



05 February 2015

Gateway WA

Our ref: 61/28750

148194

Your ref:

Dear Sir/Madam

## **PSP Pioneer Park Flora and vegetation survey**

### **1 Introduction and Purpose**

The GatewayWA Alliance, as part of the works for the Perth Airport and Freight Access Project, is proposing to construct a Public Shared Path (PSP) along the eastern side of Roe Highway, between Tonkin Highway and Berkshire Road, in Forrestfield (Figure 1). The PSP traverses land in Pioneer Park, which is a Bush Forever site and a Parks and Recreation reserve under the control of the Shire of Kalamunda. Originally the PSP was proposed to be sited entirely within the Roe Highway road reserve, but with the agreement of the Shire was moved into Pioneer Park in order to avoid native vegetation and rare flora clearing along Roe Highway and also to provide better access to existing and proposed Shire facilities within the Park.

GHD Pty Ltd (GHD) was commissioned to undertake a vegetation and flora survey of the PSP impact area (the Project area) to assess the potential ecological impact of the works. The majority of the PSP does not intersect native vegetation and this assessment only provides information for the section of the PSP that does require minor native vegetation clearing (the Project).

The Project covers approximately 0.17 hectares (ha), and will require the clearing of approximately 0.08 ha of native vegetation in varied condition.

This report is provided in support of a Native Vegetation Clearing Permit application for the PSP construction.

### **2 Survey Methodology**

GHD undertook a botanical survey of the PSP impact area in 3<sup>rd</sup> February 2015. The survey involved walking the length of the PSP along an existing track and recording flora species and vegetation types present. The survey was undertaken by a botanist with over 9 years' experience, with much of that experience on the Swan Coastal Plain and south-west.

#### **2.1 Flora and Vegetation**

##### **2.1.1 Vegetation Assessment**

GHD conducted a level 1 flora and vegetation assessment (in accordance with the EPA Guidance Statement 51 – EPA 2004 – and Position Statement No. 3 – EPA 2002) of the Project area on 3<sup>rd</sup>

February 2015. The survey was conducted to provide descriptions of the dominant vegetation types, vegetation condition and flora species present at the time of the survey.

Field assessment methodology for the level 1 survey involved meandering transects of the survey area on foot to record plant species present (visible) at the time of the survey. In addition to the methodology of the level 1 survey, sampling using a quadrat, located in an area of native vegetation was also conducted.

Vegetation units were described based on structure, dominant taxa and cover characteristics as defined by field observations and quadrat data. The unit descriptions follow Keighery's (1994) vegetation structural classification. Vegetation units were identified and boundaries delineated using a combination of aerial photography interpretation, topographical features, previous mapping (Beard 1979 and Hedde et al. 1980) and field observations and were compared against Floristic Community Types (FCT) identified by Gibson et al. (1994) as present on the Swan Coastal Plain. The Gibson et al. (1994) "analysis of plant communities on the Swan Coastal Plain ... is the most recent regional floristic work on public lands, ... [and considers] the patterning of plant distribution on the Plain and relates to the total flora of the Plain" (Government of Western Australia 2000). FCT are based on the results of multivariate analysis conducted on 1122 quadrats. Comparison of vegetation identified at the Project area against FCT identified by Gibson et al. (1994) can assist in determining the presence of Threatened Ecological Community (TEC) or Priority Ecological Community (PEC), although clarification with the Department of Parks and Wildlife (DPAW) is often recommended for certainty. In addition, FCT cannot be definitively determined when the remaining vegetation has been too disturbed to sample adequately or not enough information about the vegetation can be obtained (Government of Western Australia 2000).

Species that were well known to the survey botanists were identified in the field, while species that were unknown were collected and assigned a unique collection number to facilitate tracking. Plant species were identified by the use of local and regional flora keys and by comparison with the named species held at the Western Australian Herbarium (WA Herbarium). When necessary, plant taxonomists considered to be authorities on particular plant groups were consulted.

The conservation status of all recorded flora was compared against the current lists available on FloraBase (WA Herbarium 1998–) and the EPBC Act Threatened species database provided by Department of the Environment (DotE) 2015.

Nomenclature used in the report follows that used by the Western Australian Herbarium as reported on FloraBase (WA Herbarium 1998–).

**Table 1 Data collected during the field survey**

<b>Aspect</b>	<b>Measurement</b>
Physical features	Aspect, soil attributes. Percentage surface cover by: rocks, logs and branches, leaf litter, bare ground.
Location of important features	Coordinates recorded in GDA94 datum using a hand-held Global Positioning System (GPS) tool to accuracy approximately $\pm 5$ m.
Vegetation condition	Vegetation condition was assessed using the condition rating scale devised by Keighery (1994).

<b>Aspect</b>	<b>Measurement</b>
Disturbance	Level and nature of disturbances (e.g. weed presence, fire and time since last fire, impacts from grazing, exploration activities).
Flora	List of dominant flora from each structural layer.

Transects and quadrat information are provided in Appendix D.

### **Vegetation condition**

The vegetation condition of the Project area was assessed using the vegetation condition rating scale developed by Keighery (1994) that recognises the intactness of vegetation, which is defined by the following:

- Completeness of structural levels
- Extent of weed invasion
- Historical disturbance from tracks and other clearing or dumping
- The potential for natural or assisted regeneration

The scale consists of six rating levels as outlined in Table 2.

**Table 2 Vegetation condition rating scale**

<b>Vegetation condition rating</b>	<b>Vegetation condition</b>	<b>Description</b>
1	Pristine or Nearly So	No obvious signs of disturbance.
2	Excellent	Vegetation structure intact, disturbance affecting individual species, and weeds are non-aggressive species.
3	Very Good	Vegetation structure altered, obvious signs of disturbance.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances retains basic vegetation structure or ability to regenerate it.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not in a state approaching good condition without intensive management.
6	Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost without native species.

(Keighery 1994)

## 3 Results

### 3.1 Existing Environmental Aspects

The PSP traverses Bush Forever Site 440 (Pioneer Park) (Figure 2), however the proposed alignment is sited primarily on a completed landfill area, which has been capped by over 1 metre (m) of clean sand / sandy loam. The majority of the Project area is now significantly above original ground level, due to the landfill and final soil covering. The Shire of Kalamunda undertook some rehabilitation of the landfill area, using a range of species which are not necessarily native to the local area or region.

There are no geomorphic wetlands located within the Project area (DPaW 2015). Three wetlands are located within 300 m to the west of the Project area, UFI 15071, UFI 8973, both Multiple Use Category Wetlands and UFI 9001, which is a Conservation Category Wetland.

There a number of records of the Federally listed, Vulnerable species, *Conospermum undulatum*, within 300 m of sections of the Project area. These records occur within the adjacent Roe Highway and the bushland areas of Pioneer Park, within relatively undisturbed native vegetation.

A Priority 3 species (*Isopogon drummondii*) listed by DPaW under the Wildlife Conservation Act (WC Act), 1950, has also been recorded on east of Roe Highway, 300 m north of the Project area.

The Project area is located within the buffer of two TECs (Figure 3):

- SCP20a, *Banksia attenuata* woodland over species rich dense shrublands (Federally listed as Critically Endangered)
- SCP3a, *Eucalyptus calophylla* - *Kingia australis* woodlands on heavy soils, Swan Coastal Plain (Federally listed as Endangered)

The Project area is located within a large Environmentally Sensitive Area, which is related to the 500 m buffer of the TECs.

There are no other environmental features of significance across, or adjacent to the PSP.

### 3.2 Vegetation and Flora

#### 3.2.1 Bioregion

The Project area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion, Perth Sub-Region (SWA02). This sub-region is dominated by woodlands of *Banksia* and Tuart (*Eucalyptus gomphocephala*) on sandy soils, sheoak on outwash plains, and paperbark in swampy areas. The colluvial and aeolian sand areas represent three phases of Quaternary marine sand dune development (which provide relief), and include a complex series of seasonal fresh water wetlands, alluvial river flats, coastal limestone and several off-shore islands. Younger sandy areas and limestone are dominated by heath and/or Tuart woodlands, while *Banksia* and Jarrah (*E. marginata*)–*Banksia* woodlands are found on the older dune systems (Mitchell et al. 2002).

### 3.2.2 Broad vegetation mapping

Broad scale (1:250, 000) vegetation mapping of the area was completed by Beard (1979) at an association level. Beard mapping indicates that one vegetation association is present within the Project area:

- Medium very sparse woodland; jarrah, with low woodland; *banksia* & *casuarina* (association 1001)

Vegetation complexes were mapped by Heddle et al. (1980), which provides mapping at a finer scale than Beard (1979) based on the landforms and underlying geology. The Heddle et al. (1980) mapping identified one vegetation complex within the Project area, which is described as:

- Southern River Complex: Open woodland of *E. calophylla* - *E. marginata* - *Banksia* spp. with fringing woodland of *E. rudis* - *M. raphiophylla* along creek beds.

The local and regional impacts on the loss of vegetation associations in Western Australia have been assessed using the mapped extent of the Beard (1979) vegetation, as adapted by Shepherd et al. (2002) and maintained by DPaW (latest update 2012 -Government of Western Australia 2013). Vegetation association 1001 has 24.65 % remaining at the State, Interim Biogeographic Region of Australia (IBRA) bioregion and subregion levels, which categorises this vegetation association as 'vulnerable' at these levels (Table 3). Vegetation association 1001 also has 8.22 % remaining at the Local Government Area (LGA) level, which would be regarded as being at a level representing Endangered. The extent of vegetation complex, Southern River, is less than 19.69 % at the State and LGA level (Table 4).

**Table 3 Extent of Beard (1979) vegetation association within the Study area for the State of Western Australia, IBRA bioregion, IBRA subregion and Local Government Area**

Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	% Current extent in all DPaW managed lands
1001	State: Western Australia	57410.23	14151.90	24.65	5.66
	IBRA	57410.23	14151.90	24.65	5.66
	Bioregion: - Swan Coastal Plain				
	IBRA Subregion- Perth (SWA02)	57410.23	14151.90	24.65	5.66
	LGA- Shire of Kalamunda	1473.91	121.10	8.22	23.95

**Table 4 Extent and status of Heddlé et al. (1980) vegetation complexes within the Project area (Local Biodiversity Program 2010 and 2013)**

Vegetation complex description	Scale	Pre-European extent (ha)	Current extent (ha)	Remaining (%)
Southern River Complex	State	57171.55	11254.99 (2013)	19.69
	Shire of Kalamunda	2320	264.02 (2010)	11.38

(Local Biodiversity Program 2010 and 2013)

### 3.2.3 Vegetation Types

The Project areas vegetation has been previously cleared in the past for the completed landfill area. A small patch of remnant vegetation has regrown on a batter on the edge of the landfill site in the southern section of the Project area (0.05 ha) (Plate 1). This vegetation is approximately 10 years old and consists of:

***Allocasuarina huegeliana* Open Forest:** Open Forest of *Allocasuarina huegeliana* over Shrubland of *\*Leptospermum laevigatum*, *Adenanthos cygnorum* and *Verticordia densiflora* over Open Tussock Grassland of *\*Eragrostis curvula* and *\*Briza* spp. over Sparse Herbland of *Schoenus tenellus* and *Haemodorum laxum*.

The northern section of the Project area has been totally cleared and filled in the past, as it is within the landfill, however some scattered / isolated plants of Woollybush (*Adenanthos cygnorum*) and Swamp Sheoak (*Casuarina obesa*) have regrown in this section of the Project area (Plate 2). The northern section of the Project area is also infested with the weed *\*Genista linifolia*.

*Allocasuarina huegeliana* and *Casuarina obesa* are not endemic to the area and were most likely brought in from machinery working the landfill site, or planted in the area in the past.



**Plate 1** Remnant vegetation located within the Project area



**Plate 2** Isolated Swamp Sheoak tree and \**Genista linifolia* in the northern section of the Project area

The Project area vegetation photographs are presented in Appendix D and vegetation types have been mapped (Figure 4, Appendix A).

### **3.2.4** *Vegetation condition*

The vegetation within the Project area ranged between *Good* (4) to *Completely Degraded* (6). The remnant native vegetation located within the southern section of the Project area had a vegetation condition ranging from *Good* (4) to *Degraded* (5). The vegetation within the Project area has been

previously cleared for a completed landfill area. The small area of native vegetation remaining in the southern section is growing on a batter of soil and consists of *Allocasuarina huegeliana*, *\*Leptospermum laevigatum* and *Adenanthos cygnorum* with some native shrub species over weeds.

The vegetation condition of the Project area has been mapped in Figure 4, Appendix A.

### **3.2.5 Threatened and Priority Ecological Communities**

Desktop investigations (DotE 2015) identified two TECs as being potentially present within the Project area:

- *Corymbia calophylla* - *Kingia australis* woodland on heavy soils of the Swan Coastal Plain (Federally listed as Endangered)
- Claypans of the Swan Coastal Plain (Federally listed as Critically Endangered)

The remnant vegetation recorded during the survey, *Allocasuarina huegeliana* Open Forest, is in *Good to Degraded* condition. The area has been cleared in the past for the completed landfill site and the regrown plants are approximately 10 years in age. The vegetation stratum lacks structure and the understorey predominantly consists of weedy species. The dominant overstorey species, *Allocasuarina huegeliana* and *Casuarina obesa* are not native to the area and were most likely brought in from machinery. As such, the regrown vegetation's Floristic Community Type (as identified by Gibson et al. 1994) was not able to be determined, however is unlikely to represent either of the TECs recorded in the area.

### **3.2.6 Flora**

The Project area is considered to have a low species diversity with a total of 29 taxa from 14 families recorded within the surveyed area during the field assessment. Of these taxa, 13 taxa are naturally occurring native flora taxa. The remaining 16 taxa are weed (exotic) taxa.

