

**LEGEND**

Priority Flora

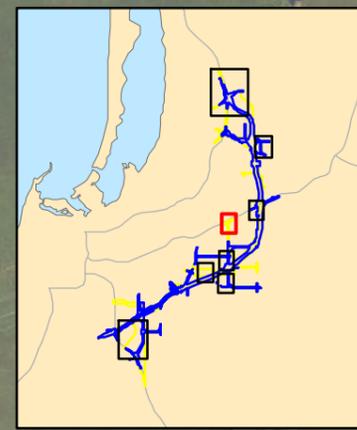
- *Chamaescilla gibsonii* (P3)

TEC

- ▨ Dense shrublands on clay flats (SCP09)
- ▨ Herb rich shrublands on clay pans (TEC – Critically Endangered EPBC Act)

BORR Northern and Central Section Environmental Survey Area

BORR Northern and Central Section Referral Boundary



Paper Size ISO A3

0 25 50 75 100

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 Perth Coastal Grid 1994

Australian Government

BUNBURY OUTER RING ROAD | PLANNING AND DEVELOPMENT

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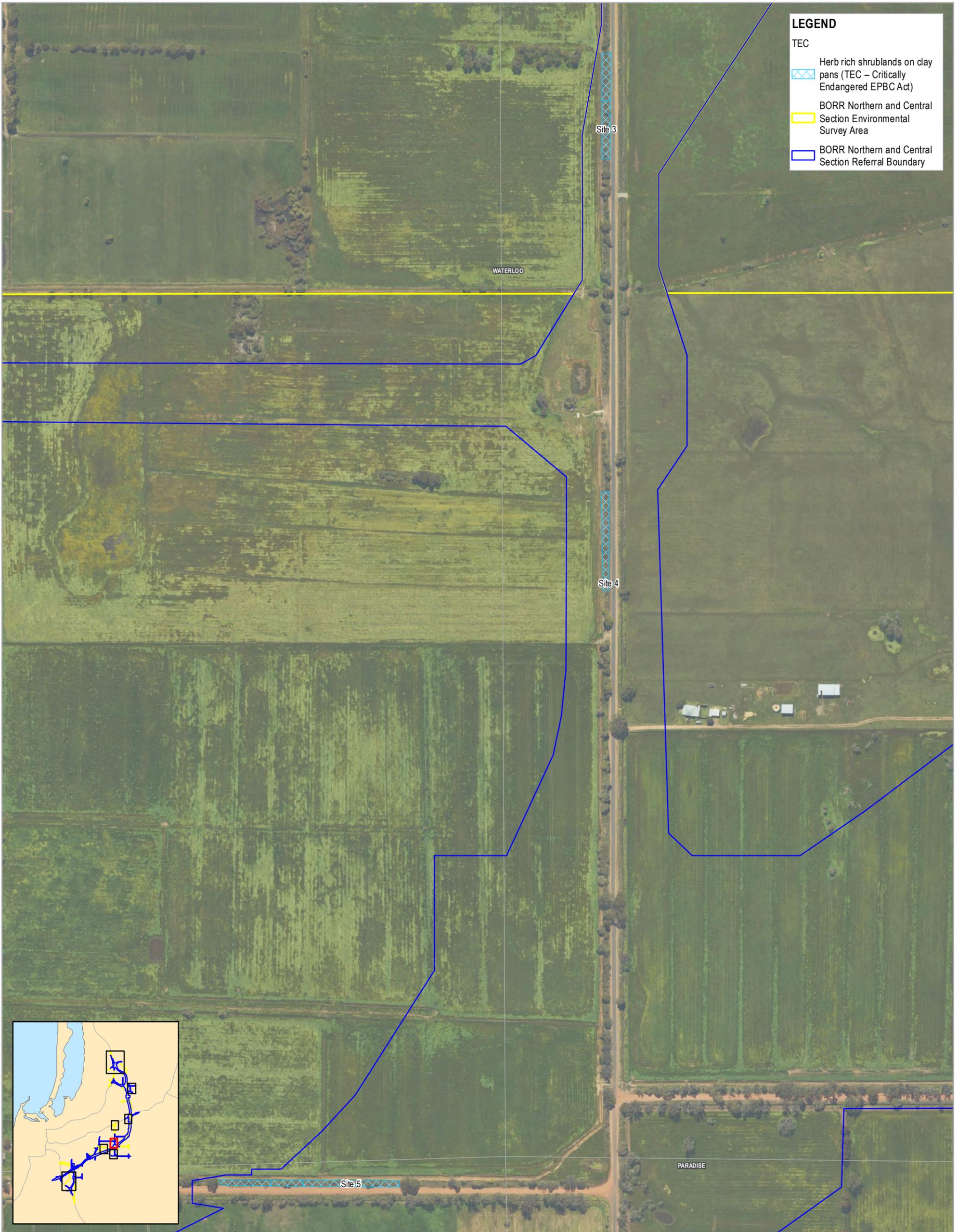
Main Roads Western Australia  
Bunbury Outer Ring Road

**Conservation and Other Significant Ecological Communities and Flora**

Project No. 61-37041  
Revision No. 3  
Date 28 Jan 2020

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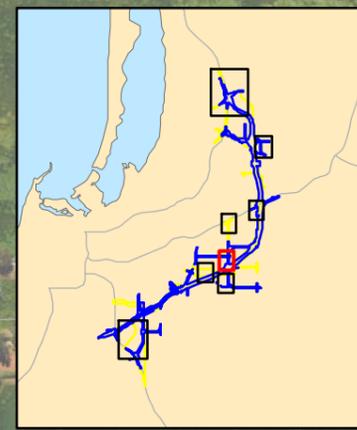
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**LEGEND**

TEC

-  Herb rich shrublands on clay pans (TEC – Critically Endangered EPBC Act)
-  BORR Northern and Central Section Environmental Survey Area
-  BORR Northern and Central Section Referral Boundary



Paper Size ISO A3

0 25 50 75 100  
Metres

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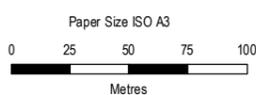
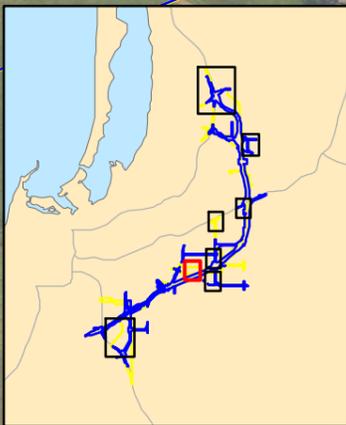
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**LEGEND**

TEC

-  Herb rich shrublands on clay pans (TEC – Critically Endangered EPBC Act)
-  BORR Northern and Central Section Environmental Survey Area
-  BORR Northern and Central Section Referral Boundary



Map Projection: Transverse Mercator  
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Main Roads Western Australia  
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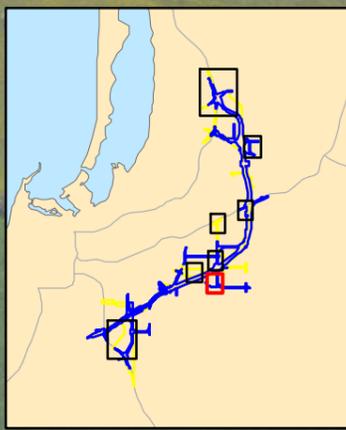
Page 6 of 8  
**FIGURE 11**



**LEGEND**

TEC

- Corymbia calophylla - Xanthorrhoea preissii*
-  woodlands and shrublands of the Swan Coastal Plain (FCT 3c)
-  BORR Northern and Central Section Environmental Survey Area
-  BORR Northern and Central Section Referral Boundary



Paper Size ISO A3

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Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
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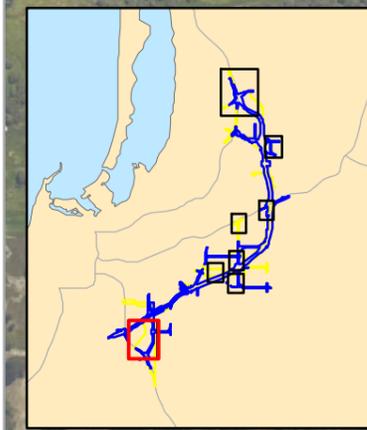
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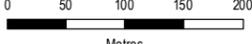


**LEGEND**

-  Banksia Woodland PEC
-  BARR Northern and Central Section Environmental Survey Area
-  BARR Northern and Central Section Referral Boundary



Paper Size ISO A3



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Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
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# Relevant Legislation, Background Information, and Conservation Codes

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## Relevant 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 undertake an action that has, will have, or is likely to have a significant impact (direct or indirect) on MNES, without approval from the Federal Minister for the Environment.

The EPBC Act is administered by the Department of the Environment and Energy (DEE).

### **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. The Act allows the Environmental Protection Authority (EPA), to prevent, control and abate pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing. Part IV of the EP Act is administered by the EPA and makes provisions for the EPA to undertake environmental impact assessment of significant proposals, strategic proposals and land use planning schemes.

The Department of Water and Environment Regulation (DWER) is responsible for administering the clearing provisions of the EP Act (Part V). Clearing of native vegetation in Western Australia requires a permit from the DWER, unless exemptions apply. Applications for clearing permits are assessed by the Department and decisions are made to grant or refuse the application in accordance with the Act. When making a decision 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.

Exemptions for clearing include clearing that is a requirement of a written law or authorised under certain statutory processes (listed in Schedule 6 of the EP Act) and exemptions for prescribed low impact day-to-day activities (prescribed in the Environmental Protection (Clearing of Native Vegetation) Regulations 2004); these exemptions do not apply in environmentally sensitive areas (ESAs).

### **State Biodiversity and Conservation Act 2016**

The *Biodiversity Conservation Act 2016* (BC Act) provides for the conservation and protection of biodiversity and biodiversity components, as well as the promotion of the ecologically sustainable use of biodiversity components in Western Australia. The BC Act replaces both the repealed *Wildlife Conservation Act 1950* (WC Act) and the *Sandalwood Act 1929* (Sandalwood Act), as well as their associated regulations. To attain the objectives of the BC Act, principles of ecological sustainable development have been established:

- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- The conservation of biodiversity and ecological integrity should be a fundamental consideration in decision-making
- Improved valuation, pricing and incentive mechanisms should be promoted.

The BC Act is administered by the Department of Biodiversity Conservation and Attractions (DBCA).

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

The *Biosecurity and Agriculture Management Act 2007* (BAM Act) and associated regulations are administered by the Department of Primary Industries and Regional Development (DPIRD) and replace the repealed *Agriculture and Related Resources Protection Act 1976*. The main purposes of the BAM Act and its regulations are to:

- Prevent new animal and plant pests (vermin and weeds) and diseases from entering WA
- Manage the impact and spread of those pests already present in the state
- Safely manage the use of agricultural and veterinary chemicals
- Increased control over the sale of agricultural products that contain violative chemical residues.

The Western Australian Organism List (WAOL) provides the status of organisms which have been categorised under the BAM Act. A Declared Pest is a prohibited organism or an organism for which a declaration under Section 22(2) of the Act is in force. Declared Pests may be assigned a control category including: C1 (exclusion), C2 (eradication) and C3 (management). The category may apply to the whole of the State, LGAs, districts, individual properties or even paddocks, and all landholders are obliged to comply with the specific category of control. Categories of control are defined below.

## DPIRD Categories for Declared Pests under the BAM Act

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

### Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Minister for Environment under Section 51B of the EP Act. The Table below outlines the aspects of areas declared as ESA in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005.

### Aspects of ESAs

Aspects of Environmentally Sensitive Areas
A declared World Heritage property as defined in Section 13 of the EPBC Act.
An area that is included 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. Defined wetlands include Ramsar wetlands, conservation category wetlands and nationally important wetlands.
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 Threatened Ecological Community.
A Bush Forever Site listed in “Bush Forever” Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site is approved to be developed by the Western Australia Planning Commission.
The areas covered by the <i>Environmental Protection (Gnangara Mound Crown Land) Policy 1992</i> .
The areas covered by 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> (EPP Lakes) applies.
Protected wetlands as defined in the <i>Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998</i> .

### Reserves and conservation areas

#### Department of Biodiversity, Conservation and Attractions managed lands and waters

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

#### Wetlands

Wetlands include not only lakes with open water, but areas of seasonally, intermittently or permanently waterlogged soil.

## 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” (DEE 2019b). 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” (DEE 2019b).

## 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 (DEE 2019a):

- 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

## 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).

The extent of remnant native vegetation in WA has been assessed by Shepherd et al. (2002) and the GoWA (2018), based on broadscale vegetation association mapping by Beard (various publications). The GoWA produces Statewide Vegetation Statistics Reports that are used for a number of purposes including conservation planning, land use planning and when assessing development applications. The reports are updated at least every two years.

## Vegetation condition

The vegetation condition can be assessed in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA 2016a). The scale recognises the intactness of vegetation and consists of six rating levels as outlined below.

### Vegetation condition rating scale for the South West and Interzone Botanical Provinces

Condition	South West and Interzone Botanical Provinces description
Pristine	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

### Vegetation condition rating scale for the Eremaean and Northern Botanical Provinces

Condition	Eremaean and Northern Botanical Provinces description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds

Condition	Eremaean and Northern Botanical Provinces description
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds..
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

## 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 BC Act is the primary wildlife conservation legislation in Western Australia. Information on the conservation codes is summarised in the following sections.

### Ecological communities

#### 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. The BC Act provides for the Minister to list an ecological community as a TEC (section 27), or as a collapsed ecological community (section 31) statutory listing of State TECs by the Minister. The legislation also describes statutory processes for preparing recovery plans for TECs, the registration of their critical habitat, and penalties for unauthorised modification of TECs.

Possible TECs that do not meet survey criteria are added to the DBCA 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, however, may be listed as TECs under the EPBC Act.

#### Conservation codes and definitions for TECs listed under the EPBC Act and/ or BC Act

Categories	Definition
<b>Federal Government Conservation Categories (EPBC Act)</b>	
Critically Endangered (CR)	An ecological community if, at that time, is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Endangered (EN)	An ecological community if, at that time: A) is not critically endangered; and B) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
Vulnerable (VU)	An ecological community if, at that time: A) is not critically endangered or endangered; and B) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (as outlined in Environment Protection and Biodiversity Conservation Regulations 2000)
<b>Western Australia Conservation Categories (BC Act)</b>	
<u>Threatened Ecological Communities</u>	

Categories	Definition
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)	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)	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.

#### Collapsed ecological communities

An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time –

- (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed); or
- (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover –
  - (i) its species composition or structure; or
  - (ii) its species composition and structure.

Section 33 of the BC Act provides for a collapsed ecological community to be regarded as a threatened ecological community if it is discovered in a state that no longer makes it eligible for listing as a collapsed ecological community.

### **Conservation categories and definitions for PECS as listed by the DBCA**

Category	Description
Priority 1	<p>Poorly known ecological communities.</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>Poorly known ecological communities.</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>

Category	Description
Priority 3	<p>Poorly known ecological communities.</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>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.</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>
Priority 5	<p>Conservation Dependent ecological communities.</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. The EPA (2016b) states that significant vegetation may include vegetation that includes the following:

- Restricted distribution
- Degree of historical impact from threatening processes
- Local endemism in restricted habitats
- Novel combinations of taxa
- 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 a vegetation unit in 'pristine' condition in a highly cleared landscape, recently discovered range extensions, or isolated outliers of the main range)
- Being poorly reserved.

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).

## **Flora**

### **Conservation significant flora**

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 BC Act can warrant referral to the DEE and/or the EPA.

The Federal conservation level of flora and fauna species and their significance status is assessed under the EPBC Act. The significance levels for flora and fauna used in the EPBC Act align with the International Union for Conservation of Nature (IUCN) Red List criteria, which are internationally recognised as providing best practice for assigning the conservation status of species.

The State conservation level of flora and fauna species and their significance status also follows the IUCN Red List criteria. Under the BC Act flora and fauna can be listed as Threatened, Extinct and as Specially Protected species.

Threatened species are those species which have been adequately searched for and are deemed to be, in the wild, either rare, under identifiable threat of extinction, or otherwise in need of special protection, and have been gazetted as such. The assessment of the conservation status of Threatened species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria. Specially protected species meet one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as Threatened or Extinct species under the BC Act cannot also be listed as Specially Protected species.

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

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

## Conservation categories and definitions for EPBC Act and BC Act listed flora and fauna species

Conservation category	Definition
Threatened species	
Critically Endangered (CR)	<p>Threatened species considered to be “facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.</p>
Endangered (EN)	<p>Threatened species considered to be “facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines</p>
Vulnerable (VU)	<p>Threatened species considered to be “facing a high risk of extinction in the wild in the medium term future, as determined in accordance with criteria set out in the ministerial guidelines”.</p> <p>Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.</p>
Extinct species	
Extinct (EX)	Species where “there is no reasonable doubt that the last member of the species has died”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).
Extinct in the Wild (EW)	Species that “is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

## Conservation codes for DBCA listed Priority flora and fauna

Priority category	Definition
Priority 1	<p>Poorly-known taxa</p> <p>Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.</p>
Priority 2	<p>Poorly-known taxa</p> <p>Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks,</p>

Priority category	Definition
	conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3	<p>Poorly-known taxa</p> <p>Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.</p>
Priority 4	<p>Rare, Near Threatened and other taxa in need of monitoring</p> <p>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.</p> <p>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.</p> <p>C. Taxa that have been removed from the list of threatened taxa during the past five years for reasons other than taxonomy.</p>

### Other significant flora

Flora species, subspecies, varieties, hybrids and ecotypes may be significant for a range of reasons, other than a statutory listing. The EPA (2016b) states that significant flora may include taxa that have:

- A keystone role in a particular habitat for threatened or Priority flora or fauna species, or large populations representing a considerable proportion of the local or regional total population of a species
- Relictual status, being representation of taxonomic or physiognomic groups that no longer occur widely in the broader landscape
- 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) or association with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)
- Being poorly reserved

### 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.

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# Desktop Searches

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# NatureMap Species Report

Created By Guest user on 01/08/2018

**Kingdom** Plantae  
**Current Names Only** Yes  
**Core Datasets Only** Yes  
**Method** 'By Line'  
**Vertices** 33° 23' 08" S, 115° 41' 10" E 33° 22' 26" S, 115° 42' 41" E 33° 21' 56" S, 115° 43' 18" E 33° 21' 12" S, 115° 44' 26" E 33° 20' 21" S, 115° 46' 23" E 33° 17' 41" S, 115° 46' 16" E 33° 15' 58" S, 115° 45' 09" E 33° 15' 10" S, 115° 44' 52" E 33° 16' 01" S, 115° 45' 11" E 33° 17' 41" S, 115° 46' 16" E 33° 20' 17" S, 115° 46' 24" E 33° 21' 17" S, 115° 44' 17" E 33° 22' 25" S, 115° 42' 45" E 33° 22' 58" S, 115° 41' 37" E 33° 23' 32" S, 115° 41' 37" E 33° 22' 55" S, 115° 41' 37" E 33° 22' 55" S, 115° 41' 37" E 33° 22' 55" S, 115° 41' 37" E  
**Group By**  
Family

Family	Species	Records
Alliaceae	1	1
Amaranthaceae	1	1
Amaryllidaceae	1	1
Anarthriaceae	3	8
Apiaceae	7	29
Apocynaceae	2	2
Apodanthaceae	1	1
Aponogetonaceae	1	19
Araliaceae	3	9
Asparagaceae	21	60
Asteraceae	35	82
Boryaceae	2	4
Brassicaceae	3	3
Campanulaceae	6	11
Caprifoliaceae	2	3
Caryophyllaceae	4	5
Casuarinaceae	2	4
Celastraceae	2	2
Centrolepidaceae	5	13
Chenopodiaceae	4	4
Colchicaceae	4	11
Commelinaceae	1	4
Crassulaceae	2	4
Cyperaceae	43	100
Dasygongonaceae	2	8
Dennstaedtiaceae	1	1
Dicranaceae	1	2
Dilleniaceae	11	39
Droseraceae	15	36
Elaeocarpaceae	3	10
Ericaceae	15	36
Euphorbiaceae	4	6
Fabaceae	79	228
Francoaceae	1	2
Gentianaceae	2	2
Geraniaceae	5	6
Goodeniaceae	13	28
Haemodoraceae	18	35
Haloragaceae	2	3
Hemerocallidaceae	9	16
Hydatellaceae	2	4
Hydrocharitaceae	2	2
Hypoxidaceae	1	1
Iridaceae	23	77
Juncaceae	7	16
Juncaginaceae	2	2
Lamiaceae	4	9
Lauraceae	3	11
Lentibulariaceae	2	2
Linaceae	1	1
Loganiaceae	2	2
Loranthaceae	1	3
Malvaceae	3	15
Marsileaceae	1	1
Menyanthaceae	4	6
Montiaceae	1	1
Myrtaceae	37	91
Onagraceae	1	1
Orchidaceae	51	123
Orobanchaceae	3	5
Oxalidaceae	2	3
Papaveraceae	2	2
Philydraceae	2	4
Phrymaceae	1	1
Phyllanthaceae	2	6
Pittosporaceae	1	2
Plantaginaceae	2	3
Poaceae	48	109
Polygalaceae	3	7

