



Native Vegetation Clearance

Yoorndoo Ilga Solar Project – BDAC

Data Report

Clearance under the *Native Vegetation Regulations 2017*

23/11/2022

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1. Application information

1.1. Application details

Applicant:	EPS Energy		
Key contact:	[REDACTED]		
Landowner:	Barngarla Determination Aboriginal Corporation (BDAC)		
Site Address:	Lincoln Highway & Port Bonython Road, Whyalla Barson		
Local Government Area:	Whyalla City Council	Hundred:	Cultana (560300)

1.2. Summary of proposed clearance

Purpose of clearance	<p>Clearance is required to build an integrated grid connected 300 MWac Solar PV facility with a battery of up to 150MW/600 MWh capacity. These works will supply the state and nation with renewable energy.</p> <p>Note that preliminary clearance is only required to build a Battery Energy Storage Systems (BESS), with an access road from Point Lowly Road and cable run to the substation in the adjacent property.</p>
Native Vegetation Regulation	Regulation 12, Schedule 1, clause 34, Infrastructure
Description of the vegetation under application	<p>This application includes four vegetation communities within the BDAC property boundaries:</p> <p><u>VA 1:</u> <i>Acacia papyrocarpa</i> Open Woodland with Chenopod Understorey</p> <p><u>VA 2:</u> <i>Casuarina pauper</i> Woodland with Chenopod Understorey</p> <p><u>VA 3:</u> Inland Chenopod Shrubland with emergent <i>Acacia papyrocarpa</i></p> <p><u>VA 4:</u> Coastal Chenopod Shrubland</p>
Total proposed clearance - area (ha) and number of trees	<p>The proposed clearance of the full project with the current design is expected to be 609.10 ha in the 665 ha site.</p> <p>VA1 = 285.66 ha VA2 = 84.02 ha VA3 = 100.45 ha VA4 = 138.97 ha</p> <p>However, the preliminary impacts are only expected to be 9.854 ha clearance in 665 ha</p> <p>VA1 = 8.916 ha VA2 = 0.209 ha VA3 = 0.729 ha</p>
Level of clearance	Level 4
Overlay (Planning and Design Code)	N/A

Mitigation hierarchy	<p>In order to avoid and then minimize impacts on native vegetation:</p> <ul style="list-style-type: none"> • A buffer of 20 m will remain intact around the perimeter of the BDAC site, north and south. • Rolling will be used where possible to support a rapid recovery process. • Strips of vegetation will be left un-cleared between panels where practicable. • access roads have been kept at the minimum width required and placed in the most direct route.
SEB Offset proposal	A payment into the fund of \$4,149,251.86

2. Purpose of clearance

2.1. Description

The Yoorndoo Ilga Solar Project (YISP) is still in the design and approval phase. At this stage it is likely to be an integrated grid connected 300MWac Solar PV facility with a battery of up to 150MW/600MWh capacity (Figure 1). The Project infrastructure will be situated on 665 ha of land east of Lincoln Highway, with transmission lines connecting the project to the Cultana Substation crossing Crown Land controlled by the Department of Defence known as the Cultana Training Area (CUTA). The land to the east of the Lincoln Highway is situated in the Barngarla Native Title determination area and the Local Government Area of the City of Whyalla (Yoorndoo Ilga Solar 2021). EPS Energy, on behalf of Yoorndoo Ilga Solar, has worked with key stakeholders including the Barngarla Determination Aboriginal Corporation (BDAC). An agreement to Lease between YIS and BDAC has been established to undertake the Project.

The first stage of the project will be the development of a Battery Energy Storage System (BESS), access road and cable run, accounting for 9.854 ha of the total clearance. Clearance on the CUTA property is included in a separate application.

2.2. Background

The BDAC property is an area of retired pastoral land and remnant woodlands on the corner of Lincoln Highway and Port Bonython Road. No further development is planned for this area, however there are 2 separate solar farms that have received clearance approval in the Whyalla council area.

The proportion of remnant native vegetation within a 5 km radius of the site is very high, between 85-99%. The Whyalla Conservation Park is directed west of the site, on the opposite side of Lincoln Highway. The next closest conservation park on the Eyre Peninsula is Ironstone Hill, 50 km south-west of the site.

2.3. General location map

The BDAC property occurs on the north-west corner of Lincoln Highway & Port Bonython Road, approximately 10 km north of the township of Whyalla (Figure 1). The site is located within the Whyalla City Council. A map of the clearance area is shown in Figure 2.

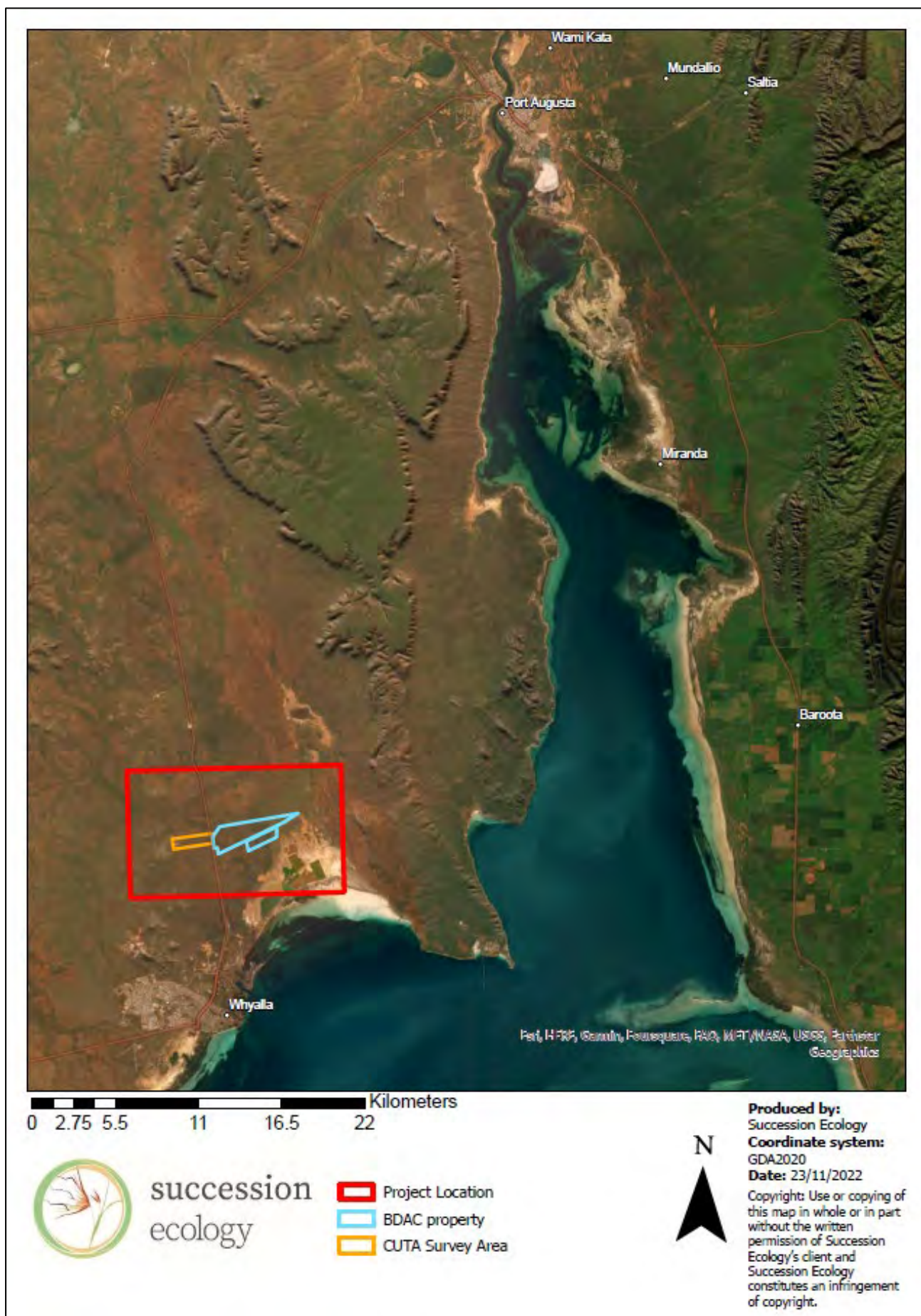


Figure 1: General location map of Yoorndoo Ilga Solar Project (YISP).