The dominant families (including families with introduced and weed species) recorded from the area are:

- ▶ Poaceae (grasses): 7 taxa
- ▶ Asteraceae (daisies): 3 taxa
- ▶ Fabaceae (peas): 3 taxa

The full list of flora species is presented in Appendix D.

### **3.2.7 Significant Flora**

Desktop searches of the EPBC Act PMST database (DotE 2015) and *NatureMap* database (DPaW 2007–) databases identified the presence/potential presence of 52 conservation significant flora taxa within 5 km of the Project area.

#### **Likelihood of occurrence assessment**

A likelihood of occurrence assessment was conducted for all conservation significant flora taxa identified in the desktop searches (Appendix D). This assessment took into account previous records, habitat requirements, efficacy of the survey, intensity of the survey, flowering times and the cryptic nature of



species. The assessment concluded that all 52 species are unlikely to occur in the Project area due to the type of habitat available and its very degraded nature.

#### **EPBC Act/WC Act-listed flora**

No *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed flora or Threatened (Declared Rare) flora listed by DPaW were recorded from the Project area during the field survey or are expected to occur, due to the degraded nature of the vegetation.

#### **DPaW Priority-listed flora**

No DPaW Priority listed taxa were recorded within the Project area during the field survey.

#### **3.2.8 Introduced flora**

Sixteen introduced (weed) taxa were recorded within the Project area during the field survey (Appendix D). Weeds throughout the Project area predominantly consisted of grass species, namely African Lovegrass (*Eragrostis curvula*) and Couch (*Cynodon dactylon*).

#### **Weeds of National Significance (WoNS) and Declared Pests (DP)**

The introduced weed species, Flaxleaf Broom (*Genista linifolia*) was recorded throughout most of the Project area (Plate 3). This species is listed as a Weed of National Significance (WoNS).

No Declared Pests under Section 22 of the Department of Agriculture and Food Western Australia (DAFWA) Biosecurity and Agriculture Management Act 2007 (BAM Act) were recorded within the Project area during the time of the survey.



**Plate 3** Flaxleaf Broom (*Genista linifolia*) within Project area

## **4 Summary and Conclusions**

The extent of Beard (1979) vegetation association 1001 is below the 30 per cent threshold level at the State, IBRA bioregion and IBRA subregion and below the 10 per cent the LGA level. The extent of

Heddle et al. (1980) vegetation complex 'Southern River Complex' is below the 30 per cent threshold level at the State and LGA level. The area is located within the constrained Perth metropolitan area (due to existing level of development) and therefore vegetation types with less than 30% remaining are not considered to be critical assets. However, association 1001 is below the 10% threshold level at the LGA level (8.22% remaining). This vegetation association is considered a critical asset at this level. As such, it is considered at variance with Principle (e) "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared" under *Schedule 5 of the Environmental Protection Act 1986*. The proposed alignment however is sited primarily on a completed landfill area, which has been capped by over 1 m of clean sand / sandy loam. Vegetation has grown back within the southern section of the alignment and is approximately 10 years old. The vegetative strata lack structure and do not resemble Beard (1979) and / or Heddle (1980) vegetation mapping for the area. As such, clearing of the remnant native vegetation located within the Project area (0.17 ha) will not impact the extents of vegetation association 1001 remaining at the LGA level.

Desktop investigations (DotE 2015) identified two TECs potentially occurring within the Project area. The Project area is also located within the buffer of two mapped TECs (DPaW data). The remnant vegetation recorded during the survey, *Allocasuarina huegeliana* open forest, has regrown after the Project area was cleared for a completed landfill site and is approximately 10 years old. The dominant over storey species, *Allocasuarina huegeliana* and *Casuarina obesa* are not native to the area and were most likely brought in from machinery. The remnant vegetation that has regrown predominantly consists of non-endemic and weedy species and does not represent pre-existing vegetation types in the area. The regrown vegetation Floristic Community Type (as identified by Gibson et al. 1994) was not able to be defined, however is unlikely to represent TECs previously recorded in the area.

A likelihood of occurrence assessment determined that no conservation significant (DPaW Priority species, WC Act or EPBC Act) flora species are likely to occur within the Project area. This was confirmed during the site visit where no conservation significant flora species were found.

There a number of records of the Federally listed, Vulnerable species, *Conospermum undulatum*, and the DPaW listed, Priority 3, *Isopogon drummondii*, within 300 m of sections of the Project area. These records occur within the adjacent Roe Highway and the bushland areas of Pioneer Park, within relatively undisturbed native vegetation. The clearing of the Project area will not impact these species.

Sincerely  
GHD Pty Ltd

## 5 References

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# Appendix A – Figures

**Figure 1**    **Locality**

**Figure 2**    **Environmental constraints**

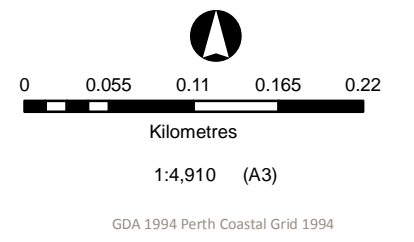
**Figure 3**    **Environmental constraints – flora and vegetation**

**Figure 4**    **Vegetation types and condition**





**Gateway WA - Pioneer Park  
PSP  
Location Plan**

**Figure 1**



**Legend**

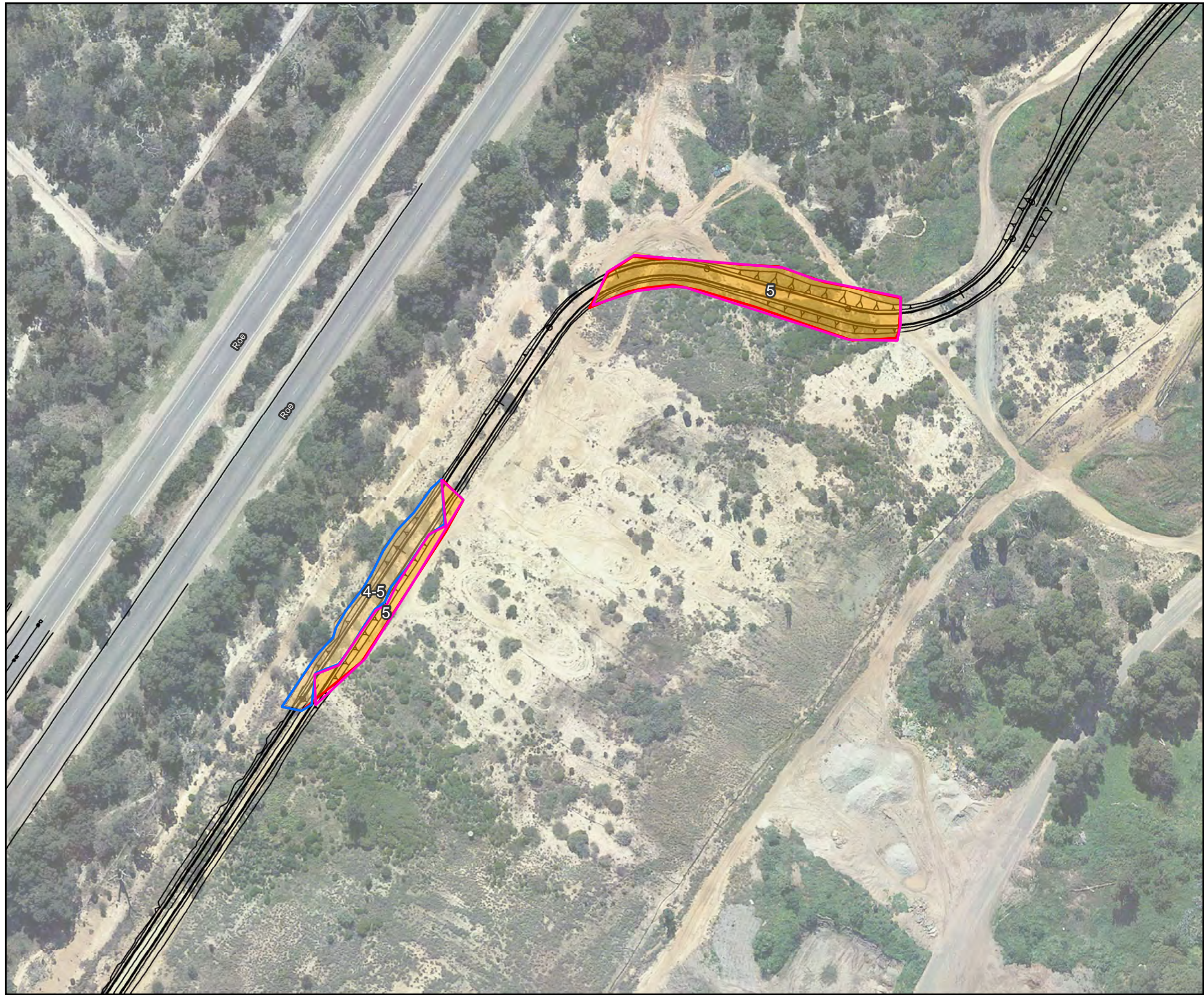
-  Proposed Design
-  Clearing Area

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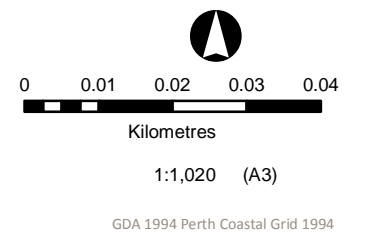
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**Gateway WA - Pioneer Park  
PSP  
Vegetation Type and  
Condition  
Figure 4**



**Legend**

— Proposed Design

**Vegetation Type**

- Allocasuarina huegeliana Open Forest
- Scattered native shrub

**Vegetation Condition (labelled)**

- 1. Pristine
- 1-2
- 2. Excellent
- 2-3
- 3. Very Good
- 3-4
- 4. Good
- 4-5
- 5. Degraded
- 5-6
- 6. Completely Degraded

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## Appendix B – Relevant legislation, conservation codes and background information



## Legislation

### *Federal Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as Matters of National Environmental Significance (MNES).

The biological aspects listed as MNES include:

- Nationally threatened flora and fauna species and ecological communities
- Migratory species

A person must not take an action that has, will have, or is likely to have a significant impact MNES, without approval from the Federal Minister for the Environment.

A person must not undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Australian Government Minister for the Environment.

### *State Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is the primary legislative Act dealing with the protection of the environment in Western Australia. It provides for an Environmental Protection Authority (EPA), for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the above.

Clearing of native vegetation in Western Australia requires a permit from the Department of Environment Regulation (DER) (formerly the Department of Environment and Conservation – DEC), unless exemptions apply. Native vegetation includes aquatic and terrestrial vegetation indigenous to Western Australia, and intentionally planted vegetation declared by regulation to be native, but not vegetation planted in a plantation or planted with commercial intent.

In the EP Act Section 51A, clearing is defined as the killing or destruction of; the removal of; the severing or ringbarking of trunks or stems of; or the doing of substantial damage of some or all of the native vegetation in an area, including the flooding of land, the burning of vegetation, the grazing of stock or an act or activity that results in the above.

When making a decision to grant or refuse a permit to clear native vegetation the assessment considers clearing against the ten clearing principles as specified in Schedule 5 of the EP Act:

- a) Native vegetation should not be cleared if it comprises a high level of biodiversity.
- b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significance habitat for fauna indigenous to Western Australia.
- c) Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora.
- d) Native vegetation should not be cleared if it comprises the whole or part of native vegetation in an area that has been extensively cleared.
- e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

- g) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- h) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

There are a number of Environmentally Sensitive Areas (ESAs) within Western Australia where exemptions in regulations do not apply. ESAs include locations of threatened communities and species.

#### *State Environmental Protection (Clearing of Native Vegetation) Regulations 2004*

ESAs are declared by a notice under Section 51B of the EP Act. Table B.1 outlines the aspects of areas declared as ESA (under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 – Reg 6).

**Table Aspects of Environmentally Sensitive Areas**

Aspects of Environmentally Sensitive Areas
A declared World Heritage property as defined in Section 13 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).
An area that is registered on the Register of the National Estate (RNE), because of its natural values, under the <i>Australian Heritage Commission Act 1975</i> of the Commonwealth (the RNE was closed in 2007 and is no longer a statutory list – all references to the RNE were removed from the EPBC Act on 19 February 2012).
A defined wetland and the area within 50 m of the wetland.
The area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located.
The area covered by a TEC.
A Bush Forever Site.
The areas covered by the following policies:
a) The <i>Environmental Protection (Gnangara Mound Crown Land) Policy 1992</i> .
b) The <i>Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002</i> .
The areas covered by the lakes to which the <i>Environmental Protection (Swan Coastal Plain Lakes) Policy 1992</i> (SCPL) (EPP Lakes) applies.
Protected wetlands as defined in the <i>Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998</i> .
Areas of fringing native vegetation in the policy area as defined in the <i>Environmental Protection (Swan and Canning Rivers) Policy 1997</i> .

### State *Wildlife Conservation Act 1950*

The *Wildlife Conservation Act 1950* (WC Act) provides for the conservation and protection of wildlife. It is administered by the Department of Parks and Wildlife (DPaW) (formerly the DEC) and applies to both flora and fauna. Any person wanting to capture, collect, disturb or study fauna requires a permit to do so. A permit is required under the WC Act if removal of threatened species is required.

### State *Biosecurity and Agriculture Management Act 2007*

Under the *Biosecurity and Agriculture Management Act 2007* (BAM Act), a Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) is in force. The Department of Agriculture and Food Western Australia (DAFWA) maintains a list of Declared Pests for Western Australia. If a Pest is declared for the whole of the State or for particular

Local Government Areas, all landholders are obliged to comply with the specific category of control. Declared plants are gazetted under categories, which define the action required. The category may apply to the whole of the State, districts, individual properties or even paddocks. Categories of control are defined in Table B.2. Among the factors considered in categorising Declared Pests are:

- The impact of the plant on individuals, agricultural production and the community in general
- Whether it is already established in the area
- The feasibility and cost of possible control measures

The BAM Act replaces the repealed *Agriculture and Related Resources Protection Act 1976* (ARRP Act).

Table [Department of Agriculture and Food \(Western Australia\) Categories for Declared Pests under the \*Biosecurity and Agriculture Management Act 2007\*](#)

Control class code	Description
C1 (Exclusion)	Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.
C2 (Eradication)	Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.
C3 (Management)	Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.

## Background information and conservation codes

### Reserves and conservation areas

#### Department of Parks and Wildlife managed lands and waters

DPaW manages lands and waters throughout Western Australia to conserve ecosystems and species, and to provide for recreation and appreciation of the natural environment. DPaW managed lands and waters include national parks, conservation parks and reserves, marine parks and reserves, regional parks, nature reserves, State forest and timber reserves. DPaW managed conservation estate, is vested with the Conservation Commission of Western Australia. Access to, or through, some areas of DPaW managed lands may require a permit or could be restricted due to management activities. Proposed land use changes and development proposals that abut DPaW managed lands will generally be referred to DPaW throughout the assessment process.

#### Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil. Approximately 25 percent of the Swan Coastal Plain between Moore River and Mandurah is classified as wetland (Hill et al. 1996).

Though extensive in area, not all wetlands retain significant ecological values due to the concentration of urban and agricultural development in the region. Most wetlands have been cleared, filled or developed over, leaving only 20 percent of all the wetlands that were present on the Swan Coastal Plain prior to European settlement. Of these, an estimated 15 percent of the wetland area has retained high ecological values (Hill et al. 1996).

#### Ramsar Listed Wetlands

The Convention of Wetlands of International Importance was signed in 1971 at the Iranian town of Ramsar. The Convention has since been referred to as the Ramsar Convention. Ramsar Listed wetlands are “sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity ... because of their ecological, botanical, zoological, limnological or hydrological importance” (DoE 2014b). Once a Ramsar Listed Wetland is designated, the country agrees to manage its conservation and ensure its wise use. Under the Convention, wise use is broadly defined as “maintaining the ecological character of a wetland” (DoE 2014b).

#### Nationally important wetlands

Wetlands of national significance are listed under the Directory of Important Wetlands in Australia. Nationally important wetlands are wetlands which meet at least one of the following criteria (DoE 2014a):

- It is a good example of a wetland type occurring within a biogeographic region in Australia
- It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex
- It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail
- The wetland supports one percent or more of the national populations of any native plant or animal taxa
- The wetland supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level
- The wetland is of outstanding historical or cultural significance

## Lakes covered under the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992*

The *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP Lakes) protects the environmental values of selected lakes/wetlands on the Swan Coastal Plain.

### Geomorphic wetlands

Categorisation of wetlands has been conducted by Hill et al. (1996), delineating Swan Coastal Plain wetlands into levels of protection and management categories. Conservation Category Wetlands are wetlands that support high levels of attributes and functions. Resource Enhancement Wetlands are those that have been partly modified but still support substantial functions and attributes. Multiple Use Wetlands are classified as those wetlands with few attributes that still provide important wetland functions. Multiple Use wetlands have few important ecological attributes and functions remaining.

The Geomorphic Wetlands Swan Coastal Plain dataset displays the location, boundary, geomorphic classification (wetland type) and management category of wetlands on the Swan Coastal Plain.

### Vegetation extent and status

The National Objectives and Targets for Biodiversity Conservation 2001–2005 (Commonwealth of Australia 2001) recognise that the retention of 30 percent or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected. This is the threshold level below which species loss appears to accelerate exponentially and loss below this level should not be permitted. This level of recognition is in keeping with the targets recommended in the review of the National Strategy for the Conservation of Australia's Biological Diversity (ANZECC 2000) and in Environmental Protection Authority (EPA) Position Statement No. 2 on environmental protection of native vegetation in Western Australia (EPA 2000).

From a purely biodiversity perspective and taking no account of any other land degradation issues, there are a number of key criteria now being applied to the clearing of native vegetation in Western Australia (EPA 2000).

- The "threshold level" below which species loss appears to accelerate exponentially at an ecosystem level is regarded as being at a level of 30 percent of the pre-European extent of the vegetation type.
- A level of 10 percent of the original extent is regarded as being a level representing Endangered.
- Clearing which would put the threat level into the class below should be avoided.
- From a biodiversity perspective, stream reserves should generally be in the order of at least 200 metres (m) wide.

Within the Swan Coastal Plain, EPA Position Statement No. 9 (EPA 2006a) identifies vegetation complexes with 30 percent or less of their pre-clearing extent remaining in a bioregion, or 10 percent or less of their pre-clearing extent remaining in constrained areas (i.e. areas of urban development in cities and major town) on the Swan Coastal Plain, to be critical assets.

The extent of remnant native vegetation has been assessed by Shepherd et al. (2002) and the Government of Western Australia (2013), based on broadscale vegetation association mapping by Beard (1979).

The Local Biodiversity Program (2013) and Molloy et al. (2007) have assessed the extent of Matiske and Havel (1998) vegetation complexes currently present against presumed pre-European extents. At the regional scale, information is available on 2013 native vegetation extent by vegetation complexes for the Jarrah Forest IBRA bioregion (Local Biodiversity Program 2013). At the local scale, information is available on 2007 remnant vegetation extent by vegetation complexes for the Shire of Harvey (Molloy et al. 2007).

It is important to note that the “remnant native vegetation mapping used in the Region is derived from dated aerial photography (in this case 1998) with limited ground-truthing. As a consequence, the percentages of ecological communities remaining are generally an overestimate of the native vegetation remaining at present and at the date of this Guidance (2006). The principal factors contributing to this overestimation are:

- The preferential mapping of treed landscapes, leading to some mapping of areas that are parkland cleared or completely degraded
- The inclusion of areas that are approved for clearing through development approvals and/or clearing permits
- Some areas that have been cleared since the time of the aerial photography

It is therefore important to bear these issues in mind when the percentage of the vegetation complexes remaining is approaching 30 percent” (EPA 2006b). Furthermore, as a result of the clearing of the Swan Coastal Plain since 1998, it is likely that the actual percentage remaining of each vegetation type is less.

### Conservation codes

Species of significant flora, fauna and communities are protected under both Federal and State Acts. The Federal EPBC Act provides a legal framework to protect and manage nationally important flora and communities. The State WC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

### **Conservation significant communities**

Ecological communities are defined as naturally occurring biological assemblages that occur in a particular type of habitat (English and Blyth 1997). Federally listed Threatened Ecological Communities (TECs) are protected under the EPBC Act administered by the Department of the Environment (DotE) (formerly Department of Sustainability, Environment, Water, Population and Communities – DSEWPaC). The DPaW also maintains a list of TECs for Western Australia; some of which are also protected under the EPBC Act. TECs are ecological communities that have been assessed and assigned to one of four categories related to the status of the threat to the community, i.e. Presumed Totally Destroyed, Critically Endangered, Endangered and Vulnerable.

Possible TEC that do not meet survey criteria are added to the DPaW Priority Ecological Community (PEC) List under Priorities 1, 2 and 3. These are ecological communities that are adequately known; are rare but not threatened, or meet criteria for Near Threatened. PECs that have been recently removed from the threatened list are placed in Priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in Priority 5. PECs are not listed under any formal Federal or State legislation.

Table Conservation codes and definitions for Threatened Ecological Communities endorsed by the Western Australian Minister for the Environment and listed under the *Environment Protection and Biodiversity Conservation Act 1999*

Western Australia conservation categories		Federal Government Conservation Categories (EPBC Act)	
Presumed Totally Destroyed (PD)	The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.	Critically Endangered (CR)	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated	Endangered (EN)	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.	Vulnerable (VU)	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.		

Table Conservation categories and definitions for Priority Ecological Communities as listed by the Department of Parks and Wildlife

Category	Description
Priority 1	<p><b>Poorly known ecological communities.</b></p> <p>Ecological communities that are known from very few occurrences with a very restricted distribution (generally <math>\leq 5</math> occurrences or a total area of <math>\leq 100</math> ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.</p>
Priority 2	<p><b>Poorly known ecological communities.</b></p> <p>Communities that are known from few occurrences with a restricted distribution (generally <math>\leq 10</math> occurrences or a total area of <math>\leq 200</math> ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.</p>
Priority 3	<p><b>Poorly known ecological communities.</b></p> <p>(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:</p> <p>(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or;</p> <p>(iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes.</p> <p>Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.</p>
Priority 4	<p><b>Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.</b></p> <p>(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.</p> <p>(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.</p>



Category	Description
Priority 5	<p><b>Conservation Dependent ecological communities.</b></p> <p>Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.</p>

### Other significant vegetation

Vegetation may be significant for a range of reasons, other than a statutory listing as TEC or because the extent is below a threshold level. The EPA (2004) states that significant vegetation may include vegetation that includes the following:

- Scarcity
- Unusual species
- Novel combinations of species
- A role as a refuge
- A role as a key habitat for Threatened species or large population representing a significant proportion of the local to regional total population of a species
- Being representative of the range of a unit (particularly, a good local and/or regional example of a unit in 'prime' habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
- A restricted distribution

This may apply at a number of levels, so the unit may be significant when considered at the fine-scale (intra-locality), intermediate-scale (locality or inter-locality) or broad-scale (local to region).

### Conservation significant flora and fauna

Species of significant flora are protected under both Federal and State legislation. Any activities that are deemed to have a significant impact on species that are recognised by the EPBC Act, and/or the WC Act can warrant referral to the DotE and/or the EPA. According to the DPaW (WA Herbarium, 1998–): "Threatened flora are plants which have been assessed as being at risk of extinction. In Western Australia the term Declared Rare Flora (DRF) is applied to Threatened flora due to the laws regarding threatened flora conservation. The WC Act is the primary wildlife conservation legislation in the State and the Minister for the Environment can declare taxa (species, subspecies or variety) as "Rare Flora" if they are considered to be in danger of extinction, rare or otherwise in need of special protection." For the purposes of this report, flora listed by the WC Act as DRF is described as Threatened.

The Federal conservation level of flora and fauna species and their significance status is assessed under the EPBC Act. The significance levels for fauna used in the EPBC Act are those recommended by the International Union for the Conservation of Nature and Natural Resources (IUCN).

The State conservation level of fauna species and their significance status is assessed under the State WC Act (*Wildlife Conservation (Specially Protected Fauna) Notice 2010(2)*). This Act uses a set of Schedules, but also classifies species using some of the IUCN categories. Schedule 3 fauna species are those which are "subject to an agreement between the Government of Australia and the Governments of Japan, China and the Republic of Korea relating to the protection of migratory birds, are declared to be fauna that is in need of special protection".

In Western Australia, the DPaW also maintains a list of Priority listed flora species. Conservation codes for Priority species are assigned by the DPaW to define the level of conservation significance. Priority species are not currently protected under the WC Act.

For the purposes of this assessment, all species listed under the EPBC Act, WC Act and DPaW Priority species are considered conservation significant.

**Table** Conservation categories and definitions for *Environment Protection and Biodiversity Conservation Act 1999* listed flora & fauna species

Conservation category	Definition
Extinct	Taxa not definitely located in the wild during the past 50 years
Extinct in the Wild	Taxa known to survive only in captivity
Critically Endangered	Taxa facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Taxa facing a very high risk of extinction in the wild in the near future
Vulnerable	Taxa facing a high risk of extinction in the wild in the medium-term
Near Threatened	Taxa that risk becoming Vulnerable in the wild
Conservation Dependent	Taxa whose survival depends upon ongoing conservation measures. Without these measures, a conservation dependent taxon would be classified as Vulnerable or more severely threatened.
Data Deficient (Insufficiently Known)	Taxa suspected of being Rare, Vulnerable or Endangered, but whose true status cannot be determined without more information.
Least Concern	Taxa that are not considered Threatened

Table Conservation codes and descriptions for Western Australian flora and fauna

Code	Conservation category	Description
<b>Wildlife Conservation Act 1950</b>		
T	Schedule 1 under the WC Act	<p><b>Threatened Fauna (Fauna that is rare or is likely to become extinct)</b></p> <p><b>Threatened Flora (Declared Rare Flora – Extant)</b></p> <p>Taxa that have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.</p> <p><b>CR: Critically Endangered</b> – considered to be facing an extremely high risk of extinction in the wild.</p> <p><b>EN: Endangered</b> – considered to be facing a very high risk of extinction in the wild.</p> <p><b>VU: Vulnerable</b> – considered to be facing a high risk of extinction in the wild.</p>
X	Schedule 2 under the WC Act	<p><b>Presumed Extinct Fauna</b></p> <p><b>Presumed Extinct Flora (Declared Rare Flora – Extinct)</b></p> <p>Taxa which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such.</p>
IA	Schedule 3 under the WC Act	<p><b>Birds protected under an international agreement.</b></p> <p>Birds that are subject to an agreement between governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction.</p>
S	Schedule 4 under the WC Act	<p><b>Other specially protected fauna.</b></p> <p>Fauna that is in need of special protection, otherwise than for the reasons mentioned in the above schedules.</p>
<b>DPaW Priority Listed</b>		
1	Priority One: Poorly-known taxa	<p>Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.</p>

Code	Conservation category	Description
2	Priority Two: Poorly-known taxa	Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
3	Priority Three: Poorly-known taxa	Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
4	Priority Four: Rare, Near Threatened and other taxa in need of monitoring	(a) Rare. Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.  (b) Near Threatened. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.  (c) Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
5	Priority 5: Conservation Dependent taxa	Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the taxon becoming threatened within five years.

### *Migratory species listed under the EPBC Act*

The EPBC Act also protects land and migratory species that are listed under International Agreements. The list of migratory species established under section 209 of the EPBC Act comprises:

- Migratory species which are native to Australia and are included in the appendices to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals Appendices I and II)
- Migratory species included in annexes established under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China–Australia Migratory Bird Agreement (CAMBA)
- Native, migratory species identified in a list established under, or an instrument made under, an international agreement approved by the Minister, such as the republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)

## Other significant flora and fauna

Flora species, subspecies, varieties, hybrids and ecotypes may be significant for a range of reasons, other than as Threatened (Declared Rare) Flora or Priority Flora. The EPA (2004) states that significant flora may include taxa that have:

- A keystone role in a particular habitat for threatened species or supporting large populations representing a significant proportion of the local regional population of a species
- Relic status
- Anomalous features that indicate a potential new discovery
- Being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
- The presence of restricted subspecies, varieties, or naturally occurring hybrids
- Local endemism/a restricted distribution
- Being poorly reserved

The application of the degree of significance may apply at a range of scales.

## Introduced plants (weeds)

### *Declared Pests*

Information on species considered to be Declared Pests is provided under *State Biosecurity and Agriculture Management Act 2007*.

### *Weeds of National Significance*

The spread of weeds across a range of land uses or ecosystems is important in the context of socio-economic and environmental values. The assessment of Weeds of National Significance (WoNS) is based on four major criteria:

- Invasiveness
- Impacts
- Potential for spread
- Socio-economic and environmental values

Australian state and territory governments have identified thirty two Weeds of National Significance (WoNS); a list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012 (Australian Government 2014).

### *Environmental weeds*

“Environmental weeds are plants that establish themselves in natural ecosystems (marine, aquatic and terrestrial) and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade” (CALM 1999). The Environmental Weed Strategy for Western Australia (EWSWA) was published in 1999. This document provides direction and an approach to tackling environmental weeds in Western Australia (CALM 1999). Following on from this strategy (in 2008), in an effort to address invasive weeds and implement an integrated approach to weed management on DPaW-managed lands in WA, the Weed Prioritisation Process was developed. A series of workshops were held in each of the nine DPaW regions with the purpose of scoring all weeds which occurred in each of the DPaW regions according to the following key attributes (DPaW 2013):

- Potential distribution and impact
- Invasiveness

- Current distribution
- Feasibility of control
- Weed management ability
- Weed risk

This process resulted in the following five ratings for each weed species (DPaW 2013):

- Very high (VH)
- High (H)
- Medium (M)
- Low (L)
- Negligible (N)

The suggested management actions for each species ranged from no action required (the weed species ranking is as low as to not warrant any investment in regional strategic management actions), through targeted control to reduce infestation or spread, to species requiring state-wide eradication (DPaW 2013).

The prioritisation for individual weeds within a DPaW region should be treated as a guide and does not diminish any other requirements of land managers or developers e.g. Declared Pest requirements of the BAM Act or Ministerial requirements under Part IV of the EP Act (DPaW 2013).

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# Appendix C – Desktop searches

EPBC Act PMST (5 km buffer)

*NatureMap* flora report (5 km buffer)



# 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: 10/02/15 14:46:53

[Summary](#)

[Details](#)

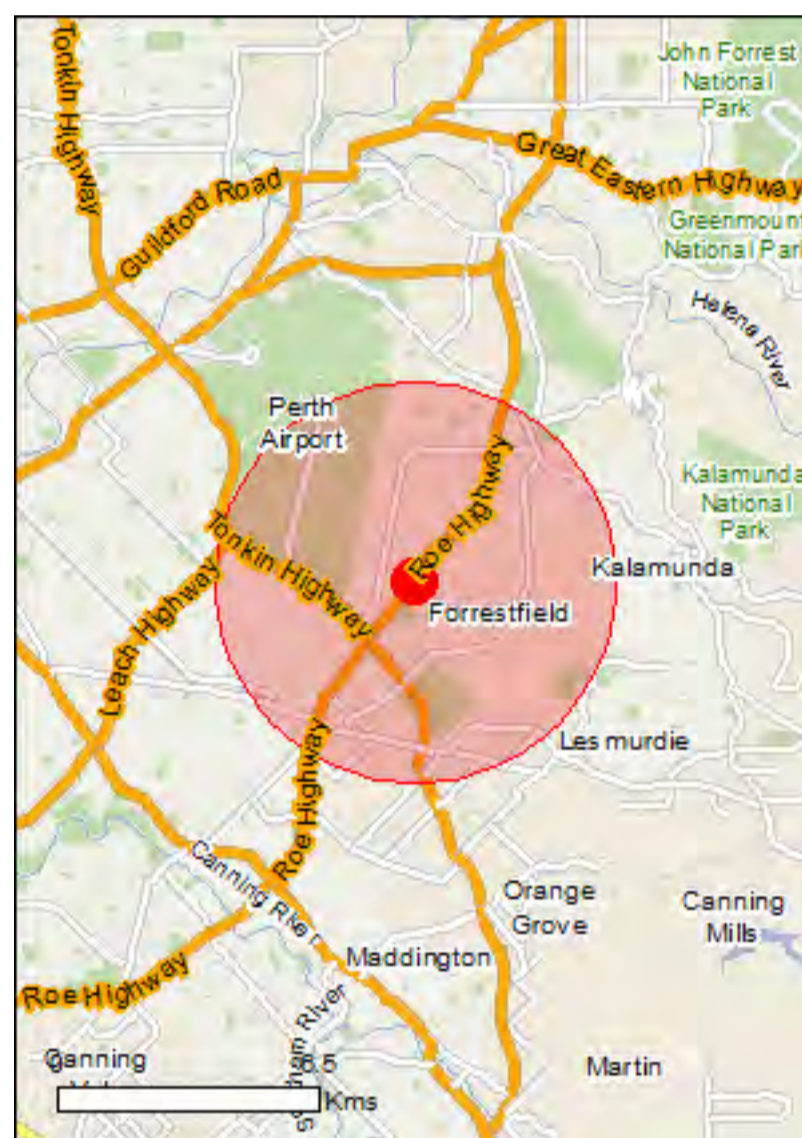
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

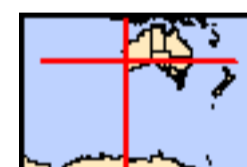
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[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 Areas:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	2
<a href="#">Listed Threatened Species:</a>	33
<a href="#">Listed Migratory Species:</a>	6

## 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 and the heritage values of a place on the Register of the National Estate.

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.

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>	8
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine</a>	None

## Extra Information

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

<a href="#">Place on the RNE:</a>	7
<a href="#">State and Territory Reserves:</a>	6
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	43
<a href="#">Nationally Important Wetlands:</a>	2
<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="#">Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Claypans of the Swan Coastal Plain</a>	Critically Endangered	Community likely to occur within area

#### Listed Threatened Species

[ [Resource Information](#) ]

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat may occur within area
<a href="#">Calyptorhynchus baudinii</a> Baudin's Black-Cockatoo, Long-billed Black-Cockatoo [769]	Vulnerable	Roosting known to occur within area
<a href="#">Calyptorhynchus latirostris</a> Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir [25911]	Vulnerable	Species or species habitat may occur within area
<a href="#">Setonix brachyurus</a> Quokka [229]	Vulnerable	Species or species habitat may occur within area
<b>Plants</b>		
<a href="#">Acacia anomala</a> Grass Wattle, Chittering Grass Wattle [8153]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat known to occur within area
<a href="#">Banksia mimica</a> Summer Honey-pot [82765]	Endangered	Species or species habitat likely to occur within area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calytrix breviseta subsp. breviseta</a> Swamp Starflower [23879]	Endangered	Species or species habitat known to occur within area
<a href="#">Centrolepis caespitosa</a> [6393]	Endangered	Species or species habitat likely to occur within area
<a href="#">Chamelaucium sp. Gingin (N.G.Marchant 6)</a> Gingin Wax [64649]	Endangered	Species or species habitat may occur within area
<a href="#">Conospermum undulatum</a> Wavy-leaved Smokebush [24435]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Darwinia apiculata</a> Scarp Darwinia [8763]	Endangered	Species or species habitat likely to occur within area
<a href="#">Darwinia foetida</a> Mucheas Bell [83190]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer-orchid, Praying Virgin [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 likely to occur within area
<a href="#">Eucalyptus balanites</a> Cadda Road Mallee, Cadda Mallee [24264]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat likely to occur within area
<a href="#">Lasiopetalum pterocarpum</a> Wing-fruited Lasiopetalum [64922]	Endangered	Species or species habitat may occur within area
<a href="#">Lepidosperma rostratum</a> Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
<a href="#">Macarthuria keigheryi</a> Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
<a href="#">Ptilotus pyramidatus</a> Pyramid Mulla-mulla [18216]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D.Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra manginii K.Dixon &amp; Batty ms.</a> [67443]	Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra stellata</a> Star Sun-orchid [7060]	Endangered	Species or species habitat known to occur within area

#### Listed Migratory Species [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat likely to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Land [\[ Resource Information \]](#)

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 [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat may occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat may occur within area

## Extra Information

### Places on the RNE [\[ Resource Information \]](#)

Note that not all Indigenous sites may be listed.

Name	State	Status
<b>Natural</b>		
<a href="#">Midgegooroo and Kalleep Munday Heritage Precincts</a>	WA	Indicative Place
<a href="#">Brixton Street and Associated Wetlands</a>	WA	Registered
<a href="#">Forrestfield Bushland</a>	WA	Registered
<a href="#">Lesmurdie Falls National Park</a>	WA	Registered
<a href="#">Munday Swamp Bushland</a>	WA	Registered
<a href="#">Munday Swamp and Surrounding Bushland</a>	WA	Registered
<b>Indigenous</b>		
<a href="#">Forrestfield Scarred Tree</a>	WA	Registered

## State and Territory Reserves [\[ Resource Information \]](#)

Name	State
Kenwick Wetlands	WA
Lesmurdie Falls	WA
Unnamed WA23076	WA
Unnamed WA24657	WA
Unnamed WA29815	WA
Unnamed WA37997	WA

## Regional Forest Agreements [\[ Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
<a href="#">South West WA RFA</a>	Western Australia

## 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 Resources Audit, 2001.

Name	Status	Type of Presence
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### 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

[Turdus merula](#)

Common Blackbird, Eurasian Blackbird [596] Species or species habitat likely to occur within area

### Mammals

[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



Name	Status	Type of Presence
<a href="#">Capra hircus</a> Goat [2]		Species or species habitat likely to occur within area
<a href="#">Felis catus</a> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<a href="#">Feral deer</a> Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
<a href="#">Funambulus pennantii</a> Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
<a href="#">Mus musculus</a> House Mouse [120]		Species or species habitat likely to occur within area
<a href="#">Oryctolagus cuniculus</a> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<a href="#">Rattus norvegicus</a> Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
<a href="#">Rattus rattus</a> Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
<a href="#">Sus scrofa</a> Pig [6]		Species or species habitat likely to occur within area
<a href="#">Vulpes vulpes</a> Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Anredera cordifolia</a> 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
<a href="#">Asparagus asparagoides</a> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
<a href="#">Brachiaria mutica</a> Para Grass [5879]		Species or species habitat may occur within area
<a href="#">Cenchrus ciliaris</a> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
<a href="#">Chrysanthemoides monilifera</a> Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
<a href="#">Chrysanthemoides monilifera subsp. monilifera</a> Boneseed [16905]		Species or species habitat likely to occur within area
<a href="#">Eichhornia crassipes</a> Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
<a href="#">Genista linifolia</a> Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<a href="#">Genista monspessulana</a> Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126] <a href="#">Genista sp. X Genista monspessulana</a> Broom [67538]		Species or species habitat likely to occur within area
<a href="#">Lantana camara</a> Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] <a href="#">Lycium ferocissimum</a> African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
<a href="#">Olea europaea</a> Olive, Common Olive [9160]		Species or species habitat may occur within area
<a href="#">Pinus radiata</a> Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
<a href="#">Rubus fruticosus aggregate</a> Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
<a href="#">Sagittaria platyphylla</a> Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
<a href="#">Salix spp. except S.babylonica, S.x calodendron &amp; S.x reichardtii</a> Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
<a href="#">Salvinia molesta</a> Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
<a href="#">Tamarix aphylla</a> 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
<b>Reptiles</b>		
<a href="#">Hemidactylus frenatus</a> Asian House Gecko [1708]		Species or species habitat likely to occur within area
<a href="#">Ramphotyphlops braminus</a> Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area
<b>Nationally Important Wetlands</b>		<b>[ Resource Information ]</b>
<b>Name</b>		<b>State</b>
<a href="#">Brixton Street Swamps</a>		WA
<a href="#">Perth Airport Woodland Swamps</a>		WA

# Coordinates

-31.97667 115.99581

## 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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

# 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:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA 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, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [-State Forests of NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- 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.

# NatureMap Species Report

Created By Guest user on 10/02/2015

**Kingdom** Plantae  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Circle'  
**Centre** 116°00' 14" E,31°58' 38" S  
**Buffer** 5km  
**Group By** Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	745	2303
Priority 1	3	24
Priority 2	3	32
Priority 3	12	102
Priority 4	8	46
Rare or likely to become extinct	12	242
<b>TOTAL</b>	<b>783</b>	<b>2749</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Rare or likely to become extinct</b>				
1.	3219 <i>Acacia anomala</i> (Grass Wattle)		T	
2.	38480 <i>Austrostipa bronwenae</i>		T	
3.	32211 <i>Banksia mimica</i> (Summer Honeypot)		T	
4.	1213 <i>Calectasia cyanea</i> (Blue Tinsel Lily)		T	
5.	13653 <i>Calytrix breviseta</i> subsp. <i>breviseta</i>		T	
6.	13999 <i>Conospermum undulatum</i>		T	
7.	5505 <i>Darwinia apiculata</i> (Scarp Darwinia)		T	
8.	1637 <i>Diuris purdiei</i> (Purdie's Donkey Orchid)		T	
9.	17150 <i>Eremophila glabra</i> subsp. <i>chlorella</i>		T	
10.	942 <i>Lepidosperma rostratum</i>		T	
11.	17106 <i>Macarthuria keigheryi</i>		T	
12.	10862 <i>Thelymitra stellata</i> (Star Orchid)		T	
<b>Priority 1</b>				
13.	16618 <i>Boronia humifusa</i>		P1	
14.	8205 <i>Senecio gilbertii</i>		P1	
15.	20729 <i>Thelymitra magnifica</i> (Crystal Brook Star Orchid)		P1	
<b>Priority 2</b>				
16.	13439 <i>Grevillea thelemanniana</i> subsp. <i>thelemanniana</i> (Spider Net Grevillea)		P2	
17.	14493 <i>Hypocalymma</i> sp. <i>Cataby</i> (G.J. Keighery 5151)		P2	
18.	37683 <i>Melaleuca viminalis</i>		P2	
<b>Priority 3</b>				
19.	32138 <i>Banksia pteridifolia</i> subsp. <i>vernalis</i>		P3	
20.	3178 <i>Byblis gigantea</i> (Rainbow Plant)		P3	
21.	1469 <i>Haemodorum loratum</i>		P3	
22.	6686 <i>Halgania corymbosa</i>		P3	
23.	2228 <i>Isopogon drummondii</i>		P3	
24.	6193 <i>Myriophyllum echinatum</i>		P3	
25.	8163 <i>Pithocarpa corymbulosa</i> (Corymbose Pithocarpa)		P3	
26.	11132 <i>Platysace ramosissima</i>		P3	
27.	1008 <i>Schoenus pennisetis</i>		P3	
28.	7756 <i>Stylidium longitubum</i> (Jumping Jacks)		P3	
29.	14333 <i>Tetratea</i> sp. <i>Granite</i> (S. Patrick SP1224)		P3	
30.	1317 <i>Thysanotus anceps</i>		P3	
<b>Priority 4</b>				
31.	14131 <i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>		P4	
32.	4444 <i>Boronia tenuis</i> (Blue Boronia)		P4	
33.	5133 <i>Hibbertia helianthemoides</i>		P4	
34.	5025 <i>Lasiopetalum bracteatum</i> (Helena Velvet Bush)		P4	









Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
243.	17692 <i>Cyrtogonidium leptocarpoides</i>			
244.	7420 <i>Dampiera alata</i> (Winged-stem Dampiera)			
245.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
246.	5508 <i>Darwinia citriodora</i> (Lemon-scented Darwinia)			
247.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
248.	1220 <i>Dasypogon obliquifolius</i>			
249.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
250.	3793 <i>Daviesia angulata</i>			
251.	3799 <i>Daviesia cordata</i> (Bookleaf)			
252.	3805 <i>Daviesia decurrens</i> (Prickly Bitter-pea)			
253.	19747 <i>Daviesia decurrens subsp. decurrens</i>			
254.	3807 <i>Daviesia divaricata</i> (Marno)			
255.	18560 <i>Daviesia divaricata subsp. divaricata</i>			
256.	3815 <i>Daviesia horrida</i> (Prickly Bitter-pea)			
257.	3824 <i>Daviesia nudiflora</i>			
258.	3832 <i>Daviesia physodes</i>			
259.	3834 <i>Daviesia polyphylla</i>			
260.	3835 <i>Daviesia preissii</i>			
261.	3845 <i>Daviesia triflora</i>			
262.	17663 <i>Desmocladius asper</i>			
263.	17691 <i>Desmocladius fasciculatus</i>			
264.	1259 <i>Dianella revoluta</i> (Blueberry Lily)			
265.	11636 <i>Dianella revoluta var. divaricata</i>			
266.	1287 <i>Dichopogon capillipes</i>			
267.	17838 <i>Dielsia stenostachya</i>			
268.	1509 <i>Dioscorea hastifolia</i> (Warrine, Warram)			
269.	18589 <i>Diplopeltis huegelii subsp. lehmannii</i>			
270.	32347 <i>Ditrichum difficile</i>			
271.	12943 <i>Diuris brumalis</i>			
272.	11049 <i>Diuris corymbosa</i>			
273.	1634 <i>Diuris laxiflora</i> (Bee Orchid)			
274.	15406 <i>Drakaea gracilis</i>			
275.	3092 <i>Drosera bulbosa</i> (Red-leaved Sundew)			
276.	13204 <i>Drosera callistos</i>			
277.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
278.	13217 <i>Drosera erythrorhiza subsp. erythrorhiza</i>			
279.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
280.	13197 <i>Drosera hyperostigma</i>			
281.	14298 <i>Drosera macrantha subsp. macrantha</i>			
282.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
283.	11853 <i>Drosera menziesii subsp. menziesii</i>			
284.	13216 <i>Drosera menziesii subsp. penicillaris</i>			
285.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
286.	29178 <i>Drosera porrecta</i>			
287.	8911 <i>Drosera rosulata</i>			
288.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
289.	3135 <i>Drosera zonaria</i> (Painted Sundew)			
290.	33480 <i>Dysphania pumilio</i> (Clammy Goosefoot)			
291.	7374 <i>Ecballium elaterium</i> (Squirting Cucumber)	Y		
292.	32351 <i>Eccremidium pulchellum</i>			
293.	8450 <i>Eclipta prostrata</i>	Y		
294.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
295.	1644 <i>Elythranthera emarginata</i> (Pink Enamel Orchid)			
296.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
297.	5540 <i>Eremaea fimbriata</i>			
298.	5541 <i>Eremaea pauciflora</i>			
299.	14104 <i>Eremaea pauciflora var. pauciflora</i>			
300.	15412 <i>Eriochilus dilatatus subsp. multiflorus</i>			
301.	15414 <i>Eriochilus helonomos</i>			
302.	15415 <i>Eriochilus scaber subsp. scaber</i>			
303.	4335 <i>Erodium cygnorum</i> (Blue Heronsbill)			
304.	6219 <i>Eryngium pinnatifidum</i> (Blue Devils)			
305.	18299 <i>Erythrina x sykesii</i>	Y		
306.	5688 <i>Eucalyptus laeliae</i> (Darling Range Ghost Gum)			
307.	5708 <i>Eucalyptus marginata</i> (Jarrah, Djara)			
308.	13547 <i>Eucalyptus marginata subsp. marginata</i> (Jarrah)			
309.	13548 <i>Eucalyptus marginata subsp. thalassica</i> (Blue-leaved Jarrah)			
310.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
311.	13511 <i>Eucalyptus rudis subsp. rudis</i>			
312.	5790 <i>Eucalyptus todtiana</i> (Coastal Blackbutt)			

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313.	5797 <i>Eucalyptus wandoo</i> (Wandoo, Wondou)			
314.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
315.	3880 <i>Eutaxia virgata</i>			
316.	32368 <i>Fissidens taylorii</i>			
317.	32469 <i>Fissidens taylorii</i> var. <i>taylorii</i>			
318.	18392 <i>Freesia alba</i> x <i>leichtlinii</i>	Y		
319.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
320.	32370 <i>Funaria hygrometrica</i>			
321.	907 <i>Gahnia trifida</i> (Coast Saw-sedge)			
322.	7321 <i>Galium divaricatum</i>	Y		
323.	434 <i>Gastridium phleoides</i> (Nitgrass)	Y		
324.	3887 <i>Gastrolobium acutum</i>			
325.	3895 <i>Gastrolobium calycinum</i> (York Road Poison)			
326.	20475 <i>Gastrolobium capitatum</i>			
327.	3912 <i>Gastrolobium oxylobioides</i> (Champion Bay Poison)			
328.	3923 <i>Gastrolobium spathulatum</i> (Poison Bush)			
329.	32375 <i>Gemmabryum chryseuron</i>			
330.	32380 <i>Gemmabryum pachythemum</i>			
331.	3936 <i>Genista linifolia</i> (Flaxleaf Broom)	Y		
332.	18298 <i>Gladiolus carneus</i>	Y		
333.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
334.	6143 <i>Glischrocaryon aureum</i> (Common Popflower)			
335.	6587 <i>Gomphocarpus fruticosus</i> (Narrowleaf Cottonbush)	Y		
336.	10909 <i>Gompholobium confertum</i>			
337.	3950 <i>Gompholobium knightianum</i>			
338.	3951 <i>Gompholobium marginatum</i>			
339.	3954 <i>Gompholobium polymorphum</i>			
340.	3955 <i>Gompholobium preissii</i>			
341.	3956 <i>Gompholobium shuttleworthii</i>			
342.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
343.	6149 <i>Gonocarpus cordiger</i>			
344.	6161 <i>Gonocarpus pithyoides</i>			
345.	29362 <i>Goodenia coerulea</i>			
346.	12520 <i>Goodenia fasciculata</i>			
347.	7517 <i>Goodenia incana</i> (Hoary Goodenia)			
348.	19286 <i>Goodenia pulchella</i> subsp. <i>Coastal Plain A</i> (M. Hislop 634)			
349.	1964 <i>Grevillea bipinnatifida</i> (Fuchsia Grevillea)			
350.	19628 <i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>			
351.	1997 <i>Grevillea endlicheriana</i> (Spindly Grevillea)			
352.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
353.	15839 <i>Grevillea preissii</i> subsp. <i>preissii</i>			
354.	2101 <i>Grevillea synapheae</i> (Catkin Grevillea)			
355.	5013 <i>Guichenotia micrantha</i> (Small Flowered Guichenotia)			
356.	1465 <i>Haemodorum discolor</i>			
357.	1468 <i>Haemodorum laxum</i>			
358.	1472 <i>Haemodorum simplex</i>			
359.	1474 <i>Haemodorum sparsiflorum</i>			
360.	1475 <i>Haemodorum spicatum</i> (Mardja)			
361.	2128 <i>Hakea amplexicaulis</i> (Prickly Hakea)			
362.	2136 <i>Hakea candolleana</i>			
363.	2137 <i>Hakea ceratophylla</i> (Horned Leaf Hakea)			
364.	2143 <i>Hakea conchifolia</i> (Shell-leaved Hakea)			
365.	2152 <i>Hakea cyclocarpa</i> (Ramshorn)			
366.	2158 <i>Hakea erinacea</i> (Hedge-hog Hakea)			
367.	2166 <i>Hakea incrassata</i> (Marble Hakea)			
368.	2175 <i>Hakea lissocarpha</i> (Honey Bush)			
369.	2185 <i>Hakea myrtooides</i> (Myrtle Hakea)			
370.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
371.	2203 <i>Hakea ruscifolia</i> (Candle Hakea)			
372.	31793 <i>Hakea</i> sp. <i>Eastern coastal plain</i> (G.J. Keighery 8014)			
373.	12234 <i>Hakea spathulata</i>			
374.	2206 <i>Hakea stenocarpa</i> (Narrow-fruited Hakea)			
375.	2212 <i>Hakea sulcata</i> (Furrowed Hakea)			
376.	2214 <i>Hakea trifurcata</i> (Two-leaf Hakea)			
377.	2215 <i>Hakea undulata</i> (Wavy-leaved Hakea)			
378.	8027 <i>Helichrysum macranthum</i>			
379.	3016 <i>Heliophila pusilla</i>	Y		
380.	6836 <i>Hemiandra incana</i>			
381.	6838 <i>Hemiandra linearis</i> (Speckled Snakebush)			
382.	6839 <i>Hemiandra pungens</i> (Snakebush)			

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383.	6856 <i>Hemigenia incana</i> (Silky Hemigenia)			
384.	41020 <i>Hemiphora bartlingii</i> (Woolly Dragon)			
385.	1526 <i>Hesperantha falcata</i>	Y		
386.	5108 <i>Hibbertia acerosa</i> (Needle Leaved Guinea Flower)			
387.	5112 <i>Hibbertia aurea</i>			
388.	5114 <i>Hibbertia commutata</i>			
389.	19778 <i>Hibbertia glomerata</i> subsp. <i>darlingensis</i>			
390.	5134 <i>Hibbertia huegelii</i>			
391.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
392.	5152 <i>Hibbertia ovata</i>			
393.	5153 <i>Hibbertia pachyrrhiza</i>			
394.	5169 <i>Hibbertia serrata</i> (Serrate Leaved Guinea Flower)			
395.	11481 <i>Hibbertia spicata</i> subsp. <i>spicata</i>			
396.	5173 <i>Hibbertia subvaginata</i>			
397.	6222 <i>Homalosciadium homalocarpum</i>			
398.	3964 <i>Hovea chorizemifolia</i> (Holly-leaved Hovea)			
399.	3966 <i>Hovea pungens</i> (Devil's Pins, Puyenak)			
400.	3968 <i>Hovea trisperma</i> (Common Hovea)			
401.	12907 <i>Hovea trisperma</i> var. <i>grandiflora</i>			
402.	12859 <i>Hovea trisperma</i> var. <i>trisperma</i>			
403.	18296 <i>Humulus lupulus</i>	Y		
404.	12741 <i>Hyalosperma cotula</i>			
405.	5216 <i>Hybanthus calycinus</i> (Wild Violet)			
406.	6226 <i>Hydrocotyle callicarpa</i> (Small Pennywort)			
407.	452 <i>Hyparrhenia hirta</i> (Tambookie Grass)	Y		
408.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
409.	35074 <i>Hypocalymma angustifolium</i> subsp. <i>Dandaragan plateau</i> (S. Patrick 702A)			
410.	5825 <i>Hypocalymma robustum</i> (Swan River Myrtle)			
411.	8086 <i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
412.	9352 <i>Hypochaeris radicata</i> (Flat Weed)	Y		
413.	1070 <i>Hypolaena exsulca</i>			
414.	17841 <i>Hypolaena pubescens</i>			
415.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
416.	919 <i>Isolepis oldfieldiana</i>			
417.	2221 <i>Isopogon asper</i>			
418.	2229 <i>Isopogon dubius</i> (Pincushion Coneflower)			
419.	2237 <i>Isopogon sphaerocephalus</i> (Drumstick Isopogon)			
420.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
421.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
422.	19700 <i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
423.	3997 <i>Jacksonia alata</i>			
424.	3998 <i>Jacksonia angulata</i>			
425.	4010 <i>Jacksonia floribunda</i> (Holly Pea)			
426.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
427.	4018 <i>Jacksonia lehmannii</i>			
428.	4025 <i>Jacksonia restioides</i>			
429.	4029 <i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
430.	1298 <i>Johnsonia pubescens</i> (Pipe Lily)			
431.	19632 <i>Johnsonia pubescens</i> subsp. <i>pubescens</i>			
432.	1180 <i>Juncus capitatus</i> (Capitate Rush)	Y		
433.	11922 <i>Juncus kraussii</i> subsp. <i>australiensis</i>			
434.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
435.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
436.	4045 <i>Kennedia stirlingii</i> (Bushy Kennedia)			
437.	1221 <i>Kingia australis</i> (Kingia, Pulonok)			
438.	15498 <i>Kunzea glabrescens</i> (Spearwood)			
439.	11289 <i>Labichea lanceolata</i> subsp. <i>lanceolata</i>			
440.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
441.	18585 <i>Lagenophora huegelii</i>			
442.	2249 <i>Lambertia multiflora</i> (Many-flowered Honeysuckle)			
443.	14083 <i>Lambertia multiflora</i> var. <i>darlingensis</i>			
444.	28342 <i>Landoltia punctata</i> (Thin Duckweed)			
445.	38323 <i>Lavandula stoechas</i> subsp. <i>stoechas</i>	Y		
446.	13284 <i>Lawrencella rosea</i>			
447.	4959 <i>Lawrencia squamata</i>			
448.	11911 <i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
449.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
450.	1309 <i>Laxmannia squarrosa</i>			
451.	7568 <i>Lechenaultia biloba</i> (Blue Leschenaultia)			
452.	1051 <i>Lemna disperma</i> (Duckweed)			

