	Sclerolaena diacantha	Grey Bindyi		
	Sclerolaena obliquicuspis	Oblique-spined Bindyi		
	Senecio glossanthus	Annual Groundsel		
E	*Senecio pterophorus*	African Daisy		
	Senecio quadridentatus	Cotton Groundsel		
	Senna artemisioides ssp. artemisioides	Silver Senna		
	Senna artemisioides ssp. coriacea	Broad-leaf Desert Senna		
	Senna artemisioides ssp. petiolaris			
	Senna cardiosperma ssp. gawlerensis	Gawler Ranges Senna		
	Sida corrugata	Corrugated Sida		
	Sida petrophila	Rock Sida		
	Solanum petrophilum	Rock Nightshade		
	Solanum quadriloculatum	Plains Nightshade		

*	Scientific name	Common name	Conservation status[1]	
			Aus	SA
E	*Sonchus oleraceus*	Common Sow-thistle		
	Spyridium sp.	Spyridium		
	Stackhousia monogyna	Creamy Candles		
	Stenanthemum leucophractum	White Cryptandra		
	Stenanthera conostephioides	Flame Heath		
	Suaeda australis	Austral Seablite		
	Tecticornia sp.	Samphire		
	Templetonia egena	Broombush Templetonia		
	Templetonia retusa	Cockies Tongue		
	Tetragonia eremaea	Desert Spinach		
	Tetragonia implexicoma	Bower Spinach		
	Tetragonia sp.	False Spinach		
	Thelymitra nuda			
	Thelymitra rubra	Salmon Sun-orchid		
	Thelymitra sp.	Sun-orchid		
	Themeda triandra	Kangaroo Grass		
	Threlkeldia diffusa	Coast Bonefruit		
	Thryptomene micrantha	Ribbed Thryptomene		
	Thysanotus patersonii	Twining Fringe-lily		
	Trachymene ornata	Cotton-ball Trachymene		
*	*Trifolium arvense var. arvense*	Hare's-foot Clover		
*	*Trifolium campestre*	Hop Clover		
*	*Trifolium sp.*	Clover		
*	*Trifolium subterraneum*	Subterranean Clover		
	Triodia irritans	Spinifex		
	Triodia scariosa	Spinifex		
E	*Vicia sativa*	Common Vetch		
	Vittadinia cuneata	Fuzzy New Holland Daisy		
	Vittadinia gracilis	Woolly New Holland Daisy		
	Wahlenbergia gracilenta	Annual Bluebell		
	Wahlenbergia stricta	Tall Bluebell		
	Westringia rigida	Stiff Westringia		
	Xanthorrhoea semiplana ssp. semiplana	Yacca		

1. Aus: Australia (EPBC Act). SA: South Australia (NPW Act). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare. *: Introduced. D: Declared (NRM Act). WoNS: Weed of National Significance. E: Environmental Weed.

Appendix 3. Fauna species observed within the Project Area during the 2019 native vegetation assessment.

*	Scientific Name	Common Name	Conservation status[1]		Total	Total sites
			Aus	SA		
	AVES	**Birds**				
	Acanthagenys rufogularis	Spiny-cheeked Honeyeater			41	18
	Acanthiza apicalis	Inland Thornbill			39	11
	Acanthiza chrysorrhoa	Yellow-rumped Thornbill			33	10
	*Alauda arvensis**	Eurasian Songlark			9	4
	Anthochaera carunculata woodwardi	Red Wattlebird			48	19
	Anthochaera chrysoptera	Little Wattlebird			2	1
	Corvus mellori	Little Raven			34	10
	Corvus sp.	crow sp.			25	11
	Cracticus torquatus	Grey Butcherbird			9	7
	Eolophus roseicapilla	Galah			78	18
	Falco berigora	Brown Falcon			5	4
	Gavicalis virescens	Singing Honeyeater			44	26
	Gymnorhina tibicen	Australian Magpie			17	10
	Malurus cyaneus	Superb Fairywren			49	15
	Manorina flavigula	Yellow-throated Miner			20	9
	Megalurus cruralis	Brown Songlark			5	4
	Melithreptus brevirostris	Brown-headed Honeyeater			4	1
	Ocyphaps lophotes	Crested Pigeon			5	4
	Leipoa ocellata	Malleefowl	V	E	Track	Oppor-tune
	Pachycephala rufiventris	Rufous Whistler			13	12
	Pardalotus punctatus	Spotted Pardalote			16	8
	Pardalotus striatus	Striated Pardalote			31	15
	Phylidonyris novaehollandiae	New Holland Honeyeater			43	14
	Rhipidura albiscapa	Grey Fantail			5	4
	Rhipidura leucophrys	Willie Wagtail			22	18
	Smircornis brevirostris	Weebill			62	20
	Stagonopleura guttata	Diamond Firetail		V	7	3
	*Sturnus vulgaris**	Common Starling			80	18
	Trichoglossus haematodus	Rainbow Lorikeet			34	9
	Zosterops lateralis	Silvereye			21	7
	Colluricincla harmonica	Grey Shrikethrush			14	10
	Falco longipennis	Australian Hobby			1	1
	*Passer domesticus**	House Sparrow			14	4
	Pomatostomus superciliosus	White-browed Babbler			22	6
	Barnardius zonarius zonarius	Port Lincoln Parrot			37	16
	Hirundo neoxena	Welcome Swallow			3	1
	Sericornis frontalis mellori	White-browed Scrubwren			7	3
	Phaps chalcoptera	Common Bronzewing			5	5

