Natural Area
CONSULTING MANAGEMENT SERVICES

City of Canning

2020 Botanical Monitoring:

Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve, Queens Park Regional Open Space and Ranford Bushland

Natural Area Holdings Pty Ltd
57 Boulder Rd, Malaga, WA, 6090
Ph: (08) 9209 2767
info@naturalarea.com.au
www.naturalarea.com.au

Disclaimer

Natural Area Holdings Pty Ltd, trading as Natural Area Consulting Management Services (Natural Area), has prepared this report for the sole use of the Client and for the purposes as stated in the agreement between the Client and Natural Area under which this work was completed. This report may not be relied upon by any other party without the express written agreement of Natural Area.

Natural Area has exercised due and customary care in the preparation of this document and has not, unless specifically stated, independently verified information provided by others. No other warranty, expressed or implied, is made in relation to the contents of this report. Therefore, Natural Area assumes no liability for any loss resulting from errors, omission or misrepresentations made by others. This document has been made at the request of the Client. The use of this document by unauthorised third parties without written permission from Natural Area shall be at their own risk, and we accept no duty of care to any such third party.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Natural Area performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this document.

No part of this document may be copied, duplicated or disclosed without the express written permission of the Client and Natural Area.

Document Title	CANN-R-Botanical Monitoring 2020				
Location	City of Canning/Botanical Monitoring 2019-2021/2020 Botanical Monitoring/ Report				
Draft/Version No.	**Date**	**Changes**	**Prepared by**	**Approved by**	**Status**
D1	January 2021	New Document	KG, MG	BC	Draft for client review and comment
V2	April 2021	Changes to address comments	MG	JW	Released

Executive Summary

Natural Area Consulting Management Services (Natural Area) was engaged by the City of Canning in September 2020 to undertake botanical monitoring, to assess native vegetation and weed cover within the City's high value conservation reserves over a three year cycle. This included a detailed flora and vegetation survey for the following reserves:

- Arrowgrass Bushland
- Caladenia Wetland Reserve
- Clifton Buffer and Reserve
- Queens Park Regional Open Space (QPROS)
- Ranford Bushland.

This report represents an ongoing assessment of the areas under the City's control.

The flora and vegetation survey assessment and comparison to previous surveys found that:

- Two conservation significant species were identified, one previously known and one new:
  - the endangered, *Caladenia huegelii*, (Grand Spider Orchid) in Caladenia Wetland Reserve
  - the priority 2, *Poranthera moorokatta* in Clifton Buffer and Reserve
- Three declared pest/WoNS species in two sites:
  - QPROS; Bridal Creeper (*Asparagus asparagoides*)
  - Ranford Bushland; Bridal Creeper (*Asparagus asparagoides*), Arum Lily (*Zantedeschia aethiopica*) and Patterson's Curse (*Echium plantagineum*)
- One new quadrat was in installed within QPROS (QP19)
- One quadrat within Ranford Bushland was cleared (RF14)
- No significant change in vegetation types since 2014, with the vegetations types with dominant *Banksia* spp. being the most common across sites.
- No significant change in species richness across sites with
  - QPROS showed a slight decrease in richness since 2017 in 50% of quadrats
  - Ranford Bushland showed an increase in richness since 2017 in 61% of quadrats
- No threatened or priority communities were confirmed within the five locations; however, QPROS *Banksia* spp. Woodlands should be assessed to confirm if patch size and vegetation meet TEC requirements.
- Four of the five locations observed consistent low numbers of weed species with general decrease in species since 2014; however, Ranford Bushland observed 50 species, 16 more than in 2017.
- The most prominent and persistent weed species across all sites was *Gladiolus caryophyllaceus*.

Contents

1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was commissioned by the City of Canning in October 2019 to undertake a level 2 spring flora and vegetation survey of several reserves within the City of Canning as part of their second-year cycle, these reserves include:

- Arrowgrass Reserve
- Caladenia Reserve
- Clifton Buffer and Reserve
- Queens Park Regional Open Space
- Ranford Reserve.

Works occurred as part of a three-year program to assess the City's high value conservation areas. This report represents an ongoing assessment of reserves within the City of Canning. The purpose of the survey was to reassess 43 existing quadrats, with the installation of one additional quadrat within QPROS. The quadrats will enable comparison of data to determine positive or negative trends over time and assist with management of the natural areas within the City of Canning.

According to Mitchell, Williams and Desmond (2002) the Perth metropolitan area comprises approximately 20% of the Swan Coastal Plain Subregion and was the subject of a comprehensive assessment to determine reservation status and protection requirements as part of Bush Forever. National Map identified that four Bush Forever sites are located within the boundary of the five survey areas and are listed within section 1.1.

1.1 Location

1.1.1 Arrowgrass Reserve

Arrowgrass Reserve is 0.59 ha and is located approximately 14.5 km south of the Perth Central Business District (CBD) in the suburb of Canning Vale (Figure 1). Canning Vale Oval is located north of the survey site with the remaining borders facing dense residential housing (Figure 1).

1.1.2 Caladenia Wetland Reserve

Caladenia Wetland Reserve covers an area of 4.62 ha and is located approximately 14 km south of the Perth CBD in the suburb of Canning Vale (Figure 2). This site includes a conservation category damp land and is located on the northern side of Ranford Road with (Figure 2) (DBCA, 2021a). Dense housing is situated to the east with railway lines to the north.

1.1.3 Clifton Buffer and Reserve

Clifton Buffer and Reserve covers an area of 6.43 ha and is located approximately 16 km south of the Perth CBD in the suburb of Canning Vale (Figure 3). The survey site envelopes all but the eastern side of the Clifton Park Oval and associated sports club infrastructure with the north-eastern boundary adjacent to the residential housing of Southacre Drive, Canning Vale (Figure 3). The site contains conservation category and multiple use damplands with the north-east section of Clifton Road making up a portion of the Bush Forever Site 389 – *Acourt Road Bushland, Banjup* (DBCA, 2021 and DPLH, 2021).

1.1.4 Queens Park Regional Open Space

Queens Park Regional Open Space (QPROS) covers an area of 31.45 ha and is located approximately 11 km south-east of the Perth CBD in the suburb of East Cannington, comprised of seven separate sites that are divided by road, infrastructure or cleared areas (Figure 4). The four sites north of Welshpool Road make up the Bush Forever Site 424 – *McDowell Street Bushland, Welshpool* with the remaining three sites and a portion of Maniana Park to the south form the Bush Forever Site 283 – *Queens Park Bushland* (DPLH, 2021). QPROS contains multiple geomorphic wetlands, including Sumplands, Artificial Lake and Damplands (DBCA, 2021).

1.1.5 Ranford Bushland

Ranford Road Bushland covers an area of 23.65 ha and is located approximately 14 km south of the Perth Central Business District in the suburb of Canning Vale (Figure 5). Located on the southern side of Ranford Road the sites north-west boundary is bound by the Canning Vale Rubbish Tip with residential housing on its south-east flank. The site contains a conservation category dampland and forms part of the Bush Forever Site 388 – *Jandakot Airport*, the west corner is in close proximity to Bush Forever Site 245 – *Kenhurst Park* (Australian Government, 2021a and 2021b).

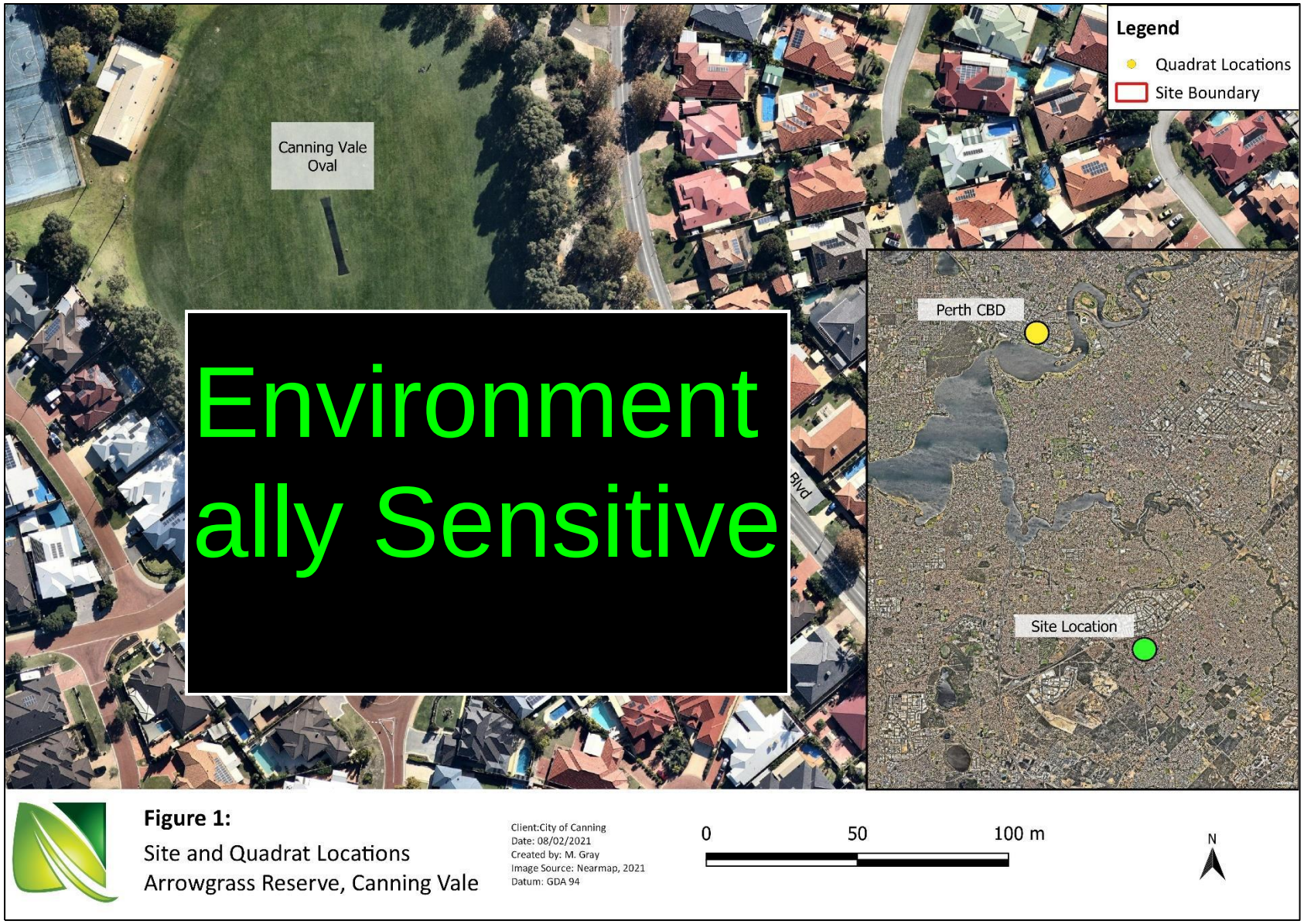
1.2 Objectives

The objective of the botanical monitoring was to reassess the flora and vegetation within the sites to assist with future management by determining positive or negative trends in native vegetation composition, health, abundance and cover, as well as weed abundance and cover. Along with determining species of flora present including threatened and priority flora and ecological communities present. Data collected will be use for the ongoing assessment within natural areas under the City's control.

1.3 Scope

Natural Area's scope of works associated with a flora and vegetation assessment included:

- undertaking a desktop survey of literature and databases to determine site characteristics and species that are likely to be present within the area
- determine the flora species present (native and non-native)
- assessing the vegetation structure and cover to determine vegetation types using the descriptions outlined in *Bush Forever Volume 2* (Government of Western Australia, 2000)
- assessing and mapping vegetation condition using the rating scale attributed to Keighery in *Bush Forever Volume 2* (Government of Western Australia, 2000)
- estimating the abundance of species within quadrats, with outcomes being presented as a percentage cover per species, number of alive and dead individuals and height per species
- mapping the location of any threatened or priority plant species that are noted in the field
- recording GPS coordinates of key locations of the above
- statistical analysis of the floristic community types present
- reporting survey outcomes.


Legend
Quadrat Locations
Site Boundary
Canning Vale Oval
Environment ally Sensitive
Perth CBD
Site Location
Blvd
Figure 1:
Site and Quadrat Locations
Arrowgrass Reserve, Canning Vale
Client:City of Canning
Date: 08/02/2021
Created by: M. Gray
Image Source: Nearmap, 2021
Datum: GDA 94
0
50
100 m
N

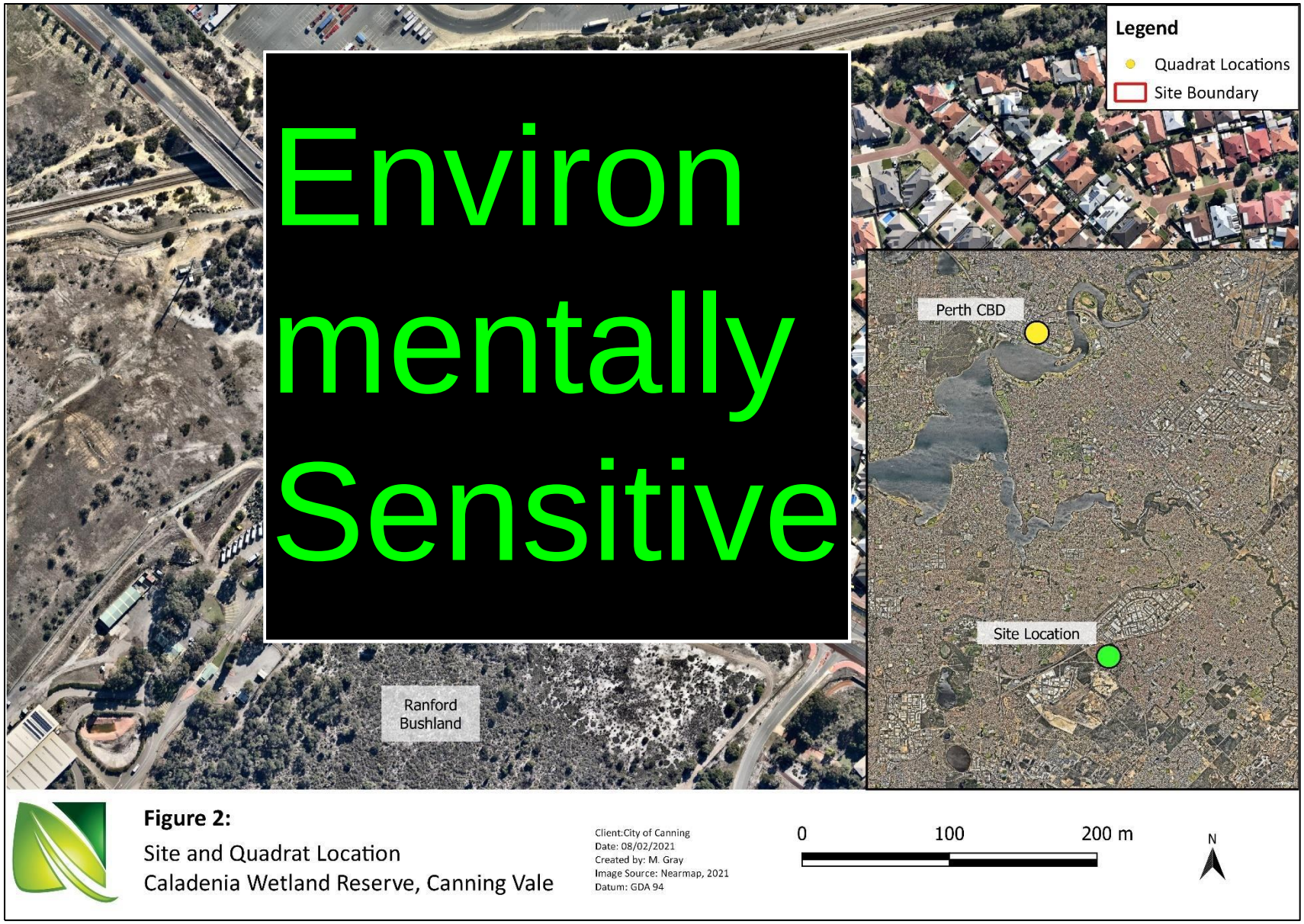


Figure 2:
Site and Quadrat Location
Caladenia Wetland Reserve, Canning Vale

Client:City of Canning
Date: 08/02/2021
Created by: M. Gray
Image Source: Nearmap, 2021
Datum: GDA 94

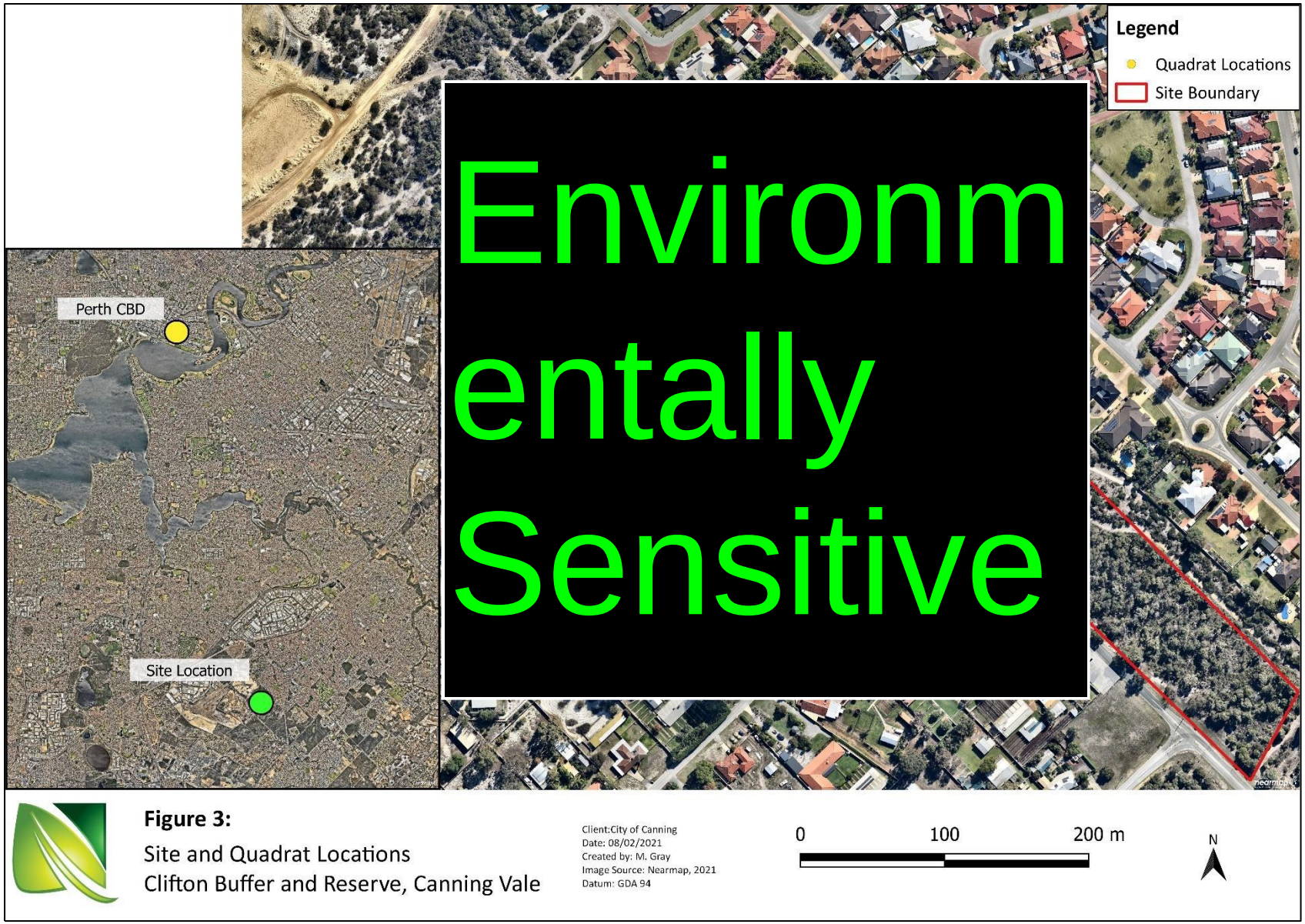


Figure 3:
Site and Quadrat Locations
Clifton Buffer and Reserve, Canning Vale

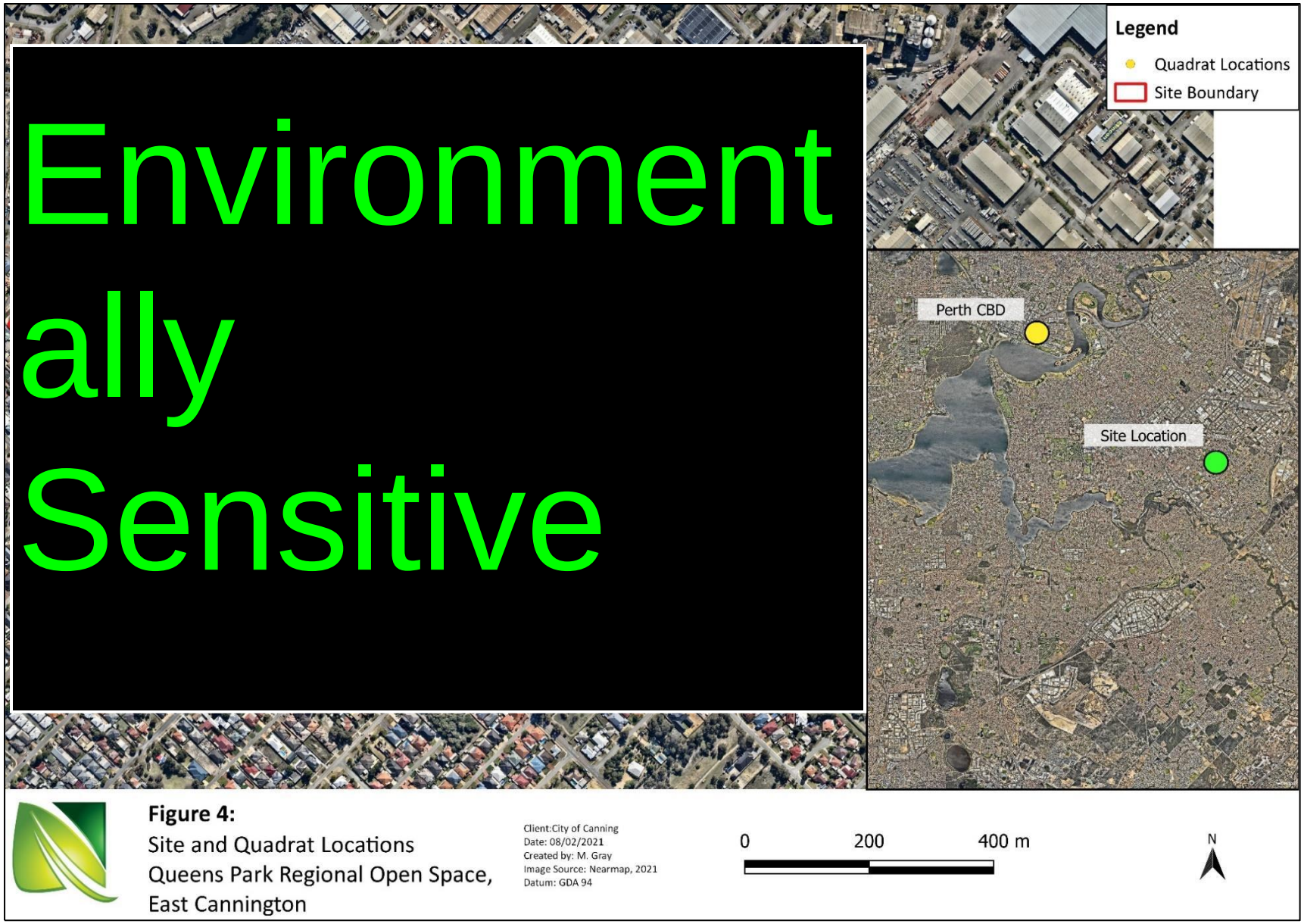


Figure 4:
Site and Quadrat Locations
Queens Park Regional Open Space,
East Cannington