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453.	1075 <i>Lepidobolus preissianus</i>			
454.	925 <i>Lepidosperma angustatum</i>			
455.	42741 <i>Lepidosperma apricola</i>			
456.	931 <i>Lepidosperma drummondii</i>			
457.	936 <i>Lepidosperma leptostachyum</i>			
458.	940 <i>Lepidosperma pubisquamium</i>			
459.	945 <i>Lepidosperma squamatum</i>			
460.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
461.	5847 <i>Leptospermum erubescens</i> (Roadside Teatree)			
462.	5850 <i>Leptospermum laevigatum</i> (Coast Teatree)	Y		
463.	5857 <i>Leptospermum spinescens</i>			
464.	6367 <i>Leucopogon capitellatus</i>			
465.	6374 <i>Leucopogon conostephioides</i>			
466.	6397 <i>Leucopogon glaucifolius</i>			
467.	6427 <i>Leucopogon parviflorus</i> (Coast Beard-heath)			
468.	6434 <i>Leucopogon polymorphus</i>			
469.	6439 <i>Leucopogon pulchellus</i> (Beard-heath)			
470.	19579 <i>Leucopogon</i> sp. <i>Murdoch</i> (M. Hislop 1037)			
471.	6444 <i>Leucopogon sprengelioides</i>			
472.	40803 <i>Leucopogon squarrosus</i> subsp. <i>squarrosus</i>			
473.	7676 <i>Levenhookia pusilla</i> (Midget Stylewort)			
474.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
475.	4363 <i>Linum trigynum</i> (French Flax)	Y		
476.	7406 <i>Lobelia rhombifolia</i> (Tufted Lobelia)			
477.	7407 <i>Lobelia rhytidisperma</i> (Wrinkled-seeded Lobelia)			
478.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
479.	1228 <i>Lomandra hermaphrodita</i>			
480.	1232 <i>Lomandra micrantha</i> (Small-flower Mat-rush)			
481.	14542 <i>Lomandra micrantha</i> subsp. <i>micrantha</i>			
482.	1234 <i>Lomandra nigricans</i>			
483.	1236 <i>Lomandra odora</i> (Tiered Matrush)			
484.	1239 <i>Lomandra preissii</i>			
485.	1240 <i>Lomandra purpurea</i> (Purple Mat Rush)			
486.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
487.	1246 <i>Lomandra suaveolens</i>			
488.	7365 <i>Lonicera japonica</i> (Japanese Honeysuckle)	Y		
489.	4063 <i>Lotus uliginosus</i> (Greater Lotus)	Y		
490.	4065 <i>Lupinus angustifolius</i> (Narrowleaf Lupin)	Y		
491.	4067 <i>Lupinus luteus</i> (Yellow Lupin)	Y		
492.	1097 <i>Lyginia barbata</i>			
493.	18049 <i>Lyginia imberbis</i>			
494.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
495.	6456 <i>Lysinema ciliatum</i> (Curry Flower)			
496.	34736 <i>Lysinema pentapetalum</i>			
497.	2839 <i>Macarthuria australis</i>			
498.	85 <i>Macrozamia riedlei</i> (Zamia, Djiridji)			
499.	17636 <i>Marianthus coeruleopunctatus</i> (Blue-spotted Marianthus)			
500.	17635 <i>Marianthus drummondianus</i>			
501.	17633 <i>Marianthus erubescens</i>			
502.	4079 <i>Medicago polymorpha</i> (Burr Medic)	Y		
503.	17683 <i>Meeboldina cana</i>			
504.	17747 <i>Meeboldina decipiens</i>			
505.	36296 <i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Y		
506.	13273 <i>Melaleuca incana</i> subsp. <i>incana</i>			
507.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
508.	20297 <i>Melaleuca osullivanii</i>			
509.	18394 <i>Melaleuca parviceps</i>			
510.	5958 <i>Melaleuca radula</i> (Graceful Honeymyrtle)			
511.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
512.	5961 <i>Melaleuca scabra</i> (Rough Honeymyrtle, Wurru Bush)			
513.	5964 <i>Melaleuca seriata</i>			
514.	5983 <i>Melaleuca trichophylla</i>			
515.	5987 <i>Melaleuca viminea</i> (Mohan)			
516.	14985 <i>Melinis repens</i>	Y		
517.	953 <i>Mesomelaena graciliceps</i>			
518.	955 <i>Mesomelaena pseudostygia</i>			
519.	957 <i>Mesomelaena tetragona</i> (Semaphore Sedge)			
520.	15419 <i>Microtis media</i> subsp. <i>media</i>			
521.	8106 <i>Millotia tenuifolia</i> (Soft Millotia)			
522.	14344 <i>Millotia tenuifolia</i> var. <i>tenuifolia</i> (Soft Millotia)			

