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ENTOMOLOGY
Science Services

Native Vegetation Clearance

Proposal to flood native vegetation for expansion of a farm dam

'Lyndhurst' [REDACTED], Newland 5223

Data Report

Clearance under the *Native Vegetation Regulations 2017*

January 2022

Prepared by Dr Richard Glatz



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1. Application information

Application Details

Applicant:	Carly & Adam Bussenschutt		
Key contact:	Carly Bussenschutt [REDACTED]		
Landowner:	Carly & Adam Bussenschutt		
Site Address:	[REDACTED], Newland, 5223		
Local Government Area:	Kangaroo Island Council	Hundred:	Newland
Title ID:	CL/6171/157	Parcel ID	H110300 S14

Summary of proposed clearance

Purpose of clearance	Expansion of an existing dam; additional volume of 100 megalitres
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 38, Expansion of a Dam
Description of the vegetation under application	0.79 Ha of partly degraded riverine woodland - <i>Eucalyptus baxteri</i> + <i>E. obliqua</i> + <i>E. cosmophylla</i> +/- <i>E. fasciculosa</i> over <i>Acacia retinodes</i> , <i>Xanthorrhoea semiplana</i> , <i>Gahnia trifida</i> + <i>Juncus pallidiflora</i>
Total proposed clearance - area (ha)	0.79 ha
Level of clearance	Level 3
Overlay (Planning and Design Code)	Native Vegetation Overlay

Map of proposed clearance area



Map of part of "Lyndhurst" [REDACTED] Newland, 5223 (Kangaroo Island) containing the area of vegetation to be impacted. The eastern cadastral boundary of the land parcel is in pink and the parcel ID is shown. The area predicted to be flooded by the proposed dam expansion is the blue (area 0.79Ha). The photopoint (35.82423° S, 137.16888° E) is shown as a blue dot and the description of the relevant vegetation is given.

Mitigation hierarchy	<ul style="list-style-type: none"> • Avoidance: it was not possible to avoid flooding. The construction footprint will be confined to pasture to avoid damage to native other native vegetation during construction. • Minimisation: attempts made to minimise the area flooded by - <ul style="list-style-type: none"> ○ digging out the current dam to increase depth and reduce flooded perimeter • Rehabilitation: the flooded vegetation cannot be rehabilitated. • Payment to Native Vegetation Fund: It is proposed to offset the clearance with a payment to the Native Vegetation Fund as specified immediately below.
SEB Offset proposal	<ul style="list-style-type: none"> • Payment of \$34,355.43 offset plus \$1,889.55 administration fee = \$36,244.98 total.

2. Purpose of clearance

2.1 Description & background

The proponents run a farm that is primarily sheep grazing and are increasingly using regenerative methods. They are proposing to increase the volume of an existing dam by 100 megalitres. The purpose of the expansion is to facilitate increased production of fodder crops and potentially horticultural crops such as peppermint. This would involve the flooding of an estimated 0.79 Ha of native vegetation that is regenerating after being burnt in bushfires in early January 2020.

The vegetation is good quality stringy bark (*Eucalyptus baxteri* & *obliqua*) and cup gum (*E. cosmopylla*) riverine woodland, with infestation by pasture-related weeds (not listed species). although it does contain numerous native understorey species and some regeneration. It is proposed that the impacts on native vegetation will be offset by a payment of \$34,355.43 offset plus \$1,889.55 administration fee = \$36,244.98. This report provides the required information (including impacts on listed species) for assessment of the associated clearance of the relevant native vegetation.