Polygonaceae	2	2
Potamogetonaceae	1	1
Primulaceae	2	2
Proteaceae	30	76
Ranunculaceae	2	2
Restionaceae	17	40
Rhamnaceae	2	2
Ricciaceae	1	1
Rosaceae	1	2
Rubiaceae	1	1
Rutaceae	6	16
Salicaceae	2	2
Santalaceae	5	7
Selaginellaceae	1	2
Solanaceae	1	4
Stylidiaceae	18	42
Thymelaeaceae	4	8
Urticaceae	1	2
Violaceae	3	5
Xanthorrhoeaceae	4	19
Zamiaceae	1	3
<b>TOTAL</b>	<b>656</b>	<b>1588</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Alliaceae</b>				
1.	1381 <i>Nothoscordum gracile</i>	Y		
<b>Amaranthaceae</b>				
2.	2718 <i>Ptilotus drummondii</i> (Narrowleaf Mulla Mulla)			
<b>Amaryllidaceae</b>				
3.	11019 <i>Narcissus papyraceus</i>	Y		
<b>Anarthriaceae</b>				
4.	1062 <i>Anarthria prolifera</i>			
5.	1097 <i>Lyginia barbata</i>			
6.	18049 <i>Lyginia imberbis</i>			
<b>Apiaceae</b>				
7.	6210 <i>Apium annuum</i>			
8.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
9.	6222 <i>Homalosciadium homalocarpum</i>			
10.	6249 <i>Platysace compressa</i> (Tapeworm Plant)			
11.	11132 <i>Platysace ramosissima</i>		P3	
12.	6263 <i>Schoenolaena juncea</i>			
13.	6289 <i>Xanthosia huegelii</i>			
<b>Apocynaceae</b>				
14.	6587 <i>Gomphocarpus fruticosus</i> (Narrowleaf Cottonbush)	Y		
15.	6575 <i>Vinca major</i> (Blue Periwinkle)	Y		
<b>Apodanthaceae</b>				
16.	2408 <i>Pilostyles hamiltonii</i>			
<b>Aponogetonaceae</b>				
17.	141 <i>Aponogeton hexatepalus</i> (Stalked Water Ribbons)		P4	
<b>Araliaceae</b>				
18.	6223 <i>Hydrocotyle alata</i>			
19.	6225 <i>Hydrocotyle bonariensis</i>	Y		
20.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
<b>Asparagaceae</b>				
21.	1287 <i>Dichopogon capillipes</i>			
22.	11464 <i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
23.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
24.	1228 <i>Lomandra hermaphrodita</i>			
25.	1232 <i>Lomandra micrantha</i> (Small-flower Mat-rush)			
26.	1234 <i>Lomandra nigricans</i>			
27.	1236 <i>Lomandra odora</i> (Tiered Matrush)			
28.	1239 <i>Lomandra preissii</i>			
29.	1240 <i>Lomandra purpurea</i> (Purple Mat Rush)			
30.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
31.	1246 <i>Lomandra suaveolens</i>			
32.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
33.	1318 <i>Thysanotus arbuscula</i>			
34.	1319 <i>Thysanotus arenarius</i>			
35.	1338 <i>Thysanotus manglesianus</i> (Fringed Lily)			
36.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
37.	1343 <i>Thysanotus patersonii</i>			
38.	<i>Thysanotus</i> sp.			
39.	1351 <i>Thysanotus sparteus</i>			
40.	1354 <i>Thysanotus tenellus</i>			
41.	1357 <i>Thysanotus thyrsoides</i>			
<b>Asteraceae</b>				
42.	7829 <i>Angianthus drummondii</i>		P3	
43.	7833 <i>Angianthus preissianus</i>			
44.	7838 <i>Arctotheca calendula</i> (Cape Weed, African Marigold)	Y		
45.	7851 <i>Asteridea pulverulenta</i> (Common Bristle Daisy)			
46.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
47.	7947 <i>Cotula turbinata</i> (Funnel Weed)	Y		
48.	42008 <i>Craspedia</i> sp. <i>Waterloo</i> (G.J. Keighery 13724)		P2	
49.	13354 <i>Craspedia variabilis</i>			
50.	29054 <i>Crepis foetida</i> subsp. <i>foetida</i> (Stinking Hawksbeard)	Y		
51.	15137 <i>Euchiton sphaericus</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
52.	12741 <i>Hyalosperma cotula</i>			
53.	12717 <i>Hyalosperma pusillum</i>			
54.	8086 <i>Hypochoeris glabra</i> (Smooth Catsear)	Y		
55.	8105 <i>Millotia myosotidifolia</i>			
56.	8106 <i>Millotia tenuifolia</i> (Soft Millotia)			
57.	8133 <i>Olearia elaeophila</i>			
58.	8160 <i>Picris squarrosa</i>			
59.	8177 <i>Podolepis lessonii</i>			
60.	8179 <i>Podolepis nutans</i> (Nodding Podolepis)			
61.	8188 <i>Pogonolepis stricta</i>			
62.	8195 <i>Quinetia urvillei</i>			
63.	13300 <i>Rhodanthe citrina</i>			
64.	13312 <i>Rhodanthe pyrethrum</i>			
65.	20663 <i>Senecio multicaulis</i> subsp. <i>multicaulis</i>			
66.	8220 <i>Senecio vulgaris</i> (Common Groundsel)	Y		
67.	8225 <i>Siloxerus humifusus</i> (Procumbent Siloxerus)			
68.	9367 <i>Sonchus hydrophilus</i> (Native Sowthistle)			
69.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
70.	25902 <i>Symphotrichum squamatum</i> (Bushy Starwort)	Y		
71.	8251 <i>Trichocline spathulata</i> (Native Gerbera)			
72.	8254 <i>Urospermum picroides</i> (False Hawkbit)	Y		
73.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
74.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
75.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
76.	8282 <i>Waitzia suaveolens</i> (Fragrant Waitzia)			
<b>Boryaceae</b>				
77.	1272 <i>Borya scirpoidea</i>			
78.	1273 <i>Borya sphaerocephala</i> (Pincushions)			
<b>Brassicaceae</b>				
79.	3016 <i>Heliophila pusilla</i>	Y		
80.	3061 <i>Raphanus raphanistrum</i> (Wild Radish)	Y		
81.	3066 <i>Rorippa nasturtium-aquaticum</i> (Watercress)	Y		
<b>Campanulaceae</b>				
82.	7394 <i>Grammatotheca bergiana</i>	Y		
83.	37500 <i>Grammatotheca bergiana</i> var. <i>bergiana</i>	Y		
84.	7396 <i>Isotoma hypocrateriformis</i> (Woodbridge Poison)			
85.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
86.	37440 <i>Monopsis debilis</i> var. <i>depressa</i>	Y		
87.	7389 <i>Wahlenbergia preissii</i>			
<b>Caprifoliaceae</b>				
88.	7366 <i>Centranthus macrosiphon</i>	Y		
89.	7365 <i>Lonicera japonica</i> (Japanese Honeysuckle)	Y		
<b>Caryophyllaceae</b>				
90.	19825 <i>Petrorhagia dubia</i>	Y		
91.	2909 <i>Silene gallica</i> (French Catchfly)	Y		
92.	2912 <i>Spergula arvensis</i> (Corn Spurry)	Y		
93.	2918 <i>Stellaria media</i> (Chickweed)	Y		
<b>Casuarinaceae</b>				
94.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
95.	1742 <i>Casuarina obesa</i> (Swamp Sheoak, Kuli)			
<b>Celastraceae</b>				
96.	4733 <i>Stackhousia monogyna</i>			
97.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousia)			
<b>Centrolepidaceae</b>				
98.	1117 <i>Aphelia cyperoides</i>			
99.	1121 <i>Centrolepis aristata</i> (Pointed Centrolepis)			
100.	1125 <i>Centrolepis drummondiana</i>			
101.	1132 <i>Centrolepis mutica</i>			
102.	1134 <i>Centrolepis polygyna</i> (Wiry Centrolepis)			
<b>Chenopodiaceae</b>				
103.	2462 <i>Atriplex hypoleuca</i>			
104.	2483 <i>Chenopodium album</i> (Fat Hen)	Y		
105.	33500 <i>Dysphania ambrosioides</i> (Mexican Tea)	Y		
106.	2639 <i>Suaeda australis</i> (Seablite)			
<b>Colchicaceae</b>				

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
107.	12770 <i>Burchardia congesta</i>			
108.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
109.	12072 <i>Wurmbea dioica</i> subsp. <i>alba</i>			
110.	1403 <i>Wurmbea tenella</i> (Eight Nancy)			
<b>Commelinaceae</b>				
111.	1162 <i>Cartonema philydroides</i>			
<b>Crassulaceae</b>				
112.	3137 <i>Crassula colorata</i> (Dense Stonecrop)			
113.	11563 <i>Crassula colorata</i> var. <i>colorata</i>			
<b>Cyperaceae</b>				
114.	740 <i>Baumea arthrophylla</i>			
115.	743 <i>Baumea juncea</i> (Bare Twigrush)			
116.	744 <i>Baumea laxa</i>			
117.	759 <i>Carex tereticaulis</i>		P3	
118.	763 <i>Chorizandra enodis</i> (Black Bristlerush)			
119.	768 <i>Cyathochaeta avenacea</i>			
120.	792 <i>Cyperus eragrostis</i> (Umbrella Sedge)	Y		
121.	815 <i>Cyperus tenellus</i> (Tiny Flatsedge)	Y		
122.	822 <i>Eleocharis acuta</i> (Common Spikerush)			
123.	17605 <i>Eleocharis keigheryi</i>		T	
124.	835 <i>Evandra pauciflora</i>			
125.	907 <i>Gahnia trifida</i> (Coast Saw-sedge)			
126.	20200 <i>Isolepis cernua</i> var. <i>setiformis</i>			
127.	912 <i>Isolepis cyperoides</i>			
128.	917 <i>Isolepis marginata</i> (Coarse Club-rush)			
129.	919 <i>Isolepis oldfieldiana</i>			
130.	925 <i>Lepidosperma angustatum</i>			
131.	930 <i>Lepidosperma costale</i>			
132.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
133.	940 <i>Lepidosperma pubisquamum</i>			
134.	<i>Lepidosperma</i> sp.			
135.	20398 <i>Lepidosperma</i> sp. Blackwood (R. Davis 7696)			
136.	29150 <i>Lepidosperma</i> sp. Margaret River (B.J. Lepschi 1841)			
137.	945 <i>Lepidosperma squamatum</i>			
138.	946 <i>Lepidosperma striatum</i>			
139.	957 <i>Mesomelaena tetragona</i> (Semaphore Sedge)			
140.	973 <i>Schoenus asperocarpus</i> (Poison Sedge)			
141.	974 <i>Schoenus benthamii</i>		P3	
142.	975 <i>Schoenus bifidus</i>			
143.	980 <i>Schoenus capillifolius</i>		P3	
144.	984 <i>Schoenus curvifolius</i>			
145.	986 <i>Schoenus efoliatus</i>			
146.	996 <i>Schoenus laevigatus</i>			
147.	999 <i>Schoenus loliaceus</i>		P2	
148.	1006 <i>Schoenus odontocarpus</i>			
149.	17614 <i>Schoenus plumosus</i>			
150.	1011 <i>Schoenus rigens</i>			
151.	1013 <i>Schoenus sculptus</i> (Gimlet Bog-rush)			
152.	1020 <i>Schoenus sublateralis</i>			
153.	1023 <i>Schoenus tenellus</i>			
154.	17409 <i>Schoenus variicellae</i>			
155.	1034 <i>Tetraria capillaris</i> (Hair Sedge)			
156.	1036 <i>Tetraria octandra</i>			
<b>Dasypogonaceae</b>				
157.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
158.	1219 <i>Dasypogon hookeri</i> (Pineapple Bush)			
<b>Dennstaedtiaceae</b>				
159.	41651 <i>Pteridium esculentum</i> subsp. <i>esculentum</i>			
<b>Dicranaceae</b>				
160.	32338 <i>Campylopus introflexus</i>	Y		
<b>Dilleniaceae</b>				
161.	5109 <i>Hibbertia amplexicaulis</i>			
162.	5114 <i>Hibbertia commutata</i>			
163.	5117 <i>Hibbertia cuneiformis</i> (Cutleaf Hibbertia)			
164.	20051 <i>Hibbertia diamesogenos</i>			
165.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			
166.	45534 <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
167.	5162 <i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
168.	5170 <i>Hibbertia silvestris</i>			
169.	5172 <i>Hibbertia stellaris</i> (Orange Stars)			
170.	5173 <i>Hibbertia subvaginata</i>			
171.	5176 <i>Hibbertia vaginata</i>			
<b>Droseraceae</b>				
172.	3091 <i>Drosera bulbigena</i> (Midget Sundew)			
173.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
174.	13217 <i>Drosera erythrorhiza</i> subsp. <i>erythrorhiza</i>			
175.	3097 <i>Drosera gigantea</i> (Giant Sundew)			
176.	3098 <i>Drosera glanduligera</i> (Pimpernel Sundew)			
177.	19256 <i>Drosera intricata</i>			
178.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
179.	13209 <i>Drosera marchantii</i> subsp. <i>marchantii</i>			
180.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
181.	48710 <i>Drosera micrantha</i>			
182.	3118 <i>Drosera pallida</i> (Pale Rainbow)			
183.	8911 <i>Drosera rosulata</i>			
184.	13385 <i>Drosera stelliflora</i>			
185.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
186.	13205 <i>Drosera tubaestylis</i>			
<b>Elaeocarpaceae</b>				
187.	4524 <i>Platytheca galioides</i>			
188.	4535 <i>Tetratheca hirsuta</i> (Black Eyed Susan)			
189.	48341 <i>Tetratheca hirsuta</i> subsp. <i>viminea</i>			
<b>Ericaceae</b>				
190.	6306 <i>Andersonia caerulea</i> (Foxtails)			
191.	6323 <i>Astroloma ciliatum</i> (Candle Cranberry)			
192.	6334 <i>Astroloma pallidum</i> (Kick Bush)			
193.	6341 <i>Brachyloma preissii</i> (Globe Heath)			
194.	6348 <i>Conostephium pendulum</i> (Pearl Flower)			
195.	6349 <i>Conostephium preissii</i>			
196.	6360 <i>Leucopogon australis</i> (Spiked Beard-heath)			
197.	6374 <i>Leucopogon conostephioides</i>			
198.	6375 <i>Leucopogon cordatus</i>			
199.	6396 <i>Leucopogon glabellus</i>			
200.	6436 <i>Leucopogon propinquus</i>			
201.	6440 <i>Leucopogon racemosus</i>			
202.	29492 <i>Leucopogon</i> sp. <i>Busselton</i> (D. Cooper 243)		P2	
203.	6445 <i>Leucopogon squarrosus</i>			
204.	34736 <i>Lysinema pentapetalum</i>			
<b>Euphorbiaceae</b>				
205.	4585 <i>Amperea ericoides</i>			
206.	4636 <i>Euphorbia paralias</i> (Sea Spurge)	Y		
207.	4666 <i>Monotaxis occidentalis</i>			
208.	4705 <i>Ricinus communis</i> (Castor Oil Plant)	Y		
<b>Fabaceae</b>				
209.	3207 <i>Acacia alata</i> (Winged Wattle)			
210.	15466 <i>Acacia appplanata</i>			
211.	18285 <i>Acacia baileyana</i>	Y		
212.	16975 <i>Acacia decurrens</i>	Y		
213.	3331 <i>Acacia extensa</i> (Wiry Wattle)			
214.	3339 <i>Acacia flagelliformis</i>		P4	
215.	3374 <i>Acacia huegelii</i>			
216.	3383 <i>Acacia incurva</i>			
217.	3410 <i>Acacia lateriticola</i>			
218.	17861 <i>Acacia longifolia</i>	Y		
219.	3442 <i>Acacia microbotrya</i> (Manna Wattle, Kalyang)			
220.	17860 <i>Acacia podalyriifolia</i>	Y		
221.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
222.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
223.	15482 <i>Acacia pulchella</i> var. <i>goadbyi</i>			
224.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
225.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
226.	30036 <i>Acacia saligna</i> subsp. <i>stolonifera</i>			
227.	3537 <i>Acacia semitrullata</i>		P4	
228.	3557 <i>Acacia stenoptera</i> (Narrow Winged Wattle)			
229.	3576 <i>Acacia tetragonocarpa</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
230.	3591 <i>Acacia urophylla</i>			
231.	3602 <i>Acacia willdenowiana</i> (Grass Wattle)			
232.	3688 <i>Aotus gracillima</i>			
233.	3692 <i>Aotus procumbens</i>			
234.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
235.	18497 <i>Bossiaea</i> sp. Waroona (B.J. Keighery & N. Gibson 229)			
236.	8971 <i>Chorizema cordatum</i>			
237.	3793 <i>Daviesia angulata</i>			
238.	19747 <i>Daviesia decurrens</i> subsp. <i>decurrens</i>			
239.	3807 <i>Daviesia divaricata</i> (Marmo)			
240.	3832 <i>Daviesia physodes</i>			
241.	3834 <i>Daviesia polyphylla</i>			
242.	3835 <i>Daviesia preissii</i>			
243.	3863 <i>Dillwynia dillwynioides</i>		P3	
244.	3867 <i>Dipogon lignosus</i> (Dolichos Pea)	Y		
245.	3872 <i>Euchilopsis linearis</i> (Swamp Pea)			
246.	3880 <i>Eutaxia virgata</i>			
247.	3891 <i>Gastrolobium bilobum</i> (Heart Leaf Poison)			
248.	20475 <i>Gastrolobium capitatum</i>			
249.	19190 <i>Gastrolobium cuneatum</i>			
250.	20473 <i>Gastrolobium ebracteolatum</i>			
251.	20512 <i>Gastrolobium praemorsum</i>			
252.	20474 <i>Gastrolobium whicherense</i>		P2	
253.	3948 <i>Gompholobium capitatum</i>			
254.	10909 <i>Gompholobium confertum</i>			
255.	3951 <i>Gompholobium marginatum</i>			
256.	3954 <i>Gompholobium polymorphum</i>			
257.	3956 <i>Gompholobium shuttleworthii</i>			
258.	3957 <i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
259.	3961 <i>Hardenbergia comptoniana</i> (Native Wisteria)			
260.	3966 <i>Hovea pungens</i> (Devil's Pins, Puyenak)			
261.	3968 <i>Hovea trisperma</i> (Common Hovea)			
262.	12859 <i>Hovea trisperma</i> var. <i>trisperma</i>			
263.	3992 <i>Isotropis cuneifolia</i> (Granny Bonnets)			
264.	4012 <i>Jacksonia furcellata</i> (Grey Stinkwood)			
265.	4017 <i>Jacksonia horrida</i>			
266.	4037 <i>Kennedia coccinea</i> (Coral Vine)			
267.	4044 <i>Kennedia prostrata</i> (Scarlet Runner)			
268.	3669 <i>Labichea punctata</i> (Lance-leaved Cassia)			
269.	4052 <i>Latrobea tenella</i>			
270.	4059 <i>Lotus angustissimus</i> (Narrowleaf Trefoil)	Y		
271.	8564 <i>Lotus subbiflorus</i>	Y		
272.	4065 <i>Lupinus angustifolius</i> (Narrowleaf Lupin)	Y		
273.	4067 <i>Lupinus luteus</i> (Yellow Lupin)	Y		
274.	4085 <i>Mellilotus indicus</i>	Y		
275.	19827 <i>Mellilotus siculus</i>	Y		
276.	4113 <i>Ornithopus compressus</i> (Yellow Serradella)	Y		
277.	4183 <i>Pultenaea skinneri</i> (Skinner's Pea)		P4	
278.	19183 <i>Retama raetam</i>	Y		
279.	4205 <i>Sphaerolobium linophyllum</i>			
280.	4292 <i>Trifolium campestre</i> (Hop Clover)	Y		
281.	4295 <i>Trifolium dubium</i> (Suckling Clover)	Y		
282.	4302 <i>Trifolium ligusticum</i> (Ligurian Clover)	Y		
283.	17788 <i>Trifolium pratense</i> var. <i>sativum</i>	Y		
284.	4313 <i>Trifolium subterraneum</i> (Subterranean Clover)	Y		
285.	4320 <i>Vicia hirsuta</i> (Hairy Vetch)	Y		
286.	11474 <i>Vicia sativa</i> subsp. <i>nigra</i>	Y		
287.	4325 <i>Viminaria juncea</i> (Swishbush, Koweda)			
<b>Francoaceae</b>				
288.	4785 <i>Melianthus major</i>	Y		
<b>Gentianaceae</b>				
289.	6539 <i>Centaurium erythraea</i> (Common Centaury)	Y		
290.	6543 <i>Cicendia filiformis</i> (Slender Cicendia)	Y		
<b>Geraniaceae</b>				
291.	4332 <i>Erodium botrys</i> (Long Storksbill)	Y		
292.	4337 <i>Geranium dissectum</i> (Cutleaf Cranesbill)	Y		
293.	4340 <i>Geranium retrorsum</i>			
294.	4341 <i>Geranium solanderi</i> (Native Geranium)			
295.	4346 <i>Pelargonium littorale</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Goodeniaceae</b>				
296.	12724 <i>Anthotium junciforme</i>			
297.	7428 <i>Dampiera coronata</i> (Wedge-leaved Dampiera)			
298.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
299.	7462 <i>Dampiera pedunculata</i>			
300.	7484 <i>Dampiera trigona</i> (Angled-stem Dampiera)			
301.	7505 <i>Goodenia eatoniana</i>			
302.	7517 <i>Goodenia incana</i> (Hoary Goodenia)			
303.	12551 <i>Goodenia micrantha</i>			
304.	19286 <i>Goodenia pulchella</i> subsp. Coastal Plain A (M. Hislop 634)			
305.	19284 <i>Goodenia pulchella</i> subsp. Coastal Plain B (L.W. Sage 2336)			
306.	7572 <i>Lechenaultia expansa</i>			
307.	7602 <i>Scaevola calliptera</i>			
308.	7619 <i>Scaevola lanceolata</i> (Long-leaved Scaevola)			
<b>Haemodoraceae</b>				
309.	1409 <i>Anigozanthos humilis</i> (Catspaw)			
310.	1411 <i>Anigozanthos manglesii</i> (Mangles Kangaroo Paw, Kurulbrang)			
311.	29487 <i>Anigozanthos manglesii</i> var. <i>x angustifolius</i>			
312.	1416 <i>Anigozanthos viridis</i> (Green Kangaroo Paw, Kurulbardang)			
313.	1418 <i>Conostylis aculeata</i> (Prickly Conostylis)			
314.	11826 <i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
315.	12118 <i>Conostylis aculeata</i> subsp. <i>gracilis</i>			
316.	12109 <i>Conostylis aculeata</i> subsp. <i>preissii</i>			
317.	1436 <i>Conostylis juncea</i>			
318.	1453 <i>Conostylis serrulata</i>			
319.	1470 <i>Haemodorum paniculatum</i> (Mardja)			
320.	1472 <i>Haemodorum simplex</i>			
321.	1474 <i>Haemodorum sparsiflorum</i>			
322.	1478 <i>Phlebocarya ciliata</i>			
323.	1481 <i>Tribonanthes australis</i>			
324.	1482 <i>Tribonanthes brachypetala</i>			
325.	1483 <i>Tribonanthes longipetala</i>			
326.	1485 <i>Tribonanthes violacea</i>			
<b>Haloragaceae</b>				
327.	6161 <i>Gonocarpus pithyoides</i>			
328.	6189 <i>Myriophyllum crispatum</i>			
<b>Hemerocallidaceae</b>				
329.	23474 <i>Agrostocrinum hirsutum</i>			
330.	1261 <i>Agrostocrinum scabrum</i> (Blue Grass Lily)			
331.	23501 <i>Agrostocrinum scabrum</i> subsp. <i>scabrum</i>			
332.	1276 <i>Caesia micrantha</i> (Pale Grass Lily)			
333.	1277 <i>Caesia occidentalis</i>			
334.	1285 <i>Corynotheca micrantha</i> (Sand Lily)			
335.	11283 <i>Corynotheca micrantha</i> var. <i>micrantha</i>			
336.	1295 <i>Johnsonia acaulis</i>			
337.	1361 <i>Tricoryne elatior</i> (Yellow Autumn Lily)			
<b>Hydatellaceae</b>				
338.	1139 <i>Trithuria bibracteata</i>			
339.	1141 <i>Trithuria submersa</i>			
<b>Hydrocharitaceae</b>				
340.	168 <i>Ottelia ovalifolia</i> (Swamp Lily)			
341.	14531 <i>Ottelia ovalifolia</i> subsp. <i>ovalifolia</i>			
<b>Hypoxidaceae</b>				
342.	43762 <i>Pauridia occidentalis</i> var. <i>quadriloba</i>			
<b>Iridaceae</b>				
343.	18279 <i>Babiana angustifolia</i>	Y		
344.	1513 <i>Chasmanthe floribunda</i> (African Cornflag)	Y		
345.	11445 <i>Ferraria crispa</i> subsp. <i>crispa</i>	Y		
346.	18392 <i>Freesia alba</i> x <i>leichtlinii</i>	Y		
347.	1520 <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
348.	1524 <i>Gladiolus undulatus</i> (Wild Gladiolus)	Y		
349.	1531 <i>Iris germanica</i> (Flag Iris)	Y		
350.	19179 <i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
351.	19178 <i>Moraea lewisiae</i>	Y		
352.	19180 <i>Moraea miniata</i> (Two-leaf Cape Tulip)	Y		
353.	1546 <i>Patersonia juncea</i> (Rush Leaved Patersonia)	Y		

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354.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
355.	1556 <i>Romulea rosea</i> (Guildford Grass)	Y		
356.	11544 <i>Romulea rosea</i> var. <i>australis</i> (Guildford Grass)	Y		
357.	14924 <i>Romulea rosea</i> var. <i>communis</i>	Y		
358.	1558 <i>Sparaxis bulbifera</i>	Y		
359.	38401 <i>Tritonia gladiolaris</i> (Lined Tritonia)	Y		
360.	13103 <i>Watsonia borbonica</i>	Y		
361.	18375 <i>Watsonia knysnana</i>	Y		
362.	1566 <i>Watsonia marginata</i>	Y		
363.	1567 <i>Watsonia meriana</i> (Bulbil Watsonia)	Y		
364.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
365.	1569 <i>Watsonia versfeldii</i>	Y		
<b>Juncaceae</b>				
366.	1179 <i>Juncus caespiticius</i> (Grassy Rush)			
367.	1180 <i>Juncus capitatus</i> (Capitate Rush)	Y		
368.	1184 <i>Juncus holoschoenus</i> (Jointleaf Rush)			
369.	11922 <i>Juncus kraussii</i> subsp. <i>australiensis</i>			
370.	1186 <i>Juncus microcephalus</i>	Y		
371.	1195 <i>Juncus subsecundus</i> (Finger Rush)			
372.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
<b>Juncaginaceae</b>				
373.	147 <i>Triglochin mucronata</i>			
374.	18587 <i>Triglochin nana</i>			
<b>Lamiaceae</b>				
375.	6839 <i>Hemiandra pungens</i> (Snakebush)			
376.	6855 <i>Hemigenia humilis</i>			
377.	38323 <i>Lavandula stoechas</i> subsp. <i>stoechas</i>	Y		
378.	6930 <i>Stachys arvensis</i> (Staggerweed)	Y		
<b>Lauraceae</b>				
379.	11501 <i>Cassytha glabella</i> forma <i>casuarinae</i>			
380.	2957 <i>Cassytha racemosa</i> (Dodder Laurel)			
381.	11799 <i>Cassytha racemosa</i> forma <i>racemosa</i>			
<b>Lentibulariaceae</b>				
382.	7145 <i>Utricularia menziesii</i> (Redcoats)			
383.	7148 <i>Utricularia multifida</i>			
<b>Linaceae</b>				
384.	4363 <i>Linum trigynum</i> (French Flax)	Y		
<b>Loganiaceae</b>				
385.	43201 <i>Adelphacme minima</i>		P3	
386.	16825 <i>Phyllangium divergens</i>			
<b>Loranthaceae</b>				
387.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
<b>Malvaceae</b>				
388.	5038 <i>Lasiopetalum membranaceum</i>		P3	
389.	4949 <i>Lavatera trimestris</i>	Y		Y
390.	9097 <i>Sida rhombifolia</i> (Paddy's Lucerne)	Y		
<b>Marsileaceae</b>				
391.	78 <i>Pilularia novae-hollandiae</i> (Austral Pillwort)			
<b>Menyanthaceae</b>				
392.	36160 <i>Liparophyllum capitatum</i>			
393.	36180 <i>Liparophyllum latifolium</i>			
394.	36181 <i>Ornduffia parnassifolia</i>			
395.	36200 <i>Ornduffia submersa</i>		P4	
<b>Montiaceae</b>				
396.	2845 <i>Calandrinia brevipedata</i> (Short-stalked Purslane)			
<b>Myrtaceae</b>				
397.	5316 <i>Agonis flexuosa</i> (Peppermint, Wonil)			
398.	17202 <i>Agonis flexuosa</i> var. <i>flexuosa</i>			
399.	20350 <i>Astartea affinis</i> (West-coast Astartea)			
400.	20283 <i>Astartea scoparia</i> (Common Astartea)			
401.	42801 <i>Astartea zephyra</i>			
402.	5415 <i>Calothamnus lateralis</i>			
403.	35797 <i>Calothamnus lateralis</i> var. <i>lateralis</i>			
404.	5458 <i>Calytrix flavescens</i> (Summer Starflower)			

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405.	35657 <i>Chamelaucium</i> sp. <i>Yoongarillup</i> (G.J. Keighery 3635)		P4	
406.	17104 <i>Corymbia calophylla</i> (Marri)			
407.	5508 <i>Darwinia citriodora</i> (Lemon-scented Darwinia)			
408.	5615 <i>Eucalyptus decipiens</i> (Limestone Marlock, Moit)			
409.	5643 <i>Eucalyptus falcata</i> (Silver Mallet, Dulyumuk)			
410.	5659 <i>Eucalyptus gomphocephala</i> (Tuart, Duart)			
411.	5708 <i>Eucalyptus marginata</i> (Jarrah, Djara)			
412.	5763 <i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
413.	13512 <i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>		P4	
414.	13511 <i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
415.	13032 <i>Eucalyptus vegrandis</i>			
416.	12906 <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>			
417.	5817 <i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
418.	35070 <i>Hypocalymma angustifolium</i> subsp. <i>Swan Coastal Plain</i> (G.J. Keighery 16777)			
419.	5832 <i>Kunzea ericifolia</i> (Spearwood, Pondil)			
420.	5835 <i>Kunzea micrantha</i>			
421.	17461 <i>Kunzea micrantha</i> subsp. <i>micrantha</i>			
422.	5841 <i>Kunzea recurva</i>			
423.	5926 <i>Melaleuca lateritia</i> (Robin Redbreast Bush)			
424.	20297 <i>Melaleuca osullivanii</i>			
425.	5946 <i>Melaleuca pauciflora</i>			
426.	5952 <i>Melaleuca preissiana</i> (Moonah)			
427.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
428.	5978 <i>Melaleuca teretifolia</i> (Banbar)			
429.	5980 <i>Melaleuca thymoides</i>			
430.	5987 <i>Melaleuca viminea</i> (Mohan)			
431.	6006 <i>Pericalymma ellipticum</i> (Swamp Teatree)			
432.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
433.	12392 <i>Verticordia attenuata</i>		P3	
<b>Onagraceae</b>				
434.	6140 <i>Oenothera mollissima</i>	Y		
<b>Orchidaceae</b>				
435.	15332 <i>Caladenia attingens</i> subsp. <i>atingens</i>			
436.	15579 <i>Caladenia chapmanii</i>			
437.	1586 <i>Caladenia discoidea</i> (Dancing Orchid)			
438.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
439.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
440.	15352 <i>Caladenia georgei</i>			
441.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
442.	1599 <i>Caladenia latifolia</i> (Pink Fairy Orchid)			
443.	13859 <i>Caladenia longicauda</i> subsp. <i>clivicola</i>			
444.	15371 <i>Caladenia nana</i> subsp. <i>nana</i>			
445.	17760 <i>Caladenia nobilis</i>			
446.	15503 <i>Caladenia paludosa</i>			
447.	18026 <i>Caladenia pendens</i> subsp. <i>pendens</i>			
448.	15377 <i>Caladenia reptans</i> subsp. <i>reptans</i>			
449.	13862 <i>Caladenia speciosa</i>		P4	
450.	15380 <i>Caladenia splendens</i>			
451.	18019 <i>Caladenia vulgata</i>			
452.	15114 <i>Cyanicula gemmata</i>			
453.	15404 <i>Cyanicula sericea</i>			
454.	19649 <i>Disa bracteata</i>	Y		
455.	48254 <i>Diuris cruenta</i>			
456.	10796 <i>Diuris drummondii</i> (Tall Donkey Orchid)		T	
457.	48253 <i>Diuris porphyrochila</i>			
458.	1639 <i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)		T	
459.	11156 <i>Drakaea livida</i>			
460.	13635 <i>Drakaea micrantha</i>		T	
461.	1643 <i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
462.	1646 <i>Eriochilus dilatatus</i> (White Bunny Orchid)			
463.	15412 <i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>			
464.	1653 <i>Leporella fimbriata</i> (Hare Orchid)			
465.	10954 <i>Microtis media</i> (Tall Mignonette Orchid)			
466.	15419 <i>Microtis media</i> subsp. <i>media</i>			
467.	1667 <i>Paracaleana nigrita</i> (Flying Duck Orchid)			
468.	1674 <i>Prasophyllum giganteum</i> (Bronze Leek Orchid)			
469.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
470.	10853 <i>Prasophyllum plumiforme</i>			
471.	44084 <i>Prasophyllum</i> sp. <i>early</i> (G. Brockman GBB 1626)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
472.	<i>Pterostylis aff. nana</i>			
473.	31731 <i>Pterostylis frenchii</i>		P2	
474.	11118 <i>Pterostylis pyramidalis</i> (Snail Orchid)			
475.	1693 <i>Pterostylis recurva</i> (Jug Orchid)			
476.	18655 <i>Pterostylis sp. crinkled leaf</i> (G.J. Keighery 13426)			
477.	1698 <i>Pterostylis vittata</i> (Banded Greenhood)			
478.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
479.	1705 <i>Thelymitra crinita</i> (Blue Lady Orchid)			
480.	1707 <i>Thelymitra flexuosa</i> (Twisted Sun Orchid)			
481.	11143 <i>Thelymitra graminea</i>			
482.	11053 <i>Thelymitra macrophylla</i>			
483.	20730 <i>Thelymitra paludosa</i>			
484.	1717 <i>Thelymitra variegata</i> (Queen of Sheba)		P2	
485.	20731 <i>Thelymitra vulgaris</i>			
<b>Orobanchaceae</b>				
486.	15037 <i>Bartsia trixago</i>	Y		
487.	7122 <i>Orobanche minor</i> (Lesser Broomrape)	Y		
488.	7090 <i>Parentucellia viscosa</i> (Sticky Bartsia)	Y		
<b>Oxalidaceae</b>				
489.	4352 <i>Oxalis glabra</i>	Y		
490.	4355 <i>Oxalis perennans</i>			
<b>Papaveraceae</b>				
491.	2969 <i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
492.	31532 <i>Fumaria muralis</i> subsp. <i>muralis</i>	Y		
<b>Philydraceae</b>				
493.	1173 <i>Philydrella pygmaea</i> (Butterfly Flowers)			
494.	14306 <i>Philydrella pygmaea</i> subsp. <i>pygmaea</i>			
<b>Phrymaceae</b>				
495.	7060 <i>Glossostigma diandrum</i>			
<b>Phyllanthaceae</b>				
496.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
497.	4691 <i>Poranthera microphylla</i> (Small Poranthera)			
<b>Pittosporaceae</b>				
498.	3165 <i>Billardiera variifolia</i>			
<b>Plantaginaceae</b>				
499.	4717 <i>Callitriche stagnalis</i> (Common Starwort)	Y		
500.	14282 <i>Gratiola pubescens</i>			
<b>Poaceae</b>				
501.	184 <i>Aira caryophyllea</i> (Silvery Hairgrass)	Y		
502.	186 <i>Aira elegantissima</i>	Y		
503.	13380 <i>Amphibromus nervosus</i>			
504.	200 <i>Amphipogon turbinatus</i>			
505.	202 <i>Anthoxanthum odoratum</i> (Sweet Vernal Grass)	Y		
506.	38480 <i>Austrostipa bronwenae</i>		T	
507.	17233 <i>Austrostipa campylachne</i>			
508.	17234 <i>Austrostipa compressa</i>			
509.	17240 <i>Austrostipa flavescens</i>			
510.	38481 <i>Austrostipa jacobiana</i>		T	
511.	17253 <i>Austrostipa semibarbata</i>			
512.	231 <i>Avellinia michelii</i>	Y		
513.	233 <i>Avena barbata</i> (Bearded Oat)	Y		
514.	234 <i>Avena fatua</i> (Wild Oat)	Y		
515.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
516.	245 <i>Briza minor</i> (Shivery Grass)	Y		
517.	248 <i>Bromus catharticus</i> (Prairie Grass)	Y		
518.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
519.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
520.	262 <i>Cenchrus longispinus</i> (Spiny Burrgrass)	Y		
521.	48259 <i>Cortaderia selloana</i> subsp. <i>selloana</i>	Y		
522.	283 <i>Cynodon dactylon</i> (Couch)	Y		
523.	287 <i>Dactylis glomerata</i> (Cocksfoot)	Y		
524.	299 <i>Deyeuxia quadriseta</i> (Reed Bentgrass)			
525.	306 <i>Dichelachne crinita</i> (Longhair Plumegrass)			
526.	347 <i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
527.	349 <i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
528.	353 <i>Eleusine indica</i> (Crowsfoot Grass)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
		Y		
529.	376 <i>Eragrostis curvula</i> (African Lovegrass)	Y		
530.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
531.	17610 <i>Eragrostis tenuifolia</i>	Y		
532.	444 <i>Holcus lanatus</i> (Yorkshire Fog)	Y		
533.	450 <i>Hordeum marinum</i>	Y		
534.	19955 <i>Lachnagrostis plebeia</i>			
535.	478 <i>Lolium rigidum</i> (Wimmera Ryegrass)	Y		
536.	485 <i>Microlaena stipoides</i> (Weeping Grass)			
537.	492 <i>Neurachne alopecuroidea</i> (Foxtail Mulga Grass)			
538.	527 <i>Paspalum dilatatum</i>	Y		
539.	571 <i>Poa annua</i> (Winter Grass)	Y		
540.	583 <i>Polypogon tenellus</i>			
541.	40425 <i>Rytidosperma caespitosum</i>			
542.	40426 <i>Rytidosperma occidentale</i>			
543.	40430 <i>Rytidosperma pilosum</i>			
544.	635 <i>Sporobolus virginicus</i> (Marine Couch)			
545.	636 <i>Stenotaphrum secundatum</i> (Buffalo Grass)	Y		
546.	667 <i>Tetrarrhena laevis</i> (Forest Ricegrass)			
547.	722 <i>Vulpia bromoides</i> (Squirrel Tail Fescue)	Y		
548.	724 <i>Vulpia myuros</i> (Rat's Tail Fescue)	Y		
<b>Polygalaceae</b>				
549.	4554 <i>Comesperma flavum</i>			
550.	4559 <i>Comesperma polygaloides</i> (Small Milkwort)			
551.	4564 <i>Comesperma virgatum</i> (Milkwort)			
<b>Polygonaceae</b>				
552.	2429 <i>Rumex acetosella</i> (Sorrel)	Y		
553.	2435 <i>Rumex drummondii</i>		P4	
<b>Potamogetonaceae</b>				
554.	110 <i>Potamogeton drummondii</i>			
<b>Primulaceae</b>				
555.	36375 <i>Lysimachia arvensis</i> (Pimpernel)	Y		
556.	6483 <i>Samolus junceus</i>			
<b>Proteaceae</b>				
557.	1790 <i>Adenanthos meisneri</i>			
558.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
559.	1800 <i>Banksia attenuata</i> (Slender Banksia, Piara)			
560.	32580 <i>Banksia dallanneyi</i> var. <i>dallanneyi</i>			
561.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarla)			
562.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
563.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungura)			
564.	32202 <i>Banksia nivea</i> (Honeypot Dryandra, Pudjarn)			
565.	1863 <i>Conospermum capitatum</i>			
566.	1964 <i>Grevillea bipinnatifida</i> (Fuchsia Grevillea)			
567.	19628 <i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>			
568.	13427 <i>Grevillea manglesioides</i> subsp. <i>manglesioides</i>			
569.	2084 <i>Grevillea rosieri</i>		P2	
570.	2137 <i>Hakea ceratophylla</i> (Horned Leaf Hakea)			
571.	2175 <i>Hakea lissocarpha</i> (Honey Bush)			
572.	2197 <i>Hakea prostrata</i> (Harsh Hakea)			
573.	2212 <i>Hakea sulcata</i> (Furrowed Hakea)			
574.	2216 <i>Hakea varia</i> (Variable-leaved Hakea)			
575.	2222 <i>Isopogon attenuatus</i>			
576.	2267 <i>Persoonia longifolia</i> (Snottygobble)			
577.	2273 <i>Persoonia saccata</i> (Snottygobble)			
578.	2299 <i>Petrophile linearis</i> (Pixie Mops)			
579.	2316 <i>Stirlingia latifolia</i> (Blueboy)			
580.	16865 <i>Synaphea odocoleops</i>		P1	
581.	2324 <i>Synaphea petiolaris</i> (Synaphea)			
582.	16864 <i>Synaphea petiolaris</i> subsp. <i>petiolaris</i>			
583.	16863 <i>Synaphea petiolaris</i> subsp. <i>triloba</i>			
584.	2329 <i>Synaphea spinulosa</i>			
585.	15532 <i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
586.	2331 <i>Xylomelum occidentale</i> (Woody Pear, Djandin)			
<b>Ranunculaceae</b>				
587.	2929 <i>Clematis pubescens</i> (Common Clematis)			
588.	2933 <i>Ranunculus muricatus</i> (Sharp Buttercup)	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Restionaceae</b>				
589.	17691 <i>Desmocladius fasciculatus</i>			
590.	16595 <i>Desmocladius flexuosus</i>			
591.	1070 <i>Hypolaena exsulca</i>			
592.	1071 <i>Hypolaena fastigiata</i>			
593.	17841 <i>Hypolaena pubescens</i>			
594.	1077 <i>Leptocarpus canus</i> (Hoary Twine-rush)			
595.	1078 <i>Leptocarpus coangustatus</i>			
596.	46375 <i>Leptocarpus decipiens</i>			
597.	19833 <i>Leptocarpus laxus</i>			
598.	46382 <i>Leptocarpus roycei</i>			
599.	1080 <i>Leptocarpus scariosus</i>			
600.	1082 <i>Leptocarpus tenax</i> (Slender Twine Rush)			
601.	46379 <i>Leptocarpus thysananthus</i>			
602.	1085 <i>Lepyrodia glauca</i>			
603.	1088 <i>Lepyrodia macra</i> (Large Scale Rush)			
604.	1090 <i>Lepyrodia muirii</i>			
605.	1092 <i>Loxocarya cinerea</i>			
<b>Rhamnaceae</b>				
606.	13484 <i>Cryptandra arbutiflora</i> var. <i>tubulosa</i>			
607.	4802 <i>Cryptandra mutila</i>			
<b>Ricciaceae</b>				
608.	<i>Riccia</i> sp.			
<b>Rosaceae</b>				
609.	10931 <i>Rosa chinensis</i> x <i>moschata</i>	Y		
<b>Rubiaceae</b>				
610.	7348 <i>Opercularia hispidula</i> (Hispid Stinkweed)			
<b>Rutaceae</b>				
611.	4417 <i>Boronia dichotoma</i>			
612.	4438 <i>Boronia ramosa</i>			
613.	4441 <i>Boronia spathulata</i> (Boronia)			
614.	17804 <i>Boronia tetragona</i>		P3	
615.	44593 <i>Coleonema pulchellum</i>	Y		
616.	18529 <i>Philotheca spicata</i> (Pepper and Salt)			
<b>Salicaceae</b>				
617.	18323 <i>Populus alba</i>	Y		
618.	20063 <i>Salix babylonica</i>	Y		
<b>Santalaceae</b>				
619.	2342 <i>Leptomeria cunninghamii</i>			
620.	2344 <i>Leptomeria empetriflora</i>			
621.	17702 <i>Leptomeria furtiva</i>		P2	
622.	2350 <i>Leptomeria pauciflora</i> (Sparse-flowered Currant Bush)			
623.	2353 <i>Leptomeria scrobiculata</i>			
<b>Selaginellaceae</b>				
624.	6 <i>Selaginella gracillima</i> (Tiny Clubmoss)			
<b>Solanaceae</b>				
625.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
<b>Stylidiaceae</b>				
626.	7677 <i>Levenhookia stipitata</i> (Common Stylewort)			
627.	30278 <i>Stylidium androsaceum</i>			
628.	25831 <i>Stylidium araeophyllum</i> (Stilt Walker)			
629.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
630.	7699 <i>Stylidium carnosum</i> (Fleshy-leaved Triggerplant)			
631.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
632.	7719 <i>Stylidium ecome</i> (Foot Triggerplant)			
633.	25801 <i>Stylidium hesperium</i>			
634.	7742 <i>Stylidium inundatum</i> (Hundreds and Thousands)			
635.	7745 <i>Stylidium junceum</i> (Reed Triggerplant)			
636.	7756 <i>Stylidium longitubum</i> (Jumping Jacks)		P4	
637.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
638.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
639.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
640.	<i>Stylidium</i> sp.			
641.	23511 <i>Stylidium thesioides</i> (Delicate Triggerplant)			
642.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
643.	7808 <i>Stylidium violaceum</i> (Violet Triggerplant)			
<b>Thymelaeaceae</b>				
644.	11928 <i>Pimelea ciliata</i> subsp. <i>ciliata</i>			
645.	11402 <i>Pimelea imbricata</i> var. <i>piligera</i>			
646.	5252 <i>Pimelea lanata</i>			
647.	5255 <i>Pimelea longiflora</i>			
<b>Urticaceae</b>				
648.	1762 <i>Parietaria debilis</i> (Pellitory)			
<b>Violaceae</b>				
649.	5216 <i>Hybanthus calycinus</i> (Wild Violet)			
650.	5221 <i>Hybanthus floribundus</i>			
651.	12007 <i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			
<b>Xanthorrhoeaceae</b>				
652.	1280 <i>Chamaescilla corymbosa</i> (Blue Squill)			
653.	19338 <i>Chamaescilla gibsonii</i>		P3	
654.	1251 <i>Xanthorrhoea brunonis</i>			
655.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
<b>Zamiaceae</b>				
656.	85 <i>Macrozamia riedlei</i> ( <i>Zamia</i> , Djiridji)			

**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.



# 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: 30/07/18 18:46:57

[Summary](#)

[Details](#)

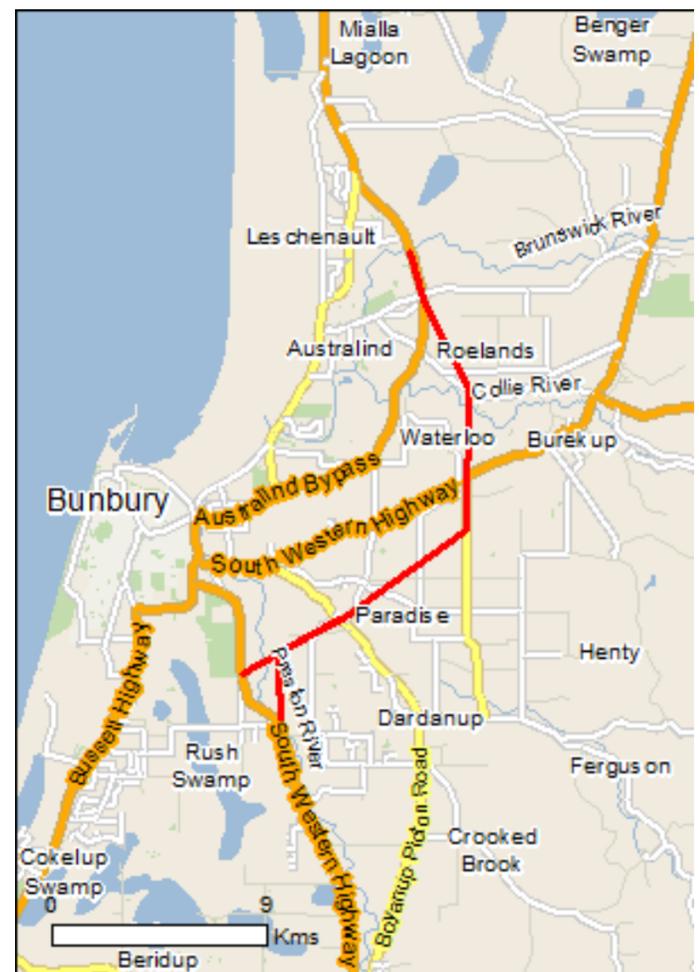
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

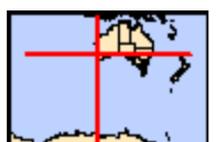
[Acknowledgements](#)



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[Coordinates](#)

Buffer: 5.0Km



# Summary

## Matters of National Environmental Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	4
<a href="#">Listed Threatened Species:</a>	53
<a href="#">Listed Migratory Species:</a>	34

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Land:</a>	2
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	36
<a href="#">Whales and Other Cetaceans:</a>	4
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	4
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	29
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities

[ [Resource Information](#) ]

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

Name	Status	Type of Presence
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Clay Pans of the Swan Coastal Plain</a>	Critically Endangered	Community likely to occur within area
<a href="#">Corymbia calophylla - Xanthorrhoea preissii woodlands and shrublands of the Swan Coastal Plain</a>	Endangered	Community known to occur within area
<a href="#">Subtropical and Temperate Coastal Saltmarsh</a>	Vulnerable	Community likely to occur within area

### Listed Threatened Species

[ [Resource Information](#) ]

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Anous tenuirostris melanops</a> Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Calyptorhynchus baudinii</a> Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Breeding known to occur within area
<a href="#">Calyptorhynchus latirostris</a> Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	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
<a href="#">Thalassarche cauta cauta</a> Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thalassarche cauta steadi</a> White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<b>Fish</b>		
<a href="#">Galaxiella nigrostriata</a> Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat likely to occur within area
<a href="#">Nannatherina balstoni</a> Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to 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
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Neophoca cinerea</a> Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence area
<a href="#">Pseudocheirus occidentalis</a> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Setonix brachyurus</a> Quokka [229]	Vulnerable	Species or species habitat may occur within area
<b>Other</b>		
<a href="#">Westralunio carteri</a> Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
<b>Plants</b>		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
<a href="#">Austrostipa bronwenae</a> [87808]	Endangered	Species or species habitat known to occur within area
<a href="#">Austrostipa jacobiana</a> [87809]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Banksia nivea subsp. uliginosa</a> Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
<a href="#">Banksia squarrosa subsp. argillacea</a> Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area
<a href="#">Brachyscias verecundus</a> Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area
<a href="#">Chamelaucium sp. S coastal plain (R.D.Royce 4872)</a> Royce's Waxflower [87814]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diuris drummondii</a> Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diuris micrantha</a> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
<a href="#">Drakaea micrantha</a> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Lambertia echinata subsp. occidentalis</a> Western Prickly Honeysuckle [64528]	Endangered	Species or species

Name	Status	Type of Presence
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	habitat may occur within area Species or species habitat likely to occur within area
<a href="#">Synaphea sp. Serpentine (G.R. Brand 103)</a> [86879]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Synaphea stenoloba</a> Dwellingup Synaphea [66311]	Endangered	Species or species habitat likely to occur within area

## Reptiles

<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat may occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

## Sharks

<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
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## 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="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
<b>Migratory Marine Species</b>		
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Species or species habitat may occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat may occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to 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 - Defence - BUNBURY TRAINING DEPOT

### 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="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Anous tenuirostris melanops</a> Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
<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

Name	Threatened	Type of Presence
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Diomedea amsterdamensis</a> Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea dabbenena</a> Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed		Species or species

Name	Threatened	Type of Presence
Shearwater [1043]		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
<a href="#">Thalassarche cauta</a>		
Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat likely to occur within area
<a href="#">Thalassarche impavida</a>		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a>		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a>		
White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
<a href="#">Thinornis rubricollis</a>		
Hooded Plover [59510]		Species or species habitat may occur within area
<a href="#">Tringa nebularia</a>		
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

#### Mammals

<a href="#">Neophoca cinerea</a>		
Australian Sea-lion, Australian Sea Lion [22]	Vulnerable	Species or species habitat may occur within area

#### Reptiles

<a href="#">Caretta caretta</a>		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a>		
Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a>		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat may occur within area
<a href="#">Natator depressus</a>		
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

#### Whales and other Cetaceans

[ [Resource Information](#) ]

Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Balaenoptera edeni</a>		
Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Caperea marginata</a>		
Pygmy Right Whale [39]		Species or species habitat may occur within area
<a href="#">Lagenorhynchus obscurus</a>		
Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a>		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area

## Extra Information

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

Name	State
NTWA Bushland covenant (0022)	WA
NTWA Bushland covenant (0146)	WA
Unnamed WA40552	WA
Unnamed WA46108	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

Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
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Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
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Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
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Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
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Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
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Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
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#### Mammals

Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
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Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur
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Name	Status	Type of Presence
Feral deer Feral deer species in Australia [85733]		within area Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus declinatus Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within

Name	Status	Type of Presence area
<p>Rubus fruticosus aggregate Blackberry, European Blackberry [68406]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Salix spp. except S.babylonica, S.x calodendron &amp; S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]</p>		<p>Species or species habitat likely to occur within area</p>

# Caveat

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

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

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

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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

- migratory and
- marine

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

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

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

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

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

# Coordinates

-33.384791 115.685925,-33.367876 115.721974,-33.378484 115.699658,-33.403996 115.700344,-33.378198 115.699658,-33.367589 115.723004,-33.340346 115.770382,-33.295878 115.770726,-33.268037 115.753903,-33.253396 115.748753

# Acknowledgements

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

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

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

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

# Quadrat and Photo Point Data

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## BUNBURY OUTER RING ROAD – NORTH: Survey Sites

### Quadrat data

Site		BN01	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 17/09/2018	
<b>Location:</b> South West Highway			
<b>Vegetation Type:</b> VT5			
<b>Landform:</b> Plain	<b>Slope:</b> Negligible	<b>Drainage:</b> Good	
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Good (4)			
<b>Disturbances:</b> weeds, rubbish			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – Minor impact			
<b>Bare Ground:</b> 10% <b>Humus/Litter:</b> Sparse –10-30%			
<b>Wood Litter:</b> Moderate			

Site		BN02	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 17/09/2018	
<b>Location:</b> South Western Highway			
<b>Vegetation Type:</b> VT5			
<b>Landform:</b> Swamp	<b>Slope:</b> Gentle	<b>Drainage:</b> Seasonal Wet	
<b>Soil Colour &amp; Type:</b> Brown Silty Sand			
<b>Vegetation Condition:</b> Very Good (3)			
<b>Disturbances:</b> weeds, rubbish			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 10% <b>Humus/Litter:</b> Sparse –2-10%			
<b>Wood Litter:</b> Negligible			

Site		BN03	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Forrest Highway near Paris Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Upper slope	<b>Drainage:</b> Good		
<b>Slope :</b> Gentle			
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Very Good (3)			
<b>Disturbances:</b> weeds, rubbish			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 2-10%	<b>Humus/Litter:</b> Plentiful - >70%	<b>Wood Litter:</b> Moderate	

Site		BN04	
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<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain <b>Slope :</b> Gentle	<b>Drainage:</b> Seasonal Wet		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, cattle			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 40% <b>Humus/Litter:</b> Sparse - 2-10%			
<b>Wood Litter:</b> Moderate			

<b>Site</b>		<b>BN05</b>	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Drainage depression	<b>Drainage:</b> Seasonal Wet		
<b>Slope:</b> : Gentle			
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, cattle			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 10%	<b>Humus/Litter:</b> Sparse - 2%	<b>Wood Litter:</b> Negligible	

<b>Site</b>		<b>BN06</b>	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain <b>Slope :</b> Gentle	<b>Drainage:</b> Seasonal Wet		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, cattle			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 2% <b>Humus/Litter:</b> Sparse - <2%			
<b>Wood Litter:</b> Sparse			

Site		BN07	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain <b>Slope :</b> Gentle	<b>Drainage:</b> Seasonal Wet		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, cattle			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 2% <b>Humus/Litter:</b> Moderate - >70%			
<b>Wood Litter:</b> Sparse			

Site		BN08	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Mid- slope <b>Slope :</b> Gentle	<b>Drainage:</b> Good		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, past grazing (currently no grazing – fenced)			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 20% <b>Humus/Litter:</b> Sparse – 2-10%			
<b>Wood Litter:</b> Plentiful			

Site		BN09	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Mid- slope <b>Slope :</b> Gentle	<b>Drainage:</b> Good		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, past grazing (currently no grazing – fenced)			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 5% <b>Humus/Litter:</b> Moderate – 10-30%			
<b>Wood Litter:</b> Sparse			

Site		BN10	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Hill Crest <b>Slope :</b> Negligible	<b>Drainage:</b> Good		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, past grazing, milling			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 40% <b>Humus/Litter:</b> Moderate – 10-30%			
<b>Wood Litter:</b> Plentiful			

Site		BN11	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Clifton Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Hill Crest <b>Slope :</b> Negligible	<b>Drainage:</b> Good		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Good (4)			
<b>Disturbances:</b> weeds, past grazing, milling			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 10% <b>Humus/Litter:</b> Moderate – 10-30%			
<b>Wood Litter:</b> Plentiful			

Site		BN12			
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018			
<b>Location:</b> Forrest Highway					
<b>Vegetation Type:</b>					
<b>Landform:</b> Hill crest	<b>Drainage:</b> Good				
<b>Slope :</b> Gentle					
<b>Soil Colour &amp; Type:</b> Grey Sand					
<b>Vegetation Condition:</b> Good (4)					
<b>Disturbances:</b> road reserve, weeds, fallen trees.					
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage					
<b>Bare Ground:</b> 10-30%	<b>Humus/Litter:</b> Moderate - 30-70%			<b>Wood Litter:</b> Moderate	

Site		BN13	
Type: Quadrat	Size: 10 x 10	Date: 19/09/2018	
Location: Forrest Highway near Paris Road			
Vegetation Type:			
Landform: Mid- slope	Slope: Gentle	Drainage: Good	
Soil Colour & Type: Grey Sand			
Vegetation Condition: Good (4)			
Disturbances: weeds, rubbish, nearby roads.			
Fire Age & Intensity: Old > 5 yr – No damage			
Bare Ground: 2% Humus/Litter: Moderate –30-70%			
Wood Litter: Moderate			

Site		BN14	
Type: Quadrat	Size: 10 x 10	Date: 19/09/2018	
Location: Forrest Highway			
Vegetation Type:			
Landform: Plain	Drainage: Good		
Slope : Gentle			
Soil Colour & Type: Grey Sand			
Vegetation Condition: Good (4)			
Disturbances: road reserve, weeds.			
Fire Age & Intensity: Old > 5 yr – No damage			
Bare Ground: <2%	Humus/Litter: Plentiful - >70%	Wood Litter: Moderate	

Site		BN15	
Type: Quadrat	Size: 10 x 10	Date: 19/09/2018	
Location: Forrest Highway near Paris Road			
Vegetation Type:			
Landform: Depression	Drainage	Drainage: Seasonal Wet	
Slope : Negligible			
Soil Colour & Type: Grey Sand			
Vegetation Condition: Degraded (6)			
Disturbances: road reserve, weeds.			
Fire Age & Intensity: Old > 5 yr – No damage			
Bare Ground: >70%	Humus/Litter: Sparse - 2-10%	Wood Litter: Plentiful	

Site		BN16	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Forrest Highway near Brunswick River			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain	<b>Drainage:</b> Good (4)		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Good			
<b>Disturbances:</b> Infrastructure, Exotic Weeds, rubbish, fire			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – Few trees killed			
<b>Bare Ground:</b> <2%	<b>Humus/Litter:</b> Plentiful - >70%	<b>Wood Litter:</b> Moderate	

Site		BN17	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Forrest Highway near Paris Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Swamp	<b>Slope:</b> Gentle	<b>Drainage:</b> Seasonal Wet	
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, tree death, possible change to hydrology			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> 90%	<b>Humus/Litter:</b> Sparse –30-70%		
<b>Wood Litter:</b> Plentiful			

Site		BN18	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 17/09/2018	
<b>Location:</b> BORR Central Section – Lot 504 on Plan 71846			
<b>Vegetation Type:</b> VT8			
<b>Landform:</b> Plain	<b>Slope:</b> Negligible	<b>Drainage:</b> Good	
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Good (4)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – fee trees killed			
<b>Bare Ground:</b> 2-10%	<b>Humus/Litter:</b> Moderate		
<b>Wood Litter:</b> Sparse			

Site		BN19	
Type: Quadrat	Size: 10 x 10	Date: 17/09/2018	
Location: BORR Central Section – Lot 504 on Plan 71846			
Vegetation Type: VT8			
Landform: Plain Slope: Gentle	Drainage: Good		
Soil Colour & Type: Grey Sand			
Vegetation Condition: Good (4)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – no damage			
Bare Ground: <2% Humus/Litter: Moderate –11-30%			
Wood Litter: Sparse			

Site		BN20	
Type: Quadrat	Size: 10 x 10	Date: 17/09/2018	
Location: BORR Central Section road reserve (P Road)			
Vegetation Type:			
Landform: Mid Slope Slope: Gentle	Drainage: Good		
Soil Colour & Type: Grey Sand			
Vegetation Condition: Good (4)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – minor impact			
Bare Ground: <2% Humus/Litter: Moderate –11-30%			
Wood Litter: Sparse			

Site		BN21	
Type: Quadrat	Size: 10 x 10	Date: 18/09/2018	
Location: Collie River – Vacant Crown Land			
Vegetation Type:			
Landform: Drainage line	Drainage: Seasonal Wet		
Slope: Negligible			
Soil Colour & Type: Brown clay			
Vegetation Condition: Degraded (6)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – no damage			
Bare Ground: 31-70% Humus/Litter: Sparse			
Wood Litter: Negligible			

Site		BN22	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Ferguson Creek – Lot 701 on Plan 402909			
<b>Vegetation Type:</b> VT4			
<b>Landform:</b> Drainage line	<b>Drainage:</b> Seasonal Wet		
<b>Slope:</b> Gentle			
<b>Soil Colour &amp; Type:</b> Brown clayey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> -% <b>Humus/Litter:</b> Sparse			
<b>Wood Litter:</b> Sparse			

Site		BN23	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Wireless Road reserve – P Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain	<b>Slope:</b> Negligible	<b>Drainage:</b> Good	
<b>Soil Colour &amp; Type:</b> Black sandy clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – minor impact			
<b>Bare Ground:</b> -% <b>Humus/Litter:</b> Moderate – 11-30%			
<b>Wood Litter:</b> Sparse			

Site		BN24	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Wireless Road reserve – P Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain	<b>Slope:</b> Negligible	<b>Drainage:</b> Seasonal wet	
<b>Soil Colour &amp; Type:</b> Brown clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> 2-10% <b>Humus/Litter:</b> Negligible – 31-70%			
<b>Wood Litter:</b> Negligible			

Site		BN25	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Wireless Road reserve – P Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Drainage Depression <b>Slope:</b> Negligible	<b>Drainage:</b> Seasonal wet		
<b>Soil Colour &amp; Type:</b> Brown clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> 2-10% <b>Humus/Litter:</b> Negligible			
<b>Wood Litter:</b> Negligible			

Site		BN26	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> Bell Road reserve – P Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Drainage Depression <b>Slope:</b> Negligible	<b>Drainage:</b> Seasonal wet		
<b>Soil Colour &amp; Type:</b> Brown clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> 0% <b>Humus/Litter:</b> Sparse			
<b>Wood Litter:</b> Sparse			

Site		BN27	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 18/09/2018	
<b>Location:</b> St Helena Road reserve – P Road			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain <b>Slope:</b> Negligible	<b>Drainage:</b> Seasonal wet		
<b>Soil Colour &amp; Type:</b> Brown sandy clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – minor impact			
<b>Bare Ground:</b> 2-10% <b>Humus/Litter:</b> Negligible			
<b>Wood Litter:</b> Negligible			

Site		BN28	
Type: Quadrat	Size: 10 x 10	Date: 18/09/2018	
Location: St Helena Road reserve – P Road			
Vegetation Type:			
Landform: Drainage depression Slope: Negligible	Drainage: Seasonal wet		
Soil Colour & Type: Black sandy clay			
Vegetation Condition: Degraded (6)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – minor impact			
Bare Ground: 2-10% Humus/Litter: Negligible			
Wood Litter: Negligible			

Site		BN29	
Type: Quadrat	Size: 10 x 10	Date: 19/09/2018	
Location: Lot 93 on Plan 240430 (Reserve 46108)			
Vegetation Type:			
Landform: Drainage depression Slope: Negligible	Drainage: Seasonal wet		
Soil Colour & Type: Brown clay			
Vegetation Condition: Degraded (6)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – no damage			
Bare Ground: <2% Humus/Litter: Sparse – 2-10%			
Wood Litter: Sparse			

Site		BN30	
Type: Quadrat	Size: 10 x 10	Date: 19/09/2018	
Location: St Helena Road reserve – P Road			
Vegetation Type:			
Landform: Riparian Bank Slope: Moderate	Drainage: Seasonal wet		
Soil Colour & Type: Grey sand			
Vegetation Condition: Degraded (6)			
Disturbances: Weeds			
Fire Age & Intensity: Old > 5 yr – minor impact			
Bare Ground: <2% Humus/Litter: Sparse – 11-30%			
Wood Litter: Sparse			

Site		BN31	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Lot 124 on Plan 71853 (Reserve 31866)			
<b>Vegetation Type:</b>			
<b>Landform:</b> Riparian Bank	<b>Drainage:</b> Seasonal wet		
<b>Slope:</b> Negligible			
<b>Soil Colour &amp; Type:</b> Brown clayey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> 2-10% <b>Humus/Litter:</b> Sparse – 11-30%			
<b>Wood Litter:</b> Sparse			

Site		BN32	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Lot 104 on Plan 403618			
<b>Vegetation Type:</b>			
<b>Landform:</b> Mid Slope	<b>Slope:</b> Gentle	<b>Drainage:</b> Good	
<b>Soil Colour &amp; Type:</b> Grey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> 31-70% <b>Humus/Litter:</b> Sparse – 31-70%			
<b>Wood Litter:</b> Moderate			

Site		BN33	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Preston River – Lot 124 on Plan 71853 (Reserve 31866)			
<b>Vegetation Type:</b>			
<b>Landform:</b> Riparian	<b>Slope:</b> Gentle	<b>Drainage:</b> Seasonal Wet	
<b>Soil Colour &amp; Type:</b> Brown clayey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> <2% <b>Humus/Litter:</b> Sparse – 31-70%			
<b>Wood Litter:</b> Sparse			

Site		BN35	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/08/2018	
<b>Location:</b> Near Clifton Road			
<b>Vegetation Type:</b> VT16			
<b>Landform:</b> Drainage line	<b>Slope:</b> Gentle	<b>Drainage:</b> Permanent Wet	
<b>Soil Colour &amp; Type:</b> Grey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, grazing			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> <2% <b>Humus/Litter:</b> Sparse –2-10%			
<b>Wood Litter:</b> Low			

Site		BN34	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 19/09/2018	
<b>Location:</b> Preston River – Lot 124 on Plan 71853 (Reserve 31866)			
<b>Vegetation Type:</b>			
<b>Landform:</b> Riparian	<b>Slope:</b> Gentle	<b>Drainage:</b> Seasonal Wet	
<b>Soil Colour &amp; Type:</b> Brown clayey sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> Weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – no damage			
<b>Bare Ground:</b> <2% <b>Humus/Litter:</b> Sparse			
<b>Wood Litter:</b> Sparse			

Site		BN36	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 21/11/2018	
<b>Location:</b> Forest Hwy			
<b>Vegetation Type:</b> VT20			
<b>Landform:</b> Plain	<b>Slope:</b> Negligible	<b>Drainage:</b> Good	
<b>Soil Colour &amp; Type:</b> Sand			
<b>Vegetation Condition:</b> Good			
<b>Disturbances:</b> weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Humus/Litter:</b> Sparse			
<b>Wood Litter:</b> Moderate			

Site		BN37	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 21/11/2018	
<b>Location:</b> near BORR Central			
<b>Vegetation Type:</b>			
<b>Landform:</b> Plain <b>Slope:</b> Negligible	<b>Drainage:</b> Good		
<b>Soil Colour &amp; Type:</b> Grey Sand			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds, clearing			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Humus/Litter:</b> Sparse			
<b>Wood Litter:</b> Sparse			

Site		BN38	
<b>Type:</b> Quadrat	<b>Size:</b> 10 x 10	<b>Date:</b> 20/08/2018	
<b>Location:</b> Lot 104, Main Roads			
<b>Vegetation Type:</b>			
<b>Landform:</b> Drainage line <b>Slope:</b> Gentle	<b>Drainage:</b> Permanent Wet		
<b>Soil Colour &amp; Type:</b> Black Clay			
<b>Vegetation Condition:</b> Degraded (6)			
<b>Disturbances:</b> weeds			
<b>Fire Age &amp; Intensity:</b> Old > 5 yr – No damage			
<b>Bare Ground:</b> <2% <b>Humus/Litter:</b> Moderate –30-70%			
<b>Wood Litter:</b> Moderate			

**Diuris drummondii survey sites**

<p>Site 1 - 5 m transects walked through wetland area until water inundation / terrestrial habitat.</p> 	<p>Site 2 - 10 – 15 m transects isolated <i>Juncus</i> patches, heavily grazed. High visibility.</p> 
<p>Site 3 - <i>Melaleuca raphiophylla</i> over pasture weeds. Narrow corridor along degraded creekline – creekline walked. Heavily grazed.</p> 	
<p>Site 4 - Degraded damp land – grazed, clear visibility meander transects. Scattered <i>Eucalyptus rudis</i>, <i>Juncus pallidus</i> and introduced grasses.</p> 	<p>Site 5 - <i>Melaleuca raphiophylla</i> over weeds.</p> 
<p>Site 6 – Scattered <i>Melaleuca raphiophylla</i> over pasture grasses / man-made drainage line. Cattle present / highly disturbed.</p>	<p>Site 7 -Waterloo Road – drainage line. Spot checks along the drainage line. On eastern side of the road</p>



Site 8 - Drainage line – man made – walking transect along through suitable habitat. Heavily weed infested in the ground layer. *Melaleuca raphiophylla* with *Eucalyptus rudis* / planted eucalypts.



Site 9 - *Eucalyptus rudis* over pasture weeds – walking transect



Site 10 - Eucalypts over weeds – meander survey



Site 11 – *Melaleuca* / *Juncus* over introduced grasses.



Site 12 - Cows grazing – *Melaleuca raphiophylla* over grass. No survey visual inspection



Site 13 - *Melaleuca raphiophylla* over *Juncus* and introduced grasses. Meander survey – sheep grazing

Site 14 - Transects at a 10 m grid in good quality vegetation. *Melaleuca raphiophylla* over *Lepidosperma longitudinale*



Site 15 – Scattered *Melaleuca raphiophylla* over introduced grasses. Meander – heavily cleared

Site 16 - Transects (5 m grid) within areas that had dense patches



Site 17 - Transects (5 m grid) within areas that had dense patches



Site 18 - Transects where suitable dense vegetation and wet area



Site 19 - Southern side of Preston River – visual inspection cleared grassland with isolated trees heavily grazed

Site 20 – *Melaleuca raphiophylla* over grasses visual inspection – dry clay



## Photographic reference points

<p>PP1</p> 	<p>PP2</p> 	<p>PP3</p> 
<p>PP4</p> 	<p>PP5</p> 	<p>PP6</p> 
<p>PP7</p> 	<p>PP8</p> 	<p>PP9.</p> 
<p>PP10</p> 	<p>PP11</p> 	<p>PP20</p> 
<p>PP21</p> 	<p>PP24</p> 	<p>PP25</p> 

PP26



PP27



PP28



PP30



PP31



PP32



PP33



PP34



PP35



PP36



PP37



PP38



PP39



PP40



PP50



PP51



PP52



BNA01



BNA02



BNA03



BNA04



BNA05



BNA06



BNA07



BNA08



BNA09



BNA10



BNA11



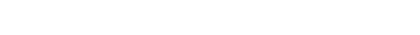
BNA12



BNA13



BNA14



BNA15





BNA16



BNA17



BNA18



BNA19



BNA20



BNA21



BNA22



BNA23



BNA24



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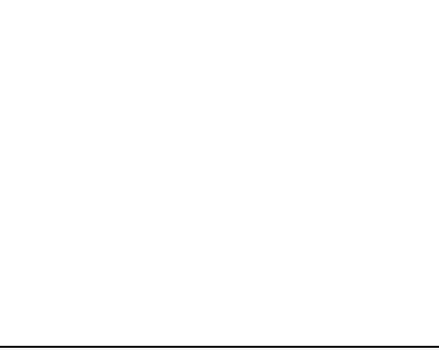
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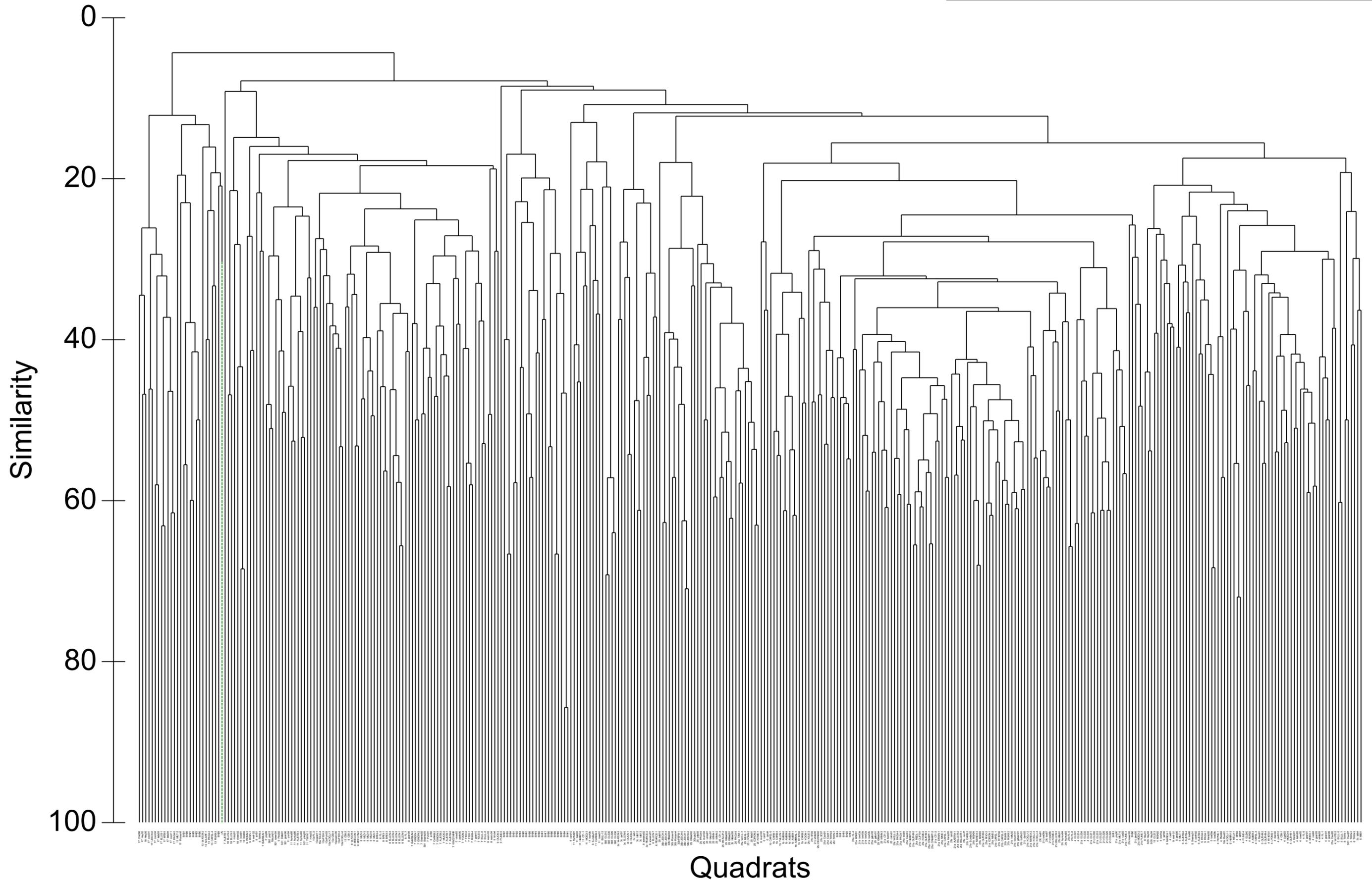