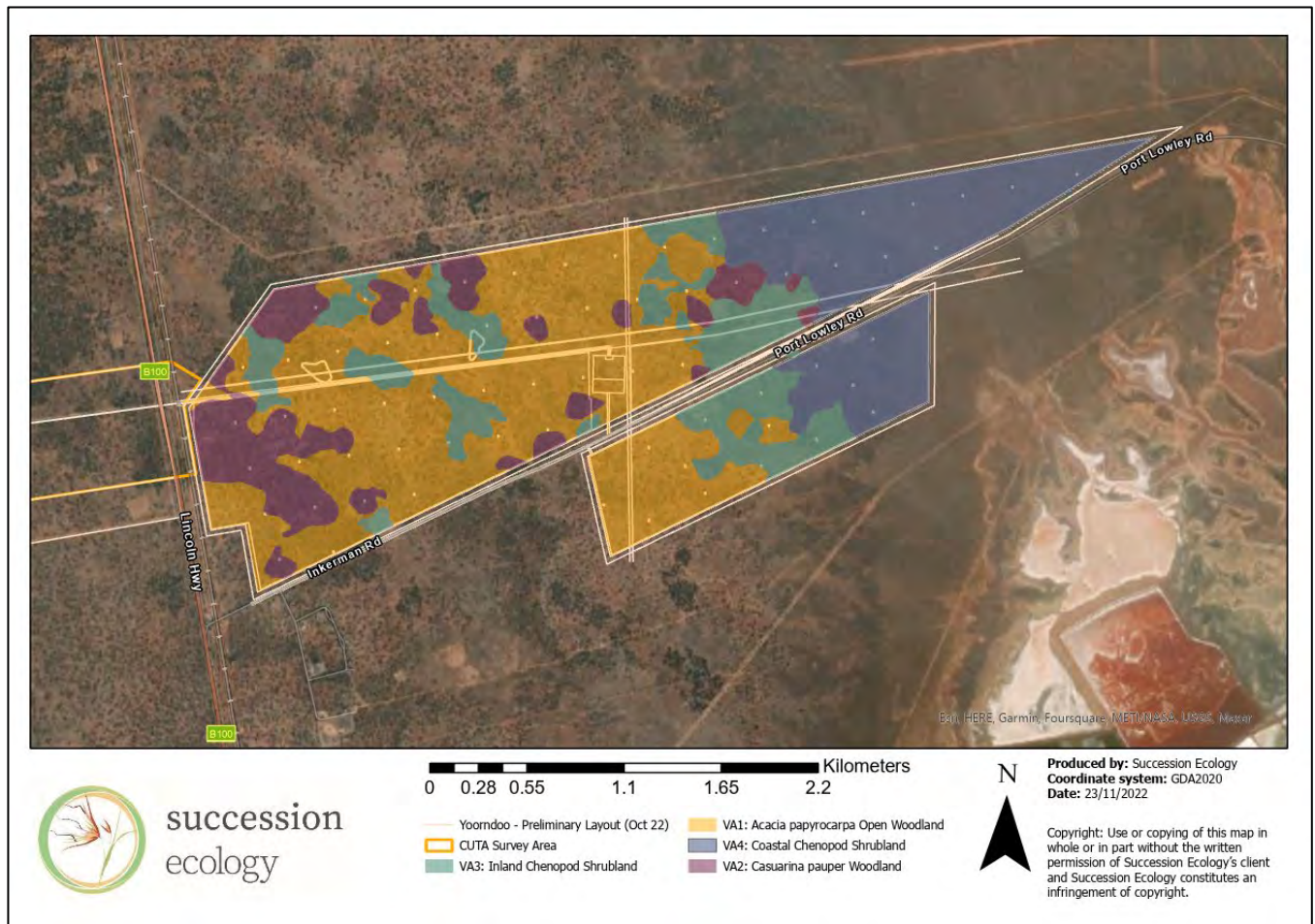


Figure 2: Clearance area of the YISP within the BDAC property, with vegetation community distributions.

2.4. Details of the proposal

A 609.1 ha area of native vegetation on the BDAC site will be cleared for the construction of the Yoorndoo Ilga Solar Project. Where possible this clearing will be conducted using methods that allow regeneration of the vegetation that is being cleared and preserves the biological soil crust. The final method and design for clearing is yet to be confirmed.

2.5. Design

The project design is provided in Figures 3 and 4.

2.6. Approvals required or obtained

Other approvals for this project include:

- 1) EPBC Act 1999 referral
- 2) Development approval
- 3) Crown Land Sponsorship

2.7. Native vegetation regulation

The proposed clearance will be assessed under Regulation 12, Schedule 1, clause 34, Infrastructure.

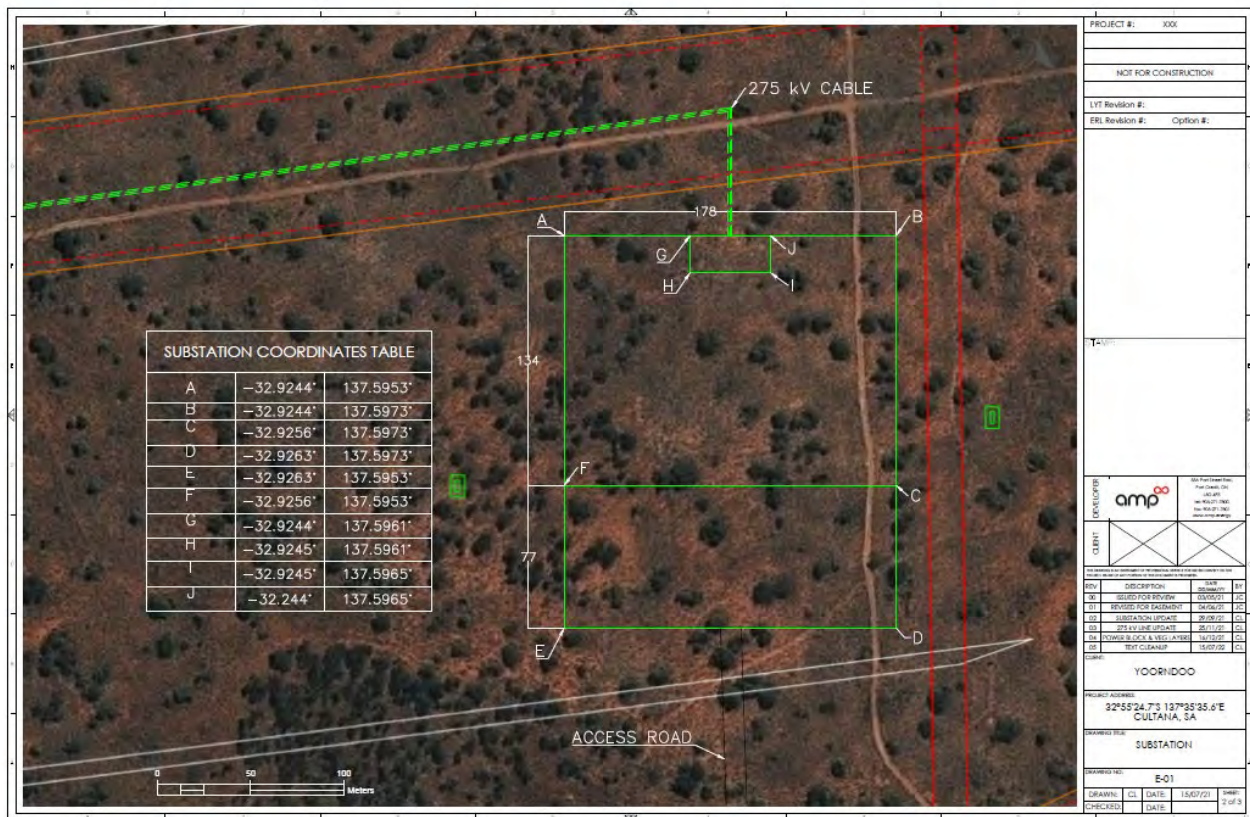


Figure 3: Design for BESS on BDAC property.