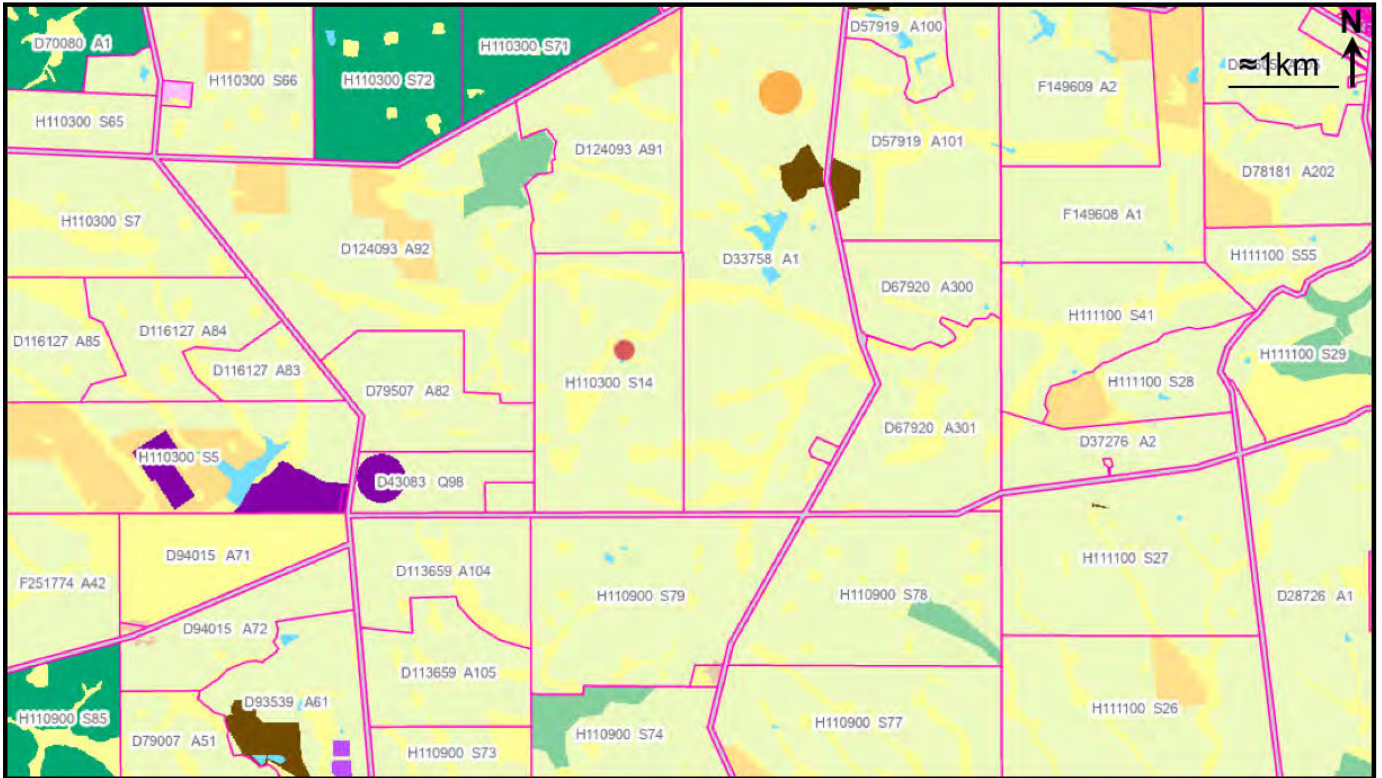
2.2 General location map



Map showing location of the proposed flooding site at [redacted], Newland (Kangaroo Island). The relevant land parcel boundary is yellow with the proposed flooding site in blue. The vegetation association for the proposed clearance is shown. Adjoining cadastral boundaries are shown in pink with land parcel IDs shown. A regional location map is provided below.