Client:City of Canning
Date: 08/02/2021
Created by: M. Gray
Image Source: Nearmap, 2021
Datum: GDA 94

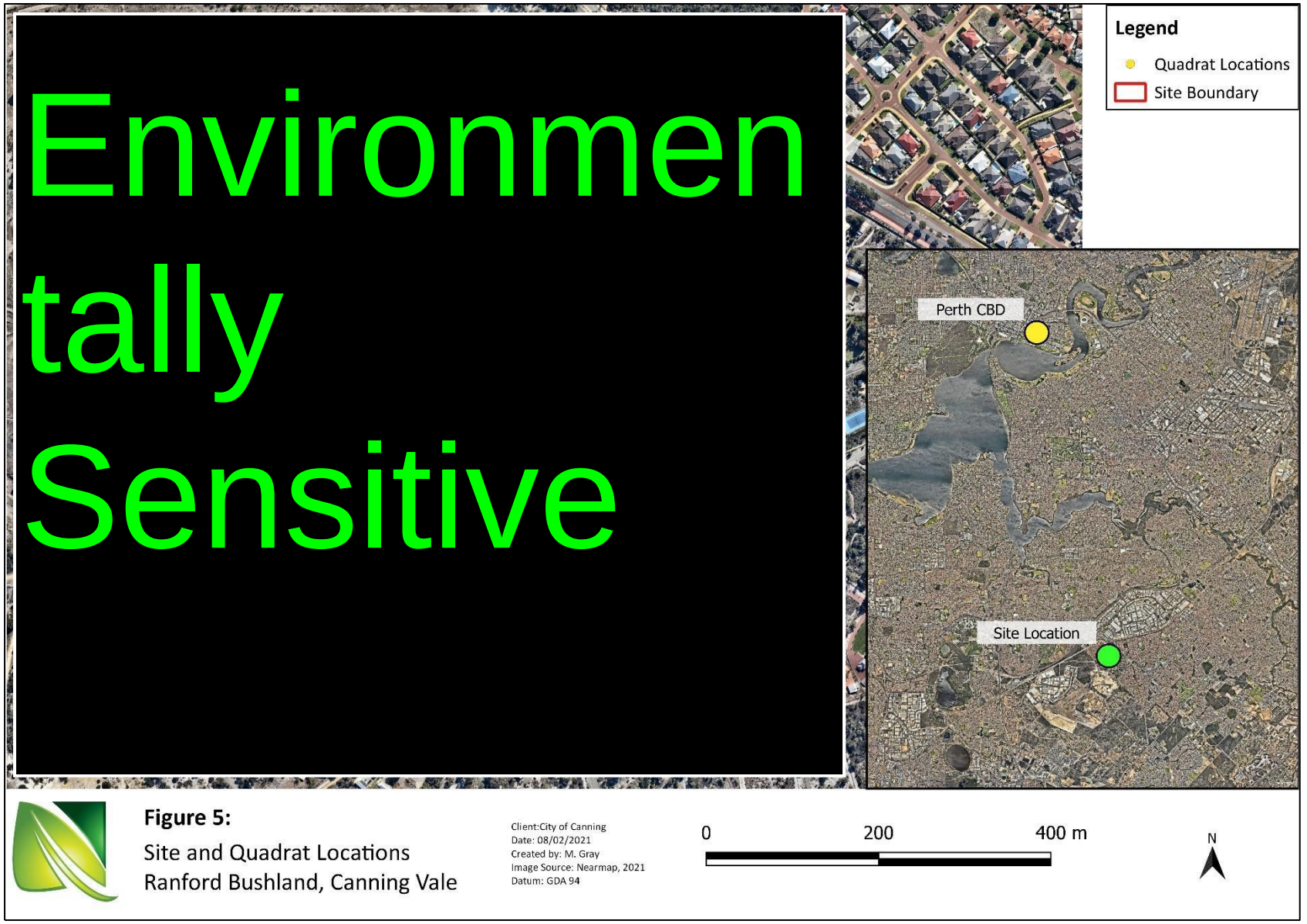


Figure 5:
Site and Quadrat Locations
Ranford Bushland, Canning Vale

Client:City of Canning
Date: 08/02/2021
Created by: M. Gray
Image Source: Nearmap, 2021
Datum: GDA 94

2.0 Site Characteristics

2.1 Regional Context

According to the Interim Biogeographical Regionalisation of Australia (IBRA), Perth is located within the Swan Coastal Plain region. The Swan Coastal Plain comprises of two major divisions, namely Swan Coastal Plain 1 – Dandaragan Plateau (SWA1) and Swan Coastal Plain 2 – Perth Coastal Plain (SWA2). These sites are all located in the Perth Coastal Plain subregion (SWA2), which is broadly characterised as including areas of Jarrah and Banksia woodlands on sandy soils in a series of sand dunes, along with wetland areas, often within the interdunal swales (Mitchell, Williams and Desmond, 2002).

2.2 Climate

The climate experienced in the area is Mediterranean, with dry, hot summers and cool, wet winters. According to the Bureau of Meteorology (Perth Airport, Station ID 009021, 2020):

- average rainfall is 765.3 mm pa, with the majority falling between May and August
- average maximum temperatures range from 20.9 ^{o}C in winter to 34.8 ^{o}C in summer, with the highest recorded maximum being 46.7 ^{o}C
- average minimum temperatures range from 2.6 ^{o}C in winter to 10.1 ^{o}C in summer, with the lowest recorded minimum being -1.3 ^{o}C
- predominant wind directions include morning easterlies and westerly sea breezes during summer months, with an average wind speed of 16.5 km/h and gusts of more than 100 km/h.

2.3 Topography and Soils

In order to describe the topography of the site effectively, it is necessary to consider the type of landforms and soils present. The soil types situated within a particular site determine the vegetation present.

2.3.1 Arrowgrass Reserve

Arrowgrass Reserve is homogenous in soil and topography (DPIRD, 2021a). With one soil type EnvGeol S10 Phase and topography of 26 m Australian Height Datum (ADH) over the entire site (Table 1 and Figure 6).

2.3.2 Caladenia Wetland Reserve

Two soil types are present within Caladenia Wetland Reserve EnvGeol S8 Phase – 213Bs_S8 and EnvGeol S10 Phase – 213Pj_S10 (Table 1 and Figure 7) (DPIRD, 2021a). Topography across the site ranges between 26 to 30 m AHD rising from east to west. Majority of the site is 26 m AHD with the north-west corner rising to 30 m AHD.

2.3.3 Clifton Buffer and Reserve

Three soil types are present within the Clifton Buffer and Reserve, with the dominant soil types being Bassendean B2 Phase and Bassendean B4 Phase, with Bassendean B1 Phase only covering a small portion in the north-east section (DPIRD, 2021a). The topography over the entirety of Clifton Buffer and Reserve measures at 26 m ADH (Table 1 and Figure 8).

2.3.4 Queens Park Regional Open Space

Two soil types are present at Queens Park Regional Open Space EnvGeol S8 Phase – 213Bs_S8 and EnvGeol S10 Phase – 213Pj_S10 (Table 1 and Figure 9) (DPIRD, 2021a). The topography across the site ranges from 10 to 14 m AHD.

2.3.5 Ranford Bushland

Six soil types were identified within Ranford Bushland, with the two dominant soil types identified as EnvGeol S10 Phase – 213Pj_S10 and Bassendean B1 Phase – 212Bs_B1. The remaining soil types being Bassendean B2 Phase – 212Bs_B2, Bassendean B4 Phase – 212Bs_B4 and EnvGeol Sp1 Phase – 213Pj_Sp1 (Table 1 and Figure 10) (DPIRD, 2021a). The topography across the site ranges between 26 to 30 m AHD with a slight rise from east to west.

Table 1: Soil type descriptions

Code	Soil Type	Description
212Bs_B1	Bassendean B1 Phase	Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m; banksia dominant.
212Bs_B2	Bassendean B2 Phase	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 m.
212Bs_B4	Bassendean B4 Phase	Broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan.
213Pj_Sp1	EnvGeol Sp1 Phase	Peaty Sand - grey to black, fine to medium-grained, moderately sorted quartz sand, slightly peaty, of lacustrine origin
213Pj_S10	EnvGeol S10 Phase	Sand - as S8 as relatively thin veneer over sandy clay to clayey sand, or eolian origin
213Bs_S8	EnvGeol S8 Phase	Sand - very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin

(Source: Department of Primary Industries and Regional Development, 2021a)

Figure 6:
Soil and Topography
Arrowgrass Reserve, Canning Vale

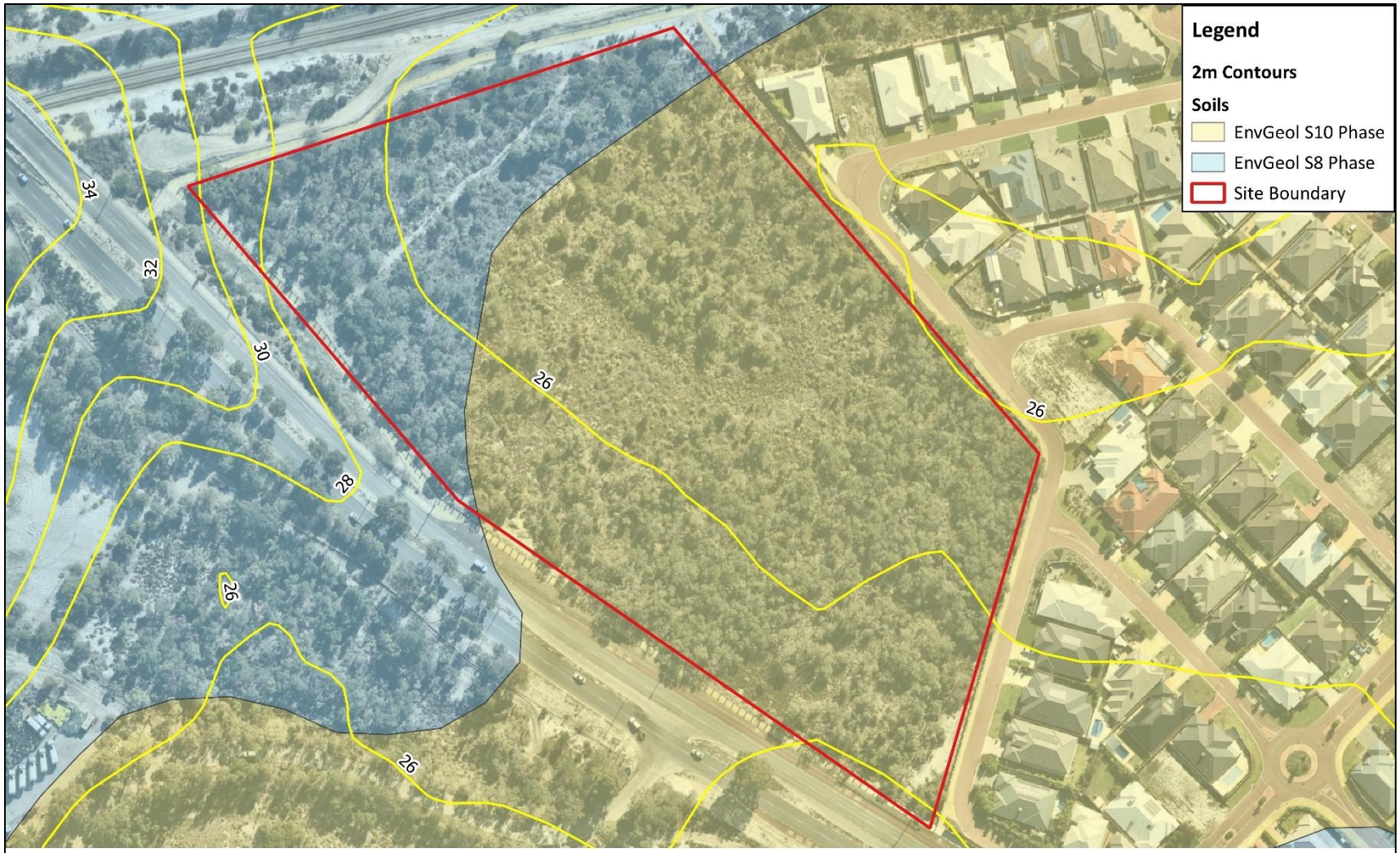


Figure 7:
Soil and Topography
Caladenia Wetland Reserve, Canning Vale

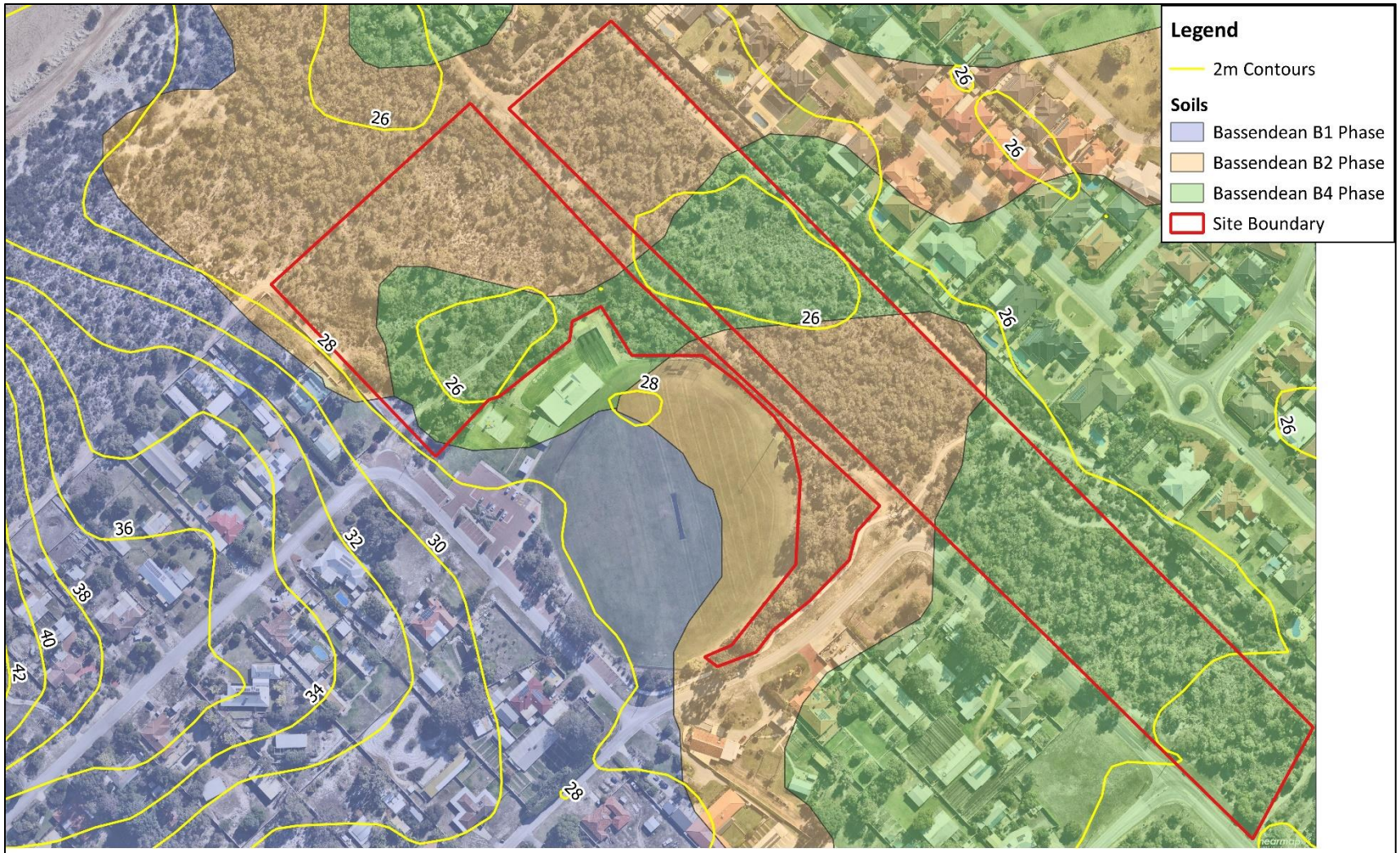


Figure 8:
Soil and Topography
Clifton Buffer and Reserve, Canning Vale

Client:City of Canning
Date: 08/02/2021
Created by: M. Gray
Image Source: Nearmap, 2021
Datum: GDA 94

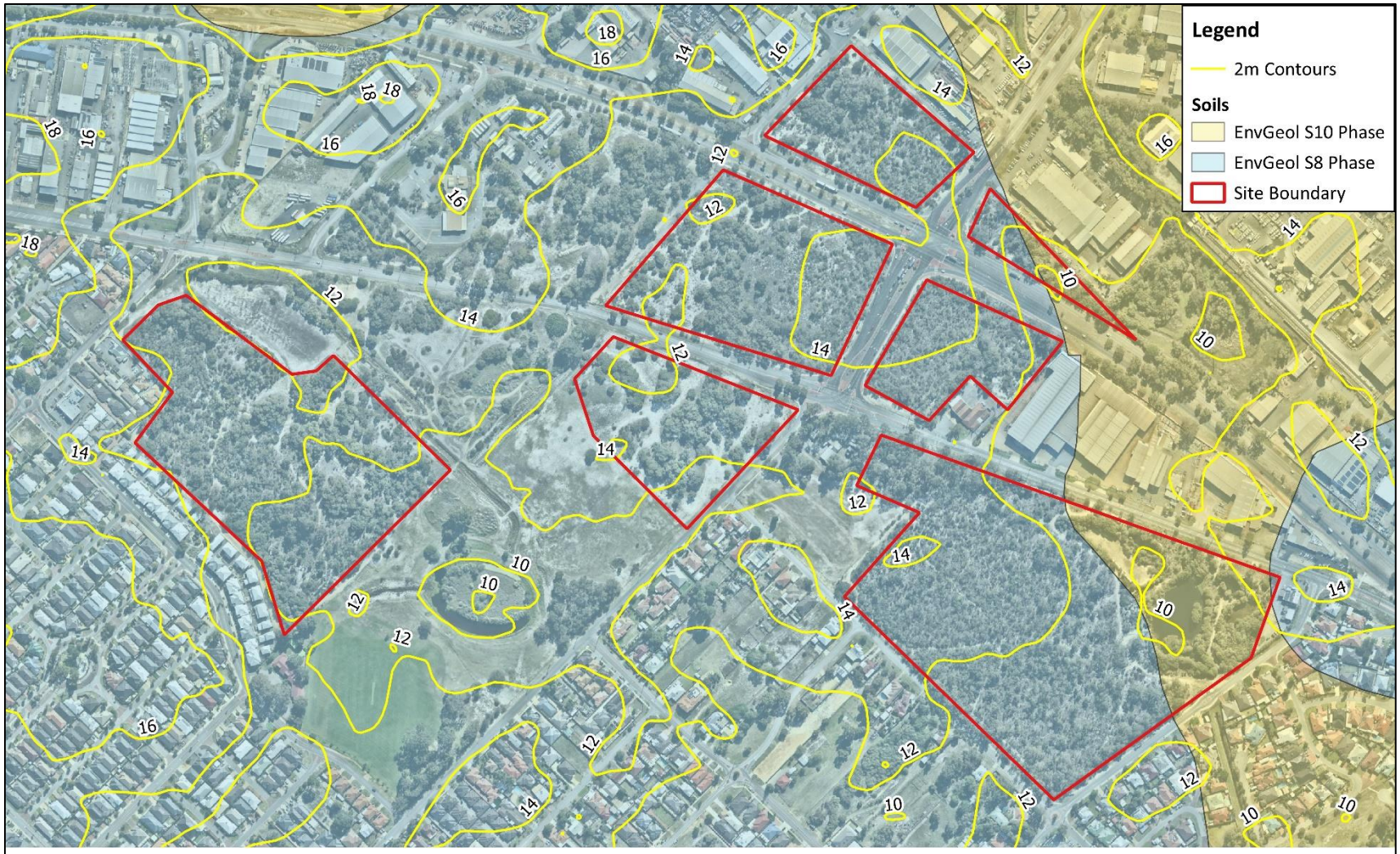


Figure 9:
Soil and Topography
Queens Park Regional Open Space,
East Cannington

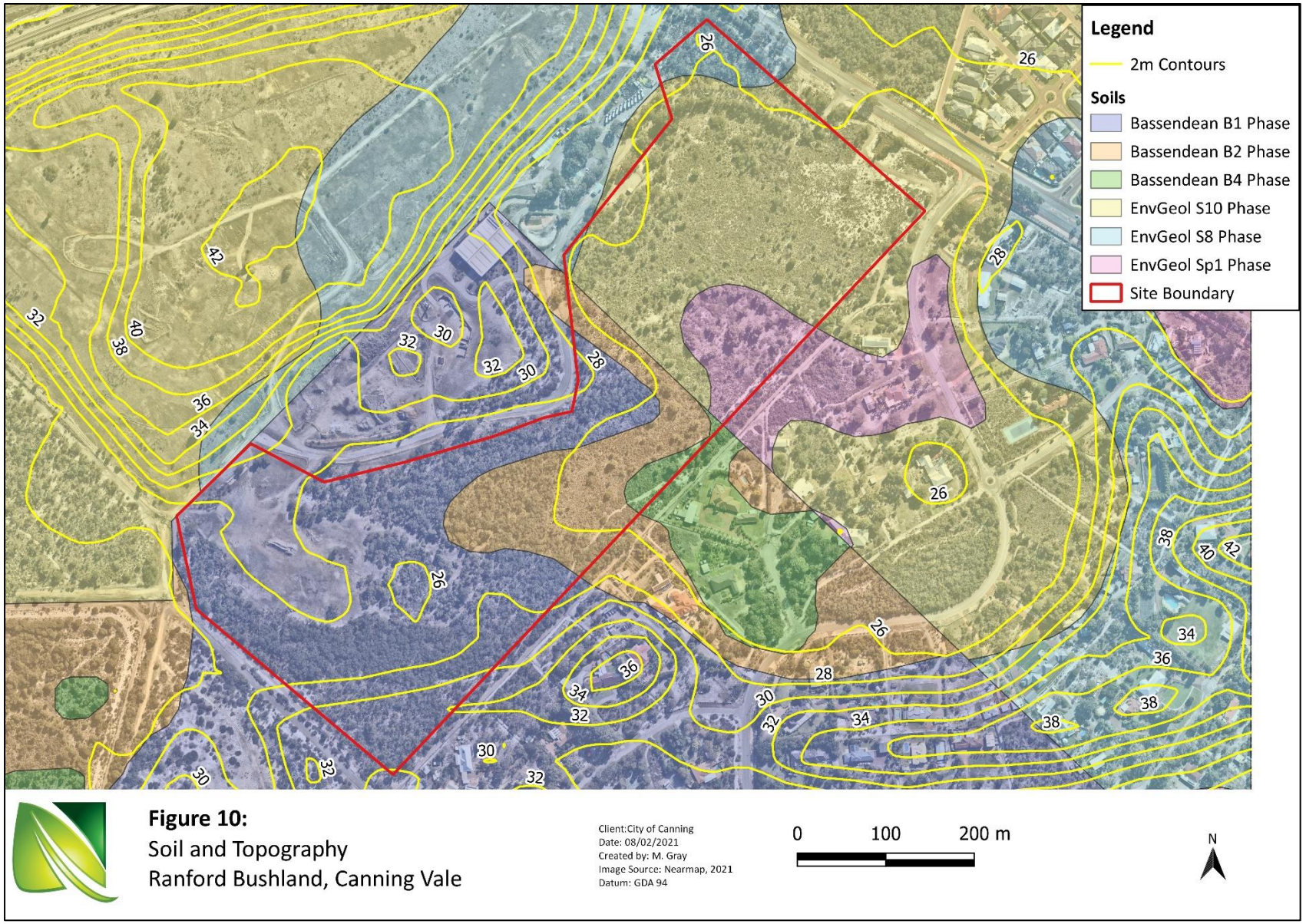


Figure 10:
Soil and Topography
Ranford Bushland, Canning Vale

2.4 Vegetation Complexes

The vegetation complex indicated by the National Resource Information (NRInfo) interactive map as occurring within QPROS is the *Southern River Complex* (DPIRD, 2021b). The remainder of the sites Arrowgrass Bushland, Caladenia Wetland Reserve, Clifton Reserve and Ranford Bushland all occur within the *Bassendean Complex- Central and South* (DPIRD, 2021b). The vegetation complexes of the sites are described in the Table 2.