	Cacomantis pallidus	Pallid Cuckoo			1	1
	Grallina cyanoleuca	Magpielark			4	2
	Accipiter fasciatus	Brown Goshawk			2	2
	Aquila audax	Wedge-tailed Eagle			5	4
	Anthus australis	Australian Pipit			5	3
	Artamus cyanopterus	Dusky Woodswallow			12	6
	Corvus coronoides	Australian Raven			10	6
	Psephotellus varius	Mulga Parrot			10	5
	Epthianura albifrons	White-fronted Chat			7	2
	Dromaius novaehollandiae	Emu			11	7
	Oreoica gutturalis	Crested Bellbird			9	7
	Eopsaltria griseogularis	Western Yellow Robin			4	3
	Nesoptilotis leucotis	White-eared Honeyeater			16	7
	Malurus leucopterus	White-winged Fairywren			16	7
	Artamus cinereus	Black-faced Woodswallow			16	6
	Artamus personatus	Masked Woodswallow			18	2
	Malurus lamberti	Variegated Fairywren			11	5
	Chalcites basalis	Horsfield's Bronze Cuckoo			11	10
	Purnella albifrons	White-fronted Honeyeater			15	5
	Certhionyx variegatus	Pied Honeyeater			2	1
	Dacelo novaeguineae	Laughing Kookaburra			1	1
	Chroicocephalus novaehollandiae	Silver Gull			1	1
	*Turdus merula**	Common Blackbird			7	5
	Falco cenchroides	Nankeen Kestrel			2	2
	Glossopsitta concinna	Musk Lorikeet			20	5
	Gerygone fusca	Western Gerygone		R	2	2
	Coracina novaehollandiae	Black-faced Cuckooshrike			2	1
	Strepera versicolor intermedia	Brown Currawong			9	9
	Corcorax melanorhamphos	Whtie-winged Chough		R	4	1
	Egretta novaehollandiae	White-faced Heron			5	3
	Anas superciliosa	Pacific Black Duck			4	1
	Megalurus gramineus	Little Grassbird			2	1
	Acanthiza pusilla	Brown Thornbill			2	1
	Petrochelidon nigricans	Tree Martin			6	3
	Parvipsitta porphyrocephala	Purple-crowned Lorikeet			4	1
	Malurus splendens	Splendid Fairywren			5	2
	Petroica goodenovii	Red-capped Robin			3	2
	Climacteris rufus	Rufous Treecreeper			1	1
	Ptilotula ornata	Yellow-plumed Honeyeater			1	1
	Aphelocephala leucopsis	Southern Whiteface			21	5
	Acanthiza iredalei iredalei	Slender-billed Thornbill (western)		R	1	1
	Chalcites osculans	Black-eared Cuckoo			1	1
	Dicaeum hirundinaceum	Mistletoebird			1	1

	MAMMALIA	**Mammals**				
	Macropus fuliginosus	Western Grey Kangaroo			23	10
*	*Oryctolagus cuniculus**	Rabbit (European Rabbit)			3	2
	Macropus rufus	Red Kangaroo			4	3
*	*Vulpes vulpes**	Red Fox			3	3
*	*Capra hircus*	Feral Goat			2	1
	REPTILIA	**Reptiles**				
	Lialis burtonis	Burton's Snake-lizard			2	1
	Tiliqua rugosa	Sleepy Lizard			3	3
	Ctenophorus fordi	Mallee Dragon			4	2
	Ctenophorus fionni	Peninsula Dragon			1	1
	Varanus gouldii	Sand Goanna			1	1

1. **Aus: Australia (EPBC Act). SA: South Australia (NPW Act). CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare. *: Introduced.**

13 ATTACHMENTS

Attachment 1 – Property List.

Attachment 2 – EBS Ecology (EBS) (2014) Eyre Peninsula Transmission Line – Biodiversity Assessment Report. Report to ElectraNet. EBS Ecology, Adelaide.

Attachment 3 – Flora and Fauna BDBSA Records.

Attachment 4 – Photo File.

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