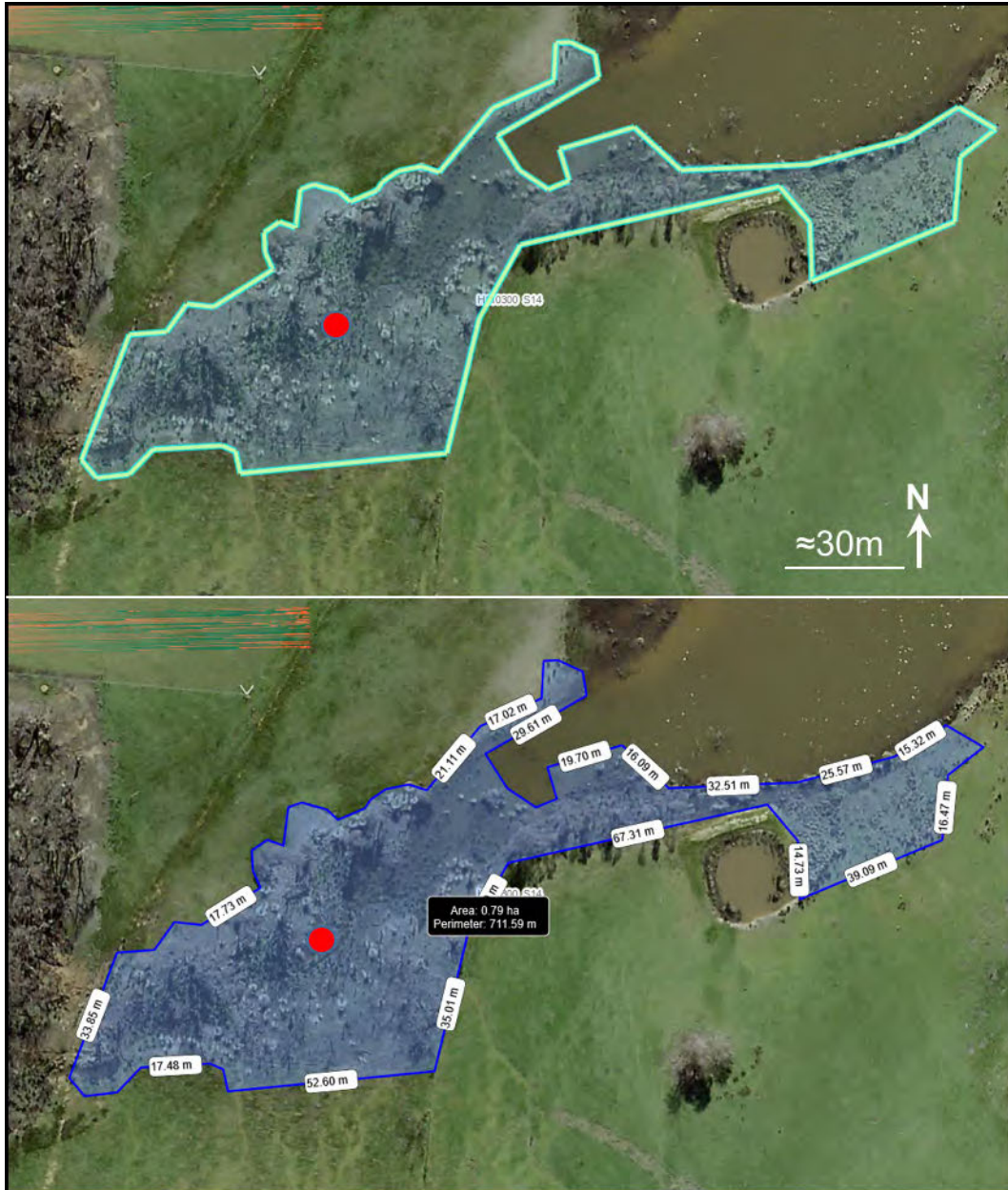


Regional location of the property at [redacted], Newland. The property is located on Kangaroo Island (top panel). The boundary of land parcel in question is indicated in the bottom panel by a yellow line and the land parcel ID is shown. The area of vegetation proposed to be flooded is in dark blue. Surrounding roads are in white and are named. Adjoining cadastral boundaries are in pink and land parcel IDs are shown.



Land use (NatureMaps: Land Use (ACLUMP aggregated)) in an area of approximately 5 10km around the dam for which expansion is proposed (red dot near centre) located at [redacted] (Kangaroo Island). Cadastral boundaries are pink. Most of the surrounding landscape is under primary production, mainly dryland grazing (light green) and cropping (light brown orange) and to a lesser extent irrigated seasonal horticulture (purple) and intensive animal production (dark brown; this may no longer be occurring). Conservation areas are light green and yellow areas are described as having “other minimal uses” and is largely made up of unprotected (generally degraded) native vegetation. Dark green areas represent commercial forestry however this land is now earmarked for dryland agriculture since the 2020 bushfires.

2.3 Details of the proposal



This figure shows the area that is expected to be flooded by an expansion of the current dam (outlined in blue). The bottom panel shows the calculations of the perimeter (712m) and area (0.79Ha). The location of the vegetation quadrat photopoint is shown (red dot). The construction footprint will be entirely in cleared farmland. The westward most extent of the predicted flooding area (upstream) was defined by the proponents as the point at which the creekline hits the fenceline (now burnt) visible running from top to bottom on the left hand side of the pictures.

2.4 Approvals required or obtained for this proposal

- Native Vegetation Act 1991 (current application)
- Planning, Development and Infrastructure Act 2016 - DA 21016163
- The water allocation from Landscapes SA has been approved. No water licence required.

2.5 Native Vegetation Regulation

Regulation 12, Schedule 1; clause 38, Expansion of a Dam

2.6 Development Application information

Zone PrPro, Primary Production, and requiring Native Vegetation Overlay

3. Methods

3.1 Flora assessment

Prior to visiting the property, the potential species that might be encountered were assessed by using NatureMaps 3.0 to produce a potential species list based on previous records occurring within 5km and 10km radii of a point central to the block proposed for clearance. Within the entire clearance footprint. All observed plant species within the entire clearance footprint were noted as was the degree of coverage of individual weed species. Site photos were taken using ContextCam (3.11.1/317). Site inspection took approximately one hour. Threatened flora species reports for a 5km radius around the property were produced using NatureMaps, and EPBC Protected Matters Searches (see Bibliography).

3.2 Fauna assessment

Prior to visiting the property, the potential species that might be encountered were assessed by using NatureMaps to produce a potential species list based on previous records occurring within 5km of the clearance footprint vegetation photopoint. Fauna was noted when moving around the site performing the relevant plant survey. Threatened fauna species reports were conducted as for flora (see above). Listed species for which type of presence was listed as “species or species habitat may occur within area” were added to the fauna list after removal of sea birds that do not utilise the block.

3.3 Fauna survey

The site was assessed for the presence of protected fauna species by searching for indirect evidence of their presence such as burrows, diggings, nests etc. Potential habitat features such as hollows were assessed. Bird calls were additionally used to assess presence of threatened bird species.

3.4 Maps

Cadastral, land use and other maps were obtained using NatureMaps. Satellite imagery was obtained using NatureMaps or Google Earth Pro 7.3.2.5776. Additional map annotations were produced using Powerpoint for Mac (15.24). Development zoning was obtained using the SA government’s Land Development Map Viewer (accessed 27 January 2022 at <http://location.sa.gov.au/viewer/?map=hybrid&x=139.00675&y=-35.03813&z=10&uids=116>). Area and perimeter calculations were made with NatureMaps.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The site (an existing dam and feeder creek) are part of a dryland grazing farm looking to utilise regenerative methods. The area is near the southern margin of the ironstone plateau of western Kangaroo Island. The area generally supports stringybark woodlands and riverine vegetation that is sometimes dominated by sugar gums and pink gums (sometimes SA blue gum) and sometimes dominated by stringybarks with cup gum. The site in question supports the latter vegetation type and most closely resembles the KI Benchmark Community 7.2: Riparian open woodlands and forests with a dense shrub understorey. The area is gently undulating and the soil type corresponding to the riverine vegetation at the site is a sandy loam over poorly structured brown or dark clay, and is likely acidic. Rainfall at the site is just below 700mm.