Table 2: Vegetation complex descriptions

Site	Vegetation Complex	Description
QPROS	Southern River Complex	The complex comprises of an open woodland of Marri (*Corymbia calophylla*), Jarrah *(Eucalyptus marginata*) and *Banksia* on the elevated areas and a fringing woodland of *Eucalyptus rudis* (Flooded Gum) and *Melaleuca rhaphiophylla* (Swamp Paperbark) along the waterways.
Arrowgrass Reserve Caladenia Wetland Reserve Clifton Buffer and Reserve Ranford Bushland	Bassendean Complex – Central and South	The complex comprises of woodland of Jarrah (*Eucalyptus marginata*), *Allocasuarina* and *Banksia* on the sand dunes to a low woodland of *Melaleuca* spp. and sedgelands on the low-lying areas and swamps. It also includes a transition area of Jarrah and *Eucalyptus todtiana* (Coastal Blackbutt).

Source: (Heddle, Loneragan and Havel, 1980)

3.0 Methodology

3.1 Desktop and Literature Review

The desktop survey for the flora survey included reviewing online databases to determine preliminary site characteristics:

- NatureMap to indicate the flora species (native and introduced) that could potentially occur (Appendix 1) (Department of Biodiversity, Conservations and Attractions, 2021b)
- Protected Matters Search Tool to determine if any matters of national environmental significance were likely (Appendix 2) (Department of Agriculture, Water and the Environment, 2021)
- FloraBase to review the habitat associated with conservation significant species to infer the likelihood of their presence within the survey boundary (DBCA, 2021c).

3.2 On-ground Flora Methodology

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

3.2.1 Field Assessment

Natural Area lead botanists Sharon Hynes and Kylie Sadgrove with field assistants Megan Gray and Lachlan Crossley undertook monitoring survey between the 14th and 22nd of September 2020, with previous surveys by Natural Area (2014) and Ecoscape (2017) conducted within the same time period. Monitoring activities included:

- reassessing the existing 42 permanent quadrats within several sites
    - Arrowgrass Bushland (3 Quadrats)
    - Caladenia Wetland Reserve (5 Quadrats)
    - Clifton Buffer and Reserve (3 Quadrats)
    - QPROS (18 Quadrats)
    - Ranford Bushland (14 Quadrats -minus RF14 in which had been cleared for development)
- installation of one (10 m x 10 m) additional permanent quadrat in QPROS (QP19) (Figure 4)
- recording GPS coordinates in the north-west corner of each quadrat using GDA94 datum
- recording landscape characteristics including soil types/colour, aspect, slope, surface rock, topography and drainage using a modified recording sheets based on the NAIA templates developed for the Perth Biodiversity Project
- determining leaf litter depth, percentage cover, and percentage of bare ground
- recording percentage cover, height, number alive/dead stems and life form for each flora species in the quadrats
- recording vegetation type including dominant over, middle and understorey species (Table 3) and condition using the scale attributed to Keighery (Table 4) (Government of Western Australia, 2000)
- the use of GPS to map significant species and boundaries of differing vegetation type and condition
- recording evidence of disturbance, such as fire.

3.2.2 Flora Species

Flora species were recorded on observation within each quadrat, with the list of potential declared rare or priority flora species used to guide targeted searches for those species within the entire survey site (Appendix 3).

3.2.3 Vegetation Type

The vegetation type was determined using the structural classes described in Bush Forever Volume 2 (Government of Western Australia, 2000), and records dominant over, middle and understorey species. A tablet equipped with GPS mapping software was used to mark the change in vegetation type across the sites. A description of the various structural classes is provided in Table 3.

Table 3: Vegetation structural classes

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

(Source: Government of Western Australia, 2000)

3.2.4 Vegetation Condition

Vegetation condition was assessed using the rating scale attributed to Keighery in *Bush Forever Volume 2* (Government of Western Australia, 2000); Table 4 provides a description of the rating scale. A tablet equipped with GPS mapping software (Mappt) was used to mark the vegetation condition across the sites.

Table 4: Vegetation condition rating scale

Category		Description
1	Pristine	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presences of very aggressive weeds, partial clearing, dieback and grazing.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to 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.
6	Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parklands cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

(Source: Government of Western Australia, 2000)

3.2.5 Limitations

While the surveys were carried out during the optimal time of year to record the maximum number of species present, a number of limitations associated with both desktop and on-site flora surveys exist, including:

- database searches provide an indication of what flora species may be present, with on ground surveys required to confirm those actually present
- the differing databases are reliant on information submitted via various reporting mechanisms, so all records of a particular species or ecological community within a specified area may not be complete
- information on flora species provided on some databases include out-of-date species names, meaning that names need to be checked for currency
- herbarium records are largely limited to vouchered specimens
- on-ground surveys indicate species present at the time of the assessment, with species flowering at different times not always able be identified
- not all species flower every year.

Despite these limitations, Natural Area estimates that 80 – 90% of species within survey sites have been identified.

3.2.6 Species Diversity Index

Colwell (2009) describes that in order to understand the complexity of a natural community, the species richness and relative abundance must be considered. While species richness identifies the number of species of a particular taxon, species abundance highlights the taxa that are rare and common. Application of the Simpsons Diversity Index formula was used to determine a measure of both species' richness and abundance, where 0 = no diversity and 1 = infinite diversity (Colwell, 2009).

3.2.7 Floristic Community Statistical Analysis

Statistical analysis using PRIMER was undertaken to determine the floristic community types present on site by comparing them to the Gibson *et al*. dataset (1994) from *A Floristic Survey of the Southern Swan Coastal Plain*. The Gibson *et al*. (1994) study included surveys of the plant communities within the Southern Swan Coastal Plain, with 509 sites (quadrats) established and floristic data used to define the major regional community types; the survey outcomes assisted with assigning reservation status to these communities and identified communities that required urgent reservation (Government of Western Australia, 2000).

Flora species present/absent (PA) matrices were created for the five areas from quadrat data collected, the Gibson *et al*. (1994) dataset, and then the two datasets were combined. Taxa names from Gibson *et al.* (1994) that were no longer current were updated accordingly to match current taxa names. The PA matrices were input into the statistical analysis package PRIMER (version 7.0.13) and resemblance matrices were created to determine the similarities in species composition between quadrats. A hierarchical cluster analysis was performed using the Bray-Curtis analysis and dendrograms plotted to visually ascertain the similarities between quadrats. This analysis gave the similarity between quadrats species composition as a percentage.

4.0 Desktop Survey Results

Due to the close proximity of Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland, desktop search was undertaken using a 5 km radius from a point midway between the sites. A separate desktop search was undertaken for QPROS due to this site being approximately 10 km to the north of the other sites.

4.1 Desktop Survey - Flora

A review of NatureMap (DBCA, 2021a) indicated the potential for 437 (Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland) and 1,030 (QPROS) flora species within the study areas including:

- Queens Park Regional Open Space
  - 628 dicotyledons
  - 400 monocotyledons
  - two gymnosperms
- Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland
  - 245 dicotyledons,
  - 190 monocotyledons
  - two gymnosperms.

Of these, 70 conservation significant flora species may occur within QPROS (Table 5) and 28 within the remaining four reserves (Tables 6). Conservation significant flora species include those listed as priority and threatened under the *Biodiversity Conservation Act* 2016 (WA) or listed as Matters of National Environmental Significance under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cwlth).

Of the conservation significant flora listed in the databases, the habitat may be suitable for 25 species (Tables 5 & 6; highlighted green). A description of the conservation codes is provided in Appendix 5.

Table 5: Conservation significant species potentially occurring within QPROS

Species	Cons. Code	NatureMap	PMST	Likelihood of occurrence
Acacia anomala	VU		x	Soil type not suitable
Andersonia gracilis	T/EN	X	x	Soil type may be suitable
Aponogeton hexatepalus	P4	X		Soil type not suitable
Austrostipa bronwenae	T/EN		x	Unable to assess
Babingtonia urbana	P3	X		Unable to assess
Banksia mimica	T/EN	X	x	Soil type not suitable
Banksia pteridifolia subsp. *vernalis*	P3	X		Soil type not suitable
Bolboschoenus fluviatilis	P1	X		Unable to assess
Boronia tenuis	P4	X		Soil type not suitable

Species	Cons. Code	NatureMap	PMST	Likelihood of occurrence
Byblis gigantea	P3	X		Soil type may be suitable
Caladenia huegelii	T/EN	X	X	Soil type may be suitable
Calandrinia sp. Piawaning	P1	X		Unable to assess
Calectasia cyanea	T	X		Soil type may be suitable
Calytrix breviseta subsp. *breviseta*	T	X	X	Soil type not suitable
Carex tereticaulis	P3	X		Soil type may be suitable
Chamaescilla gibsonii	P3	X		Soil type not suitable
Chamelaucium lullfitzii	EN		X	Unable to access
Comesperma griffinii	P2	X		Soil type not suitable
Comesperma rhadinocarpum	P3	X		Soil type not suitable
Conospermum undulatum	T/VU	X	X	Soil type may be suitable
Diplolaena andrewsii	EN		X	Soil type may be suitable
Diuris andrewsii	EN		X	Soil type not suitable
Diuris drummondii	VU		X	Soil type may be suitable
Diuris micrantha	VU		X	Soil type may be suitable
Diuris purdiei	T/EN	X	X	Soil type may be suitable
Drakaea elastica	EN		X	Soil type may be suitable
Drakaea micrantha	VU		X	Soil type may be suitable
Drosera occidentalis	P4	X		Unable to assess
Eleocharis keigheryi	T/VU	X	X	Soil type not suitable
Eremophila glabra subsp. chlorella	T/EN	X	X	Soil type not suitable
Eryngium pinnatifidum subsp. *palustre*	P3	X		Unable to assess
Eryngium sp. *Subdecumbens*	P3	X		Unable to assess
Eucalyptus x *balanites*	EN		X	Soil type not suitable
Grevillea curviloba	EN		X	Soil type may be suitable
Grevillea thelemanniana	T/CR	X	X	Soil type may be suitable
Haemodorum loratum	P3	X		Soil type not suitable
Haloragis scoparia	P1	X		Unable to assess
Hibbertia montana	P4	X		Soil type not suitable
Hydrocotyle lemnoides	P4	X		Soil type not suitable
Isopogon drummondii	P3	X		Unable to assess
Isotropis cuneifolia subsp. *glabra*	P3	X		Soil type not suitable

Species	Cons. Code	NatureMap	PMST	Likelihood of occurrence
Jacksonia gracillima	P3	X		Unable to assess
Lasiopetalum bracteatum	P4	X		Soil type not suitable
Lasiopetalum glutinosum subsp. *glutinosum*	P3	X		Unable to assess
Lepidosperma rostratum	T/EN	X	X	Soil type not suitable
Lepyrodia curvescens	P2	X		Soil type may be suitable
Macarthuria keigheryi	T/EN	X	X	Soil type may be suitable
Melaleuca viminalis	P2	X		Unable to assess
Myriophyllum echinatum	P3	X		Soil type not suitable
Ornduffia submersa	P4	X		Unable to assess
Platysace ramosissima	P3	X		Soil type may be suitable
Ptilotus pyramidatus	T/CR	X	X	Unable to assess
Ptilotus sericostachyus subsp. *roseus*	P1	X		Unable to assess
Schoenus benthamii	P3	X		Soil type not suitable
Schoenus capillifolius	P3	X		Soil type may be suitable
Schoenus loliaceus	P2	X		Soil type may be suitable
Schoenus natans	P4	X		Soil type may be suitable
Schoenus pennisetis	P3	X		Soil type not suitable
Schoenus sp. *Beaufort*	P1	X		Soil type not suitable
Schoenus sp. *Waroona*	P3	X		Soil type not suitable
Stylidium aceratum	P3	X		Soil type not suitable
Stylidium longitubum	P4	X		Soil type not suitable
Stylidium periscelianthum	P3	X		Soil type not suitable
Styphelia filifolia	P3	X		Unable to assess
Synaphea sp. Fairbridge Farm	T/CR	X	X	Soil type not suitable
Tetraria australiensis	T	X		Unable to assess
Thelymitra dedmaniarum	EN		X	Soil type not suitable
Thelymitra stellata	EN		X	Soil type not suitable
Thysanotus anceps	P3	X		Soil type not suitable
Verticordia lindleyi subsp. *lindleyi*	P4	X		Soil type may be suitable

(Source: Department of Biodiversity, Conservation and Attractions, 2020c; Department of the Environment and Energy,2020b)

Table 6: Conservation significant species at Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland

Species	**Cons. Code**	**NatureMap**	**PMST**	**Likelihood of occurrence**
Acacia benthamii	P2	X		Soil type not suitable
Andersonia gracilis	EN		X	Soil type may be suitable
Aponogeton hexatepalus	P4	X		Soil type not suitable
Austrostipa jacobsiana	CR		X	Unable to assess
Byblis gigantea	P3	X		Soil type may be suitable
Caladenia huegelii	T/EN	X	X	Soil type may be suitable
Diuris drummondii	T/VU	X	X	Soil type may be suitable
Diuris micrantha	VU		X	Soil type may be suitable
Diuris purdiei	T/VU	X	X	Soil type may be suitable
Dodonaea hackettiana	P4	X		Soil type may be suitable
Drakaea elastica	T/EN	X	X	Soil type may be suitable
Drakaea micrantha	T/VU	X	X	Soil type may be suitable
Eremophila glabra subsp. *chlorella*	T/EN	X	X	Soil type not suitable
Eucalyptus x *balanites*	EN		X	Soil type not suitable
Grevillea curviloba	EN		X	Soil type may be suitable
Jacksonia gracillima	P3	X		Unable to assess
Lepidosperma rostratum	EN		X	Soil type not suitable
Macarthuria keigheryi	EN		X	Soil type may be suitable
Schoenus benthamii	P3	X		Soil type may be suitable
Schoenus capillifolius	P3	X		Soil type not suitable
Stenanthemum sublineare	P2	X		Soil type may be suitable
Stylidium paludicola	P3	X		Soil type may be suitable
Styphelia filifolia	P3	X		Unable to assess
Synaphea sp. Fairbridge Farm	T/CR	X	X	Soil type not suitable
Thelymitra dedmaniarum	EN		X	Soil type not suitable
Thysanotus sp. *Badgingarra*	P2	X		Soil type not suitable
Tripterococcus sp. Brachylobus	P4	X		Unable to assess
Verticordia lindleyi subsp. *lindleyi*	P4	X		Soil type may be suitable

4.2 Desktop Survey - Ecological Communities

A review of the PMST report indicated the presence of four conservation significant ecological communities as listed as Matters of Environmental Significance under the *Environment Protection and Biodiversity Conservation Act* 1999 (Cwlth) within a 5 km proximity to all survey sites (DAWE, 2021). All survey areas identified the same three potential ecological communities, with QPROS containing one additional potential community, the three potentially occurring over all sites are highlighted green (Table 7). Table 7 summarises and indicates the representative Floristic Community Types (FCTs) as per Gibson *et al* (1994) and the likelihood of occurrence.

Table 7: Conservation significant ecological communities

Name	Description	Representative FCTs (Gibson *et al* 1994)		Cwlth Cons Code	Likelihood
Banksia Woodlands of the Swan Coastal Plain	Canopy dominated by *Banksia attenuata* and or *B. menziesii*. Other less dominant species are *B. prionotes* and *B. ilicifolia*. Usually occurring on sandplains with well drained and low nutrient soils, such as Bassendean, Spearwood and occasionally Quindalup sands. It is also common on sandy colluvium and aeolian sands of the Ridge Hill shelf, Whicher Scarp and Dandaragan Plateau.	FCT20a, FCT20b, FCT21a, FCT21b, FCT21c, FCT22, FCT23a, FCT23b, FCT24, FCT25, FCT28	P3	EN	Community likely to occur within area/all sites based on location and vegetation types present.
Clay Pans of the Swan Coastal Plain	Claypans (predominantly basins) usually dominated by a shrubland of *Melaleuca lateritia* occurring both on the coastal plain and adjacent plateau.	FCT07, FCT08, FCT09, FCT10a	P1	CR	Unlikely within sites as habitat and soil types not suitable
Corymbia calophylla-*Kingia australis* woodlands on heavy soils of the Swan Coastal Plain	A dominate *Corymbia calophylla* woodland community. Usually occurring on heavy soils along the eastern side of the Swan Coastal Plain.	FCT3a	CR	CR	Unlikely within sites as has habitat and soil types not suitable
Tuart (*Eucalyptus gomphocephala*) Woodlands and	Tuart is the dominant canopy species with *Agonis flexuosa*, *Banksia attenuata*, *B. grandis*, *Allocasuarina fraseriana*, *Xylomelum*	Most similar are FCT25 and FCT30b	P3	CR	Community likely to occur within area/ all sites.

Name	Description	Representative FCTs (Gibson *et al* 1994)	Cwlth Cons Code	Likelihood
Forests of the Swan Coastal Plain	*occidentale*, *Macrozamia riedlei*, *Xanthorrhoea preissii*, *Spyridium globulosum*, *Templetonia retusa* and *Diplolaena dampieri.*			

(Department of Agriculture, Water and the Environment, 2021, Department of Biodiversity, Conservation and Attractions, 2021a)

5.0 Field Survey Results - Arrowgrass Reserve

5.1 Flora

A total of 77 flora species (taxa) from 26 families were recorded within the three permanent quadrats in Arrowgrass Reserve. Of these, 70 (90.9%) were native species with the remaining 7 (9.1%) species being introduced weeds (Figure 11 and Table 8). No declared pests or conservation significant flora species were recorded on site. Figure 12 provides examples of native and introduced species found within the quadrats. A total flora species list is provided in Appendix 5 with quadrat data provided in Appendix 6.

Arrowgrass Reserve quadrats identified an average presence of 33.7 natives and 4.7 introduced species. Quadrat AG02 observed the lowest percentage (41%) of the total number of native species observed, while AG01 and AG03 observed 57-58% of the total native species richness. A total of 17% of species were identified across all three quadrats, with 12 to 23% of the species only occurring within one quadrat (Table 8).

Of the 26 families within the Arrowgrass Reserve, Asparagaceae was the most species rich containing eight native species with most of these from the *Lomandra* and *Thysanotus* genera. Fabaceae, Orchidaceae and Proteaceae families were highest in species richness containing seven species each.

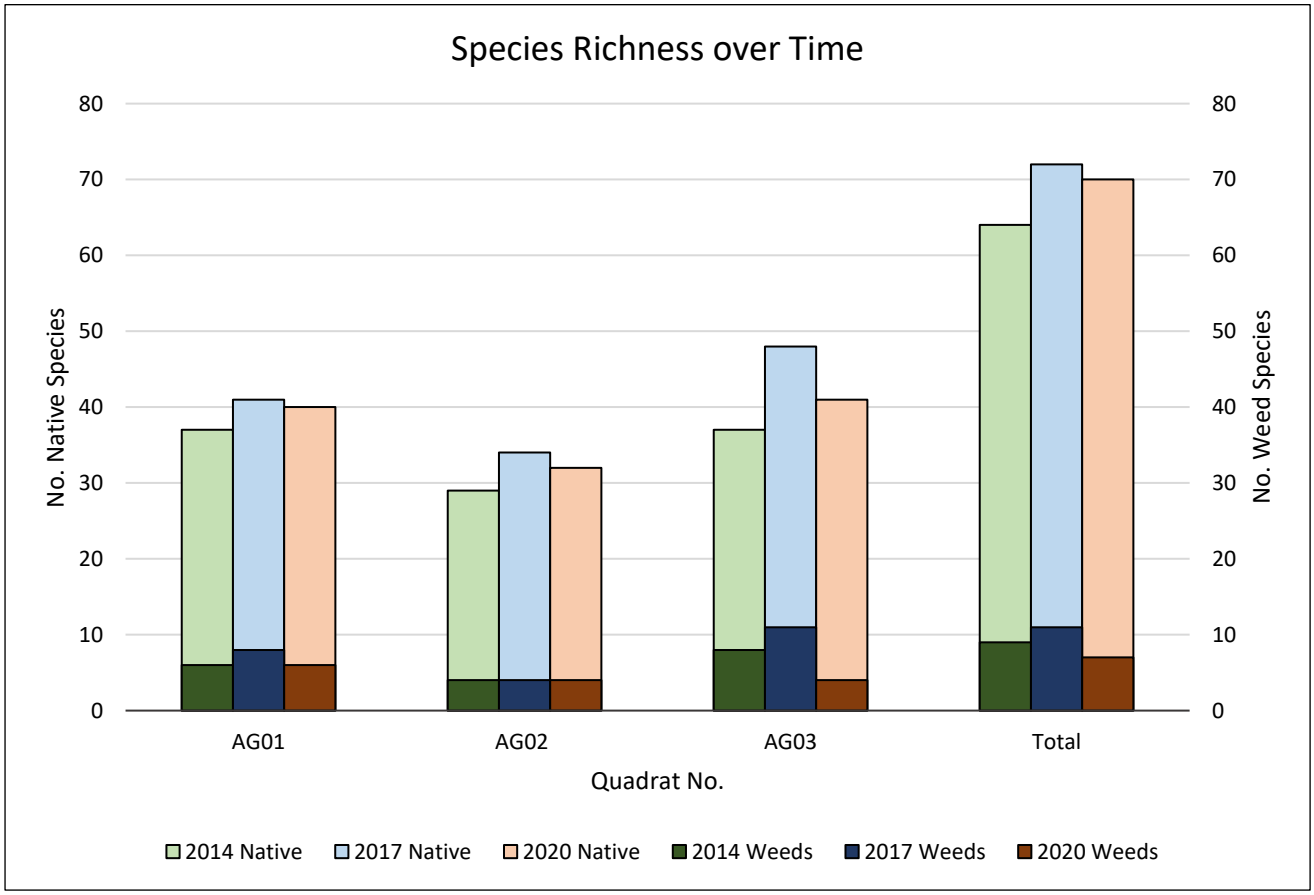


Figure 11: Species richness within quadrats at Arrowgrass Reserve over time

Table 8: Arrowgrass Reserve comparison of flora composition and diversity per quadrat between Natural Area (2014 & 2020) and Ecoscape (2017)

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
AG01	6	15	35	118	0.955
AG02	4	12	29	77	0.935
AG03	8	18	37	110	0.890
Average	6.0	14.8	33.7	101.7	0.927
Ecoscape (2017)					
AG01	8	16	41	149	0.911
AG02	4	11	34	201	0.927
AG03	11	19	47	577	0.916
Average	7.7	15.3	40.7	309.0	0.918
Natural Area (2020)					
AG01	6	11	40	270	0.928
AG02	4	10	32	243	0.907
AG03	4	12	41	268	0.898
Average	4.7	11.2	37.7	260.3	0.911

Banksia ilicifolia
(Holly-leaved Banksia)

Daviesia decurrens
(Prickly Bitter Pea)

Regelia ciliata

Smooth Catsear
(*Hypochaeris glabra)

Wild Gladiolus
*(*Gladiolus caryophyllaceus)*

Common Sowthistle
(**Sonchus oleraceus*)

Figure 12: Examples of native and introduced flora found in Arrowgrass Reserve. * denotes introduced species

5.2 Vegetation Types

Two vegetation types were recorded within Arrowgrass Reserve, *Banksia menziesii and Allocasuarina fraseriana* Woodland (BmAfW) and *Eucalyptus marginata* (Jarrah) and *Banksia* Woodland (EmBaBmW). Quadrats AG02 and AG03 were classified as BmAfW, while AG01 was classified as EmBaBmW. The description and photos of the two vegetation types are illustrated in Table 9.