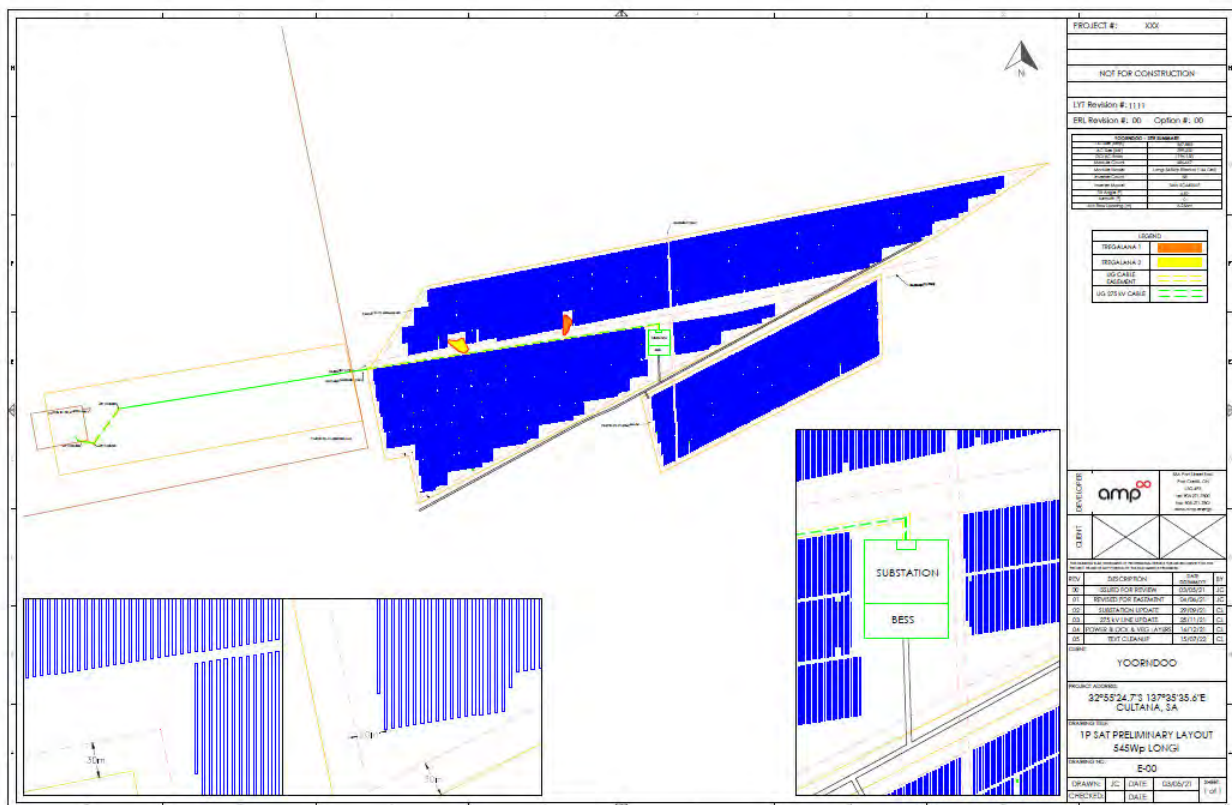


Figure 4: Broader designs for the Yoorndoo Ilga Solar project, including first phase infrastructure (Substation, BESS, Cable run and access road) as well as potential solar panel layout (clearance for solar panel construction not including in this application).

3. Method

3.1. Flora assessment

3.1.1. Desktop assessment

A Desktop Assessment was used to determine the range of flora species that are likely to occur in the area (5 km buffer) and determine whether any threatened flora or threatened ecological communities may be present. Search tools included:

- [A Protected Matters Search](#) to identify matters of national significance under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*, including threatened species and ecological communities.
- [A Biological Database of South Australia \(BDBSA\) search](#) using NatureMaps and Atlas of Living Australia (ALA) to determine flora species recorded within 5 km radius of the site and species listed under the *National Parks and Wildlife (NPW) Act 1972*.
- [DEH \(in progress\) unpublished and provisional list of Threatened Ecosystems](#) to identify threatened and rare ecosystems.
- [Landscape Boar Publications and DAWE website](#) to determine the habitat requirements of each of the threatened species identified in database searches.
- [BDBSA, NatureMaps and ALA](#) to determine the suite of flora species likely to be present in the area.
- [NatureMaps](#) to identify the vegetation community distributions

3.1.2. Field survey

The vegetation on site was assessed using the Native Vegetation Council (NVC) Bushland Assessment Methodology (BAM). Ground truthing of the vegetation boundaries defined in the desktop assessment was used to refine mapping. These areas were then used for targeted vegetation association assessments identifying species present, photographing the vegetation, and collecting a series of structure and health criteria to support an evaluation of condition. In addition, a broader roaming assessment was used to look for threatened plant species.

3.2. Fauna assessment

3.2.1. Desktop assessment

A Desktop Assessment was used to determine the range of fauna species that are likely to occur in the area (5 km buffer) and determine whether any threatened fauna may be present. Search tools included:

- [A Protected Matters Search](#) to identify matters of national significance under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*, including threatened species and ecological communities.
- [A Biological Database of South Australia \(BDBSA\) search](#) using NatureMaps and Atlas of Living Australia (ALA) to determine fauna species recorded within 5 km radius of the site and species listed under the *National Parks and Wildlife (NPW) Act 1972*.
- [Landscape Boar Publications and DAWE website](#) to determine the habitat requirements of each of the threatened species identified in database searches.
- [BDBSA, NatureMaps and ALA](#) to determine the suite of fauna species likely to be present in the area.

3.2.2. Field survey

A formal fauna assessment was required for this site.

The fauna survey techniques used in were selected based on the species identified in the desktop assessment. As the majority of threatened fauna species identified were birds, a large portion of the survey effort was contributed to monitoring for these species using call back and sighting surveys in each vegetation community. Camera and pitfall traps were used to identify a broader range of species as part of the baseline assessment and to see if some more elusive mammal species could be located on site.

Pitfall Trapping

Terrestrial fauna was caught using pitfall traps. Three trap lines were established on the BDAC property, one in each of the three dominant vegetation associations (Figure 3). These traps were 45cm long PVC Pipes with a 22 cm diameter (Figure 4). A post hole digger was used to dig the holes necessary for the pitfalls while in the field. Each pitfall trap was dug in and compacted so that the lip of the pipe was flush with the surrounding substrate. Before insertion into the hole, a sheet of flywire was attached at the base of the pitfall trap for adequate drainage in case of rain and to prevent fauna from burrowing out. A PVC cap was on hand in case the traps had to be temporarily closed. A drift fence made of 300 mm-high flywire was established across the exposed opening of each trap, aimed at funnelling fauna to the pitfall. The traps were arranged at five sites (one pitfall line per site) with 6 traps in each line. A 10 m gap was spaced between each trap. Each trap was allocated 12 m of drift fence and deployed in alternating directions, with consideration to avoid impacting vegetation.

Camera Trapping

Two motion-triggered trail cameras were deployed within 50 m of each pitfall line (10 cameras total) (Figure 5). These were set to take a burst of three photographs per motion trigger. These are small units that are camouflaged and were mounted on star-droppers in the field. They took images during the day and overnight. For footage of nocturnal fauna, they record with infrared light and are designed to not impact wildlife activity.

Targeted Bird Survey

Timed Bird Observations

A targeted search within each of the dominant vegetation associations was conducted over a 1-hour period to obtain observations of bird species in the area. These surveys were conducted twice in each vegetation association. Visual observations with binoculars, imagery using a camera with a telephoto lens and auditory cues were used for bird identification.

Broadcast Surveys

Audio devices were used to broadcast playback calls of target threatened bird species, to enable identification of the species present. The broadcast devices were used while performing wandering bird surveys within defined vegetation types. These were spaced apart such that individual birds would not be subjected to adjacent call back events. In particular, the

Drone Surveys

Drone imagery of the site was used to look for the presence of Mallee Fowl nests as these stand out quite clearly in the vegetation associations represented on the BDAC site.

Observational Survey

Active searching was used for both birds and terrestrial fauna searches to identify further species not detected by other survey methods for example monitor lizards, snakes and kangaroos. Methods include searches for nest sites such as Mallee Fowl Mounds and burrows, observations of tracks and traces, rock and log turning and foraging under bark and in leaf litter.

4. Assessment outcomes

4.1. Vegetation assessment

4.1.1. General description of the vegetation, the site and matters of significance.

The site is an area of retired pastoral land consisting of regenerated woodlands and chenopod shrublands in South Australia's semi-arid zone. The topography in the clearance area is consistent, with no watercourses or geological monuments.

The vegetation at the BDAC site varies in condition with impacts such as roads, tracks, old dams, illegal dumping, fences and powerlines impacting its condition. While the site could not be considered undisturbed, the lack of grazing pressure has allowed it to restore to a good condition in areas where the impacts described above are distant. Four main vegetation associations were identified within the BDAC site: Acacia papyrocarpa Open Woodland with chenopod (saltbush/bluebush) understorey (VA1), Casuarina pauper Woodland with chenopod understorey (VA2), Inland Chenopod Shrubland with emergent *A. papyrocarpa* (VA3) and Coastal Chenopod Shrubland (VA4). The dominant vegetation association is *A. papyrocarpa* Open Woodland, with a total of 303.06 hectares, followed by Coastal Chenopod Shrubland, Inland Chenopod Shrubland, and *C. pauper* Woodland. A total of 66 flora species were observed across these vegetation associations, 57 of these were native and nine were weeds (Appendix 3). No threatened ecological communities or flora species were observed. The vegetation associations are described in more detail below.

A range of common weed species were present on the BDAC site. These occurred in a patchy distribution through all vegetation associations, particularly where soil crust has been disturbed and along tracks. The most prolific weeds on site were Ward's Weed (*Carrichtera annua*) and Smooth Mustard (*Sisymbrium erysimoides*). These species are expected in areas that have had a previous grazing history. *Acacia papyrocarpa* provided a sheltered space for these weeds to proliferate providing a capture point for seed capture. Only one declared weed species was observed on site, the Devils Rope Pear (*Cylindropuntia imbricata*). This species was only recorded within VA3 along the roadside. It is a category 2 weed as defined by the *Landscape South Australia (LSA) Act 2019*.

4.1.2. Details of the vegetation associations and scattered trees proposed to be impacted

Vegetation Association	VA1: <i>Acacia papyrocarpa</i> Open Woodland with Chenopod Understorey
 <p>Figure 5: <i>Acacia papyrocarpa</i> open woodland with chenopod understorey dominated by <i>Maireana sedifolia</i>.</p>	
 <p>Figure 6: Human disturbance – dumping of rubbish</p>	

Vegetation Association	VA1: <i>Acacia papyrocarpa</i> Open Woodland with Chenopod Understorey
<div data-bbox="164 215 1409 808" data-label="Image"> </div> <div data-bbox="335 822 1235 855" data-label="Caption"> <p>Figure 7: Patches of mid-storey species <i>Eremophila scoparia</i> and <i>Scaevola spinescens</i></p> </div> <div data-bbox="164 880 1409 1240" data-label="Image"> </div> <div data-bbox="164 1256 1409 1290" data-label="Caption"> <p>Figure 8: Old tree stumps, fallen timber and debris that provide habitat and shelter for small animals and invertebrates</p> </div> <div data-bbox="172 1314 1401 1693" data-label="Image"> </div> <div data-bbox="518 1709 1053 1742" data-label="Caption"> <p>Figure 9: Biological soil crust prolific across the site</p> </div>	
General description	<p>This vegetation association is in good condition (Figure 5); however, disturbance was present in the form of multiple vehicle tracks, power lines, fencing, dumping and retired dams. The tracks create an edge effect allowing public access, weed incursion, vertebrate pest access and soil crust disturbance. Unfortunately, public access via the multiple tracks covering the site has led to a lot of illegal dumping (Figure 6).</p> <p>The overstorey is dominated by <i>Acacia papyrocarpa</i>, with scattered <i>Casuarina pauper</i> and emergent <i>Myoporum platycarpum</i> and <i>Alectryon oleifolius</i>. The mid-storey is low, dominated</p>


Vegetation Association	VA1: <i>Acacia papyrocarpa</i> Open Woodland with Chenopod Understorey				
	<p>by <i>Maireana sedifolia</i> with scattered <i>Maireana pyramidata</i> and <i>Atriplex vesicaria</i> and with the occasional taller <i>Eremophila scoparia</i> and <i>Scaevola spinescens</i> (Figure 7). The understorey is predominantly bare ground with patches of <i>Sclerolaena obliquicuspis</i> and scattered <i>Austrostipa</i> spp. As a break in this broad pattern, the base of most <i>A. papyrocarpa</i> have clusters of <i>Rhagodia spinescens</i>, <i>Chenopodium desertorum</i> and <i>Roepera angustifolia</i>. Grey mistletoe (<i>Amyema quandong</i> var. <i>quandong</i>) is present across the site in mature <i>A. papyrocarpa</i> trees.</p> <p>A total of 35 native species and four weed species were recorded with no threatened species present (Appendix 3). Regeneration and a range of age classes was observed for multiple species. No large hollows were observed, however small hollows were common, and old stumps and fallen timber were present as habitat features (Figure 8). Some leaf litter was present and biological soil crust was prolific across the site (Figure 9).</p>				
Threatened species or community	<p><u>Threatened Ecological Communities</u> No threatened ecological communities were present.</p> <p><u>Threatened Fauna</u> Desktop assessments identified three species listed under the EPBC Act 1999 and seven species listed under the NPW Act 1972 as occurring within the area (excluding coastal species). These species are: <i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill - western); <i>Amytornis textilis myall</i> (Western Grasswren); <i>Ardeotis australis</i> (Australian Bustard); <i>Falco hypoleucos</i> (Grey Falcon); <i>Falco peregrinus macropus</i> (Peregrine Falcon); <i>Hylacola cauta cauta</i> (Shy Heath wren); <i>Leiopa ocellata</i> (Malleefowl); <i>Lophochroa leadbeateri</i> (Major Mitchell Cockatoo); <i>Melanodryas cucullata ssp. cucullata</i> (Hooded Robin); and <i>Northiella haematogaster</i> (NC) (Bluebonnet - Eastern and Naretha). None of these species were identified in the field surveys.</p> <p><u>Threatened Flora</u> Only one threatened flora species, Sandalwood (<i>Santalum spicatum</i>), listed as Vulnerable under the NPW Act 1972, was identified in the 10 km radius NatureMaps and Protected Matters searches as known to occur in the area. This species was not recorded in field surveys.</p>				
Landscape context score	1.06	Vegetation Condition Score	65.55	Conservation significance score	1.10
Unit biodiversity Score	76.43	Area (ha)	285.66	Total biodiversity Score	21,833.37



Figure 10: *Casuarina pauper* Woodland with *Chenopod* Understorey



Figure 11: Areas with no leaf litter were covered in biological soil crust. Very little bare ground was present

Vegetation Association	VA2: <i>Casuarina pauper</i> Woodland with <i>Chenopod</i> Understorey
 <p data-bbox="276 1216 1300 1245">Figure 12: Structural habitat features present within VA2 (fallen logs, hollows, and dense leaf litter)</p>	
General description	<p>This vegetation association is in good condition (Figure 10); some disturbance was present in the form of vehicle tracks and dumping although this association was less impacted than VA1. The tracks create an edge effect allowing public access, weed incursion, vertebrate pest access and soil crust disturbance. Unfortunately, public access via the multiple tracks covering the site has led to a lot of illegal dumping although this is not as prolific in this VA as it is in VA1.</p> <p>This vegetation association is dominated by of which <i>Casuarina pauper</i>, with a tall shrub layer of <i>Maireana sedifolia</i> and <i>Scaevola spinescens</i>. The upperstorey was predominantly densely spaced, with scattered patches of open space. Diversity was limited, with <i>C. pauper</i> only occasionally interspersed with <i>Acacia papyrocarpa</i>, <i>Eremophila scoparia</i> and <i>Myoporum platycarpum</i>. The understorey was sparse interspersed with extensive patches of biological soil crust and leaf litter. Ground cover species included <i>Sclerolaena obliquicuspis</i>, <i>Roepera angustifolia</i>, <i>Calandrinia eremaea</i> and <i>Eriochiton sclerolaenoides</i>. The biological soil crust provided effective cover over 80-90% of the bare ground and was represented by a broad range of lichens and mosses (Figure 11).</p> <p>A total of 25 native and three weed species were recorded within this vegetation association (Appendix 3). No threatened species were present. While regeneration was present, it was from a limited number of species (six) and a low number of individuals. Habitat features such as small and medium hollows and large fallen logs, and branches were present throughout the community (Figure 12).</p>

Vegetation Association		VA2: <i>Casuarina pauper</i> Woodland with Chenopod Understorey			
Threatened species community	or	<p><u>Threatened Ecological Communities</u> No threatened ecological communities were present.</p> <p><u>Threatened Fauna</u> Desktop assessments identified three species listed under the EPBC Act 1999 and seven species listed under the NPW Act 1972 as occurring within the area (excluding coastal species). These species are: <i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill - western); <i>Amytornis textilis myall</i> (Western Grasswren); <i>Ardeotis australis</i> (Australian Bustard); <i>Falco hypoleucos</i> (Grey Falcon); <i>Falco peregrinus macropus</i> (Peregrine Falcon); <i>Hylacola cauta cauta</i> (Shy Heath wren); <i>Leiopa ocellata</i> (Malleefowl); <i>Lophochroa leadbeateri</i> (Major Mitchell Cockatoo); <i>Melanodryas cucullata ssp. cucullata</i> (Hooded Robin); and <i>Northiella haematogaster</i> (NC) (Bluebonnet - Eastern and Naretha). None of these species were identified in the field surveys.</p> <p><u>Threatened Flora</u> Only one threatened flora species, Sandalwood (<i>Santalum spicatum</i>), listed as Vulnerable under the NPW Act 1972, was identified in the 10 km radius NatureMaps and Protected Matters searches as known to occur in the area. This species was not recorded in field surveys.</p>			
Landscape context score	1.06	Vegetation Condition Score	68.52	Conservation significance score	1.10
Unit biodiversity Score	79.90	Area (ha)	84.02	Total biodiversity Score	6,712.98



Figure 13: Inland Chenopod Shrubland with *Atriplex vesicaria* (top) and *Maireana sedifolia* (bottom).



Figure 14: Recruitment of *Atriplex vesicaria* and *Maireana sedifolia* amongst Wards Weed.

Vegetation Association	VA3: Inland Chenopod Shrubland with emergent <i>Acacia papyrocarpa</i>				
General description	<p>This vegetation association is in good condition (Figure 13); however, disturbance was present in the form of vehicle tracks, power lines, fencing and dumping. The tracks create an edge effect allowing public access, weed incursion, vertebrate pest access and soil crust disturbance.</p> <p>This vegetation occurs between the <i>A. papyrocarpa</i> and <i>C. pauper</i> woodlands. It is a low shrubland dominated by <i>Maireana sedifolia</i> and <i>Atriplex vesicaria</i>. These two species display a clear distribution pattern suggesting that soil type or soil moisture drive distribution. <i>Scaevola spinescens</i> is also present, usually in the crossover between <i>Maireana sedifolia</i> and <i>Atriplex vesicaria</i>. Scattered <i>Acacia papyrocarpa</i> are present in the overstorey. Emergent <i>Exocarpus aphyllus</i>, <i>Myoporum platycarpum</i> and <i>Eremophila scoparia</i> were also present. Native ground cover included <i>Sclerolaena obliquicuspis</i>, <i>Maireana turbinata</i> and <i>Enchylaena tomentosa</i>. Hotspots of diversity and high-density plant cover were observed underneath emergent trees and shrubs.</p> <p>A total of 23 native and two weed species were recorded within this vegetation association (Appendix 3). Recruitment was poor with only six species showing signs of regeneration (Figure 14). Due to the lack of over storey, no hollows and very little fallen timber were present. Some leaf litter was present, but ground cover consisted mostly of biological soil crust. Where this soil crust was not present, weed species were prolific.</p>				
Threatened species or community	<p><u>Threatened Ecological Communities</u></p> <p>No threatened ecological communities were present.</p> <p><u>Threatened Fauna</u></p> <p>Desktop assessments identified three species listed under the EPBC Act 1999 and seven species listed under the NPW Act 1972 as occurring within the area (excluding coastal species). These species are: <i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill - western); <i>Amytornis textilis myall</i> (Western Grasswren); <i>Ardeotis australis</i> (Australian Bustard); <i>Falco hypoleucos</i> (Grey Falcon); <i>Falco peregrinus macropus</i> (Peregrine Falcon); <i>Hylacola cauta cauta</i> (Shy Heath wren); <i>Leiopa ocellata</i> (Malleefowl); <i>Lophochroa leadbeateri</i> (Major Mitchell Cockatoo); <i>Melanodryas cucullata ssp. cucullata</i> (Hooded Robin); and <i>Northiella haematogaster</i> (NC) (Bluebonnet - Eastern and Naretha). None of these species were identified in the field surveys.</p> <p><u>Threatened Flora</u></p> <p>Only one threatened flora species, Sandalwood (<i>Santalum spicatum</i>), listed as Vulnerable under the NPW Act 1972, was identified in the 10 km radius NatureMaps and Protected Matters searches as known to occur in the area. This species was not recorded in field surveys.</p>				
Landscape context score	1.06	Vegetation Condition Score	79.98	Conservation significance score	1.10
Unit biodiversity Score	93.26	Area (ha)	100.45	Total biodiversity Score	9,367.63



Figure 15: Coastal low chenopod shrubland.



Figure 16: Illegal dumping in areas along access tracks.



Figure 17: Emergent Myoporum platycarpum over low chenopod shrubland.



Figure 18: Common groundcover species *Disphyma crassifolium* (Rounded Pigface)



Figure 19: Recruitment of native flora species

General description

This coastal shrubland is found at the eastern end of the BDAC site (Figure 15). It is in good condition with the same impacts as the other vegetation associations; tracks, fencing, dumping and retired dams (Figure 16). The western portion of this vegetation association is dominated by *Atriplex vesicaria*, *Maireana pyramidata* and *Scaevola spinescens*, shifting to *Tecticornia halocnemoides* saltmarsh flats to the east as elevation decreases and salinity increases. Emergent shrubs of *Eremophila scoparia*, *E. longifolia* and *Myoporum insulare* were present, increasing towards the west and south (Figure 17). Native understorey biomass and diversity was also high, with species such as *Disphyma crassifolium*, *Osteocarpum* spp., *Sarcocolla praecox*, *Sclerolaena* spp. and *Frankenia pauciflora* (Figure 18).

This vegetation association had the highest plant diversity, with 37 native and seven weed species. No threatened species were recorded in this vegetation association. Good recruitment was observed, with juvenile plants from over ten species present and multiple age classes observed (Figure 19). Some leaf litter, and small fallen branches and logs were present, and biological soil crust was present across the site.

Vegetation Association	VA4: Coastal Chenopod Shrubland				
Threatened species or community	<p><u>Threatened Ecological Communities</u> The threatened Ecological Community, Temperate Coastal Saltmarsh, listed as a vulnerable under the EPBC Act 1999 will not be impacted by the YISP development.</p> <p><u>Threatened Fauna</u> Desktop assessments identified three species listed under the EPBC Act 1999 and seven species listed under the NPW Act 1972 as occurring within the area (excluding coastal species). These species are: <i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill - western); <i>Amytornis textilis myall</i> (Western Grasswren); <i>Ardeotis australis</i> (Australian Bustard); <i>Falco hypoleucos</i> (Grey Falcon); <i>Falco peregrinus macropus</i> (Peregrine Falcon); <i>Hylacola cauta cauta</i> (Shy Heath wren); <i>Leiopa ocellata</i> (Malleefowl); <i>Lophochroa leadbeateri</i> (Major Mitchell Cockatoo); <i>Melanodryas cucullata ssp. cucullata</i> (Hooded Robin); and <i>Northiella haematogaster</i> (NC) (Bluebonnet - Eastern and Naretha). None of these species were identified in the field surveys.</p> <p><u>Threatened Flora</u> Only one threatened flora species, Sandalwood (<i>Santalum spicatum</i>), listed as Vulnerable under the NPW Act 1972, was identified in the 10 km radius NatureMaps and Protected Matters searches as known to occur in the area. This species was not recorded in field surveys.</p>				
Landscape context score	1.06	Vegetation Condition Score	75.98	Conservation significance score	1.10
Unit biodiversity Score	88.59	Area (ha)	138.97	Total biodiversity Score	12,311.89

4.1.3. Photo log

Photos of the vegetation community and scattered trees are provided in the descriptions above.

4.2. Threatened species assessment

4.2.1. Threatened ecological communities.

A site assessment of the eastern extent of the BDAC site (Coastal Chenopod Shrublands; VA4) confirmed that the threatened Ecological Community, Temperate Coastal Saltmarsh, listed as a vulnerable under the EPBC Act 1999 will not be impacted by the YISP development.

4.2.2. Threatened fauna

The desktop assessment identified three species listed under the *EPBC Act 1999* and fourteen species listed under the *NPW Act 1972*. These species were identified through a combination of database searches and consulting with SAM and DEW. Of these species, seven prefer marine or coastal tidal flats and are unlikely to be impacted by the YISP development. This gives a total of three species listed under the *EPBC Act 1999* and seven species listed under the *NPW Act 1972* that were specifically monitored for during the field survey (Table 1). A likelihood assessment to determine whether these species may occur on the BDAC site is presented in Table 2. This assessment indicated that three of the ten species were likely to occur on the site with the vegetation associations identified satisfying the habitat requirements for these species. These species include the Western Grasswren (*Amytornis textilis myall*), Slender-billed Thornbill (western; *Acanthiza iredalei iredalei*) and Bluebonnet (Eastern and Naretha; *Northiella haematogaster* (NC)).

Six species were identified as not likely to be present, primarily based on the lack of suitable habitat features available within the BDAC site. Each of these species are quite specific in their habitat preferences and are only likely to use sub-optimal habitat in transit. For example, the Mallee Fowl (*Leiopa ocellata*) requires a mallee woodland structure for its primary habitat, using the leaf litter to build large nest structures. Discussion with the Senior Ranger for the Eyre Peninsula indicates that the population of Mallee Fowl in the region are outside of the construction zone with their preference for low Mallee woodland limiting their distribution in the region. They have been sighted to the east of the development area in Mallee woodland in the past year.

Table 1: A summary of the fauna species observed on site or recorded within 5km of the application area since 1996.

Species (common name)	NPW Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill)	R	-	5	2018	Chenopod shrublands dominated by Samphire, Bluebush or Saltbush, with a preference for areas near mangroves, salt lakes and flats ¹	Likely – suitable habitat and last seen in 2018 within 5km of the site.
<i>Amytornis textilis myall</i> (Western Grasswren)	V	VU	5 & 3	2019	Dense chenopod shrublands in low lying areas such as watercourses and drainage lines ²	Likely – suitable habitat and last seen in 2019 within 5km of the site.
<i>Ardeotis australis</i> (Australian Bustard)	V	-	6	2017	Dry plains, grasslands and open woodlands, and they favour tussock and hummock grasslands ³	Unlikely – last seen in the area in 2017, would have been in neighbouring habitat. The site does not provide suitable habitat.

¹ DEW 2019, Threatened species fact sheet – *Acanthiza iredalei iredalei*, Slender-billed Thornbill

² DEW 2011, Threatened species fact sheet – *Amytornis textilis myall*, Western Grasswren

³ DEW 2019, Threatened Species Fact Sheet – *Ardeotis australis*, Australian Bustard.

Species (common name)	NPW Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Falco hypoleucos</i> (Grey Falcon)	R	VU	2	2011	Arid-zone open woodlands and open <i>Acacia</i> shrublands. Especially stony and sandy plains, hummock and tussock grasslands, low shrublands and wooden watercourses. ⁴	Unlikely – not seen in the area for 10 years, the site does not provide suitable habitat.
<i>Falco peregrinus macropus</i> (Peregrine Falcon)	R	-	2	2019	Migrates internationally to breed, returning to Australia during non-breeding season where it inhabits sheltered coasts such as estuaries, bays and intertidal mudflats and sandflats. ⁵	Unlikely – last seen in the area in 2019, likely to use the coastal habitats further east of the development site
<i>Hylacola cauta cauta</i> (Shy Heath wren)	R	-	2	2020	Mallee woodlands with dense understorey and heath and shrubs. ⁶	Unlikely – last seen in the area in 2020, likely to use vegetation associations neighbouring this site.
<i>Leipoa ocellata</i> (Malleefowl)	V	VU	2 & 6	2019	Semi-arid to arid shrublands and woodlands but are found mainly in mallee woodland habitat that has not recently been burnt. ⁷	Unlikely – uses mallee woodland habitat further to the east of this site.
<i>Lophochroa leadbeateri</i> (Major Mitchell Cockatoo)	R	-	2	2018	Wide range of inland habitats in close proximity to water, feeds on melons and seeds of saltbush, wattles and cypress pines. Requires hollows for nesting. ⁸	Unlikely – last seen 50km away in 2020, likely to use vegetation associations neighbouring watercourses
<i>Melanodryas cucullata ssp. cucullata</i> (Hooded Robin)	R	-	2 & 6	2019	<i>Eucalyptus</i> woodland and mallee and <i>Acacia</i> shrubland. ⁹	Unlikely – this sub species does not occur on the western side of Spencer Gulf. It also uses mallee woodland habitat which is not on the BDAC site.
<i>Northiella haematogaster</i> (NC) Bluebonnet (Eastern and Naretha)	R	-	2, 3 & 6	2020	Inhabit a variety of habitats, including open woodlands of <i>Callitris</i> , <i>Eucalyptus</i> and <i>Acacia</i> , often with a low shrub layer of chenopods. ¹⁰	Likely – suitable habitat and last seen in 2020 within 5km of the site.
Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others NP&W Act; E= Endangered, V = Vulnerable, R= Rare. EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable						

⁴ DEW 2019, Threatened Species Fact Sheet – *Falco hypoleucos*

⁵ DEH 2009-15. Threatened Species Profile – *Falco Peregrinus*

⁶ DEH 2017, Threatened Species Profile – *Hylacola cautus*

⁷ DEH 2021. Threatened Species Profile – *Leipoa ocellata*

⁸ DEW 2021, Threatened Species Fact Sheet – *Lophochroa leadbeateri mollis*, Major Mitchell's Cockatoo

⁹ DEH 2014, AMLR Threatened Species Profile *Melanodryas cucullata cucullata*

¹⁰ Atlas of Living Australia, Species Profile, *Northiella haematogaster*

Table 2: Criteria for the likelihood of occurrence of species within the survey area.

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species. Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded 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 despite adequate survey effort.

4.2.3. Threatened flora

Only one threatened flora species, Sandalwood (*Santalum spicatum*), listed as Vulnerable under the NPW Act 1972, was identified in the 10 km radius NatureMaps and Protected Matters searches as known to occur in the area. It was observed in this area in 1998 (western record) and in 2020 (eastern record; Figure 7). Sandalwood is an obligate semi-parasitic, small tree that is commonly associated with *Acacia burkittii* (formerly *A. acuminata*; Fex 1997). It grows on loam and among rocks in woodland and tall shrubland (Nature Conservation Society 2021). It is considered possible that this species will occur on the BDAC site although rocky outcrops are not present, so it is only a possibility rather than likely.

Table 3: A summary of the flora species observed on site or recorded within 5km of the application area since 1996.

Species name)	(common	NPW Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments (Table 2)
<i>Santalum spicatum</i> (Sandalwood)		V	-	3	2020	Woodland and tall shrublands, in association with <i>Acacia burkittii</i> ¹¹	Possible – recent observations and suitable habitat but associated species not present
Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others NP&W Act; E= Endangered, V = Vulnerable, R= Rare. EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable							

¹¹ Seeds of SA. Species profile – *Santalum spicatum*

4.3. Cumulative impact

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.

4.3.1. Decrease in Remnancy

This site is situated at the intersection between two SA State Government Landscape Boards or landscape management areas. Within the Eyre Peninsula landscape management area 2,285,380 hectares are categorised as native vegetation (46% of the region), while within the Outback landscape management area 50,883,700 hectares are categorised as native vegetation (97% of the region) (DEW, 2020). As such the development site (609.10 ha) represents 0.03% of the native vegetation from the north of the Eyre Peninsula and a lesser 0.001% of the native vegetation in the south of the Outback landscape area.

The YISP, however, is not the only solar farm development proposed for the region. Within a 15,000 ha polygon on the edge of Whyalla 2 other projects already have Native Vegetation Clearance approval. Remnancy in this area ranges from 82% to 99%. The cumulative impact of these projects will be reduction in remnancy by 11.10 % (Table 4)

Table 4: The extent of Solar Developments in the Whyalla region (allowing a 15,000ha polygon) and the percentage of the region impacted.

Project	Clearance Area (ha)	Percentage of area
YIS – BDAC	609.1	4.06%
YIS – CUTA	4.831	0.03%
SIMEC - Cultana	669.52	4.46%
ADANI - Whyalla	381.29	2.54%
TOTAL	1,664.7	11.10%

4.3.2. Invasive Species

The clearing of vegetation and addition of vehicle access tracks typically increases the access of weed species and introduced pest species. However, as the majority of the area to be cleared already has cleared perimeters, this impact is perhaps not that considerable.

4.3.3. Social and Global Benefits

The cumulative benefits of the project on a social, regional and global scale are significant. The YISP will bring investment into South Australia, and the Whyalla region in particular. It will provide direct employment, engagement of contractors and the use of local suppliers and facilities. In particular, the project will provide income and employment for the local Barngarla Community. Further, in contribution to the global effort for a reduction in carbon emissions, YISP will supply emissions-free electricity over a lifetime of greater than 25 years.

4.4. Address the mitigation hierarchy

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimize, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NP&W Act.

a) Avoidance – outline measures taken to avoid clearance of native vegetation

The proposed clearance is to allow for the development of a solar farm. The BDAC land was Crown Land. It was sold to the Barngarla Determination Aboriginal Corporation with an understanding that this land would be developed to provide a key opportunity for improving the employment and income opportunities of the Barngarla people in the region. The area of land purchased was calculated specifically for the project and as such, avoidance of clearance would limit the capacity of the development and therefore undermine the purpose of the purchase.

While considering the area requirements of the solar farm, the design has allowed for a vegetation buffer of 20 m that will not be cleared and will protect the site from view, act to capture dust and reduce ambient temperature on the site.

b) Minimization – if clearance cannot be avoided, outline measures taken to minimize the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).

The solar farm layout will aim to maximize the area and streamline logistics to utilize the smallest footprint possible while maximising the opportunity that the Barngarla people have to bring employment and income earning opportunities to the region.

With this in mind, the project developer will utilise a new and innovative technique called rolling that has been embraced by a number of solar developments in South Australia and more broadly across Australia. This technique leaves the BSC intact and vegetation material on site to support a rapid recovery of the vegetation. It has been demonstrated to have a rapid recovery rate in chenopod shrublands with the vegetation reaching the same biodiversity and approaching the full height structure of a healthy chenopod shrubland within two years (Succession Ecology 2021). In addition, a recent implementation at Port Augusta Renewable Energy Park has indicated that the use of this techniques supports the survival of fauna assemblages that would otherwise not survive clear grading.

In the Chenopod shrubland areas it is also proposed that bands of vegetation remain intact to leave refuge areas for wildlife to shelter. This would require an effective traffic and construction management process be implemented. While the implementation of alternative site preparation techniques does not leave pristine vegetation, it provides an improved ecological outcome in the face of completely clearing a site.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.

It is planned to let the chenopod layer of the habitat on the solar farm site regenerate to allow for regeneration of habitat for small mammal, reptile and bird species. In addition, hard stands and any excess tracks will be revegetated to achieve as much restored habitat as possible.

d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.

The applicant will contribute an SEB payment into the Native Vegetation fund to support restoration and conservation works in the region.

The NVC will only consider an offset once avoidance, minimization and restoration have been documented and fulfilled. The SEB Policy explains the biodiversity offsetting principles that must be met.

4.5. Principles of clearance (Schedule 1, Native Vegetation Act 1991)

The Native Vegetation Council will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the Native Vegetation Regulations. The Native Vegetation Council will consider all the principles of clearance of the Act as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act 2016*.

Principle of clearance	Considerations
Principle 1a - it comprises a high level of diversity of plant species	<u>Relevant information</u> VA1 = 35 native, 4 introduced VA2 = 25 native, 3 introduced VA3 = 23 native, 2 introduced VA4 = 36 native, 7 introduced Patches; Bushland Plant Diversity Score – VA1 = 28.0 VA2 = 30.0 VA3 = 30.0 VA4 = 30.0
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> All vegetation Associations (Plant Species Diversity Scores >20)
	<u>Moderating factors that may be considered by the NVC</u> The percentage of native vegetation in a 5 km radius of the site is currently 85-99%. Therefore, the 609.1 ha of clearance for this application will be significant as the clearance is greater in size than the 5 km radius circle (~200ha)
Principle 1b - significance as a habitat for wildlife	<u>Relevant information</u> Threatened species that may use the vegetation include (assessed as likely or highly likely): <i>Amytornis textilis myall</i> (Western Grasswren) <i>Acanthiza iredalei iredalei</i> (Slender-billed Thornbill - western) <i>Northiella haematogaster</i> (Bluebonnet - Eastern and Naretha; (NC)) A total of 39 native, and 3 introduced fauna species were observed using the habitat on site. The vegetation is a part of a larger, relatively continuous area of native vegetation. The habitat was not found to support any of these threatened species (fauna survey). It will however provide a corridor for movement of a diverse range of species, including threatened species if they do exist more broadly in the area. The fauna survey identified that this habitat does provide a refuge for a range of fauna species. <u>Patches:</u> Threatened Fauna Score – VA1 = 0.1 VA2 = 0.1 VA3 = 0.1 VA4 = 0.1

	Unit biodiversity Score - VA1 = 76.43 VA2 = 79.90 VA3 = 93.26 VA4 = 88.59
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> - All vegetation associations (Unit Biodiversity Scores > 50 and Threatened Fauna score > 0.05)
	<u>Moderating factors that may be considered by the NVC</u> The clearance associated with the BDAC development is not expected to impact: <ul style="list-style-type: none"> Population size, extent, structure, continuity, or survivability of this species. A significant proportion of the area of occupancy of this species. Habitat critical to the survival of a species. The recovery of this species. There is a considerable amount of remnant vegetation in the region, some of it more suitable for the threatened species identified. The Whyalla Conservation Park and the Cultana Training Area both support remnant vegetation that is in better condition and has features more suited to some of the threatened species listed. In addition, the extent of coastal chenopod shrubland in the area provides an extensive habitat resource if the Slender-billed Thornbill did exist in the area.
Principle 1c - plants of a rare, vulnerable or endangered species	<u>Relevant information</u> <i>Santalum spicatum</i> (Sandalwood) This species was recorded ~7 km north-west (record from 2020) and ~1.5 km north (record from the clearance area. As this species is semi-parasitic with association to <i>Acacia burkittii</i> (a species not recorded on site), it is considered unlikely to be present or impacted by this clearance.
	<u>Threatened Flora Score(s) –</u> All vegetation associations = 0
	<u>Assessment against the principles</u> <u>Not At Variance</u> All vegetation associations
	<u>Moderating factors that may be considered by the NVC</u> N/A
Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:	<u>Relevant information</u> No threatened communities were present Threatened Community Score – All vegetation associations = 0
	<u>Assessment against the principles</u> <u>Not at Variance</u> All vegetation associations
	<u>Moderating factors that may be considered by the NVC</u> N/A

Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	<u>Relevant information</u> Gawler IBRA Association = 100% vegetation cover Although much of the vegetation in the region is retired pastoral land, it is in good condition. Another two solar farms have been given approval for the clearance of 669.52 ha and 381.29 ha within this region in the past 5 years, as such the high percentage of remnant vegetation will decline significantly in the next few years. Total Biodiversity Score – 50,225.87
	<u>Assessment against the principles</u> <u>At Variance</u> All vegetation associations (>500 Total Biodiversity Score but >30% remnancy)
	<u>Moderating factors that may be considered by the NVC</u> The habitat represented in the area have been so minimally cleared that the relative proportions of each still present are consistent with natural proportions.
Principle 1f - it is growing in, or in association with, a wetland environment.	<u>Relevant information</u> Vegetation is not growing in or associated with a wetland environment
	<u>Assessment against the principles</u> <u>No At Variance</u> – All vegetation associations
	<u>Moderating factors that may be considered by the NVC</u> N/A
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	<u>Relevant information</u> The site is along a main highway into a large township (high-frequency road).
	N/A
	<u>Moderating factors that may be considered by the NVC</u> A 20-30 m buffer will protect the development from view.

Principles of Clearance (h-m) will be considered by comments provided by the local NRM Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

4.6. Risk assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	N/A
	Area (ha)	609.10 ha
	Total biodiversity Score	50,225.87
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(a) & 1(b)
Risk assessment outcome		Level 4

4.7. NVC guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

NA

5. Clearance summary

Clearance area(s) summary table

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	28.0	1	0	0.1	76.43	285.66	21,833.37	1			22,925.03	\$1,709,663.25	\$94,031.48
A	2	30.0	1	0	0.1	79.90	84.02	6712.98	1			7048.63	\$525,660.47	\$28,911.33
A	3	30.0	1	0	0.1	93.26	100.45	9367.63	1			9836.02	\$733,533.23	\$40,344.33
A	4	30.0	1	0	0.1	88.59	138.97	12311.89	1			12927.48	\$964,083.19	\$53,024.58
						338.18	609.1	50225.87				52737.16	\$3,932,940.14	\$216,311.72

Total summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	50225.87	52737.16	\$3,932,940.14	\$216,311.72	\$4,149,251.86

Economies of Scale Factor	0.11
Rainfall (mm)	257

6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

- ☐ Establish a new SEB Area on land owned by the proponent.
- ☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____
- ☐ Apply to have SEB Credit assigned from another person or body. The [application form](#) needs to be submitted with this Data Report.
- ☐ Apply to have an SEB to be delivered by a Third Party. The [application form](#) needs to be submitted with this Data Report.
- ☒ Pay into the Native Vegetation Fund.

7. Appendices

Appendix 1: Bushland Assessment Scoresheets associated with the proposed clearance (submitted in Excel format)

Appendix 2: Site maps as shape files

Appendix 3: Flora Species List

Appendix 4: Fauna Species List

Appendix 5: Copies of associated approvals

Appendix 3: Flora Species List

Table 5: Flora species observed within the BDAC property for each vegetation association. VA1 = *Acacia papyrocarpa* Open Woodland; VA2 = *Casuarina pauper* Woodland with *Chenopod* Understorey; VA3= *Inland Chenopod Shrubland* with emergent *Acacia papyrocarpa*, VA4= *Coastal Chenopod Shrubland*.

	Species Name	Common Name	VA1	VA2	VA3	VA4
NATIVE						
Trees and	<i>Acacia papyrocarpa</i>	Western Myall	✓	✓	✓	
	<i>Alectryon oleifolius ssp. canescens</i>	Bullock Bush	✓	✓		
	<i>Casuarina pauper</i>	Black Oak	✓	✓		
	<i>Eremophila longifolia</i>	Weeping Emubush				✓
	<i>Eremophila scoparia</i>	Broom Emubush	✓	✓	✓	✓
	<i>Exocarpus aphyllus</i>	Leafless Cherry	✓		✓	✓
	<i>Lycium australe</i>	Australian Boxthorn	✓		✓	
	<i>Myoporum insulare</i>	Common Boobialla				✓
	<i>Myoporum platycarpum</i>	False Sandalwood	✓	✓	✓	✓
	<i>Pimelea microcephala</i>	Shrubby Riceflower				✓
	<i>Senna artemisioides ssp. coriacea</i>	Broad-leaf Desert Senna	✓	✓		
	<i>Senna artemisioides ssp.</i>	Desert Senna	✓			
	<i>Senna artemisioides ssp. sturtii</i>	Grey Senna	✓			✓
Chenopods	<i>Atriplex stipitata</i>	Bitter Saltbush		✓		
	<i>Atriplex vesicaria</i>	Bladder Saltbush	✓	✓	✓	✓
	<i>Chenopodium curvispicatum</i>	Cottony Goosefoot	✓	✓		✓
	<i>Chenopodium desertorum</i>	Desert Goosefoot	✓	✓		✓
	<i>Dissocarpus biflorus</i>	Twin-horn Saltbush	✓	✓	✓	✓
	<i>Dissocarpus paradoxus</i>	Cannonball Burr			✓	✓
	<i>Enchylaena tomentosa</i>	Ruby Saltbush	✓	✓	✓	✓
	<i>Eriochiton sclerolaenoides</i>	Woolly-fruit Bluebush	✓	✓	✓	
	<i>Maireana appressa</i>	Pale-fruit Bluebush				✓
	<i>Maireana pyramidata</i>	Black Bluebush	✓	✓	✓	✓
	<i>Maireana sedifolia</i>	Pearl Bluebush	✓	✓	✓	
	<i>Maireana trichoptera</i>	Hairy-fruit Bluebush	✓		✓	
	<i>Maireana turbinata</i>	Top-fruit Bluebush	✓		✓	✓
	<i>Maireana turbinata X Enchylaena tomentosa</i>					✓
	<i>Osteocarpum sp.</i>	Bonefruit				✓
	<i>Rhagodia parabolica</i>	Mealy Saltbush	✓	✓		
	<i>Rhagodia spinescens</i>	Spiny Saltbush	✓	✓		✓
	<i>Salsola australis</i>	Roly-poly	✓		✓	
	<i>Sclerolaena diacantha</i>	Grey Copperburr	✓			

	Species Name	Common Name	VA1	VA2	VA3	VA4
Grasses	<i>Sclerolaena lanicuspis</i>	Woolly Copperburr	✓			
	<i>Sclerolaena obliquicuspis</i>	Oblique-spined	✓	✓	✓	✓
	<i>Sclerolaena uniflora</i>	Small-spine Copperburr			✓	✓
	<i>Tecticornia halocnemoides</i>	Grey Samphire				✓
	<i>Austrostipa elegantissima</i>	Feather Spear Grass		✓		✓
	<i>Austrostipa</i> spp.	Spear Grass	✓	✓	✓	✓
	<i>Eragrostis</i> sp.	Lovegrass				✓
Other	<i>Amyema quandang</i> var.	Grey Mistletoe	✓	✓		
	<i>Brachyscome ciliaris</i>	Variable Daisy	✓			✓
	<i>Calandrinia eremaea</i>	Dryland Purslane		✓	✓	✓
	<i>Carpobrotus rossii</i>	Native Pigface				✓
	<i>Disphyma crassifolium</i> ssp. <i>clavell</i>	Rounded Pigface				✓
	<i>Frankenia pauciflora</i>	Southern Sea=heath				✓
	<i>Hemichroa</i> sp.	Hemichroa				✓
	<i>Lepidium phlebopetalum</i>	Peppercress				✓
	<i>Lysiana exocarpi</i> ssp. <i>exocarpi</i>	Harlequin Mistletoe	✓			
	<i>Nitraria billardierei</i>	Nitre-bush				
	<i>Ptilotus obovatus</i>	Silver Mulla Mulla	✓	✓		
	<i>Roepera angustifolia</i>	Scrambling Twinleaf	✓	✓	✓	✓
	<i>Sarcozona praeacox</i>	Sarcozona				✓
	<i>Scaevola spinescens</i>	Spiny Fan flower	✓	✓	✓	✓
	<i>Senecio spanomerus</i>	Senecio				✓
	<i>Sida spodochroma</i>	Limestone Sida	✓		✓	✓
	<i>Solanum quadriloculatum</i>	Tomato Bush	✓			
	<i>Tetragonia eremaea</i>	Desert Spinach			✓	
Native Species			35	25	23	37
NON-NATIVE						
	<i>Asphodelus fistulosus</i>	Onion Weed				✓
	<i>Carthamus lanatus</i>	Saffron Thistle				✓
	<i>Carrichtera annua</i>	Wards Weed	✓	✓	✓	✓
	<i>Cylindropuntia imbricata</i>	Devil's Rope Pear				✓
	<i>Erodium</i> sp.	Heron's Bill				✓
	<i>Medicago</i> sp.	Medic				✓
	<i>Mesembryanthemum aitonice</i>	Angled Ice plant	✓			
	<i>Mesembryanthemum nodiflorum</i>	Slender Ice plant	✓	✓		
	<i>Sisymbrium erysimoides</i>	Smooth Mustard	✓	✓	✓	✓

Species Name	Common Name	VA1	VA2	VA3	VA4
	Non-native Species	4	3	2	7
	Total Number of Species	39	28	25	44

Appendix 4: Fauna Species List

Table 6: Fauna species observed within the BDAC property for each vegetation association, and associated conservation status under the EPBC Act 1999 (EPBC) and NPW Act 1972 (SA). VA1 = Acacia papyrocarpa Open Woodland; VA2 = Casuarina pauper Woodland with chenopod Understorey; VA3 = Inland Chenopod Shrubland with emergent Acacia papyrocarpa, VA4 = Coastal Chenopod Shrubland. Non-native species marked with an *.

Species	Common name	Number of Observations					Status	
		VA1	VA2	VA3	VA4	TOTAL	EPBC	SA
AVES		109	60	30	57	256		
<i>Acanthiza apicalis</i>	Inland Thornbill	2	0	0	0	2		
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped thornbill	0	10	0	0	10		
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	1	4	0	0	5		
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	8	2	0	1	11		
<i>Aphelocephala leucopsis</i>	Southern Whiteface	4	5	2	0	11		
<i>Anthochaera carunculata</i>	Red Wattlebird	2	2	0	0	4		
<i>Anthus australis</i>	Australian Pipit	0	0	0	1	1		
<i>Artamus cyanopterus</i>	Dusky Woodswallow	4	0	6	0	10		
<i>Chrysococcyx basalis</i>	Horsfield's Bronze-cuckoo	2	0	0	0	2		
<i>Cincloramphus cruralis</i>	Brown Songlark	0	0	0	11	11		
<i>Colluricincla harmonica</i>	Grey Shrikethrush	4	0	0	0	4		
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo Shrike	0	0	1	0	1		
<i>Corvus coronoides</i>	Australian Raven	1	1	0	1	3		
<i>Coturnix pectoralis</i>	Stubble Quail	0	0	0	2	2		
<i>Cracticus torquatus</i>	Grey Butcherbird	3	0	1	0	4		
<i>Dicaeum hirundinaceum</i>	Mistletoebird	0	2	0	0	2		
<i>Eolophus roseicapilla</i>	Galah	0	0	2	0	2		
<i>Epthianura albifrons</i>	White-fronted Chat	0	0	0	3	3		
<i>Hirundo neoxena</i>	Welcome Swallow	0	0	0	7	7		
<i>Hylacola pyrrhopygius</i>	Chestnut Rumped Heathwren	1	0	0	0	1		
<i>Lichenostomus virescens</i>	Singing Honeyeater	1	0	0	1	2		
<i>Malurus cyaneus</i>	Superb Fairy-wren	6	0	0	0	6		
<i>Malurus lamberti</i>	Variegated Fairywren	12	3	5	0	20		
<i>Malurus leucopterus</i>	White-winged Fairywren	10	7	6	11	34		
<i>Petrochelidon nigricans</i>	Tree Martin	0	0	0	3	3		
<i>Petroica goodenovii</i>	Red-capped Robin	20	12	0	0	32		
<i>Pomatostomus superciliosus</i>	White Browed Babbler	26	10	0	0	36		
<i>Psephotus varius</i>	Mulga Parrot	0	0	0	1	1		
<i>Pyrrholaemus brunneus</i>	Redthroat	2	0	0	0	2		
<i>Rhipidura leucophrys</i>	Willy Wagtail	0	2	1	0	3		

Species	Common name	Number of Observations					Status	
		VA1	VA2	VA3	VA4	TOTAL	EPBC	SA
AVES		109	60	30	57	256		
<i>Sturnus vulgaris</i> *	Common Starling	0	0	6	15	21		
MAMMALIA		4	3	1	7	15		
<i>Capra aegagrus hircus</i> *	Goat	1	0	0	0	1		
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	0	0	1	2	3		
<i>Macropus rufus</i>	Red Kangaroo	0	0	0	4	4		
<i>Oryctolagus cuniculus</i> *	European Rabbit	1	0	0	0	1		
<i>Pseudomys bolami</i>	Bolam's Mouse	0	2	0	1	3		
<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart	2	1	0	0	3		
REPTILIA		6	7	0	7	13		
<i>Ctenophorus pictus</i>	Painted Dragon	0	0	0	3	3		
<i>Ctenotus schomburgkii</i>	Sandplain Ctenotus	5	6	0	0	11		
<i>Diplodactylus furcosus</i>	Ranges Stone Gecko	1	0	0	0	1		
<i>Gehyra versicolor</i>	Eastern Tree Dtella	0	1	0	0	1		
<i>Morethia adelaidensis</i>	Adelaide Snake-eye	0	0	0	4	4		