The surrounding land use is mainly dryland agriculture and cropping with a lesser amount of irrigated horticulture. The remainder of the area is native vegetation, some of which is protected. Most of the surrounding area was burnt at moderate intensity some 24 months prior. Therefore, the vegetation is characterised by having no mature trees and a large amount of regeneration. Some of the regenerating species are at very high abundance that will likely reduce over time (e.g. *Acacia retinodes* see photo below – a lower number of large, burnt trees were seen). Sedges such as *Gahnia trifida* are numerous (see photo below). Apart from sedges and rushes, the understorey was a mixture of regenerating shrubs, heath plants and some forbs. The litter layer had not yet formed to a significant degree (see photo below) and fallen wood was relatively reduced by the fire.

The native vegetation in the flooding footprint is relatively high quality with 34 native plants identified, giving a plant diversity score of 26. Three state-listed rare plants were observed: *Eucalyptus fasciculosa*, *Xanthorrhoea semiplana tateana* and *Spyridium spathulatum*. There was also significant infestation by pasture-related weeds (see below), the most serious being kikuyu and hair's tail grass.

It is possible that the site could support the EPBC-listed southern brown bandicoot, KI short-beaked echidna, various birds, and state-listed Heath goanna (see 4.2). Other state-listed species such as scarlet robin and brush-tailed possum would also possibly utilise the site. No evidence of threatened fauna species' current occupation was found noting that the site was burnt 2 years prior and regrowth was dense in places.

Details of the vegetation associates/scattered trees proposed to be impacted

Vegetation Association	Vegetation Association 1. <i>Eucalyptus baxteri</i> + <i>E. obliqua</i> +/- <i>E. cosmophylla</i> +/- <i>E. fasciculosa</i> riverine woodland over <i>Acacia retinodes</i> +/- <i>A. paradoxa</i> +/- <i>Xanthorrhoea semiplana</i> , +/- <i>Melaleuca brevifolia</i> +/- <i>M. gibbosa</i> +/- various heath species (e.g. <i>Leucopogon</i> , <i>Daviesia</i> , <i>Hibbertia</i> , <i>Pultenaea</i> , <i>Spyridium</i>), forbs, sedges (mainly <i>Gahnia trifida</i>), rushes (mainly <i>Juncus pallidiflora</i>), grasses and pasture weeds.
Representative photo(s)	

Date/Time: 15/12/21, 11:12:04
Location: 35.82423°S 137.16888°E ± 5 m WGS84
Altitude: 171 m ± 3 m
Direction: N.T.
Address: Unavailable



Date/Time: 15/12/21, 11:12:05
Location: 35.82423°S 137.16888°E ± 5 m WGS84
Altitude: 171 m ± 3 m
Direction: E
Address: Unavailable



Date/Time: 15/12/21, 11:12:28
Location: 35.82423°S 137.16888°E ± 5 m WGS84
Altitude: 171 m ± 3 m
Direction: S.T.
Address: Unavailable



Date/Time: 15/12/21, 11:12:38
Location: 35.82423°S 137.16888°E ± 5 m WGS84
Altitude: 171 m ± 3 m
Direction: N.T.
Address: Unavailable



Photographs taken from the photopoint (35.82423°S 137.16888°E; see above) taken looking towards the north (upper left), east (upper right), west (lower left) and south (lower right).



Photograph of the native vegetation expected to be flooded by the proposed dam expansion. The approximate position and direction of this photograph are shown above.



Gahnia trifida was abundant at the site in the lowest areas and has largely regenerated 2 years post-fire.



Acacia retinodes is regenerating at high density in some areas.



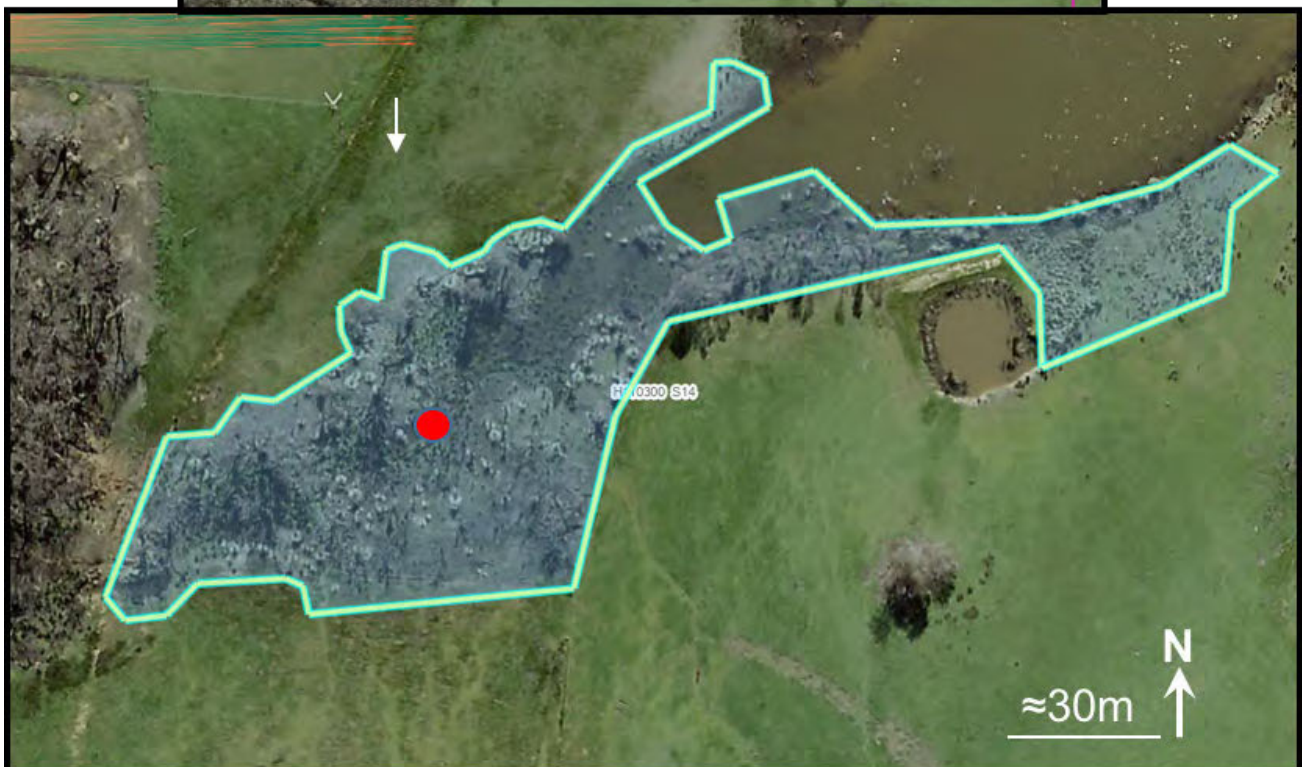
The litter layer is yet to form and open areas were being recolonized by native plants and pasture weeds. Fallen wood has also been much reduced by the fire.