# Vegetation Statistics

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# No Singles

Resemblance: S17 Bray Curtis similarity



# Flora Species Data

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## Flora Species List

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Alismataceae	<i>Alisma lanceolatum</i>	*	X		
Anarthriaceae	<i>Lyginia barbata</i>		X		
Anarthriaceae	<i>Lyginia imberbis</i>		X		
Apiaceae	? <i>Centella asiatica</i>		X		
Apiaceae	<i>Centella asiatica</i>		X		
Apiaceae	<i>Daucus glochidiatus</i>		X		
Apiaceae	<i>Trachymene pilosa</i>		X		
Apiaceae	<i>Xanthosia huegelii</i>		X		
Apocynaceae	<i>Alyxia buxifolia</i>		X		
Apocynaceae	<i>Gomphocarpus fruticosus</i>	* DP	X		
Araceae	<i>Lemna disperma</i>		X		
Araceae	<i>Zantedeschia aethiopica</i>	*DP/WoNS	X		
Araliaceae	<i>Hydrocotyle callicarpa</i>		X		
Asparagaceae	? <i>Thysanotus manglesianus</i>		X		
Asparagaceae	<i>Asparagus asparagoides</i>	* DP/WoNS	X	X	X
Asparagaceae	<i>Dichopogon capillipes</i>		X		
Asparagaceae	<i>Laxmania squarrosa</i>			X	
Asparagaceae	<i>Lomandra ? odora</i>		X		
Asparagaceae	<i>Lomandra caespitosa</i>		X	X	
Asparagaceae	<i>Lomandra hermaphrodita</i>		X		
Asparagaceae	<i>Lomandra nigricans</i>		X		
Asparagaceae	<i>Lomandra odora</i>		X		
Asparagaceae	<i>Lomandra preissii</i>		X		X
Asparagaceae	<i>Lomandra purpurea</i>		X		
Asparagaceae	<i>Lomandra suaveolens</i>			X	X
Asparagaceae	<i>Sowerbaea latifolia</i>		X		
Asparagaceae	<i>Thysanotus ? Manglesianus</i>		X		
Asparagaceae	<i>Thysanotus manglesianus</i>		X		
Asparagaceae	<i>Thysanotus multiflorus</i>		X		
Asparagaceae	<i>Thysanotus patersonii</i>				X
Asparagaceae	<i>Thysanotus tenellus</i>			X	
Asparagaceae	<i>Thysanotus / Tricoryne sp. (sterile)</i>		X		
Asphodelaceae	<i>Trachyandra divaricata</i>	*	X		
Asteraceae	<i>Arctotheca calendula</i>	*	X		
Asteraceae	<i>Cirsium vulgare</i>		X		
Asteraceae	<i>Conyza sp.</i>	*	X		
Asteraceae	<i>Cotula bipinnata</i>	*	X		
Asteraceae	<i>Cotula coronopifolia</i>	*	X		
Asteraceae	<i>Cotula turbinata</i>	*	X		
Asteraceae	<i>Craspedia variabilis</i>		X		
Asteraceae	<i>Hyalosperma cotula</i>		X		
Asteraceae	<i>Hypochaeris glabra</i>	*	X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Asteraceae	<i>Hypochaeris radicata</i>	*	X		
Asteraceae	<i>Lagenophora huegelii</i>		X		
Asteraceae	<i>Olearia elaeophila</i>		X		X
Asteraceae	<i>Osteospermum ecklonis</i>	*	X		
Asteraceae	<i>Podolepis sp.</i>		X		
Asteraceae	<i>Siloxerus filifolius</i>		X		
Asteraceae	<i>Sonchus oleraceus</i>	*	X		
Asteraceae	<i>Sonchus sp.</i>		X		
Asteraceae	<i>Symphyotrichum squamatum</i>	*			X
Asteraceae	<i>Ursinia anthemoides</i>	*	X		
Asteraceae	<i>Vellereophyton dealbatum</i>	*	X		
Boryaceae	<i>Borya sphaerocephala</i>		X		X
Brassicaceae	<i>Raphanus raphanistrum</i>	*	X		
Campanulaceae	<i>Lobelia anceps</i>		X		
Caryophyllaceae	<i>Cerastium glomeratum</i>	*	X		
Caryophyllaceae	<i>Petrorhagia dubia</i>	*	X		
Caryophyllaceae	<i>Polycarpon tetraphyllum</i>	*	X		
Caryophyllaceae	<i>Stellaria media</i>	*	X		
Casuarinaceae	<i>Allocasuarina humilis</i>		X		
Casuarinaceae	<i>Casuarina obesa</i>		X		X
Centrolepidaceae	<i>Aphelia cyperoides</i>		X		
Centrolepidaceae	<i>Centrolepis aristata</i>		X		X
Centrolepidaceae	<i>Centrolepis drummondiana</i>		X		
Centrolepidaceae	<i>Centrolepis polygyna</i>		X		
Colchicaceae	<i>Burchardia congesta</i>		X		
Colchicaceae	<i>Burchardia multiflora</i>		X		X
Commelinaceae	<i>Cartonema philydroides</i>		X		
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>		X		
Crassulaceae	<i>Crassula decumbens</i>		X		
Crassulaceae	<i>Crassula natans</i>		X		
Crassulaceae	<i>Crassula natans</i> var. <i>minus</i>	*	X		
Cucurbitaceae	<i>Cucumis myriocarpus</i>	*	X		
Cyperaceae	? <i>Leptocarpus kraussii</i>		X		
Cyperaceae	<i>Baumea articulata</i>		X		
Cyperaceae	<i>Baumea juncea</i>			X	
Cyperaceae	<i>Carex appressa</i>		X		
Cyperaceae	<i>Carex inversa</i>		X		
Cyperaceae	<i>Chorizandra enodis</i>		X	X	X
Cyperaceae	<i>Cyathochaeta ? avenacea</i>		X		
Cyperaceae	<i>Cyathochaeta avenacea</i>		X	X	X
Cyperaceae	<i>Cyperus congestus</i>		X		X
Cyperaceae	<i>Cyperus eragrostis</i>	*	X		
Cyperaceae	<i>Cyperus sp. (sterile)</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Cyperaceae	<i>Cyperus tenellus</i>	*	X		X
Cyperaceae	<i>Ficinia nodosa</i>				X
Cyperaceae	<i>Gahnia trifida</i>		X		X
Cyperaceae	<i>Isolepis ? stellata</i>		X		
Cyperaceae	<i>Isolepis cernua</i>			X	
Cyperaceae	<i>Isolepis cernua var. setiformis</i>		X		
Cyperaceae	<i>Isolepis marginata</i>	*	X		
Cyperaceae	<i>Lepidosperma aff. apricola</i>				X
Cyperaceae	<i>Lepidosperma apricola</i>			X	
Cyperaceae	<i>Lepidosperma longitudinale</i>		X		X
Cyperaceae	<i>Lepidosperma pubisquameum</i>		X	X	
Cyperaceae	<i>Lepidosperma sp.</i>		X		
Cyperaceae	<i>Lepidosperma sp. (sterile)</i>		X		
Cyperaceae	<i>Lepidosperma squamatum</i>		X		
Cyperaceae	<i>Lepidosperma calcicola</i>			X	
Cyperaceae	<i>Mesomelaena tetragona</i>		X	X	X
Cyperaceae	<i>Schoenus aff. loliaceus</i>	?P2			X
Cyperaceae	<i>Schoenus bifidus</i>				X
Cyperaceae	<i>Schoenus curvifolius</i>		X		
Cyperaceae	<i>Schoenus efoliatus</i>		X		
Cyperaceae	<i>Tetraria octandra</i>			X	X
Dasygogonaceae	<i>Dasygogon bromeliifolius</i>		X		
Dennstaedtiaceae	<i>Pteridium esculentum subsp. esculentum</i>		X		
Dilleniaceae	<i>Hibbertia ? spicata</i>		X		
Dilleniaceae	<i>Hibbertia commutata</i>				X
Dilleniaceae	<i>Hibbertia cuneiformis</i>		X		
Dilleniaceae	<i>Hibbertia hypericoides subsp hypericoides</i>		X	X	
Dilleniaceae	<i>Hibbertia racemosa</i>		X		
Dilleniaceae	<i>Hibbertia vaginata</i>		X		
Droseraceae	<i>Drosera ? platystigma</i>		X		
Droseraceae	<i>Drosera ? Stolonifera</i>		X		
Droseraceae	<i>Drosera erythrorhiza</i>		X		
Droseraceae	<i>Drosera glandulifera</i>		X		
Droseraceae	<i>Drosera heterophylla</i>		X		
Droseraceae	<i>Drosera huegelii</i>		X		
Droseraceae	<i>Drosera menziesii</i>			X	X
Droseraceae	<i>Drosera menziesii subsp menziesii</i>		X		
Droseraceae	<i>Drosera nitidula</i>		X		
Droseraceae	<i>Drosera porrecta</i>			X	
Droseraceae	<i>Drosera pygmaea</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Droseraceae	<i>Drosera stolonifera</i>		X		
Droseraceae	<i>Drosera rosultata</i>				X
Ericaceae	<i>Astroloma ciliatum</i>				X
Ericaceae	<i>Astroloma pallidum</i>			X	
Ericaceae	<i>Conostephium preissii</i>		X		
Ericaceae	<i>Leucopogon propinquus</i>		X		
Ericaceae	<i>Leucopogon racemulosus</i>		X		
Ericaceae	<i>Lysinema pentapetalum</i>		X	X	
Ericaceae	<i>Petrophile linearis</i>		X		
Ericaceae	<i>Styphelia tenuiflora</i>		X		
Euphorbiaceae	<i>Euphorbia peplus</i>	*	X		
Euphorbiaceae	<i>Euphorbia sp. (sterile)</i>		X		
Euphorbiaceae	<i>Ricinus communis</i>	*	X		
Fabaceae	<i>Acacia applanata</i>		X		X
Fabaceae	<i>Acacia baileyana</i>	*	X		
Fabaceae	<i>Acacia decurrens</i>	*	X		
Fabaceae	<i>Acacia extensa</i>		X		
Fabaceae	<i>Acacia huegelii</i>		X		
Fabaceae	<i>Acacia incurva</i>				X
Fabaceae	<i>Acacia lasiocarpa var. lasiocarpa</i>		X		
Fabaceae	<i>Acacia lateriticola</i>				X
Fabaceae	<i>Acacia longifolia</i>	*	X		
Fabaceae	<i>Acacia myrtifolia</i>		X		
Fabaceae	<i>Acacia podalyriifolia</i>				X
Fabaceae	<i>Acacia pulchella</i>				X
Fabaceae	<i>Acacia pulchella var. glaberrima</i>		X	X	
Fabaceae	<i>Acacia saligna</i>		X		
Fabaceae	<i>Acacia saligna ? subsp lindleyi or saligna</i>		X		
Fabaceae	<i>Acacia saligna subsp. stolonifera</i>				X
Fabaceae	<i>Acacia semitrullata</i>	P4	X	X	
Fabaceae	<i>Acacia sp. (immature)</i>		X		
Fabaceae	<i>Acacia stenoptera</i>		X		
Fabaceae	<i>Acacia urophylla</i>				X
Fabaceae	<i>Bossiaea eriocarpa</i>		X		
Fabaceae	<i>Daviesia divaricata subsp. Divaricata</i>		X		
Fabaceae	<i>Daviesia physodes</i>				X
Fabaceae	<i>Eutaxia virgata</i>		X		
Fabaceae	<i>Gastrolobium bilobum</i>		X		
Fabaceae	<i>Gastrolobium sp. Harvey (G.J Keighery 16821)</i>	P2	X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Fabaceae	<i>Gompholobium tomentosum</i>		X	X	
Fabaceae	<i>Hardenbergia comptoniana</i>		X		
Fabaceae	<i>Hovea trisperma</i>		X		
Fabaceae	<i>Jacksonia ? horrida</i>		X		
Fabaceae	<i>Jacksonia furcellata</i>		X		
Fabaceae	<i>Jacksonia horrida</i>		X		
Fabaceae	<i>Jacksonia sternbergiana</i>		X		
Fabaceae	<i>Kennedia prostrata</i>		X		X
Fabaceae	<i>Lotus angustissimus</i>	*	X		
Fabaceae	<i>Lotus subbiflorus</i>	*	X		X
Fabaceae	<i>Lupinus cosentinii</i>	*	X		
Fabaceae	<i>Ornithopus compressus</i>	*	X		
Fabaceae	<i>Ornithopus sativus</i>	*	X		
Fabaceae	<i>Trifolium arvense</i> var. <i>arvense</i>	*	X	X	
Fabaceae	<i>Trifolium campestre</i>	*	X		
Fabaceae	<i>Trifolium dubium</i>	*	X		
Fabaceae	<i>Trifolium repens</i>	*	X		
Fabaceae	<i>Trifolium repens</i> var. <i>repens</i>	*	X		
Fabaceae	<i>Trifolium subterraneum</i>	*	X		
Fabaceae	<i>Vicia hirsuta</i>	*	X		
Fabaceae	<i>Vicia sativa</i>	*	X		X
Fabaceae	<i>Viminaria juncea</i>		X		X
Geraniaceae	<i>Erodium moschatum</i>	*	X		
Geraniaceae	<i>Geranium molle</i>	*	X		
Geraniaceae	<i>Pelargonium capitatum</i>	*	X		
Goodeniaceae	? <i>Dampiera</i> sp. (sterile)		X		
Goodeniaceae	<i>Dampiera alata</i>		X		
Goodeniaceae	<i>Dampiera linearis</i>		X		X
Goodeniaceae	<i>Scaevola calliptera</i>		X		
Haemodoraceae	<i>Anigozanthos flavidus</i>		X		
Haemodoraceae	<i>Anigozanthos manglesii</i>		X		
Haemodoraceae	<i>Conostylis aculeata</i> ? subsp. <i>Preissii</i>		X		
Haemodoraceae	<i>Conostylis aculeata</i> subsp. <i>preissii</i>		X		
Haemodoraceae	<i>Conostylis juncea</i>		X		
Haemodoraceae	<i>Conostylis</i> sp.		X		
Haemodoraceae	<i>Haemodorum paniculatum</i>				X
Haemodoraceae	<i>Haemodorum simplex</i>		X		X
Haemodoraceae	<i>Haemodorum spicatum</i>		X		
Haemodoraceae	<i>Phlebocarya ciliata</i>		X	X	
Haemodoraceae	<i>Tribonanthes australis</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Hemerocallidaceae	<i>Agrostocrinum scarbrum</i> <i>subsp. Scabrum</i>				X
Hemerocallidaceae	<i>Caesia ? occidentalis</i>		X		
Hemerocallidaceae	<i>Dianella revoluta</i>		X		
Hypoxidaceae	<i>Pauridia occidentalis</i> var. <i>quadriloba</i>		X		
Hypoxidaceae	<i>Pauridia vaginata</i> var. <i>vaginata</i>		X		
Iridaceae	<i>Babiana angustifolia</i>	*	X		X
Iridaceae	<i>Freesia alba x leichtlinii</i>	*	X		
Iridaceae	<i>Gladiolus caryophyllaceus</i>	*	X	X	X
Iridaceae	<i>Orthosanthus laxus</i> var. <i>laxus</i>		X		
Iridaceae	<i>Patersonia juncea</i>			X	
Iridaceae	<i>Patersonia occidentalis</i>		X		
Iridaceae	<i>Romulea flava</i>	*	X		
Iridaceae	<i>Romulea rosea</i>	*	X	X	X
Iridaceae	<i>Romulea rosea</i> var. <i>communis</i>	*	X		
Iridaceae	<i>Sparaxis bulbifera</i>	*	X		
Iridaceae	<i>Watsonia meriana</i> var. <i>bulbifera</i>	*	X		X
Iridaceae	<i>Watsonia</i> sp.	*	X		
Juncaceae	<i>Juncus articulatus</i>	*	X		
Juncaceae	<i>Juncus bufonius</i>	*	X		
Juncaceae	<i>Juncus kraussii</i> subsp <i>australiensis</i>		X		
Juncaceae	<i>Juncus microscephalus</i>	*	X		
Juncaceae	<i>Juncus pallidus</i>		X		
Juncaceae	<i>Juncus subsecundus</i>				X
Juncaceae	<i>Luzula meridionalis</i>		X		
Juncaginaceae	<i>Cynogeton lineare</i>		X		X
Lamiaceae	<i>Hemiandra incana</i>				X
Lamiaceae	<i>Hemiandra pungens</i>		X		
Lamiaceae	<i>Mentha spicata</i>	*	X		
Lamiaceae	<i>Stachys arvensis</i>	*	X		
Lauraceae	<i>Cassytha ? glabella</i>		X		
Lauraceae	<i>Cassytha racemosa</i>		X		X
Lauraceae	<i>Cassytha</i> sp.		X		
Loranthaceae	<i>Nuytsia floribunda</i>		X		
Menyanthaceae	<i>Liparophyllum latifolium</i>		X		
Monocot. Sp. sterile			X		
Myrtaceae	? <i>Astartea</i> sp.		X		
Myrtaceae	<i>Agonis flexuosa</i>		X		
Myrtaceae	<i>Astartea ? scoparia</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Myrtaceae	<i>Astartea affinis</i>				X
Myrtaceae	<i>Astartea scoparia</i>		X		
Myrtaceae	<i>Callistemon phoeniceus</i>	# planted	X		
Myrtaceae	<i>Calothamnus quadrifidus</i>	# planted	X		
Myrtaceae	<i>Calytrix flavescens</i>		X		
Myrtaceae	<i>Corymbia calophylla</i>		X	X	X
Myrtaceae	<i>Corymbia citriodora</i>	*	X		
Myrtaceae	<i>Eucalyptus botryoides</i>	*	X		
Myrtaceae	<i>Eucalyptus camaldulensis</i>	# planted	X		
Myrtaceae	<i>Eucalyptus cladocalyx</i>	*	X		
Myrtaceae	<i>Eucalyptus gomphocephala</i>		X		
Myrtaceae	<i>Eucalyptus lane-poolei</i>	#planted	X		
Myrtaceae	<i>Eucalyptus marginata</i> <i>subsp. marginata</i>		X	X	
Myrtaceae	<i>Eucalyptus rudis</i>		X		
Myrtaceae	<i>Eucalyptus rudis subsp.</i> <i>cratyantha</i>	P4		X	
Myrtaceae	<i>Eucalyptus rudis subsp.</i> <i>rudis</i>				X
Myrtaceae	<i>Eucalyptus wandoo</i>		X		
Myrtaceae	<i>Hypocalymma</i> <i>angustifolium</i>		X	X	X
Myrtaceae	<i>Hypocalymma robustum</i>		X		
Myrtaceae	<i>Kunzea glabrescens</i>		X	X	
Myrtaceae	<i>Kunzea micrantha subsp.</i> <i>micrantha</i>				X
Myrtaceae	<i>Melaleuca ? lateritia</i>		X		
Myrtaceae	<i>Melaleuca ? preissiana</i>		X		
Myrtaceae	<i>Melaleuca cuticularis</i>		X		
Myrtaceae	<i>Melaleuca incana subsp.</i> <i>incana</i>		X		X
Myrtaceae	<i>Melaleuca lanceolata</i>	# planted	X		
Myrtaceae	<i>Melaleuca lateritia</i>		X		X
Myrtaceae	<i>Melaleuca nesophila</i>	# planted	X		
Myrtaceae	<i>Melaleuca pauciflora</i>		X		X
Myrtaceae	<i>Melaleuca preissiana</i>		X	X	
Myrtaceae	<i>Melaleuca quinquenervia</i>	# planted	X		
Myrtaceae	<i>Melaleuca rhapsiophylla</i>		X		X
Myrtaceae	<i>Melaleuca teretifolia</i>		X		
Myrtaceae	<i>Melaleuca thymoides</i>		X		
Myrtaceae	<i>Melaleuca viminea</i>				X
Myrtaceae	<i>Melaleuca viminea subsp.</i> <i>viminea</i>		X		
Myrtaceae	<i>Taxandria linearifolia</i>		X		
Oleaceae	<i>Olea europaea</i>	*	X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Orchidaceae	? <i>Leporella fimbriata</i> (leaf only)		X		
Orchidaceae	? <i>Thelymitra graminea</i> (leaf only)		X		
Orchidaceae	? <i>Thelymitra species</i> (leaf only)		X		
Orchidaceae	<i>Caladenia chapmanii</i>		X		
Orchidaceae	<i>Caladenia discoidea</i>			X	
Orchidaceae	<i>Caladenia flava</i> subsp. <i>flava</i>		X		
Orchidaceae	<i>Caladenia latifolia</i>		X		
Orchidaceae	<i>Caladenia nana</i> subsp. <i>nana</i>		X		
Orchidaceae	<i>Caladenia reptans</i> subsp. <i>reptans</i>			X	
Orchidaceae	<i>Caladenia sp.</i> (leaf only)		X		
Orchidaceae	<i>Corybas recurvus</i>		X		
Orchidaceae	<i>Cryptostylis ovata</i> (leaf only)		X		
Orchidaceae	<i>Disa bracteata</i>	*	X		
Orchidaceae	<i>Diuris corymbosa</i>		X		
Orchidaceae	<i>Elythranthera brunonis</i>		X		
Orchidaceae	<i>Leporella fimbriata</i>			X	
Orchidaceae	<i>Leptoceras menziesii</i> (leaf only)		X		
Orchidaceae	<i>Microtis media</i> subsp. <i>media</i>		X		
Orchidaceae	<i>Microtis sp.</i> (infertile)		X		
Orchidaceae	<i>Pterostylis ? vittata</i>		X		
Orchidaceae	<i>Pterostylis aspera</i>			X	
Orchidaceae	<i>Pterostylis concava</i>			X	
Orchidaceae	<i>Pterostylis pyramidalis</i>		X		
Orchidaceae	<i>Pterostylis recurva</i>		X		
Orchidaceae	<i>Pterostylis sp.</i> crinkled leaf (G.J. Keighery 13426)			X	
Orchidaceae	<i>Pterostylis sp.</i> Short Sepals (W. Jackson BJ259)		X		
Orchidaceae	<i>Pterostylis vittata</i>		X		
Orchidaceae	<i>Pyrorchis nigricans</i>		X		
Orchidaceae	<i>Thelymitra benthamiana</i>			X	
Orchidaceae	<i>Thelymitra graminea</i>		X		
Orchidaceae	<i>Thelymitra macrophylla</i>		X		
Orchidaceae	<i>Thelymitra pauciflora</i>		X		
Orobanchaceae	<i>Orobanche minor</i>	*	X		
Oxalidaceae	<i>Oxalis ? pes-caprae</i>	*	X		
Oxalidaceae	<i>Oxalis glabra</i>	*	X		
Oxalidaceae	<i>Oxalis pes-caprae</i>	*	X		X
Oxalidaceae	<i>Oxalis glabra</i>	*		X	X
Oxalidaceae	<i>Oxalis sp.</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Papaveraceae	<i>Fumaria capreolata</i>	*	X		
Papaveraceae	<i>Fumaria muralis</i>	*	X		
Passifloraceae	<i>Passiflora filamentosa</i>	*	X		
Philydraceae	<i>Philydrella drummondii</i>		X		
Philydraceae	<i>Philydrella pygmaea subsp. pygmaea</i>				X
Phyllanthaceae	<i>Phyllanthus calycinus</i>		X		
Phytolaccaceae	<i>Phytolacca octandra</i>	*	X		
Pittosporaceae	<i>Billardiera fusiformis</i>		X		
Plantaginaceae	<i>Callitriche stagnalis</i>	*	X		X
Plantaginaceae	<i>Plantago lanceolata</i>	*	X		X
Poaceae	<i>Aira cupaniana</i>	*	X		
Poaceae	<i>Amphipogon turbinatus</i>				X
Poaceae	<i>Austrostipa ? Mollis</i>			X	
Poaceae	<i>Austrostipa campylachne</i>		X		
Poaceae	<i>Austrostipa semibarbata</i>				X
Poaceae	<i>Avena barbata</i>	*	X	X	
Poaceae	<i>Briza maxima</i>	*	X	X	X
Poaceae	<i>Briza minor</i>	*	X		X
Poaceae	<i>Bromus diandrus</i>	*	X		X
Poaceae	<i>Bromus hordaceus</i>	*	X		
Poaceae	<i>Cenchrus clandestinus</i>	*	X		X
Poaceae	<i>Cynodon dactylon</i>	*	X		X
Poaceae	<i>Ehrharta calycina</i>	*	X	X	X
Poaceae	<i>Ehrharta longiflora</i>	*	X	X	X
Poaceae	<i>Eragrostis curvula</i>	*	X		X
Poaceae	<i>Holcus lanatus</i>	*	X		
Poaceae	<i>Hordeum leporinum</i>	*	X		
Poaceae	<i>Lagurus ovatus</i>	*	X		
Poaceae	<i>Lolium perenne</i>	*	X		
Poaceae	<i>Lolium rigidum</i>	*	X		
Poaceae	<i>Neurachne alopecuroidea</i>		X	X	X
Poaceae	<i>Paspalum dilatatum</i>	*	X		
Poaceae	<i>Pennistenum clandestinum</i>	*	X		
Poaceae	<i>Poa annua</i>	*	X		
Poaceae	<i>Rytidosperma caespitosum</i>		X		X
Poaceae	<i>sp.</i>		X		
Poaceae	<i>Tetrarrhena laevis</i>				X
Poaceae	<i>Themeda triandra</i>				X
Poaceae	<i>Vulpia myuros</i>	*	X		
Polygonaceae	<i>Persicaria sp.</i>	*	X		
Polygonaceae	<i>Rumex acetosella</i>	*	X		
Polygonaceae	<i>Rumex conglomeratus</i>	*	X		
Polygonaceae	<i>Rumex crispus</i>	*	X		
Polygonaceae	<i>Rumex sp.</i>	*	X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Polygonaceae	<i>Rumex/ Persicaria sp. sterile</i>		X		
Primulaceae	<i>Lysimachia arvensis</i>	*	X	X	X
Proteaceae	<i>Adenanthos meisneri</i>		X		
Proteaceae	<i>Banksia attenuata</i>		X	X	
Proteaceae	<i>Banksia dallanneyi</i>				X
Proteaceae	<i>Banksia grandis</i>		X		
Proteaceae	<i>Banksia ilicifolia</i>		X		
Proteaceae	<i>Banksia littoralis</i>		X		
Proteaceae	<i>Calothamnus sp.</i>	# planted	X		
Proteaceae	<i>Grevillea bipinnatifida</i> <i>subsp. bipinnatifida</i>				X
Proteaceae	<i>Hakea varia</i>		X	X	X
Proteaceae	<i>Persoonia longifolia</i>		X		
Proteaceae	<i>Stirlingia latifolia</i>		X	X	
Proteaceae	<i>Synaphea petiolaris sub sp.</i> <i>triloba</i>			X	
Proteaceae	<i>Synaphea spinulosa subsp.</i> <i>Spinulosa</i>		X		
Proteaceae	<i>Xylomelum occidentale</i>		X		
Pteridaceae	<i>Adiantum aethiopicum</i>		X		
Ranunculaceae	<i>Ranunculus ? Colonorum</i>		X		
Restionaceae	<i>Desmocladus fascicularis</i>		X	X	
Restionaceae	<i>Desmocladus flexuosa</i>		X		
Restionaceae	<i>Hypolaena exsulca</i>		X		
Restionaceae	<i>Hypolaena pubescens</i>		X		
Restionaceae	<i>Leptocarpus coangustatus</i>				X
Restionaceae	<i>Leptocarpus decipiens</i>		X		
Restionaceae	<i>Leptocarpus kraussii</i>		X		
Restionaceae	<i>Leptocarpus laxus</i>		X		
Restionaceae	<i>Leptocarpus roycei</i>				X
Restionaceae	<i>Leptocarpus sp.</i>		X		
Restionaceae	<i>Lepyrodia glauca</i>		X		X
Rhamnaceae	<i>Spyridium globulosum</i>		X		
Rubiaceae	<i>Galium murale</i>	*	X		
Rubiaceae	<i>Opercularia apiciflora</i>		X		
Rubiaceae	<i>Opercularia hispidula</i>		X		
Rubiaceae	<i>Opercularia vaginata</i>		X		
Rubiaceae	<i>Opercularia vaginata</i>				X
Rutaceae	<i>Boronia spathulata</i>		X		
Rutaceae	<i>Philothea spicata</i>		X	X	
Salviniaceae	<i>Azolla rubra</i>		X		
Santalaceae	<i>Santalum acuminatum</i>			X	
Solanaceae	<i>Solanum linnaeanum</i>	*DP	X		
Solanaceae	<i>Solanum nigrum</i>	*	X		
Stylidiaceae	<i>Stylidium brunonianum</i>		X		

Family	Taxon	Status	BORR 2018	BORR 2019	Ecoedge 2019
Stylidiaceae	<i>Stylidium ciliatum</i>		X		
Stylidiaceae	<i>Stylidium thesioides</i>				X
Thymelaiceae	<i>Pimelea citriodora</i>		X		
Typhaceae	<i>Typha orientalis</i>		X		
Violaceae	<i>Hybanthus floribundus</i> <i>subsp. Floribundus</i>				X
Xanthorrhoeaceae	<i>Chamaescilla corymbosa</i>		X		
Xanthorrhoeaceae	<i>Chamaescilla gibsonii</i>	P3	X		X
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i>		X	X	
Xanthorrhoeaceae	<i>Xanthorrhoea preissii</i>		X	X	X
Zamiaceae	<i>Macrozamia riedlei</i>		X		

\* Denoted an introduced species

^ Nuytsia Volume 30 (DBCA 2019) (published on the 28 March 2019) includes a short communication on *Gastrolobium* sp. Harvey, which concludes that *Gastrolobium* sp. Harvey is best regarded as a variant or ecotype of *Gastrolobium capitatum*. *G. capitatum* is a common plant throughout the Bunbury region. It is anticipated that the advice published in Nuytsia Vol. 30 (DBCA 2019) will be adopted and the phrase name *Gastrolobium* sp. Harvey will no longer be current and be replaced with *Gastrolobium capitatum*.

## Conservation listed species and weed location data

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>Acacia semitrullata</i>	P4	35381	100546	1
<i>Acacia semitrullata</i>	P4	44049	117232	1
<i>Acacia semitrullata</i>	P4	44173	117372	1
<i>Acacia semitrullata</i>	P4	43767	118809	1
<i>Acacia semitrullata</i>	P4	44221	116875	1
<i>Acacia semitrullata</i>	P4	43884	118054	1
<i>Acacia semitrullata</i>	P4	29971	93904	1
<i>Acacia semitrullata</i>	P4	35420	101317	1
<i>Acacia semitrullata</i>	P4	35391	101205	1
<i>Acacia semitrullata</i>	P4	35788	101255	1
<i>Acacia semitrullata</i>	P4	35892	101187	1
<i>Acacia semitrullata</i>	P4	35892	101168	1
<i>Acacia semitrullata</i>	P4	43651	118930	1
<i>Acacia semitrullata</i>	P4	43723	118938	1
<i>Acacia semitrullata</i>	P4	43749	118873	1
<i>Acacia semitrullata</i>	P4	43745	118867	1
<i>Acacia semitrullata</i>	P4	43769	118811	1
<i>Acacia semitrullata</i>	P4	44048	116733	3
<i>Acacia semitrullata</i>	P4	44045	116777	1
<i>Acacia semitrullata</i>	P4	44043	116894	1
<i>Acacia semitrullata</i>	P4	44040	116904	2
<i>Acacia semitrullata</i>	P4	44028	116916	1
<i>Acacia semitrullata</i>	P4	44074	116900	1
<i>Acacia semitrullata</i>	P4	44062	116909	3
<i>Acacia semitrullata</i>	P4	44057	116937	1
<i>Acacia semitrullata</i>	P4	44047	116937	1
<i>Acacia semitrullata</i>	P4	44060	116960	2
<i>Acacia semitrullata</i>	P4	44070	116976	1
<i>Acacia semitrullata</i>	P4	44071	117019	2

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>Acacia semitrullata</i>	P4	44042	117080	9
<i>Acacia semitrullata</i>	P4	44029	117172	2
<i>Acacia semitrullata</i>	P4	44029	117206	1
<i>Acacia semitrullata</i>	P4	44012	117212	1
<i>Acacia semitrullata</i>	P4	44007	117230	4
<i>Acacia semitrullata</i>	P4	44223	117483	1
<i>Acacia semitrullata</i>	P4	44236	116572	1
<i>Acacia semitrullata</i>	P4	44236	116572	1
<i>Acacia semitrullata</i>	P4	44165	116684	1
<i>Acacia semitrullata</i>	P4	44168	116687	1
<i>Acacia semitrullata</i>	P4	44188	116736	1
<i>Acacia semitrullata</i>	P4	43704	118734	2
<i>Acacia semitrullata</i>	P4	43685	118761	6
<i>Acacia semitrullata</i>	P4	43680	118807	2
<i>Acacia semitrullata</i>	P4	43750	118873	1
<i>Acacia semitrullata</i>	P4	44133	116755	3
<i>Acacia semitrullata</i>	P4	44142	116865	1
<i>Acacia semitrullata</i>	P4	44144	116899	1
<i>Acacia semitrullata</i>	P4	44147	116922	1
<i>Acacia semitrullata</i>	P4	44147	116934	4
<i>Acacia semitrullata</i>	P4	44150	116963	1
<i>Acacia semitrullata</i>	P4	44158	117054	1
<i>Acacia semitrullata</i>	P4	44157	117160	1
<i>Acacia semitrullata</i>	P4	44107	117624	1
<i>Acacia semitrullata</i>	P4	44015	117317	2
<i>Acacia semitrullata</i>	P4	44035	117315	1
<i>Acacia semitrullata</i>	P4	44046	117316	1
<i>Acacia semitrullata</i>	P4	44031	117326	1
<i>Acacia semitrullata</i>	P4	44027	117347	2
<i>Acacia semitrullata</i>	P4	44030	117391	2
<i>Acacia semitrullata</i>	P4	44054	117410	1

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>Acacia semitrullata</i>	P4	44047	117422	2
<i>Acacia semitrullata</i>	P4	44214	117533	1
<i>Acacia semitrullata</i>	P4	44251	116872	1
<i>Acacia semitrullata</i>	P4	44215	116793	1
<i>Acacia semitrullata</i>	P4	43757	118578	1
<i>Acacia semitrullata</i>	P4	43750	118605	2
<i>Acacia semitrullata</i>	P4	43750	118607	3
<i>Acacia semitrullata</i>	P4	43755	118595	1
<i>Acacia semitrullata</i>	P4	43769	118543	1
<i>Acacia semitrullata</i>	P4	43811	118389	1
<i>Acacia semitrullata</i>	P4	43865	118209	1
<i>Acacia semitrullata</i>	P4	43883	118143	1
<i>Acacia semitrullata</i>	P4	43885	118137	3
<i>Acacia semitrullata</i>	P4	43892	118093	1
<i>Acacia semitrullata</i>	P4	43894	118090	1
<i>Acacia semitrullata</i>	P4	43898	118085	4
<i>Acacia semitrullata</i>	P4	43904	118072	2
<i>Acacia semitrullata</i>	P4	43891	118054	1
<i>Acacia semitrullata</i>	P4	43883	118068	1
<i>Acacia semitrullata</i>	P4	43875	118105	5
<i>Acacia semitrullata</i>	P4	43875	118116	5
<i>Acacia semitrullata</i>	P4	43856	118172	1
<i>Acacia semitrullata</i>	P4	43855	118183	1
<i>Acacia semitrullata</i>	P4	43835	118255	1
<i>Acacia semitrullata</i>	P4	43822	118298	3
<i>Acacia semitrullata</i>	P4	43808	118310	3
<i>Acacia semitrullata</i>	P4	43813	118338	1
<i>Acacia semitrullata</i>	P4	43746	118561	1
<i>Caladenia speciosa</i>	P4	43863	118222	1
<i>Caladenia speciosa</i>	P4	31440	99048	1
<i>Caladenia speciosa</i>	P4	32060	99458	1

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>Caladenia speciosa</i>	P4	32293	99511	1
<i>Caladenia speciosa</i>	P4	32162	99510	1
<i>Caladenia speciosa</i>	P4	32488	99535	1
<i>Caladenia speciosa</i>	P4	32502	99559	1
<i>Caladenia speciosa</i>	P4	32523	99558	1
<i>Caladenia speciosa</i>	P4	32545	99582	1
<i>Caladenia speciosa</i>	P4	32560	99588	1
<i>Caladenia speciosa</i>	P4	32581	99545	1
<i>Caladenia speciosa</i>	P4	32543	99567	1
<i>Caladenia speciosa</i>	P4	32501	99559	1
<i>Caladenia speciosa</i>	P4	34200	100374	1
<i>Caladenia speciosa</i>	P4	31474	99269	1
<i>Chamaescilla gibsonii</i>	P3	44189	110435	< 2 % cover
<i>Chamaescilla gibsonii</i>	P3	37769	106057	< 2 % cover
<i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>	P4	44453	106850	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	44162	109466	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	45549	107948	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	39221	102906	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	43809	118387	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	35316	101656	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	28144	91636	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	45852	106814	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	45841	106822	1
* <i>Asparagus asparagoides</i>	Declared Pest and WONS	31846	99276	1

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	43748	118854	1
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	43752	118854	1
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	43710	118778	1
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	43730	118711	2
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	45978	106798	50
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	45939	106807	50
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	45911	106810	50
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	45877	106807	50
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	45857	106815	50
<i>*Asparagus asparagoides</i>	Declared Pest and WONS	33604	104480	25
<i>*Gomphocarpus fruticosus</i>	Declared Pest	44169	106886	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	44169	106886	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	43578	119206	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	39468	105258	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	46031	110884	15
<i>*Gomphocarpus fruticosus</i>	Declared Pest	46758	111876	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	46781	111886	1
<i>*Gomphocarpus fruticosus</i>	Declared Pest	46798	111892	1
<i>*Moraea flaccida</i>	Declared Pest	36439	103774	1
<i>*Moraea flaccida</i>	Declared Pest	36156	103524	1
<i>*Moraea flaccida</i>	Declared Pest	37763	106089	1
<i>*Moraea flaccida</i>	Declared Pest	32107	99559	1
<i>*Moraea flaccida</i>	Declared Pest	36132	103681	1
<i>*Moraea flaccida</i>	Declared Pest	35608	103269	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	39192	103795	1

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>*Zantedeschia aethiopica</i>	Declared Pest	37773	105970	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	44640	117526	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35946	103536	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	36132	103681	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37123	104116	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	36439	103774	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	43642	119021	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37402	104415	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	38928	104128	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35223	104264	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35323	104371	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	36132	103504	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35214	103465	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35725	103121	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31846	99276	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31963	99318	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37788	105962	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37772	105968	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37717	104395	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	44762	117360	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31078	94653	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31102	94742	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	33370	97832	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	28575	93255	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	38019	104486	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37402	104404	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	37398	104413	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31607	99054	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	31521	99001	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	32107	99559	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	43710	118983	2

Species	Conservation status/weed ranking	Eastings	Northings	Number of plants
<i>*Zantedeschia aethiopica</i>	Declared Pest	43698	119026	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	44140	117520	8
<i>*Zantedeschia aethiopica</i>	Declared Pest	43974	117353	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35594	103499	2
<i>*Zantedeschia aethiopica</i>	Declared Pest	35619	103407	25
<i>*Zantedeschia aethiopica</i>	Declared Pest	35550	103432	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35713	103303	50
<i>*Zantedeschia aethiopica</i>	Declared Pest	35647	103279	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	35647	103555	2
<i>*Zantedeschia aethiopica</i>	Declared Pest	30912	101594	1
<i>*Zantedeschia aethiopica</i>	Declared Pest	30331	99466	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30342	99471	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30367	99514	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30408	99613	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30437	99672	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30464	99713	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30484	99764	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30535	99881	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30554	99915	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30561	99928	100
<i>*Zantedeschia aethiopica</i>	Declared Pest	30583	99974	50
<i>*Zantedeschia aethiopica</i>	Declared Pest	30623	100068	10
<i>*Zantedeschia aethiopica</i>	Declared Pest	30635	100097	50
<i>*Zantedeschia aethiopica</i>	Declared Pest	30702	100291	25
<i>*Zantedeschia aethiopica</i>	Declared Pest	33775	104469	1

# TEC Assessments

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## Banksia Woodlands TEC assessment

Patch number:		Site 1	
Type: Quadrat BN16	Size: 10 x 10	Date: 20/08/2019	
Location: Forrest Highway road reserve (eastern side) (north of Clifton Road).			
Vegetation Type: VT20 – EmBKg.			
Landform: Plain Slope: Negligible			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> low woodland (< 6-10 m)			
Emergent tree layer (> 10 m height) and species: <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> (10-12 m)			
Canopy percent cover and species dominance: 2-10%, <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Agonis flexuosa</i> , <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i>			
Native understorey present (%) and diversity: 40-60%, 37 native species			
Weed cover (%) and dominant weed species: 5-20%, * <i>Ehahrta calycina</i> , * <i>Briza maxima</i>			
Minimum patch size in survey area: 0.48 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: Occurs outside of PDE as a continuous patch (no access provided on private property for sampling), visual assessment only.			
Size of patch outside the survey area (ha): No access provided for private property, visual assessment only. Patch size outside PDE is approximately > 30 ha in size.			

Patch number:		Site 2	
Type: Quadrat BN36, BN14		Size: 10 x 10	Date: 20/08/2019
Location: Forrest Hwy road reserve (western side – North of Paris Road)			
Vegetation Type: VT20 – EmBKg.			
Landform: Plain Slope: Negligible			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> low woodland (< 6-10 m)			
Emergent tree layer (> 10 m height) and species: <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> (10-12 m)			
Canopy percent cover and species dominance: 2-30%, <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Agonis flexuosa</i> , <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> . <i>Banksia attenuata</i> cover is reduced less than 2% in patches due to Dieback			
Native understorey present (%) and diversity: 40-60%, 20-30 native species			
Weed cover (%) and dominant weed species: 5-20%, * <i>Ehahrta calycina</i> , * <i>Briza maxima</i>			
Minimum patch size: 2.49 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: 2.49 ha. Occurs outside of PDE as a continuous patch (no access provided on private property for sampling), visual assessment only			
Size of patch outside the survey area (ha): No access provided for private property, visual assessment only. Patch size outside PDE is approximately > 1 ha in size.			



Patch number:		Site 3	
Type: Quadrat BN03	Size: 10 x 10	Date: 18/09/2018	
Location: Forrest Hwy road reserve (south of Paris Road)			
Vegetation Type: VT19 – EmAfBaBi			
Landform: Upper slope Slope: Gentle			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> low woodland (< 5-8 m)			
Emergent tree layer (> 10 m height) and species: <i>Eucalyptus marginata</i> (10-12 m)			
Canopy percent cover and species dominance: 30-40%, <i>Eucalyptus marginata</i> , <i>Agonis flexuosa</i> , <i>Banksia ilicifolia</i> , <i>B. attenuata</i> and <i>B. grandis</i> .			
Native understorey present (%) and diversity: 30-40%, 30-40 native species			
Weed cover (%) and dominant weed species: 2-10%, * <i>Ehahrta calycina</i> , * <i>Briza maxima</i>			
Minimum patch size: 1.02 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: 1.02 ha. Does not extend outside of survey area.			
Size of patch outside the survey area (ha): N/A			

Patch number:		Site 4	
Type: Quadrat BN11, BN12	Size: 10 x 10	Date: 18/09/2018	
Location: Forrest Highway road reserve south of Clifton Road (eastern side) / Raymond Road.			
Vegetation Type: VT19 – EmAfBaBi.			
Landform: Hill crest Slope: Negligible - Gentle			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Banksia ilicifolia</i> , <i>B. attenuata</i> and <i>Agonis flexuosa</i> low woodland (< 6-10 m)			
Emergent tree layer (> 10 m height) and species: <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> (10-12 m)			
Canopy percent cover and species dominance: 10-30%, <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Agonis flexuosa</i> , <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> .			
Native understorey present (%) and diversity: 30-40%, 30 – 40 native species			
Weed cover (%) and dominant weed species: 5-20%, * <i>Ehahrta calycina</i> , * <i>Briza maxima</i> , * <i>Avena sp.</i> , * <i>Ursinia anthemoides</i> .			
Minimum patch size: 10.86 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: 10.86 ha. Does not occur outside of survey area.			
Size of patch outside the survey area (ha): N/A			

Patch number:		Site 5	
Type: Quadrat BN08, BN09, BN10		Size: 10 x 10	Date: 18/09/2018
Location: Lot 104 and Lot 5 Clifton Road.			
Vegetation Type: VT19 – EmAfBaBi.			
Landform: Mid slope - crest Slope: Negligible - Gentle			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Banksia ilicifolia</i> , <i>B. attenuata</i> and <i>Agonis flexuosa</i> low woodland (< -10 m)			
Emergent tree layer (> 10 m height) and species: <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> (10-15 m)			
Canopy percent cover and species dominance: 10-30%, <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Agonis flexuosa</i> , <i>Banksia ilicifolia</i> and <i>Banksia attenuata</i> .			
Native understorey present (%) and diversity: 2-10%, 5-15 native species			
Weed cover (%) and dominant weed species: 10-30%, * <i>Ehahrta calycina</i> , * <i>Briza maxima</i> , * <i>Avena barbata</i>			
Minimum patch size: 7.78 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: 7.78 ha. Does not occurs outside of survey area.			
Size of patch outside the survey area (ha): N/A			



Patch number:		Site 6	
Type: Quadrat BN32	Size: 10 x 10	Date: 19/09/2018	
Location: Lot 104 – near Preston River.			
Vegetation Type: VT19 – EmAfBaBi.			
Landform: Mid slope Slope: Gentle			
Soil Colour & Type: Grey Sand			
Structure (low woodland to forest): Woodland to Open Woodland			
Upper layer of trees and approximate heights: <i>Agonis flexuosa</i> and <i>Banksia attenuata</i> low woodland (< 6-10 m)			
Emergent tree layer (> 10 m height) and species:			
Canopy percent cover and species dominance: 30 – 70 %, <i>Agonis flexuosa</i> and <i>Banksia attenuata</i> .			
Native understorey present (%) and diversity: 2-10%, 5-10 native species			
Weed cover (%) and dominant weed species: 5-20%, <i>Ehahrta longifolia</i> , <i>Usinia anthemoides</i>			
Minimum patch size: 3.02 ha			
Size of patch within survey area (ha) and does the patch occur outside of survey site: 3.02 ha. Does not occur outside of the survey area.			
Size of patch outside the survey area (ha): N/A			

# Clay Pans Assessment (Ecoedge 2019)

# A Review of the Regional Conservation Status of a Clay-based Wetland Community (Clay pans)

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Prepared for the BORR Project Team  
December 2019



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## 1. Background

The Commissioner of Main Roads Western Australia (Main Roads) is proposing to construct and operate the Northern and Central sections of the Bunbury Outer Ring Road (BORR) project. The BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway and will provide a high standard route for access to the Bunbury Port. The completed BORR will also provide an effective bypass of Bunbury for inter-regional traffic and freight, reducing traffic on the local road network, and facilitate proposed development to the east of the city of Bunbury.

Planning for the BORR has high-lighted the fact that roadworks may impact on about 0.61 ha of the Federally-listed threatened ecological community (TEC) 'Clay pans of the Swan Coastal Plain' (BDCA, 2019). This TEC is comprised of several floristic community types (FCTs), one of which (FCT08) occurs within the Central and Northern Sections of the BORR corridor (BORR IPT, 2018; Ecoedge, 2019). The definition of FCT08 is as described by Gibson et al 1994 as:-

*Viminaria juncea*, *Melaleuca viminea*, *M. lateritia* or *M. osullivanii* and occasionally *Eucalyptus wandoo* generally dominate this community. *Hypocalymma angustifolium*, *Acacia lasiocarpavar. Bracteolata* (long peduncle form P1) and *Verticordia huegeli* can also occur. Typical herbs include *Centrolepis aristata*, *Chorizandra enodis*, *Drosera menziesii* subsp. *menziesii*, *Drosera rosulata* and *Hyalosperma cotula*.

The total area of FCT08 on the Swan Coastal Plain is estimated to be 298.1 ha<sup>1</sup>.

The main objective of this review is to assess the potential impact at the regional level on FCT08. For the purposes of this review the 'Region' is defined as the Swan Coastal Plain within Harvey, Bunbury, Capel, Dardanup and Busselton local government areas.

## 2. Methods

Information on the occurrence of FCT08 was drawn from Appendix 1 of BDCA (2019). An updated table of occurrences that occur within the Region is presented in **Appendix 1** of this report. Information on new areas of FCT08 was obtained at a meeting with Mr. Andrew Webb of BDCA, Bunbury<sup>2</sup> and some of the identified new areas of FCT08 were visited during this onsite meeting.

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<sup>1</sup> Source: BDCA, 2019, 'National Recovery Plan for the Clay pans of the Swan Coastal Plain Ecological Community'.

<sup>2</sup> As well as revised sizes and updated condition scores for the information on occurrences within the Region in Appendix 1 of BDCA (2019).

### 3. Results

#### 3.1. Impact on Extant Areas of the Claypan Communities

A total of 1.7 ha of claypan communities in three separate occurrences were added to the areas known from the Region. Most of these 'new' areas occur immediately to the east of Bunbury in the Waterloo area. Several other small areas of FCT08 are known from the Region but their boundaries are as yet unmapped. However, it is unlikely that these unmapped areas cover more than 3.0 ha in total. The revised area of FCT08 within the Region is presented in **Table 1**, below.

Table 1. Estimated area of FCT08 in the Region and as a proportion of the total estimated area on the Swan Coastal Plain.

Community Type	Region <sup>3</sup>	Swan Coastal Plain	% in Region
FCT08	132.0 ha	298.1 ha	44.2

As stated above about 0.61 ha of claypan community may be impacted by the construction of the BORR and associated roadworks. The effect on the area of FCT08 at a State level and Regional level is presented in **Table 2**, below.

Table 2. Potential impact at a Regional and State level on the conservation status of the claypan community FCT08.

Community Type	Potential area impacted	Reduction at Regional Scale	Reduction State-wide
FCT08	0.61 ha	0.46%	0.20%

Based on the results presented in **Table 2** the potential loss of about 0.61 ha of FCT08 through road construction works associated with the BORR project has only a small impact on the remaining area of the claypan community, which would diminish in extent by less than 0.5% at a Regional scale.

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<sup>3</sup> The data for the Region is drawn mainly from the Recovery Plan (Appendix 1) with additions based on mapping of new occurrences for this project and some modification of areas based on advice from Mr. A. Webb.

## 4. Discussion

Based on the published data, with additions made as a result of the current project and Ecoedge (2019), the potential impact of the BORR construction project on the extent of the FCT08 claypan community is a loss of 0.46% of the Regional area and 0.20% of the total area on the Swan Coastal Plain. All the potentially impacted areas are on narrow road verges or rail corridors. Native vegetation in narrow corridors along roads and railway lines is exposed to a range of influences due to the adjacent land uses which may negatively impact on hydrology, reproductive strategies and nutrient cycling within the remnant vegetation. Consequently, it tends to lose native species that are out competed by non-native species (Tikka *et al.*, 2000; van Etten, 2014).

The published data on the areas of claypan communities on the Swan Coastal Plain (DBCA, 2019) may need revision. It appears that there needs to be a reconciliation of the areas contained in the Departmental database of mapped claypan communities and the areas given in **Appendix 1** of DBCA (2019).<sup>4</sup>

In addition, there is variation in the floristic composition of individual claypan occurrences associated with the landform (and geology) (Hedde *et al.*, 1980; Webb *et al.*, 2016) on which they occur that is an avenue for further study of variation within the communities (A. Webb, *pers. comm.*). Most (77%) of the total area of FCT08 within the Region is on the Cokelup Complex, whereas only 13% is on the Guildford Complex, which includes the areas potentially affected by the BORR construction project.

It is therefore unlikely that the proposed clearing of FCT08 claypans will have a significant impact on the conservation status of the community because of the relatively small area that will be cleared and because the areas that will be cleared, with their high perimeter to area ratios, will be subject to ongoing degradation in the normal course of events.

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<sup>4</sup> Mr. A. Webb of DBCA, Bunbury, *pers. comm.*

## 5. References

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## Appendix 1. Updated table of occurrences of FCT08 in the Region

Occ. #	Location	FCT	Land-owner/ manager	Condition	Estimated area (ha)	Soil and Landform
114	CR40251 Tuart Forest National Park	SCP08	Conservation Commission WA	Good-Very Good	39.8	Cokelup Complex
113	State Forest 2/Timber Reserve	SCP08	Conservation Commission WA	Good-Very Good	62.6	Cokelup Complex
30	Lot 201 on Boyanup West Rd; Road reserves along Boyanup West Rd and Roselands Rd	SCP08	Conservation Commission WA	Very good	3.3	Guildford Complex
New 1	Lot 2, Roselands Road	SCP08	Private	Very Good	0.9	Guildford Complex
38, 52	CR 46108 on South Western Hwy; CR11078 on Railway Rd; Road reserve Waterloo Rd & SW Hwy; Railway reserve along Railway Rd, Waterloo, CR 2806; Private land SW Hwy; CR 39954; Waterloo	SCP08	Conservation Commission WA, Shire of Dardanup, Main Roads WA, DRD, Private owner, Water Corporation	Good-Excellent	12.6	Guildford Complex
New 2	Road verges Bell Road, Wireless Road, Shire of Dardanup	SCP08	Shire of Dardanup	Good-Very Good	0.4	Guildford Complex
90	Crown Reserve C670	SCP08	City of Bunbury	Very Good	3.4	Southern River Complex
New 3	Private land south of Centenary Road	SCP08	Private	Very Good	0.4	Southern River Complex
48	Hay Park (CR 30601) on Parade Rd; Road reserve along Bussell Hwy, Bunbury	SCP08	City of Bunbury/ Main Roads WA	Very Good - Excellent	8.6	Yoongarillup Complex

# Flora Likelihood of Occurrence Assessment

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Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
Apiaceae	<i>Brachyscias verecundus</i>	CE	CE	Annual (or ephemeral), herb, 0.012-0.022 m high, entirely glabrous. Fl. white/cream. In a moss sward. On a granite outcrop.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable habitat unlikely to be present within the survey area.	PMST
Apiaceae	<i>Platysace ramosissima</i>	P3	-	Perennial, herb, to 0.3 m high. Fl. white-cream, Oct to Nov. Sandy soils.	Unlikely – this species has been recorded within 5 km of the survey area and suitable habitat is considered likely to be present. Suitable search effort did not record the species.	NatureMap, WA Herb, TPFL
Aponogetonaceae	<i>Aponogeton hexatepalus</i> (Stalked Water Ribbons)	P4	-	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green-white, Jul to Oct. Mud. Freshwater: ponds, rivers, claypans.	Possible – numerous occurrences recorded within 5 km of the survey area and suitable habitat present. The closest recorded occurrence is approx. 200 m from the survey area.	NatureMap, WA Herb, TPFL
Asteraceae	<i>Angianthus drummondii</i>	P3	-	Erect annual, herb, to 0.1 m high. Fl. yellow, Oct to Dec. Grey or brown clay soils, ironstone. Seasonally wet flats.	Possible – know to occur within 380 m of the survey area near Centenary Road.	NatureMap, WA Herb
Asteraceae	<i>Blennospora doliiformis</i>	P3	-	Erect annual, herb, to 0.15 m high. Fl. yellow, Oct to Nov. Grey or red clay soils over ironstone. Seasonally-wet flats.	Possible – records from Manea park bushland.	DBCA record (Mr Andrew Webb dataset)

Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
Asteraceae	<i>Craspedia</i> sp. Waterloo (G.J. Keighery 13724)	P2	-	Herb that grows to approximately 0.4 m in seasonally wet areas in clay soils.	Unlikely - Known from 1.5 km east along the railway line. Suitable search effort did not record the species in restricted claypan habitat.	NatureMap, WA Herb
Cyperaceae	<i>Carex tereticaulis</i>	P3	-	Monoecious, rhizomatous, tufted perennial, grass-like or herb (sedge), 0.7 m high. Fl. brown, Sep to Oct. Black peaty sand.	Possible – previously recorded 800 m north east of northern extent of survey area along Brunswick River.	NatureMap, WA Herb, TPFL
Cyperaceae	<i>Eleocharis keigheryi</i>	V	V	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 – known from 1 km west of the survey area along St Helena Road. Suitable search effort did not record the species in restricted claypan habitat within the survey area.	PMST, Naturemap, WA Herb
Cyperaceae	<i>Schoenus benthamii</i>	P3	-	Tufted perennial, grass-like or herb (sedge), 0.15-0.45 m high. Fl. brown, Oct to Nov. White, grey sand, sandy clay. Winter-wet flats, swamps.	Possible – suitable habitat present and has been previously recorded within 5 km of the survey area.	NatureMap, WA Herb, TPFL
Cyperaceae	<i>Schoenus capillifolius</i>	P3	-	Semi-aquatic tufted annual, grass-like or herb (sedge), 0.05 m high. Fl. green, Oct to Nov. Brown mud. Claypans.	Possible – database records show that this species has been previously recorded within 20 m of the survey area along Wireless Road.	NatureMap, WA Herb
Cyperaceae	<i>Schoenus loliaceus</i>	P2	-	Annual, grass-like or herb (sedge), 0.03-0.06 m high. Fl. Aug to Nov. Sandy soils. Winter-wet depressions.	Possible – this species has been previously recorded approx. 2.6 km west of the southern end of the survey area.	NatureMap, WA Herb

Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
Cyperaceae	<i>Schoenus natans</i>	P4	-	Aquatic annual, grass-like or herb (sedge), 0.3 m high. Fl. brown, Oct. Winter-wet depressions.	Possible - records from Manea park bushland.	DBCA record (Mr Andrew Webb dataset)
Ericaceae	<i>Andersonia gracilis</i>	VU	E	Slender erect or open straggly shrub, 0.1-0.5 m high. Flowers white-pink/purple from September to November. White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps.	Unlikely – this species has not be previously recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST
Ericaceae	<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	P2	-	Erect shrub to 0.7 m, Fl white.	Possible – known to occur within 1.8 km of the southern extent of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb
Fabaceae	<i>Acacia flagelliformis</i>	P4	-	Rush-like, erect or sprawling shrub, 0.3-0.75(-1.6) m high. Fl. yellow, May to Sep. Sandy soils. Winter-wet areas.	Possible – closest record within 800 m near Centenary Road. Suitable habitat occurs in the survey area.	NatureMap, WA Herb, TPFL
Fabaceae	<i>Acacia semitrullata</i>	P4	-	Slender, erect, pungent shrub, (0.1-) 0.2-0.7(-1.5) m high. Fl. cream-white, May to Oct. White/grey sand, sometimes over laterite, clay. Sandplains, swampy areas.	Known – the closest previous record is from 600 m west of the survey area near Paris Road. Suitable habitat is present within the survey area and 88 locations were recorded during the 2018 and 2019 survey within the survey area.	NatureMap, WA Herb, TPFL

Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
Fabaceae	<i>Dillwynia dillwynioides</i>	P3	-	Decumbent or erect, slender shrub, 0.3-1.2 m high. Fl. red & yellow/orange, Aug to Dec. Sandy soils. Winter-wet depressions.	Unlikely – this species has been recorded within 5 km of the survey area, however suitable habitat is present in degraded condition. Suitable search effort did not record the species.	NatureMap, WA Herb, TPFL
Fabaceae	<i>Gastrolobium whicherense</i>	P2	-	Slender, open shrub, to 1.6 m high. Fl. orange/yellow/red, Oct. Red-grey sandy clay over quartzite. Steep westerly slopes.	Unlikely – this species has been previously recorded within 5 km of the survey area however known records are in hilly areas.	NatureMap, WA Herb
Fabaceae	<i>Pultenaea skinneri</i> (Skinner's Pea)	P4	-	Slender shrub, 1-2 m high. Fl. yellow/orange & red, Jul to Sep. Sandy or clayey soils. Winter-wet depressions.	Possible – this species has been previously recorded 400 m north of the northern extent of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb, TPFL
Loganiaceae	<i>Adelphacme minima</i>	P3	-	Annual 10 -20 cm tall. Fl. White. Records mostly from the South Coast (Walpole) near swamps.	Unlikely – known to occur within 5 km of the survey area however generally restricted to the South Coast. Suitable search effort did not record the species.	NatureMap, WA Herb
Malvaceae	<i>Lasiopetalum membranaceum</i>	P3	-	Multi-stemmed shrub, 0.2-1 m high. Fl. pink-blue-purple, Sep to Dec. Sand over limestone.	Unlikely – closest record is 800 m from the survey area along Centenary Rd. Suitable search effort did not record the species.	NatureMap, WA Herb, TPFL
Menyanthaceae	<i>Ornduffia submersa</i>	P4	-	Small waterlily-like plant with hairy white flowers and oval, glossy leaves	Unlikely – Suitable search effort did not record the species.	NatureMap, TPFL

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				that float flat on the surface of the shallow water.		
Myrtaceae	<i>Chamelaucium</i> sp. S coastal plain (R.D. Royce 4872) (Royce's Waxflower)	V	V	Intricately branched, spreading shrub up to 1.2 and 0.6 m across. Greenish-white flowers. Swamp margins in winter-wet sandy clay sites.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST
Myrtaceae	<i>Chamelaucium</i> sp. Yoongarillup (G.J. Keighery 3635)	P4	-	Erect shrub up to 1 m. Fl. Red flower. Nov – Feb. Sand, sandy loams and clayey sands on slopes and flats.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb
Myrtaceae	<i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>	P4	-	Tree, 5-20 m high, bark rough, box-type. Fl. white, Jul to Sep. Loam. Flats, hillsides	Known – this species has been recorded from one location in the survey area and is likely to occur through <i>E. rudis</i> habitat.	Naturemap, WA Herb
Myrtaceae	<i>Verticordia attenuata</i>	P3	-	Shrub, 0.4-1 m high. Fl. pink, Dec or Jan to May. White or grey sand. Winter-wet depressions.	Possible – this species has not been previously recorded within the survey area database records show it has been identified 1 km north of the Brunswick River and 1.2 km north of Martin Pelusey Road.	NatureMap, WA Herb, TPFL
Orchidaceae	<i>Caladenia huegelii</i>	CE	E	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand, clay loam.	Unlikely – this species has been previously recorded 2.8 km west of the northern extent of the survey area.	PMST, NatureMap, WA Herb, TPFL

Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
					Suitable search effort did not record the species.	
Orchidaceae	<i>Caladenia speciosa</i>	P4	-	Tuberous, perennial, herb, 0.35-0.6 m high. Fl. white-pink, Sep to Oct. White, grey or black sand.	Known – database records show this species as recorded within 5 km of the survey area. Suitable habitat is present within the survey area and one location was identified during the 2018 survey within the survey area.	NatureMap, WA Herb, TPFL
Orchidaceae	<i>Diuris drummondii</i>	V	V	Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Low-lying depressions, swamps.	Unlikely – habitat present within swamps and known from within 500 m of the survey area near Willinge Drive. Targeted survey (2018) did not identify this species and suitable habitat was highly disturbed with high impacts from grazing. Suitable search effort did not record the species.	PMST, Naturemap, WA Herb, TPFL
Orchidaceae	<i>Diuris micrantha</i>	V	V	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 – this species has been recorded within 5 km of the survey area and habitat present. Survey undertaken during optimal time. Suitable search effort did not record the species.	PMST, TPFL
Orchidaceae	<i>Diuris purdiei</i>	E	E	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct. Grey black sand, moist. Winter-wet swamps.	Unlikely – this species has not been previously recorded within 5 km of the	PMST

Family	Taxon	Status		Description and closest record information (if available) (WA Herbarium 1998-, DBCA 2018, SPRAT – DEE 2019)	Likelihood of occurrence	Source
		BC Act/ DBCA	EPBC Act			
					survey area. Suitable search effort did not record the species.	
Orchidaceae	<i>Drakaea elastica</i>	CE	E	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 – database records show one location has been previously identified within the survey area (south of Brunswick River). This site searched and not recorded during the 2018 and 2019 survey. Suitable search effort did not record the species.	PMST, Naturemap, TPFL
Orchidaceae	<i>Drakaea micrantha</i>	E	V	Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand.	Unlikely – Known from 1 km west of the survey area near Ducane Road and South Western Highway. Suitable search effort did not record the species.	PMST, WA Herb, TPFL
Orchidaceae	<i>Pterostylis frenchii</i>	P2	-	Tuberous, herb, to 0.35 m high, with rosette leaves. Calcareous sand with limestone, laterite. Flatlands and gentle slopes.	Unlikely – the species has been previously recorded within 5 km of the survey area however it is considered unlikely that suitable habitat would be present within the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb
Orchidaceae	<i>Thelymitra variegata</i> (Queen of Sheba)	P2	-	Tuberous, perennial, herb, 0.1-0.35 m high. Fl. orange & red & purple & pink, Jun to Sep. Sandy clay, sand, laterite.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb

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Poaceae	<i>Austrostipa bronwenae</i>	EN	E	Perennial grass, 0.6 m high x 0.3 m wide. Flowers green. Sept to October.	Unlikely – known to occur within 5 km of the survey area. Previous records in <i>Melaleuca</i> swamps. The closest recorded occurrence is approx. 2.2 km from the survey area. Suitable search effort did not record the species.	PMST, NatureMap, WA Herb, TPFL
Poaceae	<i>Austrostipa jacobiana</i>	CE	CE	Tufted rhizomatous herb, to 1.2 m, leaf sheaths hairy. Marri woodland, Melaleuca tall shrubland.	Unlikely – known to occur within 5 km of the survey area and suitable habitat present. Suitable search effort did not record the species.	PMST, NatureMap, WA Herb, TPFL
Polygonaceae	<i>Rumex drummondii</i>	P4	-	Erect perennial, herb, 0.6-0.9 m high. Winter-wet disturbed areas.	Possible – suitable habitat present and has been previously recorded within 5 km of the survey area.	NatureMap, WA Herb
Proteaceae	<i>Banksia nivea</i> subsp. <i>uliginosa</i>	E	E	Dense, erect, non-lignotuberous shrub, 0.2-1.5 m high. Fl. yellow-brown, Aug to Sep. Sandy clay, gravel.	Unlikely – has not been previously recorded within 5 km of the survey area and limited suitable habitat. Suitable search effort did not record the species.	PMST
Proteaceae	<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	V	V	Erect, open, non-lignotuberous shrub, 1.2-4 m high. Fl. yellow, Jun to Nov. White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats.	Unlikely – has not been previously recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST

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Proteaceae	<i>Franklandia triaristata</i>	P4	-	Erect, lignotuberous shrub, 0.2-1 m high. Fl. white-cream-yellow/brown-purple, Aug to Oct. White or grey sand.	Unlikely – the closest recorded occurrence of this species is approx. 5 km to the south of the survey area. Suitable search effort did not record the species.	Naturemap, WA Herb
Proteaceae	<i>Grevillea rosieri</i>	P2	-	Shrub. Fl. red, Jul or Sep. Sandy soils.	Unlikely – suitable habitat present and this species has been previously recorded within 5 km of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb
Proteaceae	<i>Lambertia echinata</i> subsp. <i>occidentalis</i>	CE	E	Prickly, much-branched, non-lignotuberous shrub, to 3 m high. Fl. yellow, Feb or Apr or Dec. White sandy soils over laterite, orange/brown-red clay over ironstone. Flats to foothills, winter-wet sites.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST
Proteaceae	<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	CE	CE	Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. yellow, Oct. Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST

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Proteaceae	<i>Synaphea</i> sp. Serpentine (G.R. Brand 103)	CE	CE	Flowers from late August to November and fruits have been seen in December, occurs predominantly on flat terrain on grey-brown sandy loams to clay in seasonally wet areas.	Unlikely – this species has not been recorded within 5 km of the survey area. Suitable search effort did not record the species.	PMST
Proteaceae	<i>Synaphea stenoloba</i>	CE	E	Caespitose shrub, 0.3-0.45 m high. Fl. yellow, Aug to Oct. Sandy or sandy clay soils. Winter-wet flats, granite.	Unlikely – this species has not been recorded within 5 km of the survey area. Granite habitat is unlikely to be present within the survey area. Suitable search effort did not record the species.	PMST
Proteaceae	<i>Synaphea odocoileops</i>	P1	-	Tufted, compact shrub, 0.2-0.5 m high. Fl. yellow, Aug to Oct. Brown-orange loam and sandy clay, granite. Swamps, winter-wet areas.	Possible – database records show this species has been previously recorded within 250 m west of survey area in bushland between South Western Highway and railway line.	NatureMap, WA Herb, TPFL
Rutaceae	<i>Boronia tetragona</i>	P3	-	Perennial, herb, 0.3-0.7 m high, leaves sessile, entire, with papillate margins, branches quadrangular, sepals ciliate. Fl. pink & red, Oct to Dec. Black/white sand, laterite, brown sandy loam. Winter-wet flats, swamps, open woodland.	Unlikely – known from within 5 km and suitable habitat present. Suitable search effort did not record the species.	NatureMap, WA Herb

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Santalaceae	<i>Leptomeria furtiva</i>	P2	-	Lax, sprawling shrub, 0.2-0.45 m high. Fl. orange-brown, Aug to Oct. Grey or black peaty sand. Winter-wet flats.	Possible – known to occur within 2 km of the southern extent of the survey area. Suitable search effort did not record the species.	NatureMap, WA Herb
Stylidiaceae	<i>Stylidium longitubum</i> (Jumping Jacks)	P4	-	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. pink, Oct to Dec. Sandy clay, clay. Seasonal wetlands.	Possible – database records show that this species has been previously recorded within 200 m of the survey area along Queelup Road.	NatureMap, TPFL
Xanthorrhoeaceae	<i>Chamaescilla gibsonii</i>	P3	-	Clumped tuberous, herb. Fl. blue, Sep. Clay to sandy clay. Winter-wet flats, shallow water-filled claypans.	Known – this species has been previously recorded within 5 km of the survey area. Suitable habitat is present within the survey area and two locations were recorded during the 2018 survey within the survey area.	NatureMap, WA Herb

TSSC (2018a). Conservation Advice *Austrostipa bronwenae* [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=87808](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=87808)



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