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523.	7085 <i>Misopates orontium</i> (Lesser Snapdragon)	Y		
524.	4662 <i>Monotaxis grandiflora</i> (Diamond of the Desert)			
525.	19585 <i>Monotaxis grandiflora</i> var. <i>grandiflora</i>			
526.	44496 <i>Narcissus tazetta</i> subsp. <i>italicus</i>	Y		
527.	492 <i>Neurachne alopecuroidea</i> (Foxtail Mulga Grass)			
528.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
529.	2365 <i>Olax benthamiana</i>			
530.	2367 <i>Olax scalariformis</i>			
531.	8143 <i>Olearia paucidentata</i> (Autumn Scrub Daisy)			
532.	18254 <i>Opercularia apiciflora</i>			
533.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
534.	5227 <i>Opuntia stricta</i> (Common Prickly Pear)	Y		
535.	7122 <i>Orobanche minor</i> (Lesser Broomrape)	Y		
536.	11749 <i>Orthrosanthus laxus</i> var. <i>laxus</i> (Morning Iris)			
537.	30375 <i>Oxalis exilis</i>			
538.	4352 <i>Oxalis glabra</i>	Y		
539.	4354 <i>Oxalis incarnata</i>	Y		
540.	23500 <i>Paracaleana hortiorum</i>			
541.	7089 <i>Parentucellia latifolia</i> (Common Bartsia)	Y		
542.	527 <i>Paspalum dilatatum</i>	Y		
543.	5225 <i>Passiflora filamentosa</i>	Y		
544.	1546 <i>Patersonia juncea</i> (Rush Leaved Patersonia)			
545.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
546.	30472 <i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
547.	1551 <i>Patersonia pygmaea</i> (Pygmy Patersonia)			
548.	14433 <i>Patersonia rudis</i> subsp. <i>rudis</i>			
549.	43762 <i>Pauridia occidentalis</i> var. <i>quadriloba</i>			
550.	40422 <i>Pentameris pallida</i>	Y		
551.	6245 <i>Pentapeltis peltigera</i>			
552.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
553.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
554.	16984 <i>Persicaria lapathifolia</i>	Y		
555.	16983 <i>Persicaria maculosa</i>	Y		
556.	2255 <i>Persoonia angustiflora</i>			
557.	2262 <i>Persoonia elliptica</i> (Spreading Snottygobble)			
558.	2273 <i>Persoonia saccata</i> (Snottygobble)			
559.	2284 <i>Petrophile biloba</i> (Granite Petrophile)			
560.	20391 <i>Petrophile juncifolia</i>			
561.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
562.	2301 <i>Petrophile macrostachya</i>			
563.	2308 <i>Petrophile seminuda</i>			
564.	2312 <i>Petrophile striata</i>			
565.	19825 <i>Petrotraghia dubia</i>	Y		
566.	547 <i>Phalaris angusta</i>	Y		
567.	20460 <i>Pheladenia deformis</i>			
568.	18529 <i>Philothea spicata</i> (Pepper and Salt)			
569.	1172 <i>Philydrella drummondii</i>			
570.	14306 <i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>			
571.	1478 <i>Phlebocarya ciliata</i>			
572.	1479 <i>Phlebocarya filifolia</i>			
573.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
574.	17794 <i>Phyllanthus tenellus</i>	Y		
575.	6983 <i>Physalis peruviana</i> (Cape Gooseberry)	Y		
576.	5231 <i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
577.	5232 <i>Pimelea argentea</i> (Silvery Leaved Pimelea)			
578.	11928 <i>Pimelea ciliata</i> subsp. <i>ciliata</i>			
579.	11402 <i>Pimelea imbricata</i> var. <i>piliger</i>			
580.	11182 <i>Pimelea lehmanniana</i> subsp. <i>nervosa</i>			
581.	12041 <i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>			
582.	5268 <i>Pimelea sulphurea</i> (Yellow Banjine)			
583.	8165 <i>Pithocarpa pulchella</i> (Beautiful Pithocarpa)			
584.	18352 <i>Pithocarpa pulchella</i> var. <i>melanostigma</i>			
585.	6253 <i>Platysace filiformis</i>			
586.	6255 <i>Platysace juncea</i>			
587.	4524 <i>Platytheca galioides</i>			
588.	573 <i>Poa drummondiana</i> (Knotted Poa)			
589.	8175 <i>Podolepis gracilis</i> (Slender Podolepis)			
590.	8177 <i>Podolepis lessonii</i>			
591.	8182 <i>Pododthea angustifolia</i> (Sticky Longheads)			
592.	8183 <i>Pododthea chrysantha</i> (Yellow Pododthea)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
593.	8188 <i>Pogonolepis stricta</i>			
594.	8395 <i>Polygala myrtifolia</i> (Myrtleleaf Milkwort)	Y		
595.	583 <i>Polypogon tenellus</i>			
596.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
597.	1671 <i>Prasophyllum elatum</i> (Tall Leek Orchid)			
598.	1672 <i>Prasophyllum fimbria</i> (Fringed Leek Orchid)			
599.	1674 <i>Prasophyllum giganteum</i> (Bronze Leek Orchid)			
600.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
601.	1680 <i>Prasophyllum parvifolium</i> (Autumn Leek Orchid)			
602.	10853 <i>Prasophyllum plumiforme</i>			
603.	17211 <i>Prunus cerasifera</i>	Y		
604.	13255 <i>Pterochaeta paniculata</i>			
605.	1686 <i>Pterostylis barbata</i> (Bird Orchid)			
606.	1693 <i>Pterostylis recurva</i> (Jug Orchid)			
607.	2720 <i>Ptilotus esquamatus</i>			
608.	2742 <i>Ptilotus manglesii</i> (Pom Poms, Mulamula)			
609.	4172 <i>Pultenaea ericifolia</i>			
610.	16367 <i>Pyrrochis nigricans</i> (Red beaks, Elephants ears)			
611.	3061 <i>Raphanus raphanistrum</i> (Wild Radish)	Y		
612.	13300 <i>Rhodanthe citrina</i>			
613.	15035 <i>Rhodanthe corymbosa</i>			
614.	34296 <i>Rinzia sp. Darling Range (F. Hort 2040)</i>			
615.	14485 <i>Romulea flava var. minor</i>	Y		
616.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
617.	2356 <i>Santalum acuminatum</i> (Quandong, Warrga)			
618.	7602 <i>Scaevola calliptera</i>			
619.	7603 <i>Scaevola canescens</i> (Grey Scaevola)			
620.	7613 <i>Scaevola glandulifera</i> (Viscid Hand-flower)			
621.	7619 <i>Scaevola lanceolata</i>			
622.	7635 <i>Scaevola pilosa</i> (Hairy Fan-flower)			
623.	7636 <i>Scaevola platyphylla</i> (Broad-leaved Fanflower)			
624.	12585 <i>Scaevola repens</i>			
625.	13182 <i>Scaevola repens var. repens</i>			
626.	32432 <i>Schizymenium bryoides</i>			
627.	971 <i>Schoenus andrewsii</i>			
628.	975 <i>Schoenus bifidus</i>			
629.	978 <i>Schoenus brevisetis</i>			
630.	979 <i>Schoenus caespitius</i>			
631.	982 <i>Schoenus clandestinus</i>			
632.	984 <i>Schoenus curvifolius</i>			
633.	986 <i>Schoenus efoliatus</i>			
634.	991 <i>Schoenus grammatophyllus</i>			
635.	996 <i>Schoenus laevigatus</i>			
636.	998 <i>Schoenus latitans</i>			
637.	1002 <i>Schoenus nanus</i> (Tiny Bog Rush)			
638.	1009 <i>Schoenus pleiostemoneus</i>			
639.	1011 <i>Schoenus rigens</i>			
640.	1013 <i>Schoenus sculptus</i> (Gimlet Bog-rush)			
641.	1016 <i>Schoenus subbarbatus</i> (Bearded Bog-rush)			
642.	1017 <i>Schoenus subbulbosus</i>			
643.	1019 <i>Schoenus subflavus</i> (Yellow Bog-rush)			
644.	1020 <i>Schoenus sublateralis</i>			
645.	1026 <i>Schoenus unispiculatus</i>			
646.	6033 <i>Scholtzia involucrata</i> (Spiked Scholtzia)			
647.	32433 <i>Sematophyllum homomallum</i>			
648.	20663 <i>Senecio multicaulis subsp. multicaulis</i>			
649.	20161 <i>Senecio pinnatifolius</i>			
650.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
651.	8224 <i>Siloxerus filifolius</i>			
652.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
653.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
654.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
655.	1558 <i>Sparaxis bulbifera</i>	Y		
656.	2912 <i>Spergula arvensis</i> (Corn Spurry)	Y		
657.	4205 <i>Sphaerolobium linophyllum</i>			
658.	4206 <i>Sphaerolobium macranthum</i>			
659.	4207 <i>Sphaerolobium medium</i>			
660.	6930 <i>Stachys arvensis</i> (Staggerweed)	Y		
661.	4713 <i>Stachystemon axillaris</i> (Leafy Stachystemon)			
662.	4716 <i>Stachystemon vermicularis</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
663.	4733 <i>Stackhousia monogyna</i>			
664.	9070 <i>Stackhousia pubescens</i> (Downy Stackhousia)			
665.	16197 <i>Stenanthemum emarginatum</i>			
666.	13475 <i>Stenanthemum humile</i>			
667.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
668.	7681 <i>Stylidium affine</i> (Queen Triggerplant)			
669.	30278 <i>Stylidium androsaceum</i>			
670.	25831 <i>Stylidium araeophyllum</i>			
671.	30276 <i>Stylidium bicolor</i>			
672.	7692 <i>Stylidium breviscapum</i> (Boomerang Triggerplant)			
673.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
674.	7694 <i>Stylidium bulbiferum</i> (Circus Triggerplant)			
675.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
676.	7698 <i>Stylidium caricifolium</i> (Milkmaids)			
677.	7699 <i>Stylidium carnosum</i> (Fleshy-leaved Triggerplant)			
678.	7702 <i>Stylidium ciliatum</i> (Golden Triggerplant)			
679.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
680.	7716 <i>Stylidium diuroides</i> (Donkey Triggerplant)			
681.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
682.	7719 <i>Stylidium ecome</i> (Foot Triggerplant)			
683.	19251 <i>Stylidium eriopodum</i>			
684.	7734 <i>Stylidium guttatum</i> (Dotted Triggerplant)			
685.	7736 <i>Stylidium hispidum</i> (White Butterfly Triggerplant)			
686.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
687.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
688.	7782 <i>Stylidium pulchellum</i> (Thumbelina Triggerplant)			
689.	7783 <i>Stylidium pycnostachyum</i> (Downy Triggerplant)			
690.	33106 <i>Stylidium recurvum</i>			
691.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
692.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
693.	17992 <i>Stylidium</i> sp. <i>Bindoon</i> (K.F. Kenneally 11405)			
694.	25830 <i>Stylidium</i> sp. <i>Darling Range</i> (H. Bowler 371)			
695.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			
696.	1260 <i>Stypandra glauca</i> (Blind Grass)			
697.	6476 <i>Styphelia tenuiflora</i> (Common Pinheath)			
698.	2321 <i>Synaphea acutiloba</i> (Granite Synaphea)			
699.	2323 <i>Synaphea gracillima</i>			
700.	16864 <i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>			
701.	2325 <i>Synaphea pinnata</i> (Helena Synaphea)			
702.	2329 <i>Synaphea spinulosa</i>			
703.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
704.	32438 <i>Syntrichia pagorum</i>			
705.	20135 <i>Taxandria linearifolia</i>			
706.	4251 <i>Templetonia drummondii</i>			
707.	1034 <i>Tetraria capillaris</i> (Hair Sedge)			
708.	1036 <i>Tetraria octandra</i>			
709.	667 <i>Tetrarrhena laevis</i> (Forrest Ricegrass)			
710.	4535 <i>Tetradlea hirsuta</i> (Black Eyed Susan)			
711.	4537 <i>Tetradlea nuda</i>			
712.	4544 <i>Tetradlea setigera</i>			
713.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
714.	10856 <i>Thelymitra benthamiana</i> (Leopard Orchid)			
715.	1705 <i>Thelymitra crinita</i> (Blue Lady Orchid)			
716.	11053 <i>Thelymitra macrophylla</i>			
717.	5080 <i>Thomasia foliosa</i>			
718.	5083 <i>Thomasia glutinosa</i> (Sticky Thomasia)			
719.	11625 <i>Thomasia glutinosa</i> var. <i>glutinosa</i>			
720.	5087 <i>Thomasia macrocarpa</i> (Large Fruited Thomasia)			
721.	5105 <i>Thomasia triphylla</i>			
722.	1318 <i>Thysanotus arbuscula</i>			
723.	1330 <i>Thysanotus fastigiatus</i>			
724.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
725.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
726.	1343 <i>Thysanotus patersonii</i>			
727.	1348 <i>Thysanotus rectantherus</i>			
728.	1351 <i>Thysanotus sparteus</i>			
729.	1354 <i>Thysanotus tenellus</i>			
730.	1357 <i>Thysanotus thyrsoideus</i>			
731.	1358 <i>Thysanotus triandrus</i>			
732.	8248 <i>Tolpis barbata</i> (Yellow Hawkweed)	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
733.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
734.	11112 <i>Tribolium uniolae</i>	Y		
735.	1482 <i>Tribonanthes brachypetala</i>			
736.	1483 <i>Tribonanthes longipetala</i>			
737.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
738.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
739.	1363 <i>Tricoryne tenella</i>			
740.	43207 <i>Tricostularia exsul</i>			
741.	17145 <i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Y		
742.	4291 <i>Trifolium arvense</i> (Hare's Foot Clover)	Y		
743.	17542 <i>Trifolium arvense</i> var. <i>arvense</i>	Y		
744.	4292 <i>Trifolium campestre</i> (Hop Clover)	Y		
745.	17763 <i>Trifolium campestre</i> var. <i>campestre</i> (Hop Clover)	Y		
746.	4298 <i>Trifolium hirtum</i> (Rose Clover)	Y		
747.	17788 <i>Trifolium pratense</i> var. <i>sativum</i>	Y		
748.	33676 <i>Triglochin calcitrapa</i>			
749.	4737 <i>Tripterooccus brunonis</i> (Winged Stackhousia)			
750.	38401 <i>Tritonia gladiolaris</i> (Lined Tritonia)	Y		
751.	13479 <i>Trymalium ledifolium</i> var. <i>rosmarinifolium</i>			
752.	33418 <i>Trymalium odoratissimum</i> subsp. <i>odoratissimum</i>			
753.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
754.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
755.	7157 <i>Utricularia violacea</i> (Violet Bladderwort)			
756.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
757.	15725 <i>Verbesina encelioides</i>	Y		
758.	15431 <i>Verticordia acerosa</i> var. <i>acerosa</i>			
759.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
760.	6077 <i>Verticordia drummondii</i> (Drummond's Featherflower)			
761.	15433 <i>Verticordia huegelii</i> var. <i>huegelii</i>			
762.	6107 <i>Verticordia pennigera</i>			
763.	12449 <i>Verticordia plumosa</i> var. <i>brachyphylla</i>			
764.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
765.	17042 <i>Vitis vinifera</i>	Y		
766.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
767.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
768.	33101 <i>Vulpia myuros</i> forma <i>myuros</i>	Y		
769.	7384 <i>Wahlenbergia capensis</i> (Cape Bluebell)	Y		
770.	7389 <i>Wahlenbergia preissii</i>			
771.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
772.	1394 <i>Wurmbea dioica</i> (Early Nancy)			
773.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
774.	1401 <i>Wurmbea pygmaea</i>			
775.	1249 <i>Xanthorrhoea acanthostachya</i>			
776.	14544 <i>Xanthorrhoea brunonis</i> subsp. <i>brunonis</i>			
777.	1252 <i>Xanthorrhoea drummondii</i>			
778.	1253 <i>Xanthorrhoea gracilis</i> (Graceful Grass Tree, Mimidi)			
779.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
780.	6284 <i>Xanthosia candida</i>			
781.	6289 <i>Xanthosia huegelii</i>			
782.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			
783.	1049 <i>Zantedeschia aethiopica</i> (Arum Lily)	Y		

**Conservation Codes**

T - Rare or likely to become extinct  
X - Presumed extinct  
IA - Protected under international agreement  
S - Other specially protected fauna  
1 - Priority 1  
2 - Priority 2  
3 - Priority 3  
4 - Priority 4  
5 - Priority 5

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



# Appendix D - Flora data

Quadrat data and photographs

Flora species list recorded within the Study area during the survey

Flora likelihood of occurrence assessment definitions

Flora likelihood of occurrence assessment

<b>Site:</b>	Q01	<b>Project:</b>	Pioneer Park PSP
<b>Type:</b>	Quadrat	<b>Size:</b>	10 x 10 m
<b>Date:</b>	3/2/2015	<b>Described by:</b>	GO
<b>Co-ordinates:</b>	MGA 50	404885 mE	6461437 mN
<b>Location:</b>	Roe Highway, Forrestfield		
<b>Landform:</b>	Slight rise on plain		
<b>Drainage:</b>	Good drainage		
<b>Soil colour &amp; type:</b>	Orange clayey sand		
<b>Vegetation condition:</b>	Degraded		
<b>Fire age &amp; intensity:</b>	Old		
<b>Disturbances:</b>	Past clearing, weeds		
<b>Bare ground (%):</b>	<2	<b>Logs (%):</b>	-
<b>Twigs (%):</b>	2-10	<b>Leaves (%):</b>	30-70
<b>Rocks &lt;2 cm (%):</b>		<b>Rocks 2-30 cm (%):</b>	
<b>Rocks &gt;30 cm (%):</b>		<b>Veg. ground layer (%):</b>	



### Species List

Taxon	Cover (%)	Height (m)
<i>Adenanthos cygnorum</i>	10-30	1.5
<i>Verticordia densiflora</i>	2-10	0.6
<i>Haemodorum laxum</i>	<2	0.7
<i>Allocasuarina fraseriana</i>	30-70	5
<i>Leptospermum laevigatum</i>	30-70	2
<i>Hibbertia hypericoides</i>	2-10	0.5
<i>Eragrostis curvula</i>	10-30	0.3
<i>Briza minor</i>	<2	0.2
<i>Briza maxima</i>	<2	0.2
<i>Isolepis</i> sp.	2-10	0.02

**Photographs of vegetation within Project Area**



**Plate 4 Northern section of Project area. Shows infestation of \**Watsonia meriana***



**Plate 5 Northern section of Project area. Shows infestation of \* *Genista linifolia* and a *Casuarina obesa* tree**



**Plate 6** Southern section of Project area. Shows clearing and weed infestation



**Plate 7** Southern section of Project area. Shows remnant vegetation re-growing on batter



**Plate 8 Southern section of Project area. Shows remnant vegetation re-growing on batter**

**Flora species recorded within the Project area during the time of the survey**

<b>Family</b>	<b>Taxon</b>	<b>Status</b>
Asparagaceae	<i>Thysanotus arenarius</i>	
Asteraceae	<i>Conyza bonariensis</i>	*
Asteraceae	sp.	
Asteraceae	<i>Ursinia anthemoides</i>	*
Casuarinaceae	<i>Allocasuarina huegeliana</i>	
Casuarinaceae	<i>Casuarina obesa</i>	
Cyperaceae	<i>Schoenus tenellus</i>	
Cyperaceae	<i>Mesomelaena pseudostygia</i>	
Dasygogonaceae	<i>Dasygogon bromeliifolius</i>	
Dilleniaceae	<i>Hibbertia hypericoides</i>	
Euphorbiaceae	<i>Ricinus communis</i>	*
Fabaceae	<i>Chamaecytisus palmensis</i>	*
Fabaceae	<i>Genista linifolia</i>	*
Fabaceae	<i>Jacksonia sternbergiana</i>	

<b>Family</b>	<b>Taxon</b>	<b>Status</b>
Haemodoraceae	<i>Haemodorum laxum</i>	
Iridaceae	<i>Romulea rosea</i>	*
Iridaceae	<i>Watsonia meriana</i>	*
Myrtaceae	<i>Calytrix sp.</i>	
Myrtaceae	<i>Leptospermum laevigatum</i>	*
Myrtaceae	<i>Verticordia densiflora</i>	
Orobanchaceae	<i>Orobanche minor</i>	*
Poaceae	<i>Avena sp.</i>	*
Poaceae	<i>Briza maxima</i>	*
Poaceae	<i>Briza minor</i>	*
Poaceae	<i>Cenchrus clandestinus</i>	*
Poaceae	<i>Cynodon dactylon</i>	*
Poaceae	<i>Ehrharta calycina</i>	*
Poaceae	<i>Eragrostis curvula</i>	*
Proteaceae	<i>Adenanthos cygnorum</i>	

**Guiding parameters for flora likelihood of occurrence assessment**

Known	Species previously recorded or located during the survey within the Study area
Likely	Species is relatively wide spread, has been previously recorded within 20 km of the Study area and suitable habitat occurs within the Study area OR Species is rare but has been previously recorded within approximately 500 m of the Study area and suitable habitat occurs at the Study area
Possible	Species previously recorded within 20 km with suitable habitat occurring at the Study area
Unlikely	Suitable habitat for the species does not occur at the Study area OR Suitable habitat does occur but the species has a highly restricted distribution, is very rare and only known from a limited number of populations The Study area are outside the species' natural distribution.