Weeds that prefer wet areas were common in open areas and at the native vegetation margin. In the foreground can be seen *Cotula coronopifolia* (water buttons) with *Vellereophyton dealbatum* (white cudweed) in the background.

General description	<i>Eucalyptus baxteri</i> + <i>E. obliqua</i> +/- <i>E. cosmophylla</i> +/- <i>E. fasciculosa</i> riverine woodland over <i>Acacia retinodes</i> +/- <i>A. paradoxa</i> +/- <i>Xanthorrhoea semiplana</i> , +/- <i>Melaleuca brevifolia</i> +/- <i>M. gibbosa</i> +/- various heath species (e.g. <i>Leucopogon</i> , <i>Daviesia</i> , <i>Hibbertia</i> , <i>Pultenaea</i> , <i>Spyridium</i>), forbs, sedges (mainly <i>Gahnia trifida</i>), rushes (mainly <i>Juncus pallidiflora</i>), grasses and pasture weeds. Burnt 24 months prior; regrowth thick in places given a riverine environment in a high rainfall area (693mm). Significant regeneration of native plants and weeds. Would conform to Kangaroo Island BCM Vegetation Community 7.2: Riparian open forests and woodlands with a dense shrub understorey.				
Threatened species or community	There is a high chance that the area is inhabited by nationally listed KI short-beaked echidna and Rosenberg's heath goanna, however, no current evidence of their presence was observed. The area is suitable habitat for southern brown bandicoot and historical records occur about 5km away but evidence of their presence was not observed. A range of threatened birds could possibly use the site but may require the vegetation to mature and may not have been able to recolonize since the fire – this is unknown.				
Landscape context score	1.1	Vegetation Condition Score	43.59	Conservation significance score	1.10
Unit biodiversity Score	51.79	Area (ha)	0.790	Total biodiversity Score	8.12

Site map showing areas of proposed impact



Top: map showing the eastern cadastral boundary (pink) of the land parcel (ID shown) on which the dam occurs, and the relative location of the dam. The area that would flood as part of the proposed dam expansion is shaded area. Bottom: close up of the affected vegetation which is a single vegetation association. The photopoint (see directional photos above) is marked with a red dot (35.82423°S 137.16888°E). The white arrow shows the approximate location and direction of an external photopoint (see photo above). Upstream is to the left.

Photo log

This assessment was relatively simple and involved only one vegetation association that had been burnt 2 years prior. Photographs were taken looking N, S, E and W from the internal photopoint and the site was photographed externally also (see above). Photographs were also taken of the ground layer, weeds, regenerating plants and abundant sedges at the site. Given the small size of the block, these were sufficient for this assessment.

4.2 Threatened Species assessment

The following fauna species were highlighted using a 5km search radius:

Species	Common Name	EPBC	SA
<i>Melithreptus brevirostris magnirostris</i>	Brown-headed Honeyeater (KI)	EN	
<i>Myiagra inquieta</i>	Restless Flycatcher		R
<i>Petroica boodang boodang</i>	Scarlet Robin		R
<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot (mainland SA & KI)	EN	V
<i>Tachyglossus aculeatus multiaculeatus</i>	Short-beaked Echidna (KI)	EN	E
<i>Trichosurus vulpecula</i>	Common Brushtail Possum		R
<i>Varanus rosenbergi</i>	Heath Goanna		V

E, EN – Endangered; EPBC – Environmental Protection and Biodiversity Conservation (Act); KI – Kangaroo Island; SA – South Australia; V, VU – Vulnerable

The area proposed to be flooded is potential habitat for the southern brown bandicoot and there are historical records from roadsides about 5km from the site. It is possible bandicoots occur at the site although evidence of this was not seen. It is likely that the site could act as habitat for the KI short-beaked echidna or Heath goanna and these species may be present in higher areas however, as mentioned, evidence of their current occupation was not found. There are several records of the scarlet robin, and a single record each of restless flycatcher and brownheaded honeyeater, about 2km from the site and it is likely they could utilise the site. It may require the vegetation to mature to be able to support these bird species and they may not have been able to recolonize since the fire – this is unknown.

The historical records of bandicoots located about 5km from the site are shown below



Historical records for *Isoodon obesulus obesulus* (southern brown bandicoot) shown as red dots, located about 5km of the site (blue dot). No evidence of bandicoots was seen at the site proposed for flooding but their presence cannot be ruled out given that sampling appears to have been targeted at nearby roadsides.

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.

The only accumulative impact identified (and which must be considered under the Regulation), is that of reduced flow on the downstream riparian vegetation (the flooded vegetation would be upstream). The dam is located in a drainage line/small tributary high in the catchment which feeds the Eleanor River. The reduced flow has been approved from a hydrological perspective. There are a number of dams in the near vicinity, one quite large, that likely mean the flow is already minimal immediately downstream of the proposed dam expansion.

The approved volume of the current dam is 90 megalitres and the proposed expansion would potentially add 100 megalitres. This represents a 111% increase in volume. Given the numerous existing dams and limited flow currently, it is expected that most of the ecological damage from significantly reduced flow would have already occurred. Therefore, it is likely that the proposed dam expansion would affect the downstream vegetation only a small amount.

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

Given the nature of the proposal, it was not possible to avoid flooding altogether. All construction works will be undertaken in cleared agricultural land.

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 potential flooding footprint has been minimised by the approach of digging out the current dam to increase depth and reduce flooded perimeter.

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.

The flooded area cannot be rehabilitated or restored, however, sedges and rushes will likely grow around the margins and the dam is unlikely to be full for long periods.

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 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.

It is proposed to offset the clearance with a payment to the Native Vegetation Fund.

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	Relevant information	Assessment against the principles	Moderating factors that may be considered by the NVC
<i>Principle 1b - significance as a habitat for wildlife</i>	The site is potential habitat for a number of mammals and birds, as identified by a EPBC Protected Matters Search and a 5km radius search of historical records. No evidence of these species was found in the proposed flooding footprint. Threatened Fauna Score: 0.1 Unit biodiversity Score: 63.84	<u>Seriously at Variance</u> Threatened Fauna Score ≥ 0.05 , Unit Biodiversity Score > 50	The area burnt 2 years ago and is not close to unburnt vegetation; therefore, it is likely that it is still uncolonised by most mammals and some birds. There are no mature living trees and minimal litter layer. There is adjoining vegetation into which animals could move from the flooded footprint, and elsewhere on the property.
<i>Principle 1c - plants of a rare, vulnerable or endangered species</i>	No threatened flora noted at site. Threatened Flora Score: 0	<u>Not at Variance</u>	
<i>Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:</i>	No threatened communities / ecosystems present. Threatened Community Score: 1	<u>Not at Variance</u>	

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	N/A
	Area (ha)	0.790
	Total biodiversity Score	50.43
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 3

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
1	1	26	1	0	.1	63.84	.79	50.43	1	-	-	52.95	\$34,355.43	\$1889.55
						Total	.79	50.43				52.95	\$34,355.43	\$1889.55

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	50.43	52.95	\$34,355.43	\$1889.55	\$36,244.98

Economies of Scale Factor	0.35
Rainfall (mm)	693

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.

PAYMENT SEB

The proponents propose to achieve the SEB by paying into the Native Vegetation Fund \$34,355.43 offset plus \$1889.55 administration fee = \$1889.55 total. The payment will be made by bank transfer.

7. Bibliography

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8. Appendices

Appendix 1. Bushland Vegetation Assessment Scoresheets (contains flora species list)

Bushland Assessment Scoresheets		(Version 22 Oct 2021)																			
Block	1	ASSESSOR(S)	R chard G atz																		
Size of Block (Ha)	0.790	DATE OF ASSESSMENT	15 12 2021																		
Landscapes Region	Kangaroo Is and																				
BCM Region	Kangaroo Is and																				
IBRA Association	Parndana																				
IBRA Subregion	Kangaroo Is and																				
Map of the Block (Including the Sites)																					
		<p><i>Eucalyptus baxteri</i> + <i>E. obliqua</i> +/- <i>E. cosmophylla</i> +/- <i>E. fasciculosa</i> riverine woodland over <i>Acacia</i> <i>retinodes</i>, <i>Xanthorrhoea semiplana</i>, <i>Gahnia trifida</i> & <i>Juncus pallidiflora</i></p>																			
Landscape Context Scores		<table border="1"> <tr> <td>% native veg. remaining in IBRA Assoc.</td> <td>52</td> </tr> <tr> <td>% native veg. remaining in IBRA subregion</td> <td>52</td> </tr> <tr> <td>0-10% = 0 05 pts >10-20% = 0 04 pts >20-30% = 0 03 pts</td> <td></td> </tr> <tr> <td>>30-60% = 0 02 pts >60 = 0 pts</td> <td>Score 0.04</td> </tr> <tr> <td colspan="2">Score received or both IBRA assoc and subregion then summed</td> </tr> </table>		% native veg. remaining in IBRA Assoc.	52	% native veg. remaining in IBRA subregion	52	0-10% = 0 05 pts >10-20% = 0 04 pts >20-30% = 0 03 pts		>30-60% = 0 02 pts >60 = 0 pts	Score 0.04	Score received or both IBRA assoc and subregion then summed									
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Score	0.02																				
Note: Blocks will score a minimum Landscape Context Score of 1		LANDSCAPE CONTEXT SCORE (max 1.25) 1.1																			

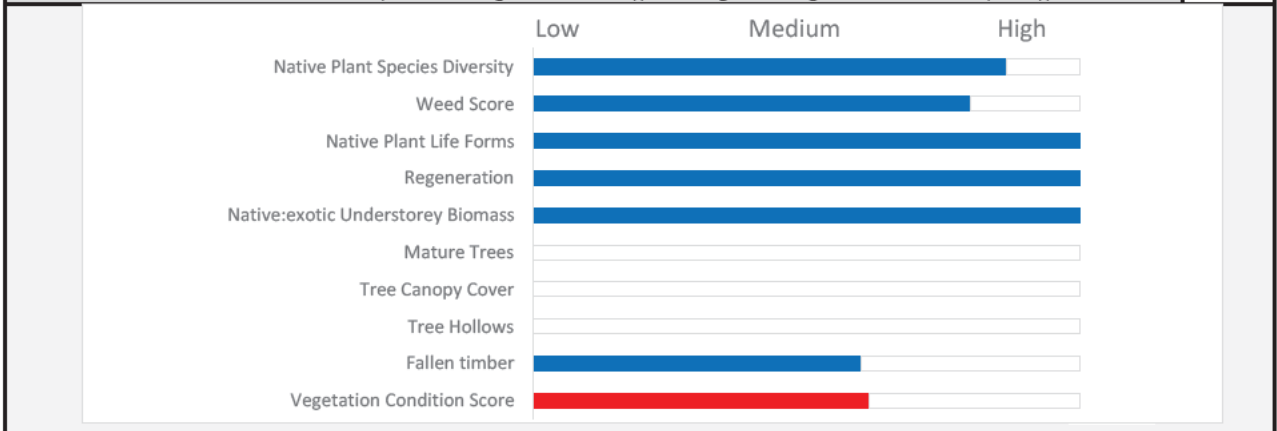
Vegetation Condition Scores

SITE:	1
BCM COMMUNITY	KI 7.1 Riparian woodlands with an open shrub understorey
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus baxteri + E. obliqua +/- E. cosmophylla +/- E. fasciculosa ri
SIZE OF SITE (Ha)	0.79

Benchmarked attributes (Scores determined by comparing to a Benchmark community)				Native Plant Life Forms	Cover rating
Number of Native Species (Minus herbaceous annuals for spring Surveys)	32			Trees > 15m	0
Native Plant Species Diversity Score (max 30) from benchmark score <i>weighted by a factor of 2</i>	26.0			Trees 5 - 15 m	0
				Trees < 5m	4
				Mallee > 5m	0
				Mallee < 5m	0
Number of regenerating native species	16			Shrubs > 2m	0
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5	12			Shrubs 0.5 - 2m	2
				Shrubs < 0.5	3
				Forbs	2
Weed species (Top 5 Cover x Invasiveness)	Cover (max 6)	Weed Threat Rating (max 5)	C x I	Mat Plants	1
Lolium sp.	2	1	2	Grasses > 0.2m	1
Lagurus ovatus	2	2	4	Grasses < 0.2m	1
Pennisetum clandestinum	1	3	3	Sedges > 1m	4
Carduus sp.	1	2	2	Sedges < 1m	3
Cirsium vulgare	1	2	2	Hummock grasses	0
	Cover x Threat		13	Vines, scramblers	1
Weed Score (max 15) from benchmark community	12			Mistletoe	0
				Ferns	0
				Grass-tree	2
				Total	24
Native Plant Life Forms (max 20) from benchmark score <i>weighted by a factor of 2</i>					20.0

Non-Benchmarked Attributes (Scores determined from direct field observations)		<i>Is the community naturally treeless?</i>	<input type="checkbox"/>
Native:exotic Understorey biomass Score (max 5)	5	Fallen Timber/Debris (max 5)	3
		Hollow-bearing trees Score (max 5)	0
		Mature Tree Score (max 8)	0
		Tree Canopy Cover Score (max 5)	0


Vegetation Condition Score calculation	
Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms Fallen timber/debris + Hollow-bearing trees <i>- If the community Score is Not Benchmarkd (SNB) for regeneration this score is multiplied 1.24</i> <i>- If the community is naturally treeless this score is multiplied by 1.29</i>	61.00
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	15.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))	49.18



Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	Yes/No
State (Provisional List of Threatened Ecosystems of SA) Rare community (0.1 pt)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Vulnerable community (0.35 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	<input type="checkbox"/>
<i>Note: all sites will score a minimum Conservation Significance Score of 1</i>	
Threatened Community Score	1
Number of Threatened Flora Species recorded for the site (within the site)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
State Rare species recorded (1 pt each)	3
State Vulnerable species recorded (2.5 pt each)	0
State Endangered recorded (5 pts each)	0
Nationally Vulnerable species recorded (10 pts each)	0
Nationally Endangered or Critically endangered species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16 pts; 20 or > = 0.2 pts	3
Threatened Flora Score	0.08
Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
State Rare species observed or locally recorded (1 pt each)	0
State Vulnerable species observed or locally recorded (2.5 pt each)	0
State Endangered species observed or locally recorded (5 pt each)	0
Nationally Vulnerable species observed or locally recorded (10 pts each)	1
Nationally Endangered or Critically endangered species observed or locally recorded (20 pts each)	4
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	90
Threatened Fauna Score	0.1
CONSERVATION SIGNIFICANCE SCORE	1.18

Total Scores for the Site		Vegetation Condition x Landscape Context x Conservation Significance =	
LANDSCAPE CONTEXT SCORE	1.10	UNIT BIODIVERSITY SCORE	63.84
VEGETATION CONDITION SCORE	49.18	Total Biodiversity Score	
CONSERVATION SIGNIFICANCE SCORE	1.18	(Biodiversity Score x hectares)	50.43

Photo Point and Vegetation Survey Location	Direction of the Photo	
	East	
	GPS Reference	
	Datum	WGS84
	Zone (52, 53 or 54)	53
	Easting (6 digits)	137.16888
	Northing (7 digits)	-35.82423
	Description	Eucalyptus baxteri + E. obliqua +/- E. cosmophylla +/- E. fasciculosa riverine woodland over Acacia retinodes +/- A. paradoxa +/- Xanthorrhoea semiplana, +/- Melaleuca brevifolia +/- M. gibbosa +/- various heath species
What is the purpose of Assessment?	Clearance	

Assessment for Clearance		Approximate hectares required	
Loss Factor	1.0	Economies of Scale Factor	0.35
Loadings for clearance of protected areas		Mean Annual rainfall for the site (mm)	693
Reductions for rehabilitation of impact site		Payment into the fund (GST Exclusive)	\$34,355.43
SEB Points required	52.95	Administration fee (GST Inclusive)	\$1,889.55

Appendix 2. EPBC Protected Matters 5km Radius Search – full results



Australian Government
Department of Agriculture,
Water and the Environment

EPBC Act Protected Matters Report

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

Report created: 27-Jan-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	28
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	45
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]	
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Acanthiza lineata whitei			
Kangaroo Island Striated Thornbill [80759]	Vulnerable	Species or species habitat known to occur within area	In feature area
Anthochaera chrysoptera halmaturina			
Kangaroo Island Little Wattlebird [80437]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus			
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami halmaturinus			
Kangaroo Island Glossy Black-Cockatoo, Glossy Black-Cockatoo (South Australian) [64436]	Endangered	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area	In feature area
Hylacola cauta halmaturina listed as Calamanthus cautus halmaturinus			
Shy Heathwren (Kangaroo Island) [82332]	Vulnerable	Species or species habitat known to occur within area	In feature area
Melithreptus brevirostris magnirostris			
Kangaroo Island Brown-headed Honeyeater [80453]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nesoptilotis leucotis thomasi Kangaroo Island White-eared Honeyeater [86394]	Endangered	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Platycercus elegans melanopterus Kangaroo Island Crimson Rosella [91209]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In feature area
Zoothera lunulata halmaturina South Australian Bassian Thrush, Western Bassian Thrush [67121]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Isodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat known to occur within area	In feature area
Sminthopsis griseoventer aitkeni Kangaroo Island Dunnart [87634]	Endangered	Species or species habitat may occur within area	In feature area
Tachyglossus aculeatus multiaculeatus Kangaroo Island Echidna [87597]	Endangered	Species or species habitat known to occur within area	In feature area
PLANT			
Asterolasia phebalioides Downy Star-bush [3599]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caladenia ovata Kangaroo Island Spider-orchid [3957]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Caladenia tensa Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat may occur within area	In feature area
Cheiranthra volubilis Twining Finger-flower [3125]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dodonaea procumbens Trailing Hop-bush [12149]	Vulnerable	Species or species habitat may occur within area	In feature area
Euphrasia collina subsp. osbornii Osborn's Eyebright [3684]	Endangered	Species or species habitat may occur within area	In feature area
Pomaderris halmaturina subsp. halmaturina Kangaroo Island Pomaderris [21964]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Ptilotus beckerianus Ironstone Mulla Mulla [3787]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thelymitra matthewsii Spiral Sun-orchid [4168]	Vulnerable	Species or species habitat may occur within area	In feature area
Veronica derwentiana subsp. homalodonta Mount Lofty Speedwell [82836]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat known to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat known to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In feature area
Fish			
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In feature area
Campichthys tryoni Tryon's Pipefish [66193]		Species or species habitat may occur within area	In feature area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In feature area
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In feature area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In feature area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In feature area
Hypselognathus rostratus Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Kaupus costatus Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In feature area
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area	In feature area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In feature area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In feature area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In feature area
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In feature area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In feature area
Vanacampus vercoi Verco's Pipefish [66286]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Unnamed (No.HA565)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA643)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA941)	Heritage Agreement	SA	In buffer area only

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Not controlled action					
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area	
Not controlled action (particular manner)					
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Not controlled action (particular manner)					
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area	

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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

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