Table 9: Vegetation Types within Arrowgrass Reserve

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BmAfW	*Banksia menziesii* and *Allocasuarina fraseriana* Woodland	*Banksia menziesii* and *Allocasuarina fraseriana* woodland over *Xanthorrhoea preissii*, *Kunzea glabrescens* and *Gompholobium tomentosum* shrubland and mixed sedgeland	AG01	
EmBaBmW	*Eucalyptus marginata* and *Bankia* spp. Woodland	*Eucalyptus marginata* and *Banksia* woodland over *Xanthorrhoea preissii* and mixed shrubs and sedges	AG02, AG03	

5.3 Vegetation Condition

All three quadrats within Arrowgrass Reserve were in Very Good condition (Table 10). The botanical survey noted dead *Banksia* spp. within each quadrat indicating possible present of dieback (*Phytophthora* sp.) which may require management to mitigate any future decline in vegetation condition.

Table 10: Vegetation condition of quadrats in Arrowgrass Reserve

Category		Quadrats	%
6	Pristine		0
5	Excellent		0
4	Very Good	AG01, AG02, AG03	100.0
3	Good		0
2	Degraded		0
1	Completely Degraded		0

5.4 Floristic Analysis

The Bray Curtis similarity analysis showed that two distinctive floristic groups were formed over the three quadrats within Arrowgrass Reserve, with the two groups approximately 45% similar to one another (Figure7). Although AG02 and AG03 do not form a distinctive floristic group, they are considered the same vegetation type as they have the same dominant species.

A summary of the results are as follows:

- **BmAfW** (*Banksia menziesii* and *Allocasuarina fraseriana* woodland), quadrats AG01. The floristic analysis grouped this quadrat separate from AG02 and AG03 having similarity less than 50%, likely due to differences in dominant species.
- **EmBaBmW** (*Eucalyptus marginata* and *Banksia* woodland), quadrats AG02 and AG03. These quadrats were grouped separately from AG01, however, together they only share approximately 55% similarity, not forming a distinctive floristic group. This is likely to be due to moderate diversity and possible presence of pathogens affecting species richness.

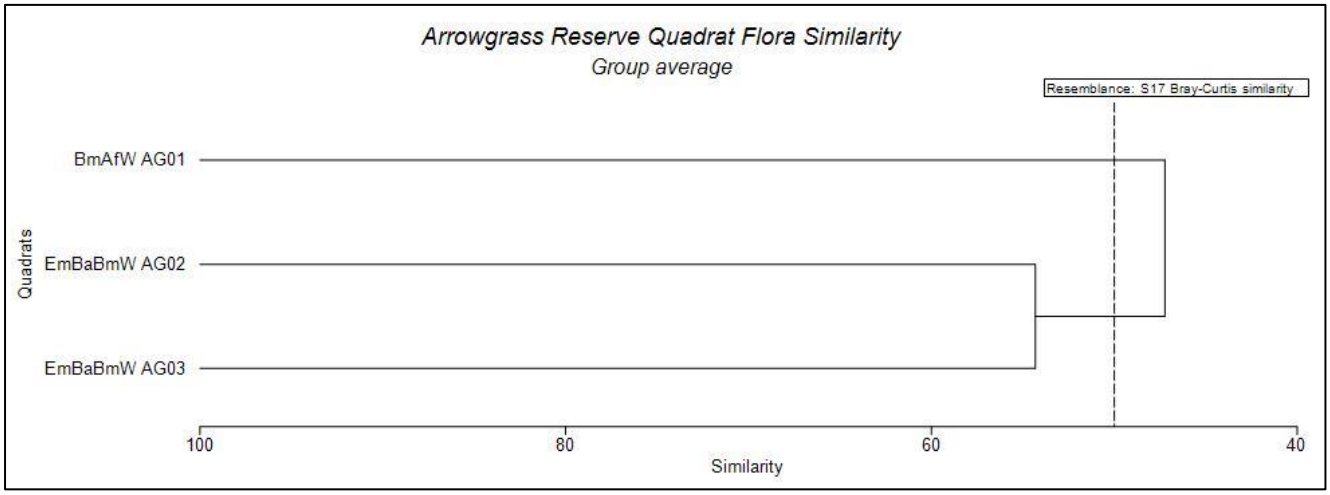


Figure 13: Arrowgrass Reserve floristic analysis of the Quadrat data

5.5 Floristic Community Types Analysis against Gibson et al (1994)

Data from the three quadrats within Arrowgrass Reserve were compared against the Gibson *et al.* (1994) dataset creating a resemblance matrix (Table 11). The most likely FCT's were chosen based on factors linked to the quadrat, namely, similarity, location, vegetation and structure. By comparing Gibson similarity and general vegetation and structure two floristic community types (FCT) were found to be the most likely, namely Central *Banksia attenuata* – *Eucalyptus marginata* woodlands (FCT21a) and Central *Banksia attenuata* – *Banksia menziesii* woodlands (FCT23a). However, none of the three quadrats were significantly similar. The highest similarity found was in AG01 of 48.98% against quadrat AUSTRA-1, referring to FCT21a.

Table 11: Arrowgrass reserve quadrat comparison to Gibson et al. (1994) dataset. (where n = number of quadrats sampled per FCT)

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Quadrat highest similarity	Comments
AG01	*Banksia menziesii* and *Allocasuarina fraseriana* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	25.89% (n = 41)	48.98% AUSTRA-1	While **FCT23a** had the highest average similarity (30.84%), the greatest similarity was quadrat AUSTRA-1 (49.98%) in **FCT21a**. No presence of *E. marginata* or *B. attenuata* within quadrat. Structure and vegetation more consistent with **FCT23a.**
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	25.19% (n = 16)	33.33% LOW06A	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	30.84% (n = 19)	38.94% HURST03	
AG02	*Eucalyptus marginata* and *Bankia* spp. Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	23.53% (n = 41)	36.36% AUSTRA-1	Similarity was low <30%, while **FC23a** had the highest average similarity (26.69%), the greatest similarity was quadrat AUSTRA-1 (36.36%) in **FC21a**. Given *E. marginata* present within quadrat likely to be **FC21a**, however, similarity is not significant.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	26.11% (n = 16)	33.33% LOW07	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	26.69% (n = 19)	35.89% HARRY-4	
AG03	*Eucalyptus marginata* and *Bankia* spp. Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	31.72% (n = 41)	45.83% RIVD-2	While **FCT23a** had the highest average similarity (35.78%), the greatest similarity was quadrat RIVD-2 (45.83%) in **FCT21a**. Given *E. marginata* is
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	29.50% (n = 16)	37.21% DEJONG-C	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Quadrat highest similarity	Comments
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	35.78% (n = 19)	45.1% WAND-1	present within quadrat likely to be **FCT21a**, however, similarity is not significant.

5.6 Threatened and Priority Ecological Communities

A review of the PMST report indicated the potential presence of three conservation significant ecological communities listed as Matters of Environmental Significance potentially occurring within Arrowgrass Reserve, namely,

- *Banksia Woodlands of the Swan Coastal Plain*
- *Clay Pan of the Swan Coastal Plain*
- *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain*.

The 2020 survey confirmed that no threatened of priority communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) were determined within Arrowgrass Reserve. With Banksia Woodlands of the Swan Coastal Plain (FCT21a and FCT23a) being the closest threatened ecological community. These FCTs are a subgroup of the Banksia Woodlands of the Swan Coastal Plain but they do not have their own conservation ratings for Western Australia or the Commonwealth and is not considered a threatened or priority community.

6.0 Implications - Arrowgrass Reserve

6.1 Flora

During the September 2020 botanical survey, a total of 77 flora species from 26 families were recorded, of which no conservation significant species were identified. The species mix included seven introduced species (9.1%) and 70 native species (90.9%). Previous surveys by Natural Area (2014) and Ecoscape (2017) identified similar species richness, with 73 and 83 species, respectively (Figure 11).

6.1.1 Species Diversity

Species richness within Arrowgrass Reserve in 2020 was moderate, with quadrat AG02 containing the lowest species richness of 36 native species and the highest at 46 species within quadrat AG03. Historic data from 2014 and 2017 exhibited these same trends (Figure 14).

The average number of species per quadrat (AG01, AG02 and AG03) differed slightly over the six years, with the highest average number of species recorded in 2017 (49 species) than that of 2014 and 2020, with 40 and 42 species, respectively. As seen in Table 11, the average native flora species richness in Arrowgrass increased by four species between 2014 and 2020. However, between 2017 and 2020 the average reduced by three species.

Species diversity was calculated using the Simpsons Diversity Index (SDI) to assess species richness and abundance (Colwell, 2009). Species diversity in 2020 was good, ranging between 0.88 and 0.93 SDI, this similar to previous survey years (2014 and 2017) ranging between 0.89 and 0.96 (Table 11 and Figure 14).

Species diversity was normal for quadrats within the vegetation type BmAfW (*Banksia menziesii* and *Allocasuarina fraseriana* Woodland) and EmBaBmW (*Eucalyptus marginata* and *Banksia attenuata* and *Banksia menziesii* Woodland) where vegetation condition was Very Good.

6.1.2 Introduced Flora

During the September 2020 flora survey, Arrowgrass Reserve recorded seven weed species (Figure 12). Quadrat AG01 contained the most weed species with six species recorded, while AG02 and AG03 identified four species.

Weed species within the three quadrats made up between 8.9% and 13.0% of the total species. Previous surveys from 2014 and 2017 identified a higher percentage than that of 2020, with ranging between 10.5% and 17.8% of the total species richness (Table 8). Two species were identified in all quadrats and observed every year, *Gladiolus caryophyllaceus* and *Hypochaeris glabra*. *Ehrharta calycina* and *Ursinia anthemoides* subsp. *anthemoides* were observed every year but not as prevalent only present in 66% of the quadrats (Table 12).

Overall, the percentage of introduced species richness in within Arrowgrass Reserve is approximately 4% lower in 2020 (11%) than it was in 2017 (15.3%) (Table 8).

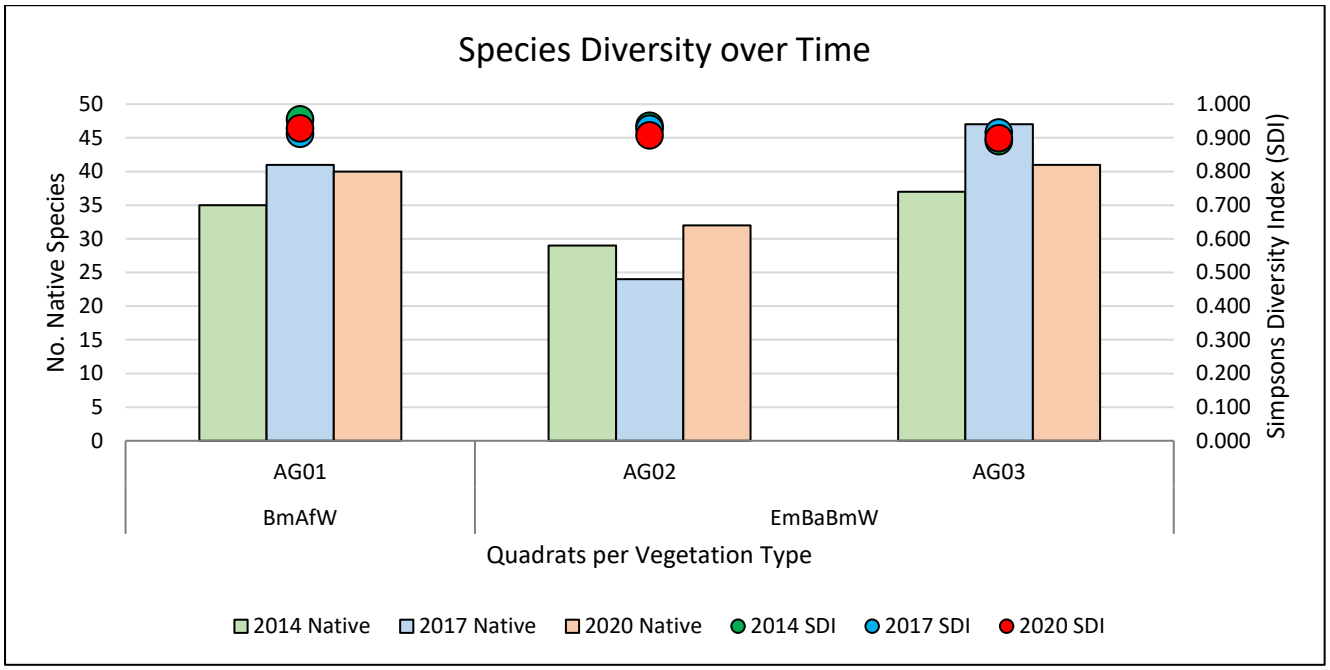


Figure 14: Species diversity of native flora in Arrowgrass Reserve over time

Table 12: Weed species present in Arrowgrass quadrats over time

Species	AG01			AG02			AG03		
	2014	2017	2020	2014	2017	2020	2014	2017	2020
Avena barbata		X					X	X	
Briza maxima	X	X		X	X		X	X	
Ehrharta calycina	X	X	X	X	X	X		X	
Ehrharta erecta									X
Ehrharta longifolia								X	
Gladiolus caryophyllaceus	X	X	X	X	X	X	X	X	X
Hypochaeris glabra	X	X	X	X	X	X	X	X	X
Lysimachia polymorpha							X	X	
Olea europaea			X						
Sonchus oleraceus	X	X	X				X	X	
Urospermum picroides		X					X	X	
Ursinia anthemoides subsp. *anthemoides*	X	X	X			X	X	X	X
Wahlenbergia capensis								X	

6.1.3 Conservation Significant Flora

The historical data from 2014 and 2017 indicated that no conservation significant species were present within the three permanent quadrats. The 2020 survey also did not identify any conservation significant flora. The desktop search identifies a number of potential conservation significant flora that could occur within Arrowgrass Reserve, these populations may not exist within the permanent quadrats or be present at the time of surveying and possibly overlooked.

6.2 Vegetation Types

Two vegetation types were identified during the 2020 botanical survey within the quadrats at Arrowgrass Reserve, namely BmAfW and EmBaBmW (Table 13). Outlined in Table 13, the assigned vegetation types have not significantly changed since 2014 and 2017. Quadrat AG01 noted the *Banksia* menziesii as dominant in vegetation type in 2014 and 2020, however, was not noted in 2017. Quadrat AG03 noted *Eucalyptus todtiana* and *Allocasuarina fraseriana* as dominant in 2017 while both 2014 and 2020 noted a vegetation type of Jarrah and Banksia Woodland. Differences in vegetation type may be a result of a number of factors, including variation in assessor's judgement, natural growth and senescence or quadrats being in a location that is not representative of the vegetation type within greater area.

Table 13: Comparison of vegetation types in Arrowgrass Reserve permanent quadrats over time.

Quadrat	2020	2017	2014
AG01	BmAfW *Banksia menziesii* and *Allocasuarina fraseriana* Woodland	*Allocasuarina fraseriana* over *Xanthorrhoea preissii, Adenanthos cygnorum* subsp. *cygnorum, Dasypogon bromeliifolius, Patersonia occidentalis, Phlebocarya ciliata*	BmAfW *Banksia menziesii and Allocasuarina fraseriana* Woodland
AG02	EmBaBmW *Eucalyptus marginata* subsp. *marginata* and *Banksia* spp. Woodland	*Eucalyptus marginata* subsp. *marginata*, *Banksia menziesii* over *Xanthorrhoea preissii, Acacia pulchella, Regelia inops, Phlebocarya ciliata, Lechenaultia floribunda*	EmBmW *Eucalyptus marginata, Banksia menziesii* Woodland
AG03	EmBaBmW *Eucalyptus marginata* subsp. *marginata* and *Banksia* spp. Woodland	*Eucalyptus todtiana*, *Allocasuarina fraseriana* over *Xanthorrhoea preissii, Phlebocarya ciliata, Dasypogon bromeliifolius*	EmBmW *Eucalyptus marginata, Banksia menziesii* Woodland

6.3 Threatened and Priority Ecological Communities

According to NationalMap, no threatened ecological communities (TECs) are currently listed within Arrowgrass Reserve (DBCA, 2021d). The threatened ecological community *Banksia Woodlands of the Swan Coastal Plain* listed as Endangered under the EPBC Act 1999 (Cwlth) has the potential to occur within this site. It was found that both vegetation types showed floristic similarities to the TEC *Banksia Woodlands of the Swan Coastal Plain*. With similarities between 33% and 38% to the Priority 3, FCT21c floristic community *Low lying Banksia attenuata woodlands or shrublands.*

Natural Area (2014) mapped the vegetation types within Arrowgrass Reserve (0.59 ha), with *Banksia menziesii* Woodlands with either *Eucalyptus marginata* or *Allocasuarina fraseriana* dominant. Natural Area (2020) confirmed these vegetation types in very good condition not meeting the minimum patch size of 1 ha needed to be classified as this TEC, as per the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee, 2016).

6.4 Vegetation Condition

Vegetation condition of Arrowgrass Reserve quadrats in 2020 were classified as Very Good. In previous surveys, quadrats were classified as either Excellent or Very Good. Quadrat AG01 and AG03 showed no change in vegetation condition from 2014 to 2020 while quadrat AG02 has declined from Excellent to Very Good between 2017 and 2020 (Table 14).

Observation of dead *Banksia* sp. was noted in both 2014 and 2017 surveys. Given the size of Arrowgrass Reserve (0.59 ha), its proximity to a highly accessed public area and flat topography the presence of dieback (*Phytophthora* sp.) is possible.

Table 14: Vegetation condition of quadrats in Arrowgrass Reserve over time.

Quadrat	2014	2017	2020
AG01	4	4	4
AG02	5	5	4
AG03	4	4	4

Note: 6 = Pristine, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Degraded and 1 = Very Degraded.

7.0 Field Survey Results – Caladenia Wetland Reserve

7.1 Flora

A total of 96 flora species (taxa) from 34 families were recorded within the five permanent quadrats within Caladenia Wetland Reserve. Of those, there were 79 (82.3%) native species and 17 (17.7%) introduced weeds, one of which is listed as conservation significant flora. Namely, *Caladenia huegelii* (Grand Spider Orchid) listed as Threatened under the *Biodiversity Conservation Act 2016* (WA) and as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (Figure 15 and Table 15). No declared pests or weeds of national significance (WoNS) were recorded. Figure 16 provides examples of native and introduced species found within the quadrats. A total flora species list is provided in Appendix 5 with quadrat data provided in Appendix 6.

An average presence of 34.3 natives and 7.3 introduced species were recorded in Caladenia Wetland Reserve. Quadrat CA02 contained the lowest percentage (29.1%) of the total number of native species observed, while CA05 had over half (54.4%) of the total native species with the lowest percentage (11%) of total weed species (Figure 15 and Table 15).

Of the 34 families within Caladenia Wetland Reserve, Myrtaceae was the most species rich containing 12 native species. Asparagaceae followed in species richness with nine species from this family identified, of which *Lomandra* was the most taxa rich genera with four species.