**Flora likelihood of occurrence assessment**

Taxon	Status		Description		Description	Habitat	Likelihood of occurrence
	EPBC Act	WC Act / DPaW	EPBC PMST	NatureMap			
<i>Acacia anomala</i>	Vu	T	X	X	Slender, rush-like shrub, 0.2-0.5 m high. Fl. yellow, Aug to Sep.	Lateritic soils. Slopes.	Unlikely No suitable habitat present.
<i>Acacia oncinophylla</i> subsp. <i>patulifolia</i>		P4		X	Shrub, 0.5-2.5(-3) m high, 'minni-ritchi' bark, phyllodes 4-9 cm long, 3-6 mm wide. Fl. yellow, Aug to Nov or Nov to Dec.	Granitic soils, occasionally on laterite.	Unlikely No suitable habitat present.
<i>Andersonia gracilis</i>	E	T	X		Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white, pink, purple, Sep-Nov.	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps	Unlikely Limited suitable habitat present and species has been recorded within 5 km of Project area.
<i>Austrostipa bronwenae</i>		T		X	Perennial grass, 0.6 m high x 0.3 m wide. Flowers green.	Wetland. Seasonally waterlogged muddy sand.	Unlikely No suitable habitat present.

Taxon	Status		Description		Description	Habitat	Likelihood of occurrence
<i>Banksia mimica</i>	E	T	X	X	Prostrate, lignotuberous shrub, from 0.15 to 0.4 m high. Flowers yellow, brown, occurring Dec–Feb.	White or grey sand over laterite, sandy loam.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Banksia pteridifolia</i> subsp. <i>vernalis</i>		P3		X	Prostrate, lignotuberous shrub, to 0.4 m high. Fl. cream-white/yellow, Sep to Oct. White/grey sand over laterite.	White/grey sand over laterite.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Boronia humifusa</i>		P1		X	Low-growing, wiry perennial, herb, 0.1-0.2 m high. Fl. pink/red, Jun or Sep.	Gravelly clay loam over laterite. Jarrah-marri open forest.	Unlikely No suitable habitat present.
<i>Boronia tenuis</i>		P4		X	Procumbent or erect & slender shrub, 0.1-0.5 m high. Fl. blue/pink-white, Aug to Nov.	Laterite, stony soils, granite.	Unlikely No suitable habitat present.
<i>Byblis gigantea</i>		P3		X	Small, branched perennial, herb (or sub-shrub), to 0.45 m high. Fl. pink-purple/white, Sep to Dec or Jan.	Sandy-peat swamps. Seasonally wet areas.	Unlikely No suitable habitat present.
<i>Caladenia huegelii</i>	E	T	X	X	Tuberous, perennial, herb, 0.25–0.6 m high. Fl. green, cream, red, Sep–Oct.	Grey or brown sand, clay loam	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site.
<i>Calectasia cyanea</i>	CE	T		X	Tufted annual, herb (forming a rounded cushion up to 25 mm across). Fl. Oct to Dec.	White sand, clay. Salt flats, wet areas.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Calytrix breviseta</i> subsp. <i>breviseta</i>	E	T	X	X	Shrub, 0.4–1 m high. Fl. purple, blue, Oct–Nov.	Sandy clay. Swampy flats	Unlikely No suitable habitat present.
<i>Centrolepis caespitosa</i>	E	P4	X		Tufted annual, herb (forming a rounded cushion up to 25 mm across). Fl. Oct to Dec.	White sand, clay. Salt flats, wet areas.	Unlikely No suitable habitat present.



Taxon	Status		Description		Description	Habitat	Likelihood of occurrence
<i>Chamelaucium</i> sp. Gingin (N.G.Marchant 6)	E	T	X		Erect open branching shrub, 1.5-2 m. Fl. white, white/pink, Sep to Dec.	Dry white/grey, yellow sand, dry red-brown gravel. Slope, hilltop.	Unlikely No suitable habitat present.
<i>Conospermum undulatum</i>	V	T	X	X	Erect, compact shrub, from 0.6 to 2 m high. Flowers white, grey, occurring May–Oct.	Grey or yellow-orange clayey sand.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Darwinia apiculata</i>	E	T	X	X	Densely branched shrub, 0.4-0.5 m high. Fl. green & yellow/red, Oct.	Lateritic soils.	Unlikely No suitable habitat present.
<i>Darwinia foetida</i>	E	T	X		Erect, or spreading, shrub to 0.7 m high, often using other shrubs for support. Young branches are slender, green-brown with prominent, decurrent leaf bases, becoming grey and woody. Fl. green, Oct to Nov.	Grey or white sand, swampy, seasonally wet sites.	Unlikely No suitable habitat present.
<i>Diuris micrantha</i>	V	T	X		Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, Sep to Oct.	Brown loamy clay. Winter-wet swamps, in shallow water.	Unlikely No suitable habitat present.
<i>Diuris purdiei</i>	E	T	X	X	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct.	Grey-black sand, moist. Winter-wet swamps.	Unlikely No suitable habitat present.
<i>Drakaea elastica</i>	E	T	X		Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow, Oct to Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.	Unlikely No suitable habitat present.
<i>Eleocharis keigheryi</i>	V	T	X		Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Fl. green, Aug to Nov.	Clay, sandy loam. Emergent in freshwater: creeks, claypans.	Unlikely No suitable habitat present.
<i>Eremophila glabra</i> subsp. <i>chlorella</i>		T		X	Prostrate & spreading or sprawling shrub, 0.2-1 m high. Fl. green-yellow, Jul to Nov.	Sandy clay. Winter-wet depressions	Unlikely No suitable habitat present.
<i>Eucalyptus balanites</i>	E	T	X		Mallee, to 5 m high, bark rough, flaky. Fl. white, Oct to Dec or Jan to Feb.	Sandy soils with lateritic gravel.	Unlikely No suitable habitat present.
<i>Grevillea curviloba</i> subsp. <i>incurva</i>	E	T	X		Prostrate to erect shrub, 0.1-2.5 m high. Fl. white-cream, Aug to Sep.	Sand, sandy loam. Winter-wet heath.	Unlikely No suitable habitat present.

Taxon	Status	Description	Description	Habitat	Likelihood of occurrence	
<i>Grevillea thelemanniana</i> subsp. <i>thelemanniana</i>	P2		X		Unlikely The Project area has been previously cleared for a landfill site and little native vegetation remains. The remaining native vegetation on site was searched thoroughly.	
<i>Haemodorum loratum</i>	P3		X	Bulbaceous, perennial, herb, 0.45-1.2(-2) m high. Fl. black/brown-black/green, Nov.	Grey or yellow sand, gravel.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Halgania corymbosa</i>	P3		X	Erect shrub, 0.35-1 m high. Fl. blue-purple, Aug to Nov.	Gravelly soils, soils over granite.	Unlikely No suitable habitat present.
<i>Hibbertia helianthemoides</i>	P4		X	Spreading to erect, low or prostrate shrub, to 0.3 m high. Fl. yellow, Jul or Sep to Oct.	Clayey sand over sandstone or loam over quartzite. Hills and scree slopes.	Unlikely No suitable habitat present.
<i>Hypocalymma</i> sp. <i>Cataby</i>	P2		X	Erect, spreading shrub, 0.5-1 m high, to 1 m wide. Fl. white, Aug.	Grey sand.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Isopogon drummondii</i>	P3		X	Erect, lignotuberous shrub, 0.4-1 m high. Fl. yellow/cream-yellow, Feb to Jun.	White, grey or yellow sand, often over laterite.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Lasiopetalum bracteatum</i>	P4		X	Erect, open shrub, 0.4-1.5 m high. Fl. pink-purple, Aug to Nov.	Sandy clay, clay, lateritic gravel. Along drainage lines, creeks, gullies, granite outcrops.	Unlikely No suitable habitat present.
<i>Lasiopetalum pterocarpum</i>	E	T	X	Open, multi-stemmed shrub (with distinctly winged fruit), to 1.2 m high. Fl. pink, Aug to Dec.	Dark red-brown loam or clayey sand over granite. On sloping banks near creeklines.	Unlikely No suitable habitat present.
<i>Lepidosperma rostratum</i>	E	T	X	Rhizomatous, tufted perennial, grass-like or herb (sedge), 0.5 m high. Fl. brown.	Peaty sand, clay	Unlikely No suitable habitat present.

Taxon	Status		Description		Description	Habitat	Likelihood of occurrence
<i>Macarthuria keigheryi</i>	E	T	X	X	Erect or spreading perennial, herb or shrub, from 0.2 to 0.4 m high and 0.3 to 0.6 m wide. Flowers white, occurring Sep-Mar.	White or grey sand.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Melaleuca viminalis</i>		P2		X	Slender, erect, weeping shrub, 1.5-3 m. Fl. red, Aug, Oct to Dec.	Brown sandy clay, grey sand. Creekline, flat, drain.	Unlikely Limited suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Myriophyllum echinatum</i>		P3		X	Erect annual, herb, 0.02-0.03 m high. Fl. red, Nov.	Clay. Winter-wet flats.	Unlikely No suitable habitat present.
<i>Onduffia submersa</i>		P4		X			Unlikely The Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Pithocarpa corymbulosa</i>		P3		X	Erect to scrambling perennial, herb, 0.5-1 m high. Fl. white, Jan to Apr.	Gravelly or sandy loam. Amongst granite outcrops.	Unlikely No suitable habitat present.
<i>Platysace ramosissima</i>		P3		X	Perennial, herb, to 0.3 m high. Fl. white-cream, Oct to Nov.	Sandy soils.	Unlikely Suitable substrate habitat is present, however the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Ptilotus pyramidatus</i>	CE	T	X		Small herb. Fl. white.	Grey-white sandy clay.	Unlikely Suitable substrate habitat is present, however this species has not been recorded within 5 km of Project area and the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.

Taxon	Status		Description	Description	Habitat	Likelihood of occurrence
<i>Schoenus pennisetis</i>		P1	X	Tufted annual, grass-like or herb (sedge), 0.05–0.15 m high. Fl. purple, black, Aug–Sep.	Grey or peaty sand, sandy clay. Swamps, winter-wet depressions	Unlikely No suitable habitat present.
<i>Senecio gilbertii</i>		P1	X	Erect, slender perennial, herb, to 1.5 m high. Fl. yellow, Sep to Nov.	Peaty sand. Swamps, slopes.	Unlikely No suitable habitat present.
<i>Senecio leucoglossus</i>		P4	X	Erect annual, herb, to 1.3 m high. Fl. white, Aug to Dec.	Gravelly lateritic or granitic soils. Granite outcrops, slopes.	Unlikely No suitable habitat present.
<i>Stylidium longitubum</i>		P3	X	Erect annual (ephemeral), herb, 0.05–0.12 m high. Fl. pink, Oct to Dec.	Sandy clay, clay. Seasonal wetlands.	Unlikely No suitable habitat present.
<i>Stylidium striatum</i>		P4	X	Rosetted perennial, herb, 0.15–0.55 m high, Leaves erect, oblanceolate to spatulate, 1.5–4 cm long, 1.5–6 mm wide, apex acute to acuminate, margin entire, glabrous, striate. Scape sparingly glandular on inflorescence axis, glabrous below. Inflorescence racemose. Fl. yellow, Oct to Nov.	Brown clay loam over laterite. Hillslopes. Jarrah/Marri forest, Wandoo woodland.	Unlikely No suitable habitat present.
<i>Synaphea</i> sp. Fairbridge Farm (D.Papenfus 696)	CE	T	X	Erect, lignotuberous shrub, 0.4–1 m high. Fl. yellow/cream-yellow, Feb to Jun.	White, grey or yellow sand, often over laterite.	Unlikely Suitable substrate habitat is present, however this species has not been recorded within 5 km of Project area and the Project area has been previously cleared for a landfill site and little native vegetation remains on site. The remaining native vegetation on site was searched thoroughly.
<i>Tetradthea</i> sp. Granite		P3	X	Erect shrub, to 0.4 m high.	Clay, moist loam, clayey sand. Granite boulders.	Unlikely No suitable habitat present.
<i>Thelymitra magnifica</i>		P1	X	Perennial, herb.	Stony ridges.	Unlikely No suitable habitat present.
<i>Thelymitra manginii</i> K.Dixon & Batty ms. [now <i>Thelymitra dedmaniarum</i> ]	E	T	X	Tuberous, perennial, herb, to 0.8 m high. Fl. yellow, Nov to Dec or Jan.	Granite.	Unlikely No suitable habitat present.
<i>Thelymitra stellata</i>	E	T	X	Tuberous, perennial, herb, 0.15–0.25 m high. Fl. yellow, brown, Oct–Nov.	Sand, gravel, lateritic loam	Unlikely No suitable habitat present.
<i>Thysanotus anceps</i>		P3	X	Rhizomatous, leafless perennial, herb, to 0.4 m high. Fl. purple, Oct to Dec.	White or grey sand, lateritic gravel, laterite.	Unlikely No suitable habitat present.

Taxon	Status	Description	Description	Habitat	Likelihood of occurrence
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	P4		X Erect shrub, 0.2-0.75 m high. Fl. pink, May or Nov to Dec or Jan.	Sand, sandy clay. Winter- wet depressions.	Unlikely No suitable habitat present.