



**Natural Area**  
CONSULTING MANAGEMENT SERVICES

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**Reconnaissance Flora, Vegetation and  
Environmental Survey, 470 Sydney Road,  
Gnangara**

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## Executive Summary

Natural Area Consulting Management Services (Natural Area) was commissioned by A. and K. Abduramanoski to conduct a reconnaissance flora and vegetation survey and environmental assessment of 470 Sydney Road, Gngangara. Information gathered during the surveys will be used to inform stakeholders of the environmental values of the site and to provide supporting information for future developments. The proposed development within the Lot comprises of a restaurant and carpark, with extensive landscaping adjacent to and within the current conservation category wetland present.

The survey site:

- occurs within an environmentally sensitive area
- occurs within Bush Forever site 326, Hawkins Road Bushland, Jandabup/Gngangara
- contain an area which is classed as a conservation category wetland.

The survey aimed to determine:

- flora and fauna species present (native and non-native)
- the extent and boundaries of vegetation type and condition
- the location of declared rare or priority flora, fauna and/or ecological communities
- biophysical characteristics of the site including soil types, topography, landscape and water presence.

The flora and vegetation survey within site confirmed:

- a total of 58 species from 21 families
- a total of 25 introduced (weed) species and 33 native species
- no threatened or priority flora was recorded within the site although the survey was conducted outside of the optimal survey timings for the Swan Coastal Plain
- two vegetation types were present, *\*Pinus pinaster* and *Melaleuca preissiana* Forest within the conservation category wetland and *Melaleuca preissiana* Open Woodland in the surrounding higher elevated areas
- vegetation condition ranged from Completely Degraded to Excellent with majority of the site in Completely Degraded condition
- no threatened or priority ecological communities were present within the site.

The presence of the conservation category wetland, weed encroachment of the site and the presence of the Bush Forever site is discussed with recommendations made in relation to these factors if development of the site is approved.

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## 1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was commissioned by A. and K. Abduramanoski to conduct a reconnaissance flora and vegetation survey and environmental assessment of 470 Sydney Road, Gnangara. Information gathered during the surveys will be used to inform stakeholders of the environmental values of the site and to provide supporting information for future developments. The proposed development within the Lot comprises of a restaurant and carpark, with extensive landscaping adjacent to and within the current conservation category wetland present.

### 1.1 Location

The survey area covers approximately 9 ha and consists of land which is vegetated and portions which have been historically cleared. The site is located at 470 Sydney Road, Gnangara, approximately 20 km north of the Perth CBD (Figure 1). The survey site occurs within an environmentally sensitive area (Department of Water and Environmental Regulation, 2022a) and located within Bush Forever site 326, Hawkins Road Bushland, Jandabup/Gnangara (Department of Planning, Lands and Heritage, 2000).

A search of the Aboriginal Heritage Inquiry System resulted in no records of heritage places within the survey site (Department of Planning, Lands and Heritage 2022). A search for European heritage using the inHerit system resulted in no records of heritage site within the survey site (Government of Western Australia, 2022).

### 1.2 Scope

Activities undertaken by Natural Area included:

- Desktop database searches to identify potential conservation significant flora and fauna species, along with any threatened or priority ecological communities. Desktop searches include, but is not limited to, Protected Matters Search Tool (PMST), Department of Biodiversity, Conservation and Attractions (DBCA) flora, and community database searches.
- Reconnaissance flora and vegetation survey and environmental assessment to determine the extent of the vegetation condition and type, as well as recording flora (native and introduced) species present, including the presence of any threatened or priority species.
- Reporting outcomes of the assessment activities.

The reconnaissance flora survey aimed to determine:

- the extent and boundaries of vegetation types and condition
- flora species (native and introduced) present
- the location of declared rare or priority flora and or ecological communities
- biophysical characteristics of the site including soil types, topography, landscape and water presence.







## 2.0 Site Characteristics

The characteristics of a site have a strong bearing on the flora, vegetation, fauna, and ecological communities present. Key characteristics of the site are outlined in this section.

### 2.1 Regional Context

According to the Interim Biogeographical Regionalisation of Australia (IBRA) descriptions, the survey site occurs within the Swan Coastal Plain (SWA 2 – Swan Coastal Plain subregion) (Department of Primary Industries and Regional Development, 2022). This area is described as a low-lying coastal plain with sands of colluvial and aeolian origin, as well as alluvial river flats and coastal limestone (Mitchell, Williams & Desmond, 2002). The region is dominated by *Banksia* and/or Jarrah (*Eucalyptus marginata*) Woodland over sandy soils associated with the dune systems, with Paperbark (*Melaleuca*) in swampy/damp areas and Jarrah Woodland to the east where the Swan Coastal Plain rises (Mitchell, Williams & Desmond, 2002). Tuart (*Eucalyptus gomphocephala*) Woodlands are associated with areas containing limestone (Mitchell, Williams & Desmond, 2002).

### 2.2 Climate

The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. According to the Bureau of Meteorology (2022); Perth Airport WA, site number 009021, the region has an average:

- rainfall of 760.9 mm pa, with rain falling predominantly between June and August
- maximum temperature ranging from 19 °C in winter to 31.9 °C in summer, with a maximum recorded temperature of 46.7 °C
- minimum temperatures ranging from 8.1 °C in winter to 17.5 °C in summer, with a minimum recorded temperature of -1.3 °C
- predominant wind directions include morning easterlies and westerly sea breezes during the summer months, with an average wind speed of 14.7 km/h and gusts of more than 100 km/h.

### 2.3 Topography and Soils

Topography across the site ranges from 46 to 52 Australian Height Datum (AHD) with the site gently rising from the north-east corner to the south-west corner (DPIRD, 2022). Using the NRInfo Portal two soil types were identified on site, including Bassendean, Jandakot Phase and Bassendean seasonal swamps phase which are described in Table 1 (DPIRD, 2022) (Figure 2).

**Table 1:** Soil types within the survey site

Name	Symbol	Description
Bassendean, Jandakot Phase	212Bs_Ja	Jandakot low dunes. Slopes <10% and generally more than 5m relief. Grey sand over pale yellow sands generally underlain by humic and iron podzols; <i>Banksia</i> spp. low open woodland with a dense shrub layer.
Bassendean seasonal swamps phase	212BS_Ws	Depressions with free water in winter. Humus podzols and peat. Dense <i>Melaleuca preissiana</i> ; <i>Melaleuca</i>



Name	Symbol	Description
		<i>rhaphiophylla</i> and <i>Eucalyptus rudis</i> around the edges with reeds and sedges in the centre.

Source: DPIRD, 2022.

## 2.4 Vegetation Complex

One vegetation complex exists within the site boundary, the Bassendean Complex – Central and South. This complex is described as having woodlands comprising of Jarrah-Sheoak-Banksia, low woodlands comprising of *Melaleuca* species and within low lying depressions and swamps sedgelands occur (Heddle *et al.* 1980). Also included within this complex is a transition zone of Jarrah (*Eucalyptus marginata*), *Eucalyptus tottiana* (Coastal Blackbutt) within the Perth region with *Banksia* spp. more common on the upper slopes (Heddle *et al.* 1980). The survey site occurs on the north-eastern extent of this complex and immediately adjacent to the Bassendean Complex – North Transition which is shown in Figure 3).

The pre-European extent of the Bassendean Complex – Central and South remaining is:

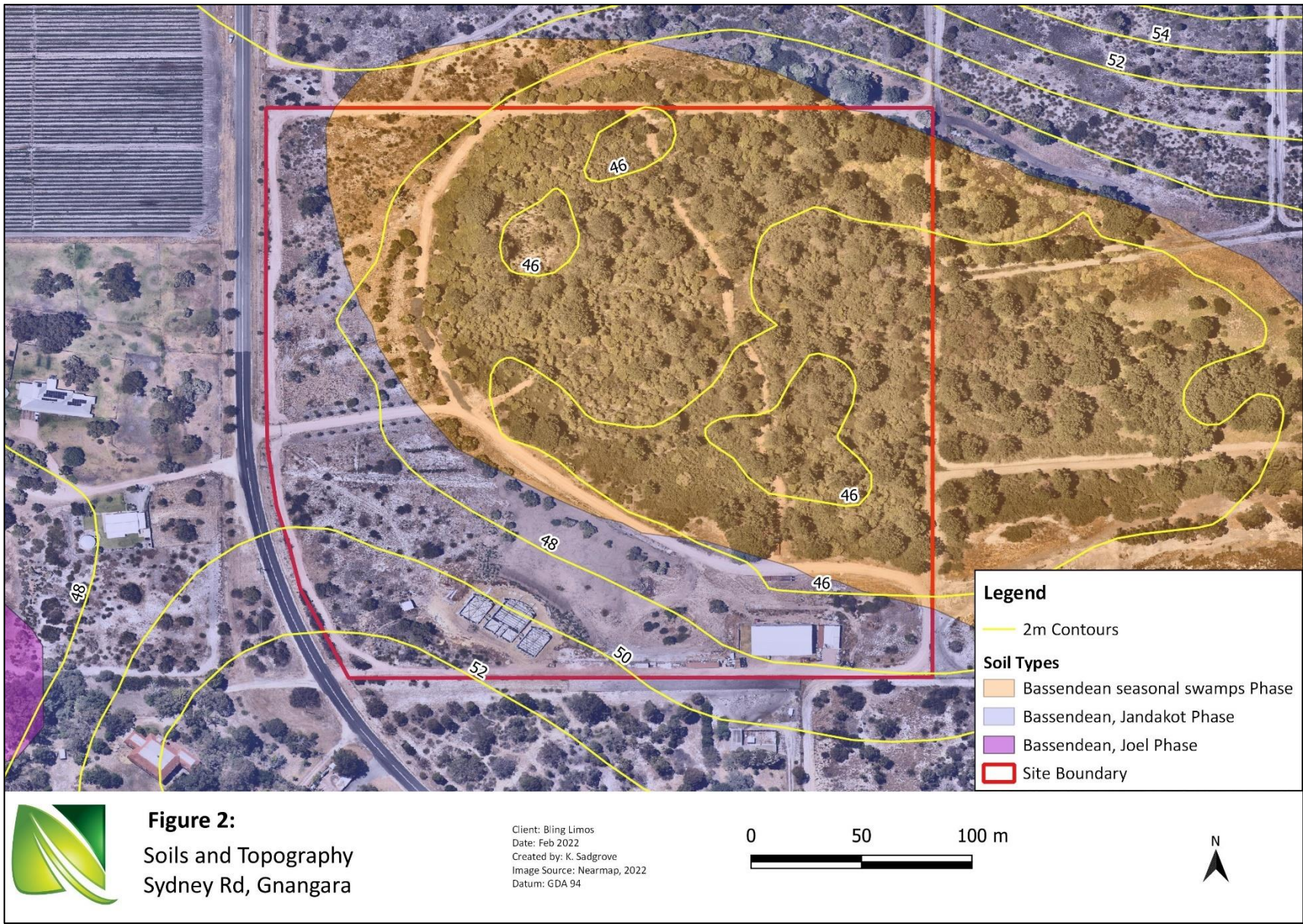
- 26.87% within the Swan Coastal Plain
- 22.55% within the City of Wanneroo (LGA) (Government of Western Australia, 2019).

## 2.5 Hydrology

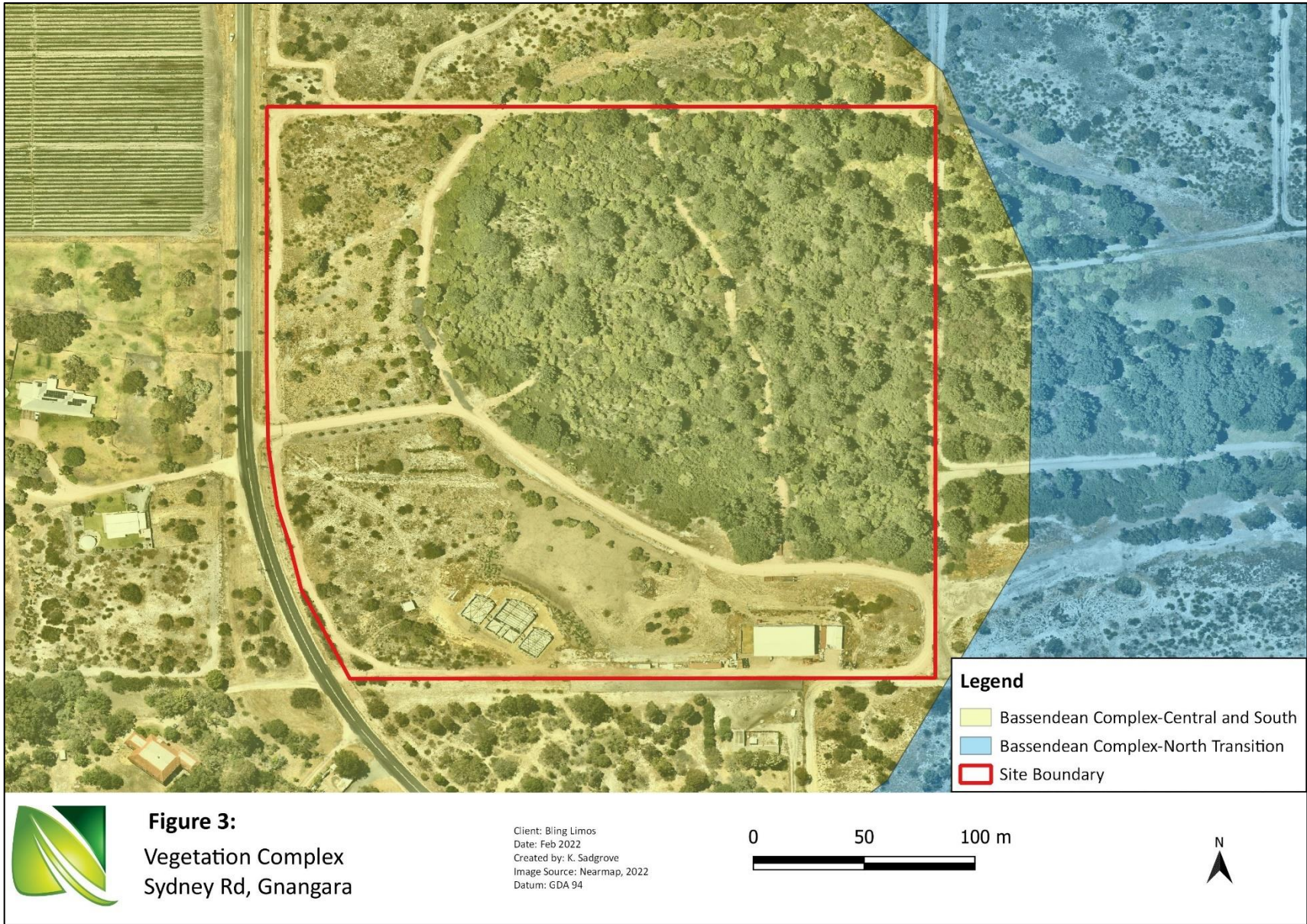
The survey site occurs within an area classified as conservation category wetland, with the unique feature identifier (UFI) 8102 (DBCA, 2022). One groundwater bore is present on the site with the approximate location shown in Figure 1. Depth to groundwater was recorded at 5 m when the bore was installed on the property in 2018 by Perth Water Bore Drilling (A. and K. Abduramanoski, personal communication). As the bore was installed 4 years ago it is likely that the depth to the groundwater would have changed in that time. Initial environmental assessments undertaken by Emerge (2018) for the *Preliminary Environmental Assessment of Planning Investigation Areas East Wanneroo District Structure Plan*, stated that the 'CCW 8102 is disturbed and may represent an REW' (Resource enhancement wetland).

Aerial imagery publicly available on the Landgate website, shows a decline in water levels within the site with the last visible signs of water shown on the aerial photographs from 1981 (Landgate, 2022). From these aerial photographs the site appears to go from a lake with visible water to an area which has slowly become vegetated to the current state of the site which contains dampland vegetation. Several potential causes could contribute to the decline in water levels, including:

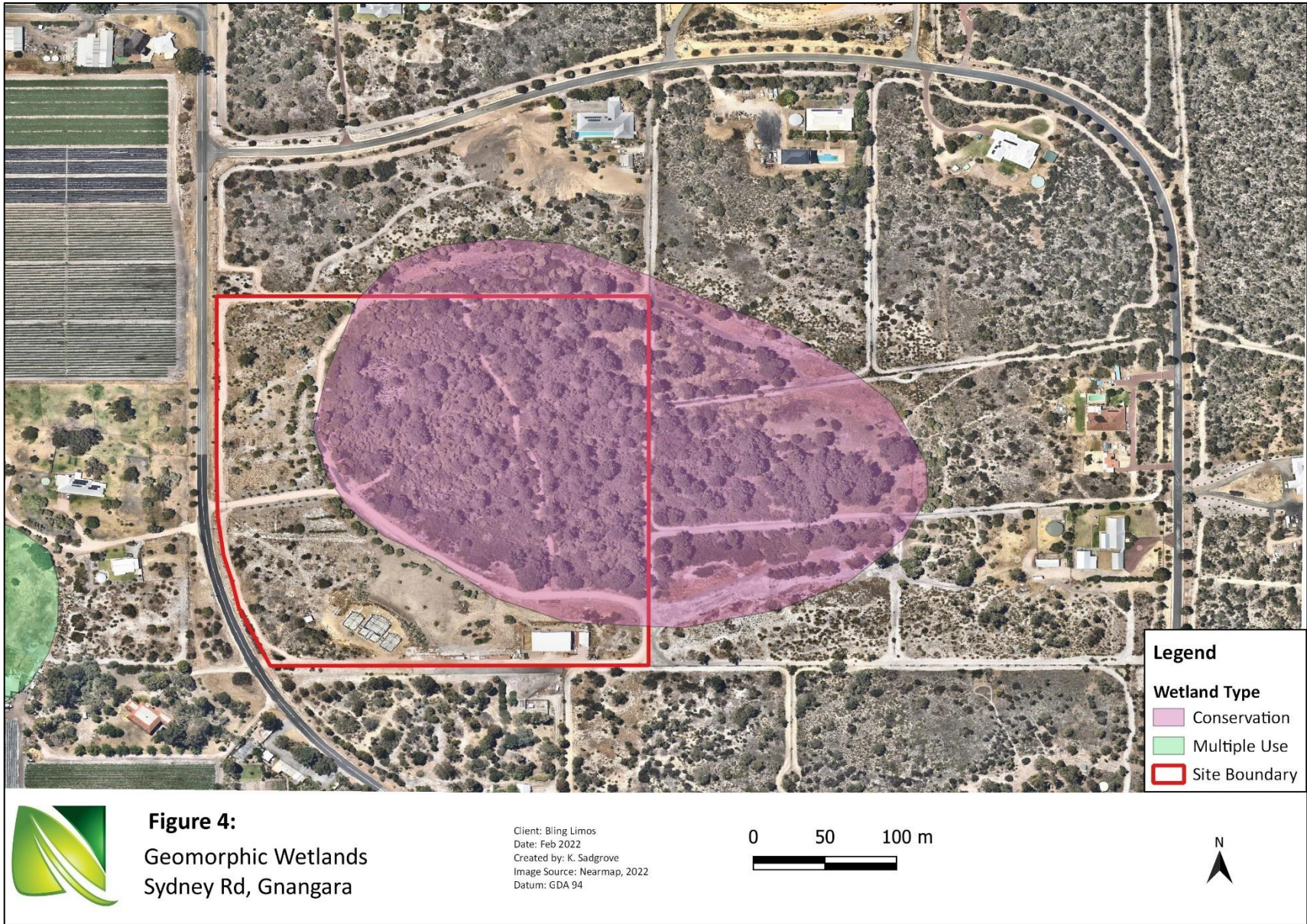
- there has been a 1000 GL loss of water storage in the Gnangara Mound aquifer since 1980 (DWER, 2022b)
- climate changes which has correlated to a reduction in rainfall within the Perth region of 15% since 1975 (DWER, 2022b)
- potential for human induced changes for example drawing from the waterbody as source of irrigation.











## 3.0 Methodology

### 3.1 Desktop and Literature Review

The desktop survey included reviewing online databases to gather contextual knowledge and determine preliminary site characteristics including:

- likely native and non-native flora and fauna species present
- current extent of native vegetation
- general floristic community types
- likely presence of threatened or priority flora and fauna species
- likely presence of any threatened or priority ecological communities.

The following databases were accessed to obtain relevant information:

- Protected Matters Search Tool (Department of the Agriculture, Water and Environment, 2022) (Appendix 1)
- FloraBase (Department of Biodiversity, Conservation and Attractions (DBCA), 2022a)
- Threatened and priority flora and ecological community database searches (DBCA, 2022b).

Conservation code definitions for the State and Commonwealth are provided in Appendix 2.

### 3.2 On-ground Flora and Environmental Survey

Natural Area lead botanist Sharon Hynes and assistant Karri Grant undertook the survey on the February 2, 2022, with key data recorded using Mappt software on a handheld tablet. Survey activities included:

- traversing the site recording all flora (native and introduced) present
- determining the presence of any further threatened or priority listed flora species and/or ecological communities listed under the *Biodiversity and Conservation Act 2016* (WA) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
- recording vegetation type including dominant over, middle and understorey species (Table 2) and condition using the scale attributed to Keighery (Table 3) (Government of Western Australia, 2000)
- the use of GPS to map significant species and boundaries of differing vegetation type and condition
- recording soil types present
- recording landscape features and topography
- recording evidence of disturbances.

The flora and vegetation survey were conducted in accordance with *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority, 2016), and included a desktop review of literature and databases. Samples were collected, or photographs taken of unfamiliar species to enable later identification.

#### 3.2.1 Vegetation Type

The vegetation type was determined using the structural classes described in *Bush Forever Volume 2* (Government of Western Australia, 2000), and records dominant over, middle and understorey species. A tablet equipped with GPS mapping software (Mappt) was used to mark the change in vegetation type across the site. A description of the various structural classes is provided in Table 2.



**Table 2:** Vegetation structural classes

Life Form/Height Class	Canopy Percentage Cover			
	100 – 70%	70 – 30%	30 – 10%	10 – 2 %
Trees over 30 m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland
Trees 10 – 30 m	Closed forest	Open forest	Woodland	Open woodland
Trees under 10 m	Low closed forest	Low open forest	Low woodland	Low open woodland
Tree Mallee	Closed tree mallee	Tree mallee	Open tree mallee	Very open tree mallee
Shrub Mallee	Closed shrub mallee	Shrub mallee	Open shrub mallee	Very open shrub mallee
Shrubs over 2 m	Closed tall scrub	Tall open scrub	Tall shrubland	Tall open shrubland
Shrubs 1 – 2 m	Closed heath	Open heath	Shrubland	Open shrubland
Shrubs under 1 m	Closed low heath	Open low heath	Low shrubland	Low open shrubland
Grasses	Closed grassland	Grassland	Open grassland	Very open grassland
Herbs	Closed herbland	Herbland	Open herbland	Very open herbland
Sedges	Closed sedgeland	Sedgeland	Open sedgeland	Very open sedgeland

Source: Government of Western Australia, 2000

### 3.2.2 Vegetation Condition

Vegetation condition was assessed using the rating scale attributed to Keighery in *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016) (Table 3). A tablet equipped with GPS mapping software (Mappt) was used to mark the vegetation condition across the site.

**Table 3:** Vegetation condition ratings

Category	Description
1 Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
2 Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
3 Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4 Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds, partial clearing, dieback and grazing.
5 Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.

Category		Description
		Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
6	Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: EPA, 2016

### 3.3 Limitations

Several limitations associated with both desktop and on-ground flora surveys exist, including:

- the survey was conducted outside of the optimal time of year for floristic surveys in the Perth region with only species present at the time of survey recorded, this has a minor affect with some spring annuals not able to be checked for presence
- database searches provide an indication of what flora species may be present, with on ground surveys required to confirm those present, this has nil affect as on ground surveys were completed
- information on flora species provided on some databases include out-of-date species names, meaning that names need to be checked for currency, these were checked, and all current names are used
- on-ground surveys indicate species present at the time of the assessment, with species flowering at different times not always able to be identified
- the differing databases are reliant on information submitted via various reporting mechanisms, so all records of a particular species or ecological community within a specified area may not be complete.

## 4.0 Flora Survey Results

### 4.1 Desktop Survey

A desktop survey of online databases indicated the potential for a total of 30 conservation significant species to occur within 20 km of the survey area (Table 4). A review of the Protected Matters Search Tool (PMST) (Department of Agriculture, Water, and the Environment, 2022) indicated 13 significant flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) as potentially occurring within a 10 km radius of the site (Appendix 1).

A review of the DBCA (2022) threatened and priority flora database indicated 20 threatened or priority species have been recorded within 20 km of the site. Of the conservation significant species potentially found in the area, it was determined that the site conditions (soil type, drainage, location) may be suitable for five (highlighted green) of these species (Table 4). Conservation code descriptions are provided in Appendix 2.

**Table 4:** Threatened and priority flora species listed by PMST and DBCA

Species Name	Cons. Code	PMST	DBCA
<i>Acacia benthamii</i>	P2		X
<i>Andersonia gracilis</i>	EN	X	
<i>Anigozanthos viridis</i> subsp. <i>terraspectans</i>	VU	X	
<i>Baeckea</i> sp. Limestone	P1		X
<i>Caladenia huegelii</i>	EN	X	X
<i>Calectasia elegans</i>	P2		X
<i>Conostylis bracteata</i>	P3		X
<i>Cyathochaeta teretifolia</i>	P3		X
<i>Diuris micrantha</i>	VU	X	
<i>Diuris purdiei</i>	EN	X	
<i>Drakaea elastica</i>	EN	X	
<i>Drakaea micrantha</i>	VU	X	
<i>Drosera occidentalis</i>	P4		X
<i>Eleocharis keigheryi</i>	VU	X	
<i>Eucalyptus argutifolia</i>	VU	X	X
<i>Fabronia hampeana</i>	P2		X
<i>Grevillea curviloba</i> (syn. <i>Grevillea curviloba</i> subsp. <i>curviloba</i> and <i>Grevillea curviloba</i> subsp. <i>incurva</i> )	EN	X	X
<i>Haemodorum loratum</i>	P3		X
<i>Hibbertia leptotheca</i>	P3		X

Species Name	Cons. Code	PMST	DBCA
<i>Hydrocotyle lemnoides</i>	P4		X
<i>Jacksonia sericea</i>	P4		X
<i>Macarthuria keigheryi</i>	EN	X	
<i>Marianthus paralius</i>	T		X
<i>Meionectes tenuifolia</i>	P3		X
<i>Melaleuca sp. Wanneroo</i>	T		X
<i>Sarcozona bicarinata</i>	P3		X
<i>Stylidium longitubum</i>	P4		X
<i>Thelymitra dedmaniarum</i>	EN	X	
<i>Tripterococcus sp. Brachylobus</i>	P4		X

#### 4.1.1 Threatened and Priority Ecological Communities

A review of the PMST report identified two listed threatened ecological communities (TEC) that could potentially occur within 5 km of the site (Table 5) (DAWE 2022). A review of the DBCA's threatened communities database indicated that the endangered TEC, Banksia Dominated Woodlands of the Swan Coastal Plain IBRA region has been recorded within the site (DBCA 2022b).

**Table 5:** Potential Threatened Ecological Communities within the survey site

Name	Status	Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Possible as the habitat is suitable
Tuart ( <i>Eucalyptus gomphocephala</i> ) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Unlikely due to unsuitable habitat present

Source: Department of Agriculture, Water, and the Environment, 2022

## 4.2 Flora Survey Results

### 4.2.1 Flora

A total of 58 flora species (taxa) were recorded from 21 families during the field survey, including 25 introduced (weeds), 33 native species and one dubious/planted species which is not native to the local area although occurs in Western Australia. No threatened or priority species were found during the 2022 survey. No standing water was observed within the site during the field survey. Examples of native flora species are shown in Figure 5 and weed species in Figure 6. A complete flora species list is provided in Appendix 3.



*Schizaea fistulsa* (Narrow Comb Fern)



*Lobelia anceps* (Angled Lobelia)



*Banksia menziesii* (Firewood Banksia)



*Astartea scoparia* (Common Astartea)

**Figure 5:** Examples of native flora species recorded





Black Berry Nightshade (\**Solanum nigrum*)



Pampas Grass (\**Cortaderia selloana*)



Castor Oil Plant (\**Ricinus communis*)



Hottentot Fig (\**Carpobrotus edulis*)



**Figure 6:** Examples of introduced flora species recorded

#### 4.2.2 Vegetation Types

Two vegetation types were recorded within the survey site, including *\*Pinus pinaster* and *Melaleuca preissiana* Forest within the dampland and *Melaleuca preissiana* Open Woodland in the surrounding higher elevated areas. Vegetation types are described in Table 6 and shown in Figure 7.



**Table 6:** Vegetation types within the survey site

Vegetation Type	Description	Photograph
<i>*Pinus pinaster</i> and <i>Melaleuca preissiana</i> Forest (PpMpF)	A forest of <i>*Pinus pinaster</i> over a low <i>Melaleuca preissiana</i> woodland, over a <i>Kunzea glabrescens</i> and <i>Astartea scoparia</i> shrubland over mixed low shrubs and herbs and a <i>Lepidosperma leptostachyum</i> sedgeland. This vegetation type was situated on white/light grey peaty clay soils on lower elevations.	
<i>Melaleuca preissiana</i> Open Woodland (MpOW)	An open woodland of <i>Melaleuca preissiana</i> over a sparse <i>Xanthorrhoea preissii</i> and mixed shrubland and an understorey dominated by introduced grasses and herbs including <i>*Ehrharta calycina</i> and <i>*Carpobrotus edulis</i> . This vegetation type was situated on grey sandy soils on higher elevations.	





#### 4.2.3 Vegetation Condition

Vegetation condition on site ranged from Completely Degraded to Excellent (Table 7, Figure 8). Areas devoid of vegetation have not been assigned a vegetation condition therefore the area covered is smaller. Areas of Excellent vegetation condition is where the *Lepidosperma leptostachyum* understorey vegetation is denser, and where Priority 4 Quenda (*Isodon fusciventer*) diggings and runnels (vegetative tunnels) were noted.

Majority of the site was impacted through the encroachment of several weed species particularly woody weeds including Pinaster Pine (*\*Pinus pinaster*), *\*Acacia longifolia*, *\*Acacia iteaphylla*, Tagasaste (*\*Chamaecytisus palmensis*), Coast Teatree (*\*Leptospermum laevigatum*) and *\*Washingtonia filifera*. These large woody species have the capacity to outcompete native species for resources including space, light and nutrients. These species were mostly impacting the periphery of the wetland along the edges of fire breaks, except for the Pinaster Pines which were widespread throughout the dampland. Whilst Pampas Grass (*\*Cortaderia selloana*) was dominant in the understorey, and widespread in the Degraded and Completely Degraded areas in the middle and particularly the north-east corner of the dampland.

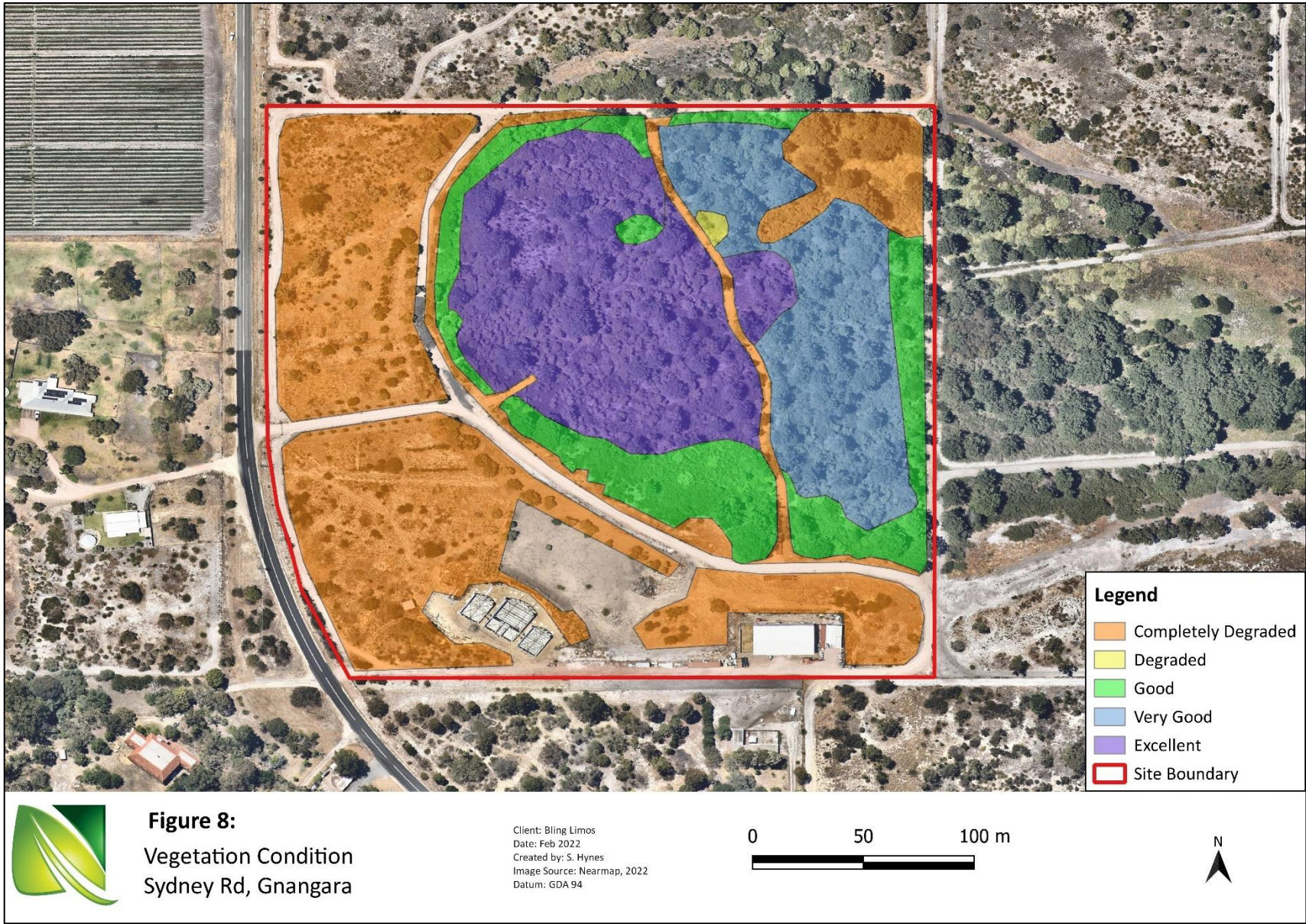
**Table 7:** Vegetation condition within the survey site

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	1.78	1.145	1.003	0.02	3.357	7.303
Area (%)	0	24.4	15.7	13.7	0.3	45.9	100

#### 4.2.4 Threatened and Priority Communities

No threatened or priority ecological communities were identified as occurring onsite during the February 2022 survey. The potential communities identified through the desktop searches, Banksia Dominated Woodlands of the Swan Coastal Plain IBRA region, Banksia Woodlands of the Swan Coastal Plain and Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain were determined not to be present due to the lack of characteristic species which make up the diagnostic flora which comprised these communities.







## 5.0 Implications of Results

### 5.1 Flora and Vegetation

Natural Area's February survey recorded a total of 58 flora species (taxa) from 21 families, including 33 (57%) native species and 25 (43%) introduced (weed) species. Two vegetation types were recorded within the site, *\*Pinus pinaster* and *Melaleuca preissiana* Forest and *Melaleuca preissiana* Open Woodland. Vegetation condition across the site ranged from Completely Degraded to Excellent, with majority of the site in Completely Degraded condition (45.9%). The site has a relatively high weed load for the Swan Coastal Plain, which were widespread impacting the condition of the native vegetation within the site.

#### 5.1.1 Clearing impact on Native Vegetation

Clearing on site will impact 3041.1 m<sup>2</sup> of completely degraded native vegetation for the development of the car park, restaurant and the 13 m around the restaurant within the D Class Scrub vegetation as described in the Bushfire Management Plan for the area, to maintain a BAL 29 for the building (Bushfire Prone Planning, 2021) (Figure 7). area does not contain significant flora species or ecological communities and does not make up habitat for any threatened species known in the Perth region. Clearing should not cause any further land degradation or impact hydrology of the area due to the lack of vegetation currently present and the soil present is hydrophobic so no significant increase in water runoff for the area is expected. Due to the degraded nature of the area and the minimal trees and shrubs present in the area the environmental impact to native vegetation is not considered to environmentally significant.

### 5.2 Significant Flora

No conservation significant flora was identified within the site during the February 2022 reconnaissance survey. The DBCA database searches did not identify any threatened or priority species within the site boundary with the closest record occurring approximately 2.4 km to the south (DBCA 2022b). Five species were identified during the desktop assessment as having a possibility of occurring based on the habitat present within the site, however, these were all perennial species and would have been identifiable if present on site during the survey.

### 5.3 Threatened Ecological Communities

No threatened or priority ecological communities were identified within the site during the February 2022 survey. Species composition recorded during the site survey does not meet that required for the two TECs identified through desktop analysis.

### 5.4 Bush Forever

The survey site occurs within Bush Forever Site 326, Hawkins Road Bushland, Jandabup/Gnangara, with the areas around the wetland classed as rural complementary (Government of Western Australia, 2000). It is described as a dampland vegetated with *Melaleuca preissiana* Woodland, which is consistent with what was found on site.

### 5.5 Conservation Category Wetland

The dampland has changed substantially over the last 40 years with the wetland previously observed on aerial photography as a lake with reeds in the middle, which was seen to be completely filled with water, up until 1981 (Landgate, 2022). Aerial photography shows a vehicle track into the western edge of the lake (1974) where it appears as if a deeper man-made basin is created (1977) and accessed by vehicles, with anecdotal evidence suggesting it was utilised for mining and/or mineral extraction (Landgate, 2022). The lake was completely dry from the 1983 imagery onwards (Landgate, 2022). This deeper basin is still obvious on site, where the bunded sides of the basin were noted during the field survey and observable on aerial imagery. From 1985 onwards peripheral vegetation surrounding the lake has spread through the dampland area and is the vegetation present today.

No standing water was observed on site during the February 2022 assessment. No standing water was observed on aerial photography (Nearmap, 2022) at any times of the year including known high rainfall periods including August 2021 after the highest rainfall was recorded for July in 20 years (Bureau of Meteorology, 2022). Portions around the edges of the dampland and particularly the north-east corner are Completely Degraded, with patches of Good and Degraded where weed cover exceeds native vegetation cover. These areas were mostly dominated by pine trees, with Pampas Grass in the understorey.

#### **5.5.1 Weed Encroachment**

Woody weed encroachment and the spread of pines throughout the wetland have led to degradation of the vegetation condition and native fauna habitat onsite (Figure 9). The presence of the pine trees may increase the fire hazard at the site, with the removal of these species meaning that the area would no longer be classed as a forest. A number of pines observed were noted to be affected by termites and had dropped limbs, which may cause a safety hazard. It is recommended to control the presence of weeds within the dampland to improve the overall health and condition.



**Figure 9:** Example of weed encroachment within the densely vegetated portion of the site

## 5.6 Dryland Area

The vegetated areas surrounding the dampland are in a completely degraded state with poor fauna and flora habitat value, as the majority of the dryland site has been previously parkland cleared. The mature *Melaleuca preissiana* trees do still provide habitat for birds and other arboreal animals and are recommended to be retained as much as is practicable.

As landscaping is proposed in this area it is recommended that plants used are either local native species, or if non-endemics (species not native to the local area) are used it should be ensured species chosen are not those known to become environmental weeds. This will reduce the potential for any of the landscape plants to spread into the adjacent wetland area.

## 5.7 Recommendations

If development of the site is approved the following is recommended to limit the impact to the area classified as conservation category wetland:

- retain as many native trees within the dryland areas as possible to protect fauna habitat values at the site
- only fertilise using slow-release fertilisers to turf and landscaped areas to limit the potential for excessive nutrients entering the wetland
- fertiliser application to turf and landscaped areas is to occur only at peak times of the year when plants are actively growing and able to absorb the nutrients

- preference for landscaping to use locally native species and to avoid exotic landscape species which have a known history of becoming bushland weeds
- plants and landscaping supplies such as sand and mulches are to be free from weed and diseases/pathogens (e.g., Dieback- *Phytophthora*)
- during construction of infrastructure ensure no wastewater runoff or rubbish enters the wetland area.

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## **Appendix 1: PMST Report 5 km**



# 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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 28/01/22 17:48:08

[Summary](#)

[Details](#)

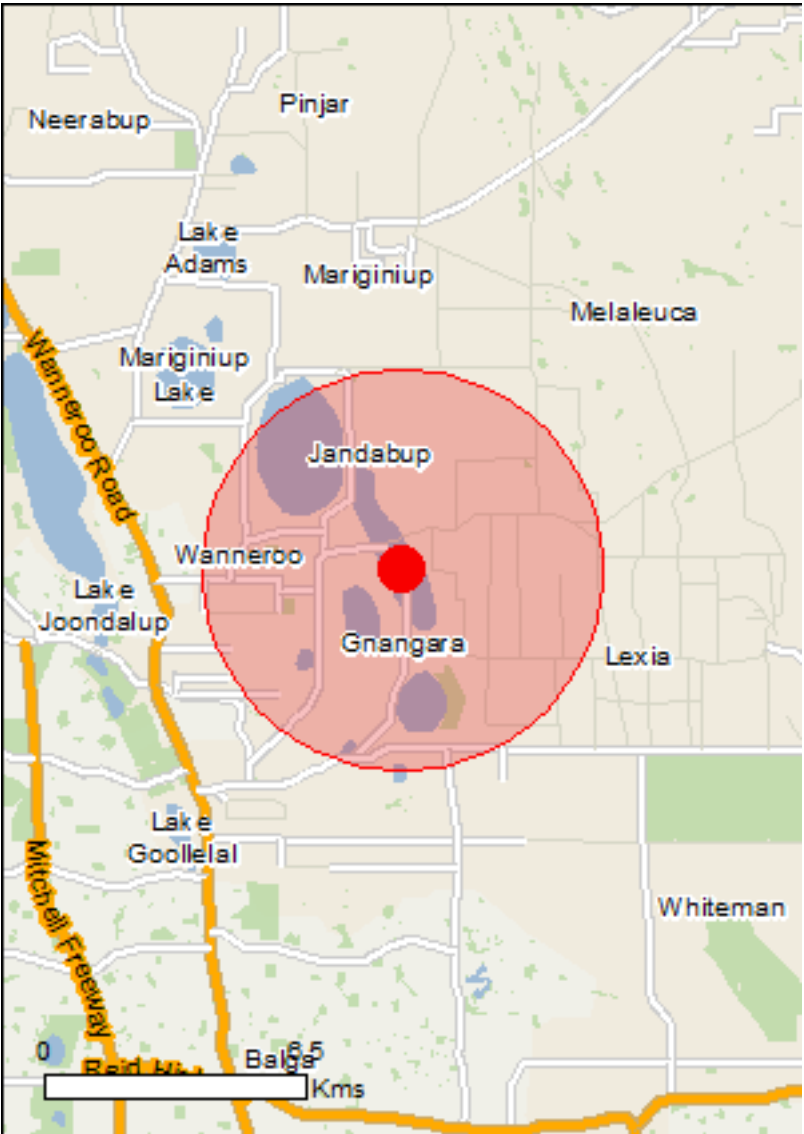
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 5.0Km



# Summary

## Matters of National Environmental 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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	2
<a href="#">Listed Threatened Species:</a>	25
<a href="#">Listed Migratory Species:</a>	13

## Other Matters Protected by the EPBC Act

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

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

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	21
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	38
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

Listed Threatened Ecological Communities

[ Resource Information ]

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

Name	Status	Type of Presence
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community</a>	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[ Resource Information ]

Name	Status	Type of Presence
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Birds

<a href="#">Botaurus poiciloptilus</a>		
Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris canutus</a>		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a>		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calyptorhynchus banksii naso</a>		
Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Calyptorhynchus latirostris</a>		
Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
<a href="#">Leipoa ocellata</a>		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Numenius madagascariensis</a>		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a>		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<a href="#">Sternula nereis nereis</a>		
Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area

Insects

<a href="#">Hesperocolletes douglasi</a>		
Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within



Name	Status	Type of Presence area
Mammals		
<a href="#">Bettongia penicillata ogilbyi</a> Woylie [66844]	Endangered	Species or species habitat may occur within area
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Plants		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur within area
<a href="#">Anigozanthos viridis subsp. terraspectans</a> Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<a href="#">Drakaea elastica</a> Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
<a href="#">Eucalyptus argutifolia</a> Yanchep Mallee, Wabling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area
<a href="#">Grevillea curviloba subsp. curviloba</a> Curved-leaf Grevillea [64908]	Endangered	Species or species habitat may occur within area
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
<a href="#">Macarthuria keigheryi</a> Keighery's Macarthuria [64930]	Endangered	Species or species habitat may occur within area
<a href="#">Thelymitra dedmaniarum</a> Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area

Listed Migratory Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Apus pacificus</a>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Migratory Terrestrial Species		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat likely to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land	[ <a href="#">Resource Information</a> ]
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The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species	[ <a href="#">Resource Information</a> ]
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\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		

<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat likely to occur within area
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Name	Threatened	Type of Presence
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Species or species habitat known to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area
<a href="#">Recurvirostra novaehollandiae</a> Red-necked Avocet [871]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat may occur within area



Name	Threatened	Type of Presence
<a href="#">Tringa glareola</a> Wood Sandpiper [829]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

### Extra Information

State and Territory Reserves	[ <a href="#">Resource Information</a> ]
Name	State
Jandabup	WA

Invasive Species

[ [Resource Information](#) ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus declinatus Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large- leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area



# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

## Coordinates

-31.76131 115.8645

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- [-Office of Environment and Heritage, New South Wales](#)
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- [-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](#)
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- [-Ocean Biogeographic Information System](#)
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- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

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

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## Appendix 2: Conservation Codes

### Western Australia

Conservation Code	Name	Description
T	Threatened	Flora or fauna that is rare or likely to become extinct, ranked according to their level of threat using IUCN Red List criteria (Schedules 1-3 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)
P	Priority Species	Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or



Conservation Code	Name	Description
		flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat
4	Priority Four	Rare or near threatened and other species in need of monitoring.

(Source: Department of Biodiversity, Conservation and Attractions, 2020a)

#### Commonwealth

Category	Description
<b>Critically Endangered</b>	Species facing an extremely high risk of extinction in the wild in the immediate future
<b>Endangered</b>	Species facing a very high risk of extinction in the wild in the near future
<b>Vulnerable</b>	Species facing a high risk of extinction in the wild in the medium term

(Source: Department of Biodiversity, Conservation and Attractions, 2019)

### Appendix 3: Species List

The complete flora list for the site is provided in the table below. \*Denotes introduced species and # denotes species that are native to Western Australia but not to this local region or planted cultivated species.

Family	Species	Common Name
Fabaceae	<i>Acacia cyclops</i>	Coastal Wattle
Fabaceae	<i>Acacia iteaphylla</i> *	
Fabaceae	<i>Acacia longifolia</i> *	
Fabaceae	<i>Acacia pulchella</i>	Prickly Moses
Myrtaceae	<i>Agonis flexuosa</i>	Peppermint
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Sheoak
Fabaceae	<i>Aotus gracillima</i>	
Myrtaceae	<i>Astartea scoparia</i>	Common Astartea
Poaceae	<i>Austrostipa hemipogon</i>	
Proteaceae	<i>Banksia littoralis</i>	Swamp Banksia
Proteaceae	<i>Banksia menziesii</i>	Firewood Banksia
Proteaceae	<i>Banksia prionotes</i>	Acorn Banksia
Poaceae	<i>Briza maxima</i> *	Blowfly Grass
Aizoaceae	<i>Carpobrotus edulis</i> *	Hottentot Fig
Poaceae	<i>Cenchrus clandestinus</i> *	Kikuyu Grass
Apiaceae	<i>Centella asiatica</i>	Centella
Fabaceae	<i>Chamaecytisus palmensis</i> *	Tagasaste
Asteraceae	<i>Cirsium vulgare</i> *	Spear Thistle
Poaceae	<i>Cortaderia selloana</i> *	Pampas Grass
Goodeniaceae	<i>Dampiera linearis</i>	Common Dampiera
Fabaceae	<i>Daviesia physodes</i>	
Poaceae	<i>Deyeuxia quadriseta</i>	Reed Bent-grass
Hemerocallidaceae	<i>Dianella revoluta</i>	Blueberry Lily
Poaceae	<i>Ehrharta calycina</i> *	Perennial Veldt Grass
Scrophulariaceae	<i>Eremophila glabra</i> #	
Asteraceae	<i>Erigeron sumatrensis</i> *	
Myrtaceae	<i>Eucalyptus grandis</i> *	
Euphorbiaceae	<i>Euphorbia maculata</i> *	
Iridaceae	<i>Gladiolus caryophyllaceus</i> *	

Family	Species	Common Name
Fabaceae	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea
Myrtaceae	<i>Hypocalymma angustifolium</i>	White Myrtle
Asteraceae	<i>Hypochaeris radicata</i> *	Flat Weed
Fabaceae	<i>Jacksonia furcellata</i>	Grey Stinkwood
Fabaceae	<i>Kennedia prostrata</i>	Scarlet Runner
Myrtaceae	<i>Kunzea glabrescens</i>	Spearwood
Asteraceae	<i>Lactuca serriola</i> *	Prickly Lettuce
Cyperaceae	<i>Lepidosperma leptostachyum</i>	
Myrtaceae	<i>Leptospermum laevigatum</i> *	Coast Teatree
Campanulaceae	<i>Lobelia aniceps</i>	Angled Lobelia
Myrtaceae	<i>Melaleuca preissiana</i>	Moonah
Solanaceae	<i>Nicotiana glauca</i> *	Tree Tobacco
Asteraceae	<i>Osteospermum ecklonis</i> *	
Iridaceae	<i>Patersonia occidentalis var occidentalis</i>	
Geraniaceae	<i>Pelargonium capitatum</i> *	Rose Pelargonium
Proteaceae	<i>Persoonia saccata</i>	Snottygobble
Pinaceae	<i>Pinus pinaster</i> *	Pinaster Pine
Myrtaceae	<i>Regelia ciliata</i>	
Euphorbiaceae	<i>Ricinocarpos undulatus</i>	
Euphorbiaceae	<i>Ricinus communis</i> *	Castor Oil Plant
Schizaeaceae	<i>Schizaea fistulosa</i>	Narrow Comb Fern
Cyperaceae	<i>Schoenus pedicellatus</i>	
Solanaceae	<i>Solanum nigrum</i> *	Black Berry Nightshade
Asteraceae	<i>Sonchus oleraceus</i> *	Common Sowthistle
Stylidiaceae	<i>Stylidium schoenoides</i>	Cow Kicks
Myrtaceae	<i>Taxandria linearifolia</i>	
Asteraceae	<i>Ursinia anthemoides</i> *	Ursinia
Myrtaceae	<i>Verticordia densiflora</i>	Compacted Featherflower
Fabaceae	<i>Viminaria juncea</i>	Swishbush
Areaceae	<i>Washingtonia filifera</i> *	