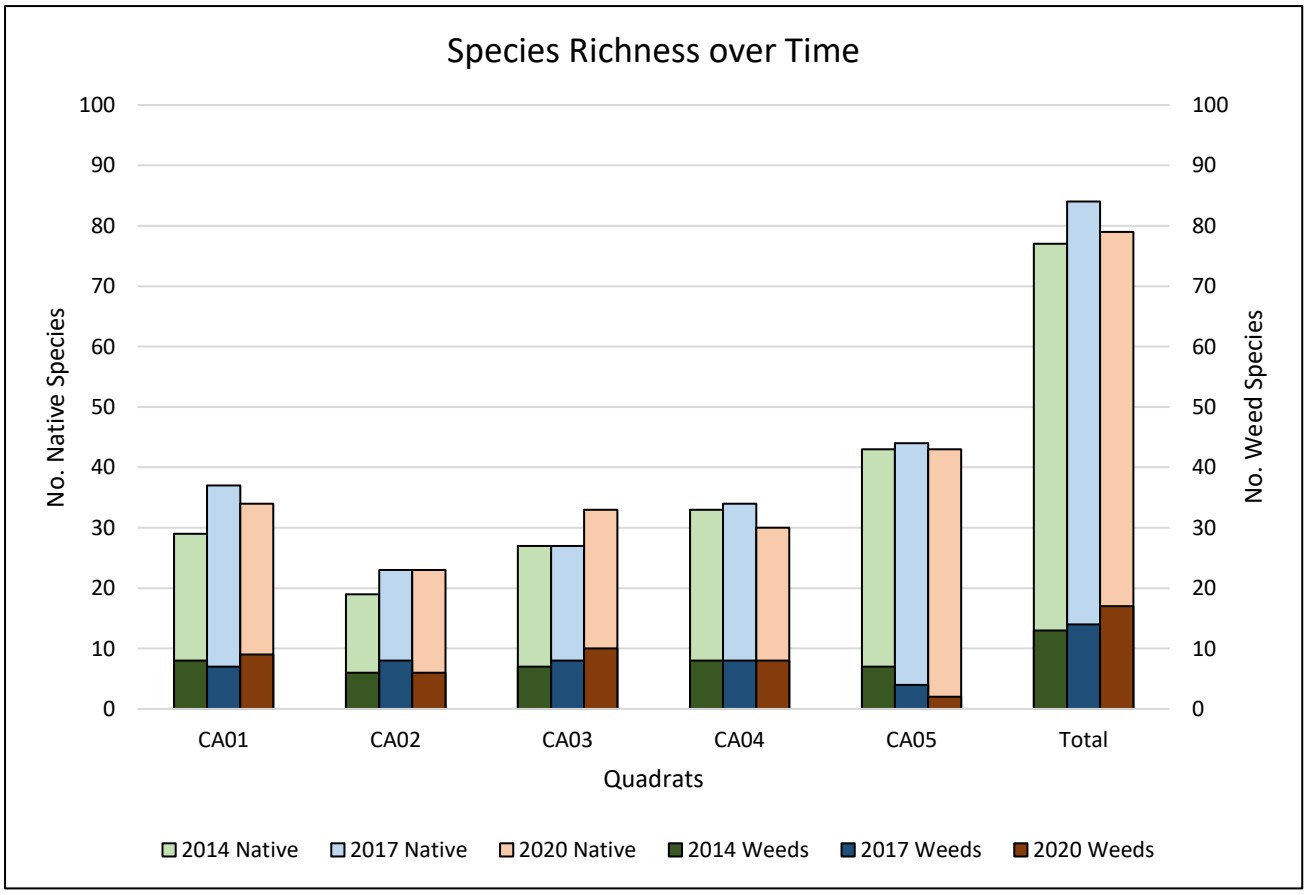


Figure 15: Species richness in quadrats at Caladenia Wetland Reserve over time

Table 15: Caladenia Wetland Reserve comparison of flora composition and diversity per quadrat between Natural Area (2014 & 2020) and Ecoscape (2017)

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
CA01	8	22	29	73	0.9174
CA02	6	24	19	54	0.9266
CA03	7	21	27	51	0.9663
CA04	8	20	33	83	0.9333
CA05	7	14	43	82	0.9672
Average	7.3	18.0	34.3	72.0	0.9556
Ecoscape (2017)					
CA01	7	16	37	191	0.9206
CA02	8	26	23	178	0.8728
CA03	8	23	27	121	0.8944
CA04	8	19	34	253	0.8201
CA05	4	8	44	179	0.9534
Average	6.7	16.7	35.0	184.3	0.8893
Natural Area (2020)					
CA01	9	21	34	300	0.8420
CA02	6	21	23	336	0.8698
CA03	10	23	33	224	0.9364

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
CA04	8	21	30	191	0.9100
CA05	2	4	43	265	0.9255
Average	6.7	16.3	35.3	226.7	0.9240

Caladenia flava subsp. *flava*
(Cowslip Orchid)

Stylidium amoenum
(Lovely Triggerplant)

Caladenia huegelii - T/EN
(Grand Spider Orchid)

Ursinia
*(*Ursinia anthemoides* subsp. *anthemoides)*

Cape bluebell
(**Wahlenbergia capensis*)

Hottentot Fig
(**Carpobrotus edulis*)

Figure 16: Examples of native and introduced flora found in Caladenia Wetland Reserve. * denotes introduced species.

7.2 Vegetation Types

Two vegetation types were recorded within Caladenia Wetland Reserve, namely Open *Banksia* Woodland (BaBmOW) and Open *Melaleuca preissiana* Woodland (MpOW). Majority of the quadrats (60%) are classified as BaBmOW, with CA02 and CA03 located within a conservation category dampland explaining the change in vegetation to MpOW. The description and photos of the two vegetation types are illustrated in Table 16.

Table 16: Vegetation Types within Caladenia Wetland Reserve

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BaBmOW	Open *Banksia* Woodland	Open *Banksia attenuata* and *Banksia menziesii* woodland over mixed Shrubland and *Lyginia barbata* Sedgeland	CA01 CA04 CA05	
MpOW	Open *Melaleuca preissiana* Woodland	Open *Melaleuca preissiana* Woodland over *Regelia inops* and *Hypocalymma angustifolium* Shrubland and *Phlebocarya ciliata* and *Dasypogon bromeliifolius* Sedgeland	CA02 CA03	

7.3 Vegetation Condition

Caladenia Wetland Reserve quadrats were observed to be in Very Good or Excellent condition. Majority (80%) of quadrats were in Excellent condition, while CA04 was considered Very Good (Table 17).

Table 17: Vegetation Condition of quadrats within Caladenia Wetland Reserve

Category		Quadrats	%
6	Pristine		0
5	Excellent	CA01, CA02, CA03, CA05	80.0
4	Very Good	CA04	20.0
3	Good		0
2	Degraded		0
1	Completely Degraded		0

7.4 Floristic Analysis

The Bray-Curtis similarity analysis showed that two distinctive floristic groups were formed over the five quadrats within Caladenia Wetland Reserve, with the two groups approximately 35% similar to one another (Figure 17). Quadrats within each vegetation type do not form distinctive floristic groups as they are only approximately 45 to 65 % similar to one another, however, the current vegetation types are considered the same as they have the same dominant species.

A summary of the results are as follows:

- **BaBmOW** (Open *Banksia attenuata* and *Banksia menziesii* Woodland), quadrats CA01, CA04 and CA05. These three quadrats were separated into two groups at a similarity of approximately 55% with CA01 and CA04 sharing approximately 65% similarity.
- **MpOW** (Open *Melaleuca preissiana* Woodland), quadrats CA02 and CA03. These two quadrats were separated into two groups with a similarity of approximately 47%. Although both quadrats contain Melaleuca species, the dissimilarity is likely due to *E. marginata* being dominant in CA03 and containing different mid and understory species, and therefore cannot be assigned their own unique floristic unit.

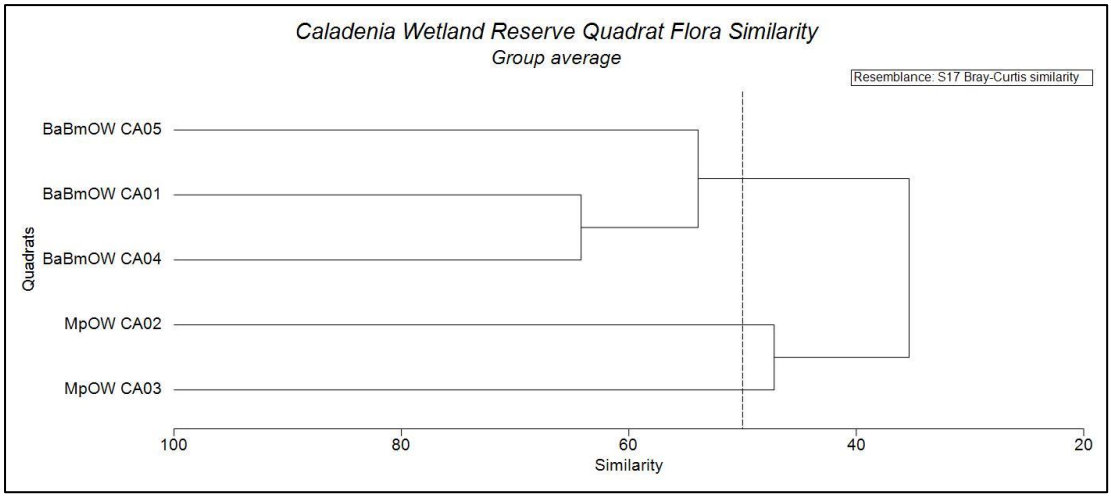


Figure 17: Caladenia Wetland Reserve floristic analysis of the Quadrat data

7.5 Floristic Community Types Analysis against Gibson *et al* (1994)

Data from the five quadrats within Caladenia Wetland Reserve were compared against the Gibson *et al.* (1994) dataset creating a resemblance matrix (Table 18). The most likely FCT's were chosen based on factors linked to the quadrat including similarity, location, vegetation composition and structure. By comparing Gibson similarity and general vegetation composition and structure two floristic community types (FCT) were found to be the most likely, namely Central *Banksia attenuata* – *Banksia menziesii* woodlands (FCT23a) and *Melaleuca preissiana* damplands (FCT4). However, none of the three quadrats were significantly similar. The highest similarity found was in CA04 of 50.63% against quadrat FL-6, referring to FCT21c.

Table 18: Caladenia Wetland Reserve quadrat comparison to Gibson et al. (1994) dataset. (where n = number of quadrats sampled per FCT)

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
CA01	Open *Banksia attenuata, Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	40.51% (n = 41)	40.51% MILT-6	While **FCT21a** had the highest average similarity (40.51%), the greatest similarity was quadrat WAND-1 (42.0%) in **FCT23a**. No presence of *E. marginata* within quadrat. Structure and vegetation more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	30.28% (n = 16)	40.48% FL-6	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	34.61% (n = 19)	42.0% WAND-1	
CA02	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	21.25% (n = 16)	27.45% KOOLJ-1	Both the highest average similarity (21.25%) and greatest similarity of quadrat KOOLJ-1 (27.45%) were in **FCT4**. Although similarity was low across FCT's, the vegetation type is likely **FCT4**.
		FCT5: Mixed Shrub damplands	10.18% (n = 14)	22.86% GUTHR-2	
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	12.83% (n = 16)	25.88% BULLER-3	
CA03	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	18.30% (n = 16)	25.32% C58-1	Similarity was low across quadrats <35. Both **FCT21a** and **FCT23a** had the highest average similarity (24.53%), while the greatest similarity was quadrat HURST01 (33.03%) in **FCT23a**. No
		FCT21a: Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	24.53% (n = 41)	30.95% FL-6	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	24.53% (n = 19)	33.03% HURST01	presence of *Banksia* spp. within quadrat; therefore, likely **FCT4** but not significant.
CA04	Open *Banksia attenuata, Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	27.72% (n = 41)	42.55% NINE-2	While **FCT23a** had the highest average similarity (37.19%), the greatest similarity was quadrat FL-6 (50.63%) in **FCT21c**. Structure and vegetation more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	32.82% (n = 16)	50.63% FL-6	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	37.19% (n = 19)	47.50% HARRY-4	
CA05	Open *Banksia attenuata, Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	29.23% (n = 41)	43.56% NINE-2	**FCT23a** had the highest average similarity (36.61%) and greatest similarity of quadrat BANK-4 (44.25%).
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	28.93% (n = 16)	37.21% DEJONG-C	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	36.61% (n = 19)	44.25% BANK-3	

7.6 Threatened and Priority Ecological Communities

A review of the PMST report indicated the potential presence of three conservation significant ecological communities listed as Matters of Environmental Significance potentially occurring within Caladenia Wetland Reserve, namely,

- *Banksia Woodlands of the Swan Coastal Plain*
- *Clay Pan of the Swan Coastal Plain*
- *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain*.

The 2020 survey confirmed that no threatened or priority communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) were determined within Caladenia Wetland Reserve. The most similar Floristic Community Type (FCT) identified is the Banksia Woodlands of the Swan Coastal Plain, FCT23a. This FCT is a subgroup of the Banksia Woodlands of the Swan Coastal Plain but is not currently recognised as a threatened or priority community at the state or Commonwealth level.

8.0 Implications - Caladenia Wetland Reserve

8.1 Flora

During the September 2020 botanical survey, a total of 96 flora species from 34 families were recorded, of which no conservation significant species were identified. The species mix included 17 introduced species (17.7%) and 79 native species (82.3%). Previous surveys by Natural Area (2014) and Ecoscape (2017) identified similar numbers of species, with a total of 90 and 98 native species, respectively (Figure 15).

8.1.1 Species Diversity

Species richness within Caladenia Wetland Reserve in 2020 moderate to low, with quadrat CA02 containing the lowest species richness of 23 native species and the highest at 43 native species within CA05. Historic data from 2014 and 2017 exhibited these same trends (Figure 18).

The average number of species per quadrat differed slightly between 2014 and 2020, with an average of 37 species recorded in 2014, rising to an average of 40 species for the years 2017 and 2020 (Table 15). As seen in Table 15, the average number of native species richness in Caladenia Wetland Reserve is marginally increasing over time from 34.3 in 2014 to 35.3 in 2020.

Species diversity was calculated using the Simpsons Diversity Index (SDI) to assess species richness and abundance (Colwell, 2009). Species diversity in 2020 was good, ranging between 0.84 and 0.94, this was consistent with previous survey years (2014 and 2017) ranging between 0.82 and 0.97 (Table 15 and Figure 18). The lowest diversity in 2020 was observed in CA01 with an SDI of 0.84.

Species diversity was normal for quadrats within both vegetation types, MpOW (Open *Melaleuca preissiana* Woodland and *Banksia attenuata)* and BaBmOW (Open *Banksia menziesii* Woodland), where vegetation condition was Very Good or Excellent.

8.1.2 Introduced Flora

During the September 2020 flora survey, Caladenia Wetland Reserve identified 17 weed species (Figure 15). Quadrat CA03 identified the highest number of species (10), while CA05 identified two species. Weed species within the five quadrats made up between 4.4% and 20.9% of the total species. Previous surveys from 2014 and 2017 identified slightly higher percentage than that of 2020, ranging between 8.3% and 25.8% of the total species richness (Table 15).

One species was identified in all quadrats and observed every survey year, namely *Gladiolus caryophyllaceus* (Table 19). *Ehrharta calycina* and *Ursinia anthemoides* subsp*. anthemoides* were observed every year but were not as prevalent as *Gladiolus caryophyllaceus,* only present consistently in 80% of quadrats (Table 19). Five invasive species were identified in 2020 that had not been previously observed, namely *Gallium aparine*, *Cotula coronopifolia*, *Hypochaeris radicata*, *Pelargonium capitatum*.

Overall, the percentage of species richness of introduced flora within Caladenia Wetland Reserve is approximately 3.4% higher in 2020 (17.7%) than it was in 2017 (14.3%) and 2014 (14.4%) (Table 15 and Figure 15).

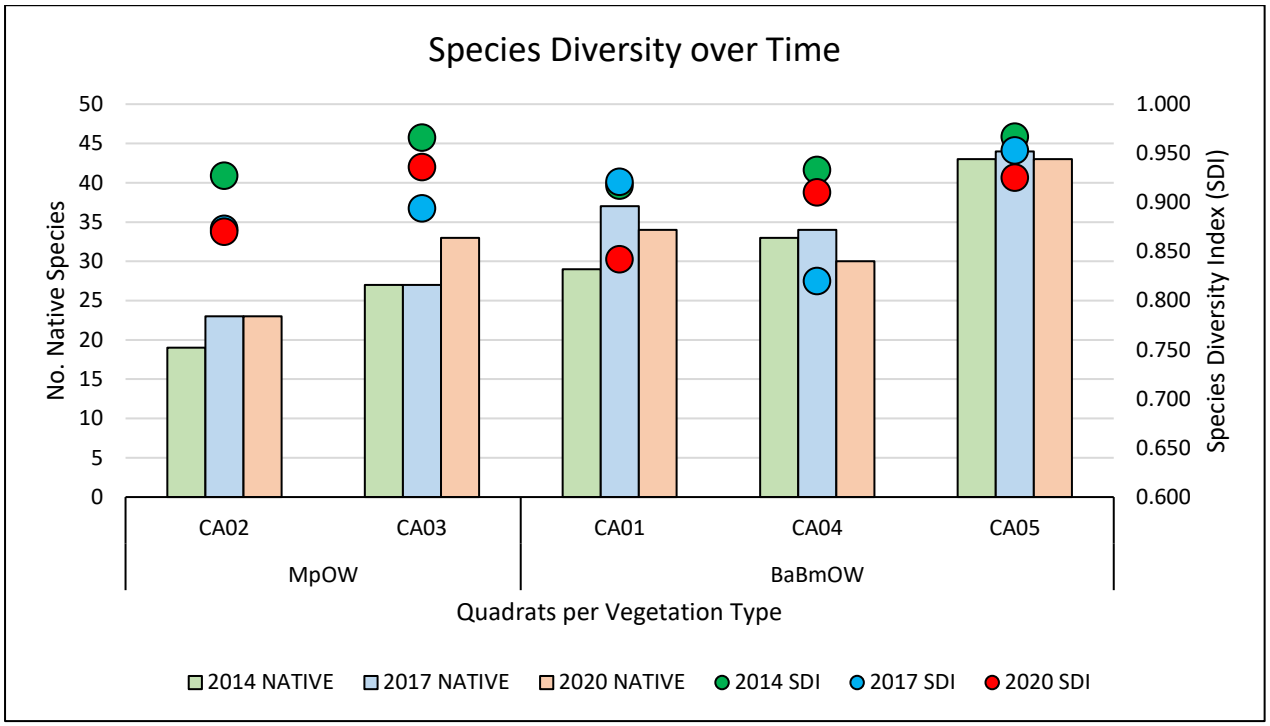


Figure 18: Species diversity of native flora in Caladenia Wetland Reserve over time

Table 19: Weed species present in Caladenia Wetland Reserve quadrats over time

Species	CA01			CA02			CA03			CA04			CA05		
	2014	2017	2020	2014	2017	2020	2014	2017	2020	2014	2017	2020	2014	2017	2020
Aira cupaniana				X	X		X		X						
Avena barbata					X					X	X				
Briza maxima	X	X		X	X		X	X	X	X	X	X	X	X	
Carpobrotus edulis							X	X	X						
Cotula turbinata			X			X									
Ehrharta calycina	X	X	X	X	X	X	X	X	X	X	X	X			X
Ehrharta longifolia				X	X								X	X	
Fumaria capreolata		X													
Gallium aparine						X									
Geranium molle													X		
Gladiolus caryophyllaceus	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hypochaeris glabra	X	X			X		X	X	X	X	X	X	X	X	
Hypochaeris radicata			X			X									
Lysimachia arvensis	X								X						
Pelargonium capitatum			X												
Romulea rosea															
Urospermum picroides								X							
Sonchus oleraceus	X		X							X	X	X	X		
Urospermum picroides	X	X	X						X	X	X	X	X		
Ursinia anthemoides subp. *anthemoides*	X	X	X	X	X	X	X	X	X	X	X	X			
Vicia sativa															
Wahlenbergia capensis			X												

8.1.3 Conservation Significant Flora

One conservation significant species was observed during the September 2020 flora survey, the threatened and endangered *Caladenia huegelii* (Grand Spider Orchid). Historical data indicated that this species was identified in 2014 and 2017 within the same quadrat, CB04. The previous surveys from 2014 and 2017 noted population counts of one and four, respectively, this is similar to counts in 2020 of three organisms. The variation in population size could be a result of multiple factors, including but not limited to

- environmental disturbances influencing rates of growth and germination,
- population movement outside of survey area through seed dispersal,
- variation in assessor's judgement
- this species is an annual and does not flower every year.

Conducting annual targeted surveys of this species would allow further understanding of how this population is changing over time.

8.2 Vegetation Types

Two vegetation types were identified during the 2020 botanical survey within the quadrats at Caladenia Wetland Reserve, namely BaBmOW and MpOW (Table 20). The dominant vegetation type *Banksia* Woodland was observed in 60% of the quadrats. The remaining 40% changing to a vegetation type of *Melaleuca preissiana* Woodlands as they are located within a conservation category wetland.

Outlined in Table 20, the assignment of vegetation types has not changed since 2014 and 2017. The quadrats categorised as *Banksia* Woodland identified the same of similar dominant species over time, this is dependent on assessor's individual judgement.

Table 20: Comparison of vegetation types in Caladenia Wetland Reserve permanent quadrats over time.

Quadrat	2020	2017	2014
CA01	BaBmOW Open *Banksia attenuata, Banksia menziesii* Woodland	*Banksia ilicifolia* over *Beaufortia elegans, Melaleuca thymoides* *Lyginia barbata, Desmocladus flexuosus*	BaBmBiLW Low *Banksia attenuata, Banksia menziesii* and *Banksia ilicifolia* Woodland
CA02	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Regelia inops, Acacia pulchella* *Phlebocarya ciliata, Dasypogon bromeliifolius* *Schoenus efoliatus*	OMpW Open *Melaleuca pressiana* Woodland
CA03	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Regelia ciliata* *Dasypogon bromeliifolius, Hibbertia subvaginata*	OMpW Open *Melaleuca pressiana* Woodland
CA04	BaBmOW Open *Banksia attenuata,*	*Banksia menziesii, Banksia attenuata* over *Jacksonia furcellata, Acacia pulchella*	BaBmBiLW Low *Banksia attenuata, Banksia*

Quadrat	2020	2017	2014
	Banksia menziesii Woodland	*Lyginia barbata, Bossiaea eriocarpa, Patersonia occidentalis*	*menziesii* and *Banksia ilicifolia* Woodland
CA05	BaBmOW Open *Banksia attenuata, Banksia menziesii* Woodland	*Banksia attenuata, Banksia menziesii, Banksia ilicifolia* over *Xanthorrhoea preissii, Melaleuca thymoides Dasypogon bromeliifolius, Bossiaea eriocarpa, Lyginia barbata*	BaBmBiLW Low *Banksia attenuata, Banksia menziesii* and *Banksia ilicifolia* Woodland

8.3 Threatened and Priority Ecological Communities

According to NationalMap, a threatened ecological community (TEC) is listed within Caladenia Wetland Reserve (DBCA, 2021d). The threatened ecological community *Banksia Woodlands of the Swan Coastal Plain* listed as Endangered under the EPBC Act 1999 (Cwlth) has the potential to occur within this site. It was found that the BaBmOW vegetation type showed floristic similarities to the TEC *Banksia Woodlands of the Swan Coastal Plain*. With similarities between 37% and 51% to the Priority 3, FCT21c floristic community *Low lying Banksia attenuata woodlands or shrublands.*

Natural Area (2014) mapped the vegetation types within Caladenia Wetland Reserve, with the *Banksia* woodlands covering approximately 50% of the site. Natural Area (2020) confirmed this vegetation type in excellent and very good condition, meeting the minimum patch size of 0.5 ha needed to be classified as this TEC, as per the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee, 2016).

8.4 Vegetation Condition

Vegetation condition within Caladenia Wetland Reserve ranged from Very Good to Excellent in 2020. Previous surveys classified the quadrats as either Very Good or Excellent. Quadrat CA02, CA03 and CA05 showed no change in condition from 2014 to 2020, while quadrats CA01 and CA04 declined from Excellent to Very Good in 2017 (Table 21).

Table 21: Caladenia Wetland Reserve comparison of vegetation condition of quadrats between 2014, 2017 and 2020.

Quadrat	2014	2017	2020
CA01	5	4	5
CA02	5	5	5
CA03	5	5	5
CA04	5	4	4
CA05	5	5	5

(6 = Pristine, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Degraded and 1 = Very Degraded)

9.0 Field Survey Results - Clifton Buffer and Reserve

9.1 Flora

A total of 65 flora species (taxa) across 29 families were recorded within the three permanent quadrats in Clifton Buffer and Reserve (Figure 20). Of these, 55 (84.6%) were native species and 10 (15.4%) were introduced weeds, one of which is listed as conservation significant flora. Namely, the Priority 2 *Poranthera moorokatta* listed under the *Biodiversity Conservation Act 2016 (WA)*. No declared pests or weeds of national significance (WoNS) were identified. A total flora species list is provided in Appendix 5 with quadrat data provided in Appendix 6.

Clifton Buffer and Reserve quadrats identified an average of 23.7 natives and 4.3 introduced species (Figure 19). All three quadrats observed approximately a third (33.8% to 38.5%) of the total species richness. Only four species (6.2%) were identified in all quadrats, with 75% of species only observed within their corresponding quadrats (Table 22).

Of the 29 families, Fabaceae was the most species rich containing eight native species, followed by Myrtaceae with seven species. The most taxa rich genera were *Stylidium* and *Lomandra,* containing three species each.

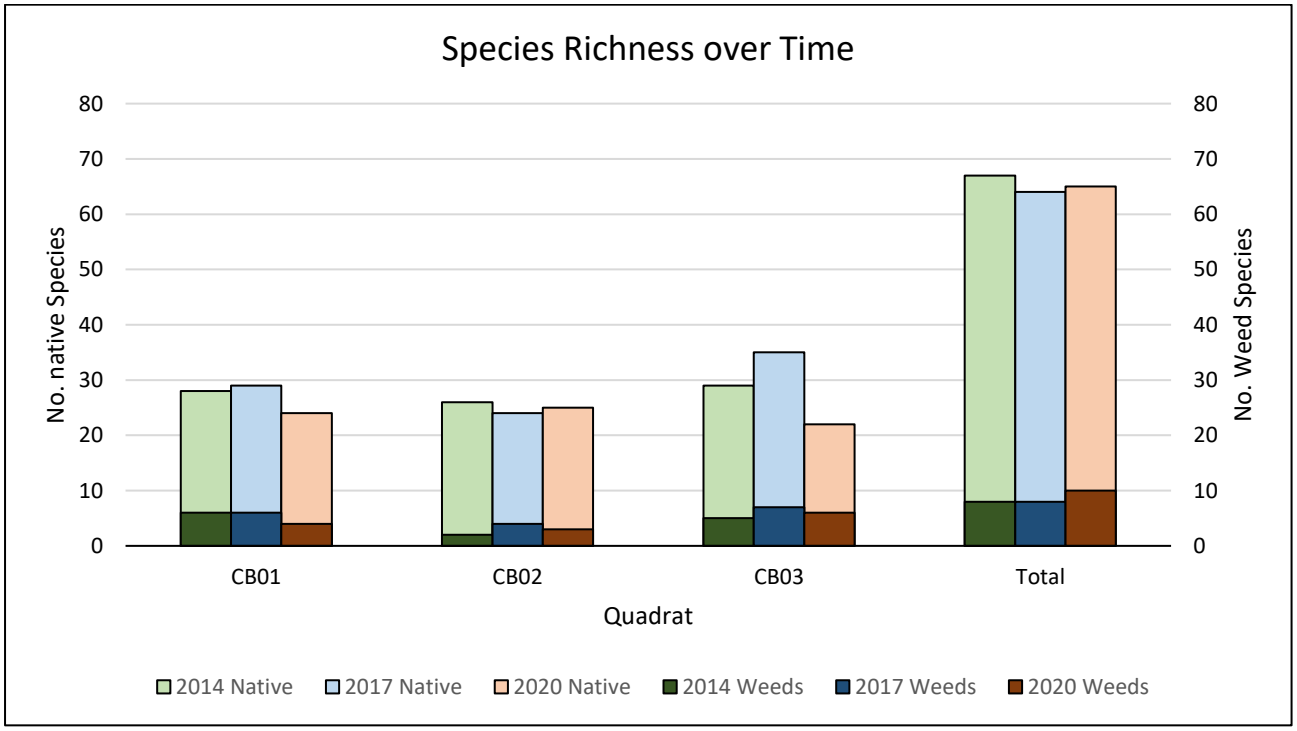


Figure 19: Species richness in quadrats at Clifton Buffer and Reserve over time

Table 22: Clifton Buffer and Reserve comparison of flora composition and diversity per quadrat between Natural Area (2014 & 2020) and Ecoscape (2017)

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
CB01	6	18	28	71	0.944
CB02	2	7	26	91	0.837
CB03	5	15	29	69	0.924
Average	4.3	13.2	27.7	77.0	0.902
Ecoscape (2017)					
CB01	6	17	29	334	0.874
CB02	4	14	24	181	0.875
CB03	7	17	35	216	0.939
Average	5.7	16.0	29.3	243.7	0.896
Natural Area (2020)					
CB01	4	14	24	71	0.879
CB02	3	11	25	91	0.857
CB03	6	21	22	69	0.887
Average	4.3	15.5	23.7	77.0	0.874

Patersonia occidentalis
(Purple Flag)

Hypocalymma angustifolium
(White Myrtle)

Poranthera moorokatta (P2)

Hare's Tail Grass
*(*Lagurus ovatus)*

**Petrorhagia dubia*

Perennial Veldt Grass
(**Ehrharta calycina*)

Figure 20: Examples of native and introduced flora found in Clifton Buffer and Reserve. * denotes introduced species

9.2 Vegetation Types

Three vegetation types were present within Clifton Buffer and Reserve, Open *Banksia attenuata* Woodland (BaOW), Open *Eucalyptus todtiana* Woodland (EtOW) and Open *Melaleuca preissiana* Woodland (MpOW). Each quadrat is associated to one of the three vegetation types, with descriptions and photographs provided in Table 23.

Table 23: Vegetation Types within Clifton Buffer and Reserve

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BaOW	Open *Banksia attenuata* Woodland	Open *Banksia attenuata* woodland over *Xanthorrhoea preissii, Xanthorrhoea brunonis* mixed shrubland and *Dasypogon bromeliifolius* and *Chamaescilla corymbosa* sedgeland	CB02	
EtOW	Open *Eucalyptus todtiana* Woodland	Open *Eucalyptus todtiana w*oodland over *Xanthorrhoea preissii* and *Melaleuca trichophylla s*hrubland and a *Phlebocarya ciliata* and *Lyginia barbata s*edgeland	CB03	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
MpOW	Open *Melaleuca preissiana* Woodland	Open *Melaleuca preissiana* Woodland over *Xanthorrhoea preissii* and *Hypocalymma angustifolium* shrubland	CB01	

9.3 Vegetation Condition

All three quadrats within Clifton Buffer and Reserve are in Excellent condition (Table 24).

Table 24: Vegetation Condition of quadrats within Clifton Buffer and Reserve

Category		Quadrats	%
6	Pristine		0
5	Excellent	CB01, CB02, CB03	100.0
4	Very Good		0
3	Good		0
2	Degraded		0
1	Completely Degraded		0

9.4 Floristic Analysis

The Bray-Curtis similarity analysis showed that each of the three quadrats made up a distinctive floristic group within Clifton Buffer and Reserve, with the three groups containing between 20% and 40% similarity to one another (Figure 21). Each vegetation type is considered different to one another due to lack of similarity and differing dominant species.

A summary of the results are as follows:

- **BaOW** (Open *Banksia attenuata* Woodland), quadrat CB02. The floristic analysis grouped this quadrat as being floristically different from the other two quadrats.
- **EtOW** (Open *Eucalyptus todtiana* Woodland), quadrat CB03. The floristic analysis grouped this quadrat as being floristically different from the other two quadrats.
- **MpOW** (Open *Melaleuca preissiana* Woodland), quadrat CB01. The floristic analysis grouped this quadrat as the most different with a similarity of approximately 20% to the other quadrats.

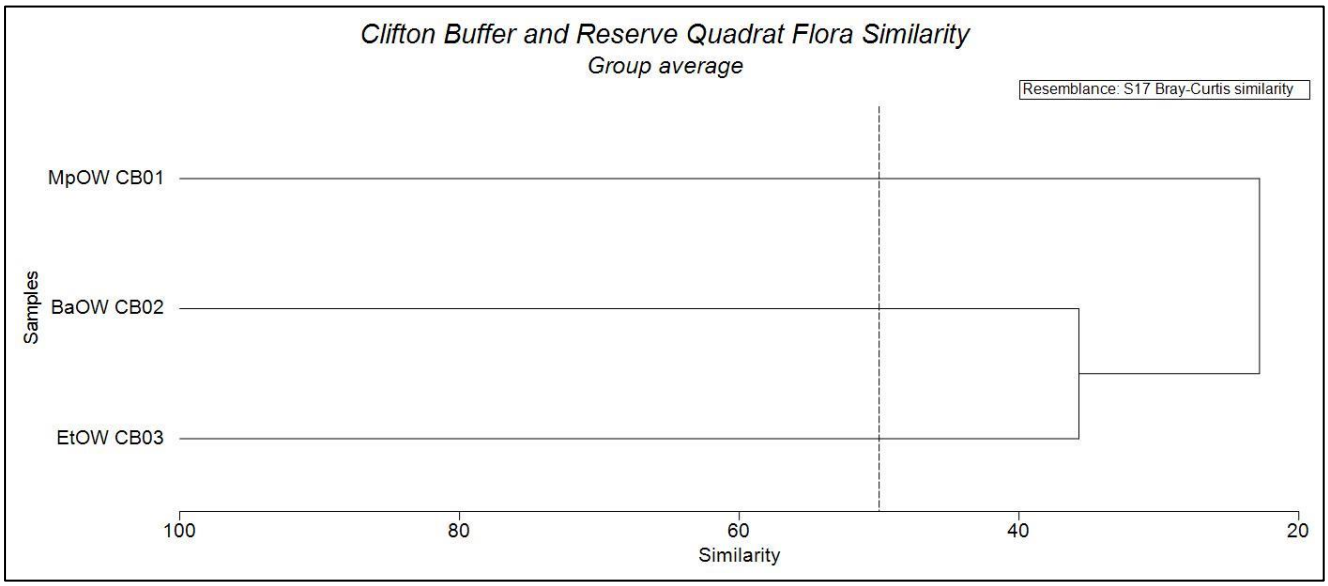


Figure 21: Clifton Buffer and Reserve floristic analysis of the Quadrat data

9.5 Floristic Community Types Analysis against Gibson *et al* (1994)

Data from the three quadrats within Clifton Buffer and Reserve were compared against the Gibson *et al.* (1994) dataset creating a resemblance matrix (Table 25). The most likely FCT's were chosen based on factors linked to the quadrats including similarity, location, vegetation composition and structure. By comparing Gibson similarity and general vegetation composition and structure three floristic community types (FCT) were found to be the most likely, namely,

- *Melaleuca preissiana* damplands (FCT4)
- Central *Banksia attenuata* – *Eucalyptus marginata* woodlands (FCT21a)
- Central *Banksia attenuata* – *Banksia menziesii* woodlands (FCT23a).

However, none of the three quadrats were significantly similar. The highest similarity found was in CB02 of 36.14% against quadrat HURST04, referring to FCT23a.

Table 25: Clifton Buffer and Reserve quadrat comparison to Gibson et al. (1994) dataset. (where n = number of quadrats sampled per FCT)

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Quadrat highest similarity	Comments
CB01	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	22.25% (n = 16)	34.48% MODO-6	**FCT4** had the highest average similarity (22.25%) and greatest similarity of quadrat BANK-4 (34.48%).
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	13.28% (n = 16)	25.00% MODO-2	
		FCT22: *Banksia ilicifolia* woodlands (P2)	17.92% (n = 10)	27.59% DEJONG-a	
CB02	Open *Banksia attenuata* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	25.76% (n = 41)	35.71% NINE-2	**FCT21a** had the highest average similarity (25.76%) and greatest similarity of quadrat NINE-2 (35.71%). However, no *E. marginata* present. The vegetation and structure was more similar to **FCT21a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	21.95% (n = 16)	34.67% LOWE06B	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	24.16% (n = 19)	31.43% HARRY-4	
CB03	Open *Eucalyptus todtiana* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	20.23% (n = 41)	28.57% NINE-2 & GUTHR-6	**FCT23a** had the highest average similarity (24.62%) and greatest similarity of quadrat HURST04 (36.14%). Species composition resembled **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	22.17% (n = 16)	34.78% FL-7	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	24.62% (n = 19)	36.14% HURST04	

9.6 Threatened and Priority Ecological Communities

A review of the PMST report indicated the potential presence of three conservation significant ecological communities listed as Matters of Environmental Significance potentially occurring within Clifton Buffer and Reserve, namely,

- *Banksia Woodlands of the Swan Coastal Plain*
- *Clay Pan of the Swan Coastal Plain*
- *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain*.

The 2020 survey confirmed that no threatened of priority communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) were determined within Clifton Buffer and Reserve. With Banksia Woodlands of the Swan Coastal Plain (FCT21a and FCT23a) being the closest threatened ecological community. These FCT's are a subgroup of the Banksia Woodlands of the Swan Coastal Plain but they do not have their own conservation ratings for Western Australia or the Commonwealth and is not considered threatened or priority community.

10.0 Implications - Clifton Buffer and Reserve

10.1 Flora

During the September 2020 botanical survey, a total of 65 species from 29 families were recorded, of which one conservation significant species was identified, *Poranthera moorokatta* (P2). The species mix included ten introduced (15.4%) and 55 native species (84.6%). Previous surveys by Natural Area (2014) and Ecoscape (2017) identified similar species richness, with 67 and 65 species, respectively (Figure 19).

10.1.1 Species Diversity

Species richness within Clifton Buffer and Reserve in 2020 was moderate to low, with all quadrats observing a species richness between 22 and 25 native species (Table 22). Historic data from 2014 and 2017 exhibited similar trends (Figure 19).

The average number of species per quadrats differed slightly between 2014 and 2020. An average of 27.7 species was recorded in 2014, rising to 29.3 species in 2017 and declining to an average of 23.7 in 2020 (Table 22). Native species richness in two quadrats (CB01, CB03) declined lower than that of previous surveys, while quadrat CB03 observed the greatest change in native species richness, declining from 35 species to 22 between 2017 and 2020.

Species diversity was calculated using the Simpsons Diversity Index (SDI) to assess species richness and abundance (Colwell, 2009). Species diversity in 2020 was good, ranging between 0.85 and 0.89 SDI, this is consistent with previous survey years (2014 and 2017) ranging between 0.83 and 0.95 SDI (Table 22 and Figure 22).

Species diversity was good within MpOW (Open *Melaleuca preissiana* Woodland), BaOW (Open *Banksia attenuata* Woodland) and EtLOW (Low Open *Eucalyptus todtiana* Woodland) where vegetation condition was Very Good.

10.1.2 Introduced Flora

During the September 2020 flora survey, ten weed species were identified in Clifton Buffer and Reserve (Table 26 and Figure 19). Quadrat CB03 identified the highest number of species (6), while CB01 and CB02 identified four species. Weed species within the three quadrats make up between 10.7% and 21.4% of the total species. Previous survey from 2014 and 2017 identified similar percentages than 2020, ranging between 7.1% and 17.6% of the total species richness (Table 22).

No species were identified in all quadrats and observed every year; however, two species were observed every year in 66% of quadrats, namely Blowfly Grass and Wild Gladiolus. Three species were identified in 2020 that had not previously been observed, namely *Cotula coronopifolia*, *Lagurus ovatus* and *Petrorhagia dubia* (Table 26).

Overall, the percentage of species richness of introduced flora since 2014 increased from an average of 13.2%, to 15.5% in 2020. No significant changes in average weed richness were noted between 2017 and 2020 (Table 22).

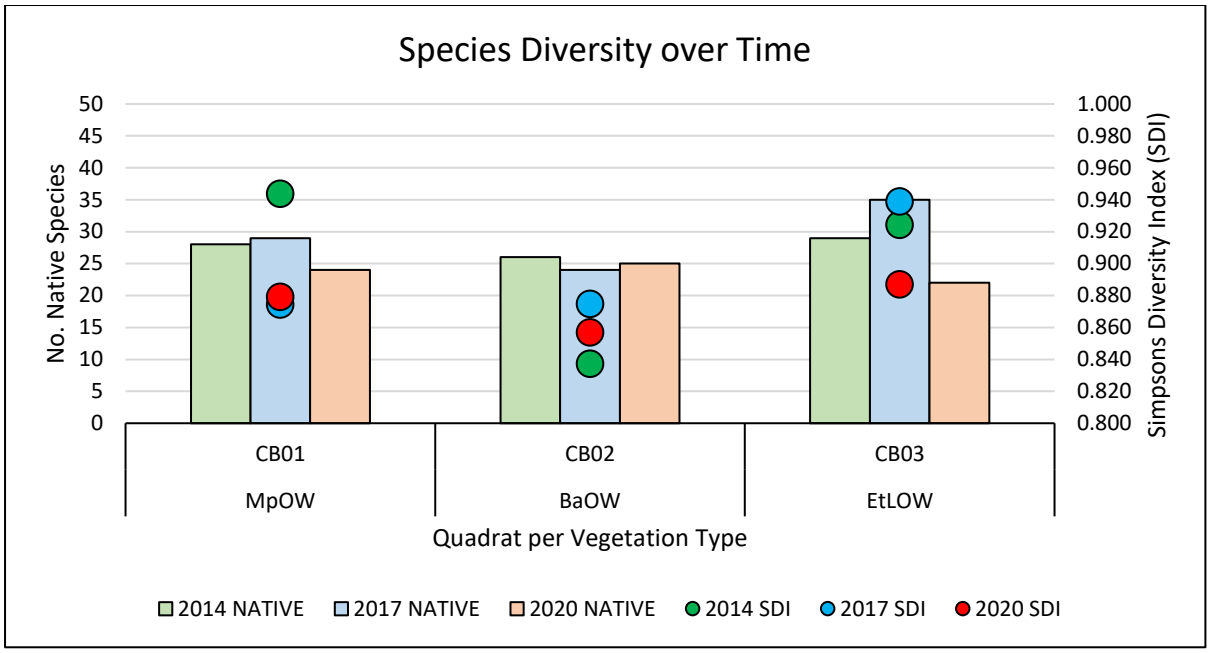


Figure 22: Species diversity of native flora in Clifton Buffer and Reserve over time

Table 26: Weed species present in Clifton Buffer and Reserve over time

Species	CB01			CB02			CB03		
	2014	2017	2020	2014	2017	2020	2014	2017	2020
Aira cupaniana	X	X	X					X	
Arctotheca calendula							X		
Briza maxima	X	X		X	X	X	X	X	X
Cotula turbinata			X						
Ehrharta calycina	X	X			X		X	X	X
Freesia x *leichtlinii*				X					
Gladiolus caryophyllaceus	X	X	X				X	X	X
Hypochaeris radicata	X	X			X		X	X	X
Lagurus ovata						X			
Petrorhagia dubia									X
Sonchus oleraceus					X	X			
Ursinia anthemoides subsp. *anthemoides*	X	X	X					X	X
Wahlenbergia capensis								X	

10.1.3 Conservation Significant Flora

One conservation significant species was observed during the September 2020 flora survey, the Priority 2 *Poranthera moorokatta*. Historical data indicated that this species was identified in 2017 within the same quadrat, CB01. The previous survey noted a population abundance of 30, this is considerably higher than the 2020 count of 2 individuals. The variation in population size could be a result of multiple factors, including but not limited to

- environmental disturbances influencing rates of growth and germination
- population movement outside of survey area through seed dispersal
- this species is an annual and different numbers can appear each year
- variation in assessor's judgement.

Conducting annual targeted surveys of this species would allow further understanding of how this population is changing over time.

10.2 Vegetation Types

Three vegetation types were identified during the 2020 botanical survey within the quadrats at Clifton Buffer and Reserve, namely BaOW, EtOW and MpOW (Table 27). Outlined in Table 27, the assignment of vegetation types has not significantly changed since 2014 and 2017. Ecoscape (2017) noted quadrat CB03 with dominant *Nuytsia floribunda* and presence of *Eucalyptus todtiana*, while Natural area (2014 and 2020) noted dominant *Eucalyptus todtiana* and presence of *Nuytsia floribunda* (Table 27). Differences in vegetation types can be a result in variation of assessors judgement.

Table 27: Comparison of vegetation types in Clifton Buffer and Reserve permanent quadrats over time.

Quadrat	2020	2017	2014
CB01	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Hypocalymma angustifolium, Xanthorrhoea preissii, Adenanthos obovatus* *Dasypogon bromeliifolius, Cyathochaeta avenacea, Phlebocarya ciliata*	MpOW Open *Melaleuca preissiana* Woodland
CB02	BaOW Open *Banksia attenuata* Woodland	*Banksia attenuata* over *Xanthorrhoea preissii* *Dasypogon bromeliifolius, Phlebocarya ciliata*	BaW *Banksia attenuata* Woodland
CB03	EtOW Open *Eucalyptus todtiana* Woodland	*Nuytsia floribunda* over *Xanthorrhoea preissii, Jacksonia furcellata* *Phlebocarya ciliata, Lyginia barbata, Hibbertia subvaginata*	EtOW Open *Eucalyptus todtiana* Woodland

10.3 Threatened and Priority Ecological Communities

According to NationalMap, a threatened ecological community (TEC) is listed within Clifton Buffer and Reserve (DBCA, 2021d). The threatened ecological community *Banksia Woodlands of the Swan Coastal Plain* listed as Endangered under the EPBC Act 1999 (Cwlth) has the potential to occur within this site. It was found that all three vegetation types showed floristic similarities to the TEC *Banksia Woodlands of the Swan Coastal Plain*. Similarities shown between 25% and 35% to the Priority 3, FCT21c floristic community *Low lying Banksia attenuata woodlands or shrublands* and 27% similarity in CB01 to the Priority 2, FCT22 floristic community *Banksia ilicifolia* woodlands.

Natural Area (2014) mapped the vegetation types within Clifton Buffer and Reserve (6.43 ha), containing variations of *Banksia* Woodlands covering majority of the site. The quadrat CB01 was consistent in its vegetation type being *Melaleuca preissiana* Woodlands, despite the similarities shown in the 2020 floristic analysis to FCT21c and FCT22 it is unlikely to be considered these FCT's as the vegetation and structure is inconsistent. However, the remaining quadrats are within *Banksia* Woodlands with Natural Area (2020) confirming the vegetation types in excellent condition and meeting the minimum patch size of 0.5 ha needed to be classified as this TEC, as per the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee, 2016).

10.4 Vegetation Condition

Vegetation condition in 2020 of quadrats in Clifton Buffer and Reserve were all Excellent. Previous surveys noted these quadrats as excellent. No change in vegetation condition has been observed (Table 28).

Table 28: Arrowgrass Reserve comparison of vegetation condition of quadrats between 2014, 2017 and 2020.

Quadrat	2014	2017	2020
CB01	5	5	5
CB02	5	5	5
CB03	5	5	5

(6 = Pristine, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Degraded and 1 = Very Degraded)

11.0 Field Survey Results- Queens Park Regional Open Space

11.1 Flora

A total of 150 flora species (taxa) from 41 families were recorded within the 19 permanent quadrats in QPROS. Of these, 115 were native species (76.7%) with the remaining 35 (23.3%) species being introduced weeds (Figure 23 and Table 29). No conservation significant species were recorded on site. One declared pest and WoNS, namely Bridal Creeper was observed across 26% of quadrats (QP08, QP11, QP13, QP14 and QP15). Figure 24 provides examples of native and introduced species found within QPROS. A total flora species list is provided in Appendix 5 with quadrat data provided in Appendix 6.

The quadrats in QPROS contained an average of 27 natives and 10 introduced species. Quadrats QP05, QP09 and QP013 had the lowest percentage (<5%) of the total number of native species observed. These quadrats also observed a higher species richness of weeds than natives (Figure 23). A total of 17.4% of species were identified across more than half of the quadrats, with 41.7% of species only occurring in one quadrat (Table 29).

Of the 41 families within QPROS, Asparagaceae and Cyperaceae were the most prominent containing 11 native species each. *Acacia* was the most taxa rich genera with four species identified.

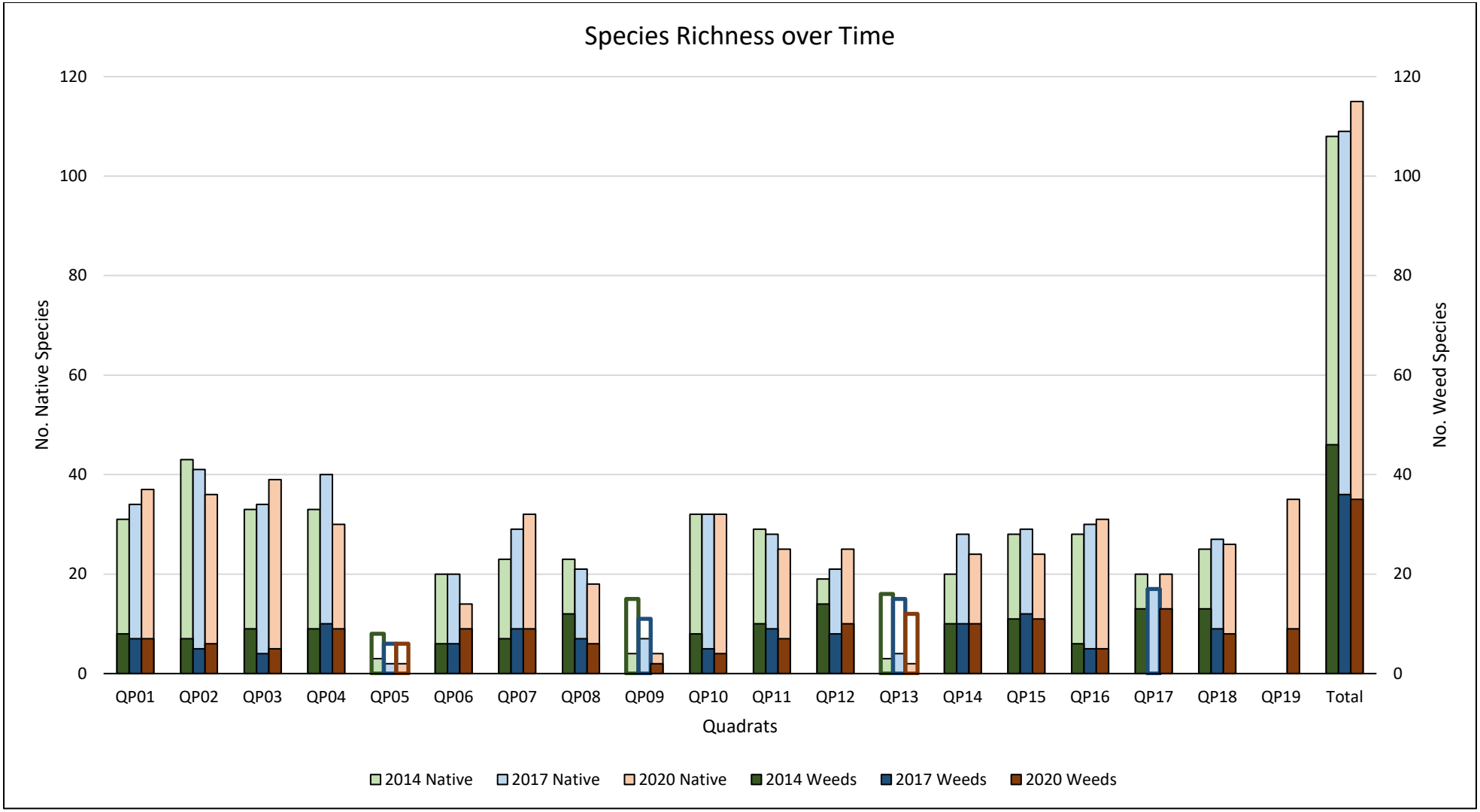


Figure 23: Change in species richness in quadrats at QPROS over time. Note 2014 and 2017 No. quadrats=18, 2020 No. quadrats = 19.

Table 29: QPROS comparison of flora composition and diversity per quadrat between Natural Area (2014 & 2020) and Ecoscape (2017)

Quadrats per Year	Introduced		Native		
	No. Species	% Total Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
QP01	8	21	31	138	0.900
QP02	7	14	43	135	0.948
QP03	9	21	33	116	0.940
QP04	9	21	33	180	0.912
QP05	8	73	3	57	0.223
QP06	6	23	20	30	0.945
QP07	7	23	23	85	0.913
QP08	12	34	23	56	0.924
QP09	15	79	4	14	0.495
QP10	8	20	32	82	0.945
QP11	10	26	29	69	0.944
QP12	14	42	19	64	0.892
QP13	16	84	3	10	0.600
QP14	10	33	20	99	0.806
QP15	11	28	28	173	0.825
QP16	6	18	28	84	0.933
QP17	13	39	20	77	0.893

Quadrats per Year	Introduced		Native		
	No. Species	% Total Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
QP18	13	34	25	86	0.851
QP19	-	-	-	-	-
Average	13.0	36.8	22.5	81.5	0.872
Ecoscape (2017)					
QP01	7	17	34	369	0.880
QP02	5	11	41	328	0.866
QP03	4	11	34	269	0.926
QP04	10	20	40	399	0.859
QP05	6	75	2	7	0.286
QP06	6	23	20	54	0.922
QP07	9	24	29	361	0.667
QP08	7	25	21	94	0.893
QP09	11	61	7	28	0.622
QP10	5	14	32	236	0.917
QP11	9	24	28	117	0.954
QP12	8	28	21	96	0.887
QP13	15	79	4	17	0.493
QP14	10	26	28	250	0.786

Quadrats per Year	Introduced		Native		
	No. Species	% Total Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Ecoscape (2017)					
QP15	12	29	29	269	0.811
QP16	5	14	30	213	0.763
QP17	17	50	17	103	0.897
QP18	9	25	27	273	0.772
QP19	-	-	-	-	-
Average	13.0	37.5	22.0	188.0	0.835
Natural Area (2020)					
QP01	7	16	37	357	0.930
QP02	6	14	36	338	0.925
QP03	5	11	39	348	0.931
QP04	9	23	30	297	0.887
QP05	6	75	2	10	0.200
QP06	9	39	14	64	0.857
QP07	9	22	32	274	0.841
QP08	6	25	18	240	0.838
QP09	2	33	4	17	0.331
QP10	4	11	32	216	0.926
QP11	7	22	25	106	0.919

Quadrats per Year	Introduced		Native		
	No. Species	% Total Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2020)					
QP12	10	29	25	127	0.868
QP13	12	86	2	12	0.303
QP14	10	29	24	272	0.813
QP15	11	31	24	296	0.845
QP16	5	14	31	225	0.938
QP17	13	39	20	113	0.857
QP18	8	24	26	262	0.860
QP19	9	20	35	673	0.763
Average	10.0	27.8	27.0	349.3	0.827

Note: QP19 was installed in 2020

Patersonia occidentalis
(Purple Flag)

Microtis media subsp. *media*
(Mignonette Orchid)

Philotheca spicata
(Pepper and Salt)

Soursob
*(*Oxalis pes-caprae)*

Freesia
(**Freesia alba* x *leichtlinii)*

Common Sowthistle
*(*Sonchus oleraceus)*

Figure 24: Examples of native and introduced flora found in QPROS. * denotes introduced species

11.2 Vegetation Types

Ten vegetation types were recorded within QPROS. The vegetation types of Low *Banksia attenuata* and *Banksia menziesii* Woodland (BaBmLW) and *Eucalyptus marginata* and *Banksia attenuata* (EmBaW) were observed in three or more quadrats, while the remaining vegetation types only occurred in one to two quadrats (Table 30).

Table 30: Vegetation Types within QPROS

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BaBmLW	Low *Banksia attenuata* and *Banksia menziesii* Woodland	Low *Banksia attenuata* and *Banksia menziesii* Woodland over mixed shrubland and mixed sedges	QP02 QP03 QP04 QP14 QP18	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
CcBaAfW	*Corymbia calophylla, Banksia attenuata* and *Allocasuarina fraseriana* Woodland	*Corymbia calophylla, Banksia attenuata* and *Allocasuarina fraseriana* woodland over *Acacia pulchella* and *Hibbertia hypericoides* and mixed sedges	QP01	
CcEmW	*Corymbia calophylla* and *Eucalyptus marginata* Woodland	*Corymbia calophylla* and *Eucalyptus marginata* woodland over *Xanthorrhoea* spp. and *Dasypogon bromeliifolius* shrubland and mixed sedgeland	QP11 QP17	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
CcMpAfW	*Corymbia calophylla, Melaleuca preissiana* and *Allocasuarina fraseriana* Woodland	*Corymbia calophylla, Melaleuca preissiana* and *Allocasuarina fraseriana* woodland over *Lepidosperma squamatum*	QP06	
CcW	*Corymbia calophylla* Woodlands	*Corymbia calophylla* woodlands over *Dasypogon bromeliifolius* and mixed sedges	QP08 QP16	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
EmBmW	*Eucalyptus marginata* and *Banksia menziesii* Woodland	*Eucalyptus marginata* and *Banksia menziesii* woodland over mixed shrubland and mixed sedges	QP10 QP12 QP19	
EpLbOLH	Open Low *Eremaea pauciflora* and *Lyginia barbata* Heath	Open low *Eremaea pauciflora* and *Lyginia barbata h*eath over mixed sedgelands	QP07	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
ErMrW	*Eucalyptus rudis* and *Melaleuca raphiophylla* Woodland	*Eucalyptus rudis* and *Melaleuca raphiophylla* woodland over *Carex divisa** and mixed weedy understory	QP05	
EtMpLW	Low *Eucalyptus todtiana* and Melaleuca preissiana Woodland	Low *Eucalyptus todtiana* and Melaleuca preissiana woodland over *Dasypogon bromeliifolius* and weedy understory	QP15	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
MpLW	Low *Melaleuca preissiana* Woodland	Low open *Melaleuca preissiana* woodland over *Astartea affinis* shrubland	QP09 QP13	

11.3 Vegetation Condition

Vegetation condition of quadrats within QPROS range from Excellent to Degraded. A total of 47.4% of the quadrats were of excellent condition, with 15.8% exhibiting a degraded condition (Table 31).

Table 31: Vegetation condition of quadrats in QPROS

Category		Quadrats	%
6	Pristine		0
5	Excellent	QP01, QP02, QP03, QP04, QP07, QP10, QP14, QP16, QP18, QP19	47.4
4	Very Good	QP11, QP17	10.5
3	Good	QP08, QP06, QP12, QP15	21.1
2	Degraded	QP05, QP09, QP13	15.8
1	Completely Degraded		0

11.4 Floristic Analysis

The Bray-Curtis similarity analysis showed two distinct floristic groups separating QP05 and QP09 from the remaining quadrats. This is due to low diversity and therefore lack of species to compare. Eight quadrats are found to be at least 50% similar to each other, in which contains all of quadrats of the vegetation type BaBmLW (Figure 24).

A summary of the results are as follows:

- **BaBmLW** (Low *Banksia attenuata* and *Banksia menziesii* Woodland), quadrats QP02, QP03, QP04, QP14 and QP18. The floristic analysis grouped this vegetation type together with a similarity greater than 50%. One quadrat (QP02) was more similar to vegetation type CcBaAfW than BaBmLW.
- **CcBaAfW** (*Corymbia calophylla*, *Banksia attenuata* and *Allocasuarina fraseriana* Woodland), quadrat QP01. This quadrat was floristically similar to QP02 (BaBmLW), this is due to similar understory species with differing dominant trees, excluding *B. attenuata*.
- **CcEmW** (*Corymbia calophylla* and *Eucalyptus marginata* Woodland), quadrats QP11 and QP17. The floristic analysis separated these quadrats as they shared a similarity of approximately 20%. Quadrat QP17 was not similar to any other vegetation type, while QP11 shared a similarity of approximately 55% with QP12 (EmBmW), this is due to the presence of *B. menziesii* with similar shrubs and understory species.
- **CcMpAfW** (*Corymbia calophylla, Melaleuca preissiana* and *Allocasuarina fraseriana* Woodland), quadrat QP06. The floristic analysis grouped this vegetation type with quadrat QP15 (EtMpLW) with a similarity of approximately 45%, which do not form a distinctive floristic group.
- **CcW** (*Corymbia calophylla* Woodland), quadrats QP08 and QP16. The floristic analysis separated these quadrats as they shared a similarity of approximately 30%. Quadrat QP08 did not share similarity with vegetation types greater than 30%. While QP16, was more similar (40%) to majority of vegetation types dominant with *B. attenuata*. This is due to similar shrub and understory species present regardless of dominant tree species.
- **EmBmW** (*Eucalyptus marginata, Banksia menziesii* Woodlands), quadrats QP10, QP12 and QP19. The floristic analysis separated the quadrats into two floristic groups at 40% similarity, with QP10

and QP12 more similar to each other (≈47%) than with QP19. Quadrat QP12 shared the most similarities (≈55%) with QP11 (CcEmW), this is due to the presence of similar shrubs and herbs.

- **EpLbOLH** (Open Low *Eremaea pauciflora* and *Lyginia barbata* Heath), quadrat QP07. The floristic analysis grouped this vegetation type with QP19 (EmBmW) with a similarity of approximately 55%, they do not form a distinctive floristic group. Previously, Natural Area (2014) listed quadrat QP07 as *B. menziesii* Woodland; this is likely due to remnant shrubs and understory species are those similar to those in a *Banksia* woodland.
- **ErMrW** (*Eucalyptus rudis* and *Melaleuca raphiophylla* Woodland), quadrat QP05. The floristic analysis grouped this vegetation type with QP09 (MpLW) with a similarity of approximately 40%, they do not form a distinctive floristic group. Due to a lack in species diversity these two quadrats only share three species, two being weeds.
- **EtMpLW** (Low *Eucalyptus todtiana*, *Melaleuca preissiana* Woodland), quadrat QP15. The floristic analysis grouped this vegetation type with QP06 (CcMpAfW) with a similarity of approximately 47%, which do not form a distinct floristic group.
- **MpLW** (Low *Melaleuca preissiana* Woodland), quadrat QP09 and QP13. The floristic analysis separated this vegetation type into two groups, sharing approximately 6% similarity. This is due to the lack of diversity within QP09 (6 species). Quadrat QP13 shares the most similarity approximately 35% with vegetation type CcEmW (QP17), this does not form a distinct floristic group.

11.5 Floristic Community Types Analysis against Gibson *et al* (1994)

Data from the 19 quadrats within QPROS were compared against the Gibson *et al.* (1994) dataset creating a resemblance matrix (Table 32). The most likely FCT's were chosen based on factors linked to the quadrat including similarity, location, vegetation composition and structure. By comparing Gibson similarity and general vegetation composition and structure two floristic community types (FCT) were found to be the most likely, namely,

- Central *Banksia attenuata* – *Eucalyptus marginata* woodlands (FCT21a)
- Central *Banksia attenuata* – *Banksia menziesii* woodlands (FCT23a).

However, five quadrats had low similarity and were unable to be identified as a likely FCT, these were QP05, QP06, QP07, QP09 and QP11. No quadrats within QPROS were found to be significantly similar to a specific FCT, the greatest similarity of 44% was found between QP14 and quadrat FL-6, referring to FCT23a.

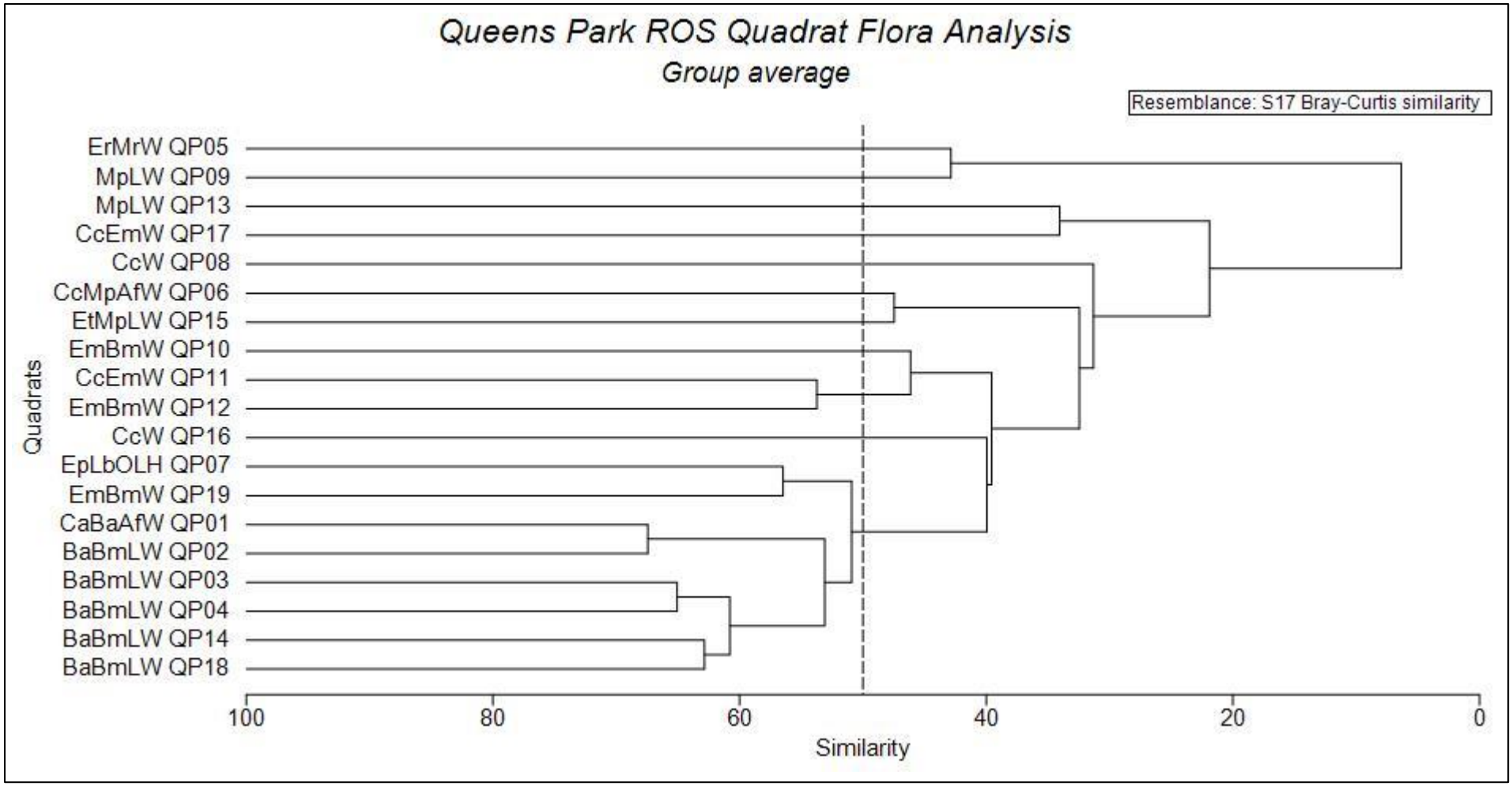


Figure 24: QPROS floristic analysis of the Quadrat data

Table 32: QPROS quadrat comparison to Gibson et al. (1994) dataset. (where n = number of quadrats sampled per FCT)

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
QP01	*Corymbia calophylla, Banksia attenuata* and *Allocasuarina fraseriana* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	28.52% (n = 41)	41.67% AUSTRA-1	**FCT21a** had the highest average similarity (28.52%) and greatest similarity of quadrat AUSTRA-1 (41.67%). Structure and vegetation more consistent with **FCT21a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	26.79% (n = 16)	37.21% LOW07	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	26.86% (n = 19)	32.76% WIRR-2	
QP02	Low *Banksia attenuata* and *Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	24.77% (n = 41)	32.65% NINE-2	While **FCT23a** had the highest average similarity (28.64%), the greatest similarity was quadrat FL-6 (36.14%) in **FCT21c**. Structure and vegetation more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	27.09% (n = 16)	36.14% FL-6	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	28.64% (n = 19)	35.71% HARRY-4	
QP03	Low *Banksia attenuata* and *Banksia menziesii* Woodland	**FCT23a:** Central *Banksia attenuata* – *Banksia menziesii* woodlands	27.80% (n = 19)	34.23% HURST03	**FCT23a** had the highest average similarity (27.80%) and greatest similarity of quadrat AUSTRA-1 (34.23%). Structure and vegetation more consistent with **FCT23a**.
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands	23.33% (n = 38)	34.15% SHE-2	
QP04	Low *Banksia attenuata* and *Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	27.89% (n = 41)	42.11% NINE-2	While **FCT23a** had the highest average similarity (33.47%), the greatest similarity was quadrat FL-5 (44.44%) in **FCT21c**. Structure and vegetation more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	28.95% (n = 16)	44.44% FL-5	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	33.47% (n = 19)	41.24% YULE-2	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
QP05	*Eucalyptus rudis* and *Melaleuca rhaphiophylla* Woodland	**FCT11:** Wet forests and woodlands	6.02% (n = 13)	21.05% LOW10B	While **FCT17** had the highest average similarity (14.30%), the greatest similarity was quadrat LOW10B (21.05%) in **FCT11**. Low similarity with FCT's that match vegetation and structure is a result of low diversity. No categorisation can be made.
		FCT17: *Melaleuca rhaphiophylla – Gahnia trifida* seasonal wetlands	14.30% (n = 8)	19.05% PAGA-5	
QP06	*Corymbia calophylla, Melaleuca preissiana* and *Allocasuarina fraseriana* Woodland	**FCT21a:** Central *Banksia attenuata – Eucalyptus marginata* woodlands	16.49% (n = 41)	29.33% AUSTRA-1	While **FCT21a** and **FCT23a** had the highest average similarity (16.49%), the greatest similarity was quadrat AUSTRA-1 (29.33%) in **FCT21a**. Low species richness and no *Banksia* spp. were observed within the quadrat. Due to proximity to known *Banksia* Woodlands, understory species may be present. No categorisation can be made.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	16.15% (n = 16)	22.86% LOW06B	
		FCT23a: Central *Banksia attenuata – Banksia menziesii* woodlands	16.49% (n = 19)	24.44% HURST03	
QP07	Open Low *Eremaea pauciflora* and *Lyginia barbata* Heath	**FCT21a:** Central *Banksia attenuata – Eucalyptus marginata* woodlands	22.43% (n = 41)	32.26% AUSTRA-1	**FCT23a** had the highest average similarity (29.10%) and greatest similarity of quadrat WHITE-1 (38.00%). No *Banksia* spp. were observed within the quadrat. Due to proximity to known *Banksia* Woodlands, understory species may be present. No categorisation can be made.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	24.67% (n = 16)	34.15% FL-6	
		FCT23a: Central *Banksia attenuata – Banksia menziesii* woodlands	29.10% (n = 19)	38.00% WHITE-1	
QP08	*Corymbia calophylla* Woodlands	**FCT21a:** Central *Banksia attenuata – Eucalyptus marginata* woodlands	18.64% (n = 41)	29.55% MANEA-2	Similarity was low across quadrats <30. **FCT21a** had the highest average similarity (18.64%) and greatest similarity of quadrat MANEA-2 (29.55%). No *E. marginata* was observed in the
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	14.26% (n = 16)	27.27% FL-5	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	16.58% (n = 19)	21.21% HARRY-4	quadrat. However, structure is consistent with **FCT21a.**
QP09	Low Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	3.4% (n = 16)	7.14% KOOLJ-1	Similarity was low across quadrats <25. **FCT11** had the highest average similarity (15.73%) and greatest similarity of quadrat MILT-2 (22.22%). With similar vegetation and structure, **FCT4** is likely; however, a categorisation cannot be made.
		FCT11: Wet forests and woodlands	15.73% (n = 8)	21.05% WOODP-1	
		FCT13: Deeper wetlands on heavy soils	8.68% (n = 9)	22.22% MILT-2	
QP10	*Eucalyptus marginata* and *Banksia attenuata* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	26.39% (n = 19)	38.64% AUSTRA-1	**FCT23a** had the highest average similarity (29.83%) and greatest similarity of quadrat BANK-1 (38.46%). Vegetation and structure more consistent with **FC21a**.
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	29.83% (n = 41)	38.46% BANK-3	
QP11	*Corymbia calophylla* and *Eucalyptus marginata* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	21.94% (n = 41)	35.29% MILT-6	While **FCT23a** had the highest average similarity (25.45%), the greatest similarity was quadrat MILT-6 (35.29%) in **FCT21a**. *B menziesii* was present within the site, but not dominant. Vegetation and structure is more consistent with **FCT21a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	18.76% (n = 16)	29.73% FL-5	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	25.45% (n = 19)	32.50% MODO-5	
QP12	*Eucalyptus marginata* and *Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	16.47% (n = 41)	25.29% AUSTRA-1	Similarity was low across quadrats <35. **FCT23a** had the highest average similarity (20.03%) and greatest similarity of quadrat HURST (27.45%). No *B. attenuata* observed within the quadrat. Vegetation and structure more consistent with **FCT21a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	15.53% (n = 16)	25.97% FL-5	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	20.03% (n = 19)	27.45% HURST03	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
QP13	Low Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	5.87% (n =16)	11.32% WHITE-2	Similarity was low <30, this due to high weed species. While **FCT24** had the highest average similarity (9.67%), the greatest similarity was quadrat HYMUS01 (22.22%) in **FCT11**. With similar vegetation and structure, **FCT4** is likely; however, a categorisation cannot be made.
		FCT11: Wet forests and woodlands	9.38% (n = 13)	22.22% HYMUS01	
		FCT24: Northern Spearwood shrublands and woodlands	9.67% (n = 25)	16.33% COOL08	
QP14	Low *Banksia attenuata* and *Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	25.54% (n = 41)	42.50% TAM-1	While **FCT23a** had the highest average similarity (30.02%), the greatest similarity was quadrat FL-6 (44.74%) in **FCT21c**. Structure more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	28.07% (n = 16)	44.74% FL-6	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	30.02% (n = 19)	36.56% YULE-2	
QP15	Low *Eucalyptus todtiana* and Melaleuca preissiana Woodland	**FCT4:** *Melaleuca preissiana* damplands	13.14% (n =16)	24.72% ROWE02	While **FCT21c** had the highest average similarity (24.10%), the greatest similarity was quadrat AUSTRA-1 (31.82%) in **FCT21a**. Although the quadrat noted *M. preissiana,* vegetation and structure more likely to be **FCT21a**.
		FCT21a: Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	17.26% (n = 41)	31.82% AUSTRA-1	
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	24.10% (n = 16)	24.10% LOW06B	
QP16	*Corymbia calophylla* Woodlands	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	25.29% (n = 41)	43.18% AUSTRA-1	**FCT21a** had the highest average similarity (25.29%) and greatest similarity of quadrat AUSTRA-1 (43.18%).
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	24.00% (n = 16)	33.33% LOW07	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	24.54% (n = 19)	31.07% HURST03	
QP17	*Corymbia calophylla* and	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	14.97% (n = 41)	26.42% WELL-2	While **FCT24** had the highest average similarity (18.41%), the greatest similarity was quadrat

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
	Eucalyptus marginata Woodland	**FCT24:** Northern Spearwood shrublands and woodlands (P3)	18.41% (n = 25)	26.47% COOL08	WOODV (31.17%) in **FCT28**.With close similarities **FCT21a** is more consistent considering the vegetation and structure.
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands	16.99% (n = 38)	31.17% WOODV1	
QP18	Low *Banksia attenuata* and *Banksia menziesii* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	21.19% (n = 41)	30.00% TAM-1	While **FCT23a** had the highest average similarity (25.24%), the greatest similarity was quadrat FL-6 (34.21%) in **FCT21c**. Structure more consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	20.88% (n = 16)	34.21% FL-6	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	25.24% (n = 19)	31.37% HURST03	
QP19	*Eucalyptus marginata* and *Banksia attenuata* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	26.23% (n = 41)	40.00% NINE-2	**FCT23a** had the highest average similarity (33.34%) and greatest similarity of quadrat HURST03 (43.24%). Vegetation and structure more consistent with **FCT21a.**
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	28.99% (n = 16)	37.21% FL-5	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	33.34% (n = 19)	43.24% HURST03	

11.6 Threatened and Priority Ecological Communities

A review of the PMST report indicated the potential presence of four conservation significant ecological communities listed as Matters of Environmental Significance potentially occurring within QPROS namely,

- *Banksia Woodlands of the Swan Coastal Plain*
- *Clay Pan of the Swan Coastal Plain*
- *Corymbia* calophylla – *Kingia australis* woodlands on heavy soils of the Swan Coastal Plain
- *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain*.

The 2020 survey confirmed that three of the four potential conservation significant ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) do not occur within QPROS. Floristic analysis determined that FCT21a and FCT23a were the most likely floristic group, these are a subgroup of the Banksia Woodlands of the Swan Coastal Plain TEC but do not have their own conservation ratings for Western Australia or the Commonwealth and are not considered threatened or priority community.

There were two priority FCT's (FCT21c and FCT22) that did find similarities to some quadrats. Therefore, due to vegetation type and size of vegetation and similarities to priority FCT's it is possible that some areas within QPROS contain the TEC *Banksia Woodlands of the Swan Coastal Plain*.

12.0 Implications - Queens Park Regional Open Space

12.1 Flora

During the September 2020 botanical survey, a total of 150 flora species from 41 families were recorded, of which no conservation significant species were identified. The species mix included 35 (23.3%) introduced species and 115 (76.7%) native species. Previous surveys by Natural Area (2014) and Ecoscape (2017) identified similar species richness, with a total of 154 and 145 species, respectively (Figure 23).

12.1.1 Species Diversity

Species richness within QPROS in 2020 ranged from moderate to low, with the lowest species richness containing two native species (QP05 and QP13) and the richest containing between 35 and 40 native species (QP01, QP02, QP03 and QP19) (Figure 23).

The average number of species per quadrat differed slightly over six years, with the highest number of native species recorded in 2020 (27, n = 19), then that of 2014 and 2017 (22.5 and 22, n = 18) (Table 29). Historic data highlights trends of species richness over time, with 26.3% of quadrats decreasing and the same percentage of quadrats showing an increase over time (Figure 23).

Species diversity was calculated using the Simpsons Diversity Index (SDI) to assess species richness and abundance. Species diversity in 2020 was good to low, ranging between 0.2 and 0.94 SDI, this is similar to previous survey years (2014 and 2017) ranging between 0.22 and 0.95 (Table 29 and Figure 24). Quadrat QP05 consistently observed a low species diversity (SDI 0.2 to 0.29) between 2014 and 2020.

Quadrats within vegetation type MpLW observed the greatest change in species diversity (Figure 24). Species diversity was above 0.6 SDI and considered moderate for more than 80% of quadrats. Of the three quadrats (QP05, QP09 and QP13) that were considered degraded while also exhibiting low species diversity and richness (Figure 24 and Table 29).

12.1.2 Introduced Flora

During the September 2020 flora survey, 35 weed species were identified in QPROS (Table 33). Quadrat QP17 had the highest number of species (13), while QP09 had two species.

Weed species within the 19 quadrats of 2020 made up between 1.3% and 8.7% of the total species. Previous surveys from 2014 and 2017 (n=18) identified a higher percentage ranging between 3.4% and 11.7 of the total species richness (Table 29).

Four species were identified in 50-60% of quadrats in 2020 including *Gladiolus caryophyllaceus*, *Fumaria capreolata*, *Hypochaeris glabra* and *Ehrharta calycina* (Table 33). *Gladiolus caryophyllaceus* and *Ehrharta calycina* were observed every survey year in 50 – 60% of quadrats. Five species (highlighted yellow) were observed in 2020 that had not previously been identified (Table 33).

Overall, the average percentage of introduced species within QPROS is approximately 10% lower in 2020 (27.8%) than in 2014 and 2017 (36.8% and 37.5%) (Table 29).

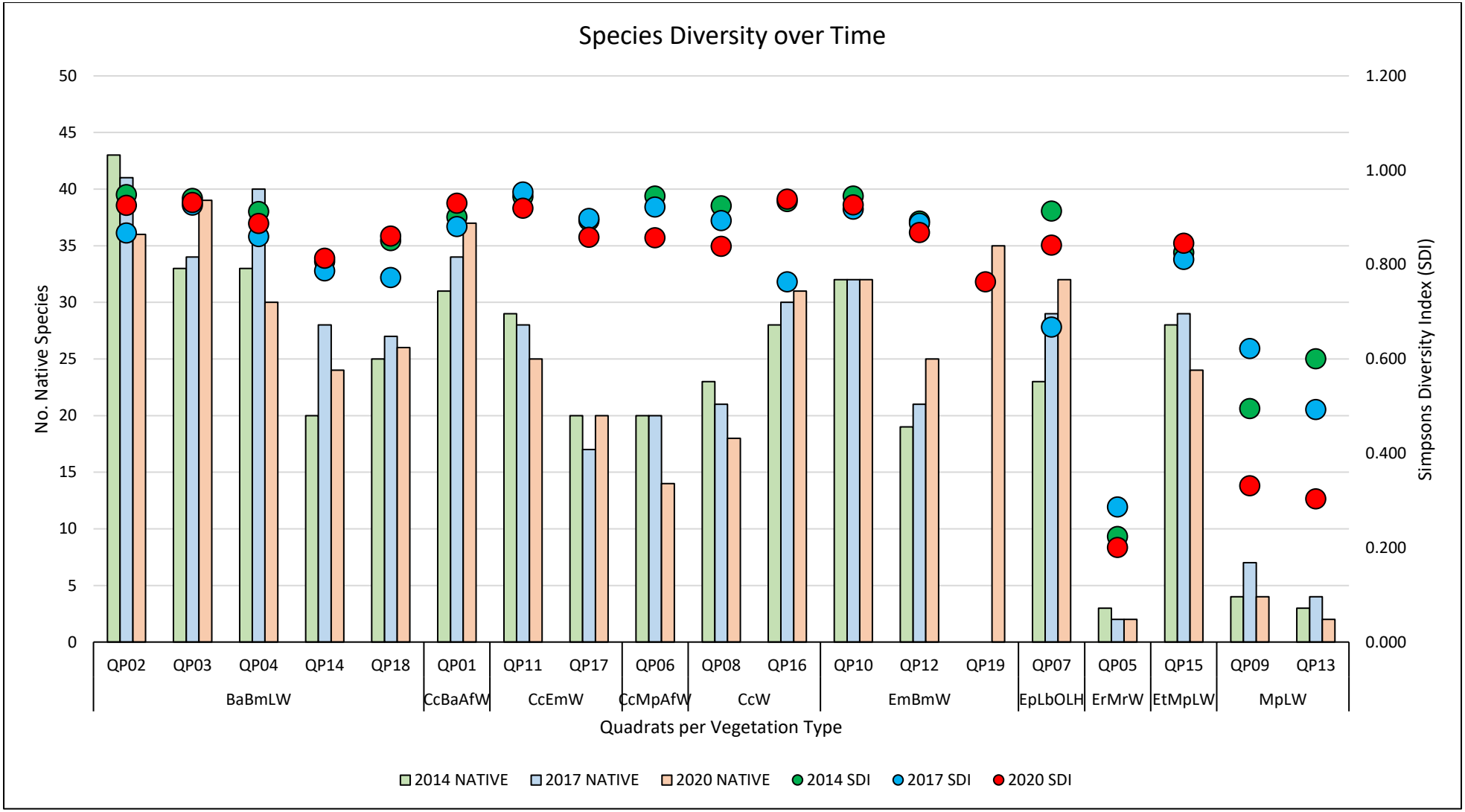


Figure 24: Species diversity of native flora in QPROS over time

Table 33: Weed species present in QPROS quadrats over time

Species	Quadrat No. QP#																		
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Aira cupaniana				X			X												
Arctotheca calendula													X						
Asparagus asparagoides								X			X		X	X	X				
Avena barbata											X			X					
Briza maxima	X						X	X						X		X			X
Bromus diandrus					X														
Carex divisa					X														
Disa bracteata											X	X				X			
Dischisma capitatum							X												
Ehrharta calycina	X	X		X		X	X			X	X	X		X	X	X		X	
Ehrharta longifolia					X												X		X
Euphorbia terracina													X				X		
Freesia x leichtlinii	X	X				X								X	X	X			X
Fumaria capreolata				X	X	X			X			X	X	X			X	X	X
Gallium murale													X						
Gladiolus caryophyllaceus	X	X	X	X		X	X	X		X	X	X		X				X	X
Gladiolus undulatus															X				
Hypochaeris glabra	X	X	X	X			X			X			X	X	X		X		X
Hypochaeris radicata						X						X			X			X	
Lolium rigidum													X				X		
Lysimachia arvensis	X			X											X		X		
Olea europaea						X									X				
Oxalis pes-caprae					X														
Raphanus raphanistrum												X							

Species	Quadrat No. QP#																		
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Romulea rosea		X	X					X		X	X	X	X	X	X		X	X	
Schinus terebinthifolia			X			X		X			X	X	X					X	
Silene gallica																	X		
Solanum nigrum				X									X		X		X		
Sonchus oleraceus				X	X	X	X		X			X	X	X	X		X		
Stellaria media													X				X		
Urospermum picroides						X						X					X		X
Ursinia anthemoides subsp. *anthemoides*	X	X	X	X			X							X	X			X	X
Vicia sativa								X									X		
Wahlenbergia capensis							X												X
Watsonia meriana																X			

Note: Species present across quadrats (Green = 30 – 50%, Red = 50 – 60%), Darker shades species present in 2014 and 2017 over corresponding % of quadrats.
Yellow denotes species only observed in 2020.

12.1.3 Conservation Significant Flora

No priority or threatened species were recorded during the September 2020 flora survey. However, the Priority 3 *Jacksonia gracillima* was observed in 2017 in quadrat QP11 and QP15. The 2014 and 2020 surveys identified *Jacksonia furcellata* and *Jacksonia floribunda*. The absence of the priority species from the 2014 and 2020 surveys could be a result of multiple factors, including but not limited to

- environmental disturbances influencing growth and germination
- variation in assessors' judgement or misidentification.

Conducting a targeted survey of this species would confirm its presence and its population size.

12.2 Vegetation Types

Ten vegetation types were identified in 2020 throughout the 19 quadrats in QPROS, with BaBmLW and EmBmW observed in three to five quadrats (Table 34); Quadrat 19 was installed in 2020.

The vegetation types have not significantly changed since 2014. Quadrat QP07 changed from Low Open *Banksia menziesii* Woodland to *Eremaea pauciflora* heath land between 2014 and 2017, with no *Banksia menziesii* observed within the quadrats in 2020. This change in vegetation could be a result of variations in assessor's judgement movement of vegetation boundaries as a result of various factors, such as

- environmental influences
- presence of dieback (*Phytophthora* sp.).

Table 34: QPROS comparison of the vegetation types in the permanent quadrats between 2014 and 2020.

Quadrat	2020	2017	2014
QP01	CcBaAfW *Corymbia calophylla, Banksia attenuata* and *Allocasuarina fraseriana* Woodland	*Corymbia calophylla, Allocasuarina fraseriana* over *Acacia pulchella, Xanthorrhoea preissii* *Sowerbaea laxiflora, Alexgeorgea nitens, Hibbertia hypericoides*	CcW *Corymbia calophylla* Woodland
QP02	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia menziesii, Banksia attenuata* over *Jacksonia floribunda* *Alexgeorgea nitens, Hibbertia hypericoides*	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland
QP03	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia menziesii, Banksia attenuata* over *Acacia pulchella* *Hibbertia hypericoides, Lyginia barbata, Patersonia occidentalis*	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland
QP04	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia menziesii, Banksia attenuata* over *Eremaea pauciflora var. pauciflora, Stirlingia latifolia* *Lyginia barbata, Mesomelaena pseudostygia*	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland
QP05	ErMrW *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Woodland	*Melaleuca rhaphiophylla, Eucalyptus rudis* subsp. *rudis* over *Carex divisa*	ErMrW *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Woodland

Quadrat	2020	2017	2014
QP06	CcMpAfW *Corymbia calophylla, Melaleuca preissiana* and *Allocasuarina fraseriana* Woodland	*Melaleuca preissiana, Eucalyptus marginata* subsp*. marginata, Allocasuarina fraseriana* over *Lepidosperma pubisquameum, Cyathochaeta* sp*., Lomandra preissii*	CcMpW *Corymbia calophylla, Melaleuca preissiana* Woodland
QP07	EpLbOLH Low Open *Eremaea pauciflora var. pauciflora* and *Lyginia barbata* Heath	*Stirlingia latifolia* over *Eremaea pauciflora var. pauciflora, Lyginia imberbis, Bossiaea eriocarpa*	BmLOW Low Open *Banksia menziesii* Woodland
QP08	CcW *Corymbia calophylla* Woodland	*Corymbia calophylla* over *Dasypogon bromeliifolius, Hibbertia hypericoides, Lepidosperma pubisquameum*	CcW *Corymbia calophylla* Woodland
QP09	MpLW Low *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Leucopogon* sp*., Astartea leptophylla Fumaria capreolata*	MpLW Low *Melaleuca preissiana* Woodland
QP10	EmBmW *Eucalyptus marginata* and *Banksia menziesii* Woodland	*Banksia menziesii, Eucalyptus marginata* subsp*. marginata* over *Hibbertia hypericoides, Alexgeorgea nitens, Tetraria octandra*	EmBaW *Eucalyptus marginata* and *Banksia attenuata* Woodland
QP11	CcEmW *Corymbia calophylla* and *Eucalyptus marginata* Woodland	*Corymbia calophylla, Eucalyptus marginata* subsp*. marginata* over *Jacksonia gracillima, Jacksonia floribunda Dasypogon bromeliifolius, Lyginia imberbis, Phlebocarya ciliata*	CcW *Corymbia calophylla* Woodland
QP12	EmBmW *Eucalyptus marginata* and Banksia *menziesii* Woodland	*Banksia menziesii, Eucalyptus marginata* subsp*. marginata* over *Jacksonia floribunda Dasypogon bromeliifolius, Lyginia imberbis*	EmBmW *Eucalyptus marginata* and *Banksia menziesii* Woodland
QP13	MpLW Low *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Astartea scoparia Fumaria capreolata, Ehrharta longiflora, Lolium multiflorum*	MpLW Low *Melaleuca preissiana* Woodland
QP14	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia attenuata, Banksia menziesii* over *Macrozamia riedlei, Jacksonia floribunda Alexgeorgea nitens, Desmocladus flexuosus*	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland
QP15	EtMpLW Low *Eucalyptus todtiana* and *Melaleuca preissiana* Woodland	*Melaleuca preissiana, Eucalyptus todtiana* over *Hakea prostrata, Xanthorrhoea brunonis Phlebocarya ciliata, Dasypogon bromeliifolius, Lepidosperma longitudinale*	MpLW Low *Melaleuca preissiana* Woodland

Quadrat	2020	2017	2014
QP16	CcW *Corymbia calophylla* Woodland	*Corymbia calophylla* over *Xanthorrhoea preissii* *Lyginia barbata, Dasypogon bromeliifolius*	CcW *Corymbia calophylla* Woodland
QP17	CcEmW *Corymbia calophylla* and *Eucalyptus marginata* Woodland	*Corymbia calophylla* over *Xanthorrhoea preissii* *Mesomelaena pseudostygia, Hibbertia hypericoides, Lysimachia arvensis*	CcW *Corymbia calophylla* Woodland
QP18	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia menziesii, Banksia attenuata* over *Adenanthos cygnorum* subsp*. cygnorum, Macrozamia riedlei* *Alexgeorgea nitens, Lyginia imberbis*	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland
QP19	EmBmW *Eucalyptus marginata* and *Banksia menziesii* Woodland	N/A	N/A

12.3 Threatened and Priority Ecological Communities

According to NationalMap, a threatened ecological community (TEC) is listed within QPROS (DBCA, 2021d). The threatened ecological community *Banksia Woodlands of the Swan Coastal Plain* listed as Endangered under the EPBC Act 1999 (Cwlth) has the potential to occur within this site.

The 2020 floristic analysis found that 74% of quadrats showed similarities to two floristic community types of the TEC *Banksia Woodlands of the Swan Coastal Plain*. Similarities shown between 22% and 45% to the Priority 3, FCT21c floristic community *Low lying Banksia attenuata woodlands or shrublands* and one quadrat showing 26% similarity to the Priority 2, FCT22 floristic community *Banksia ilicifolia* woodlands.

Natural Area (2014) mapped the vegetation types within QPROS (35.45 ha), containing a variation of vegetation types. Natural Area (2020) reassessed the quadrats with a reduction in vegetation condition for more than half of the quadrats. Reassessment of patch sizes and their condition is required to properly assess whether the *Banksia* woodlands are classified as a TEC, as per the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee, 2016).

12.4 Vegetation Condition

Vegetation condition within QPROS ranged from Excellent to Degraded in 2020. Previous surveys classified the quadrats between Excellent and Good condition. Eight quadrats remained in Excellent or Very Good condition since 2014. While seven quadrats since 2017, have deteriorated to good or degraded condition since 2017 (Table 35).

Three quadrats (QP05, QP09 and QP13) are considered Degraded due to low species diversity, lack of vegetation structure or high weed presence. Quadrat QP06 is considered in Good condition, however, if native species diversity continues to decline or high impact weeds previously recorded (*Asparagus asparagoides, Ehrharta calycina)* becomes re-stablished, vegetation condition will decrease. Natural Area recommends active management in these areas, as well as potential revegetation in order to improve/maintain vegetation condition.

Table 35: QPROS comparison of vegetation condition of quadrats between 2014, 2017 and 2020.

Quadrat	2014	2017	2020
QP01	5	5	5
QP02	5	5	5
QP03	4	5	5
QP04	5	5	5
QP05	3	3	2
QP06	4	3	3
QP07	5	5	4
QP08	4	4	3
QP09	3	3	2
QP10	5	5	5
QP11	5	5	4
QP12	4	4	3
QP13	3	3	2
QP14	5	5	5
QP15	4	4	3
QP16	5	5	5
QP17	4	4	4
QP18	5	5	5
QP19	No Data	No Data	5

(6 = Pristine, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Degraded and 1 = Very Degraded)

13.0 Field Survey Results - Ranford Bushland

13.1 Flora

A total of 141 flora species (taxa) from 31 families were recorded within the 13 permanent quadrats in Ranford Bushland (RF14 was demolished). Of these, 91 (64.5%) were native species and the remaining 50 (35.5%) were introduced weeds (Figure 25 and Table 36). No conservation significant species were found on site although three declared pests and weeds of national significance (WoNS) were recorded, with Bridal Creeper, Arum Lily and Patterson's Curse observed in across 15.4% (RF01 and RF05) and 26.1% (RF08, RF10 and RF11) of quadrats, respectively. Figure 26 provides examples of native and introduced species found within Ranford Bushland. A complete flora species list is provided in Appendix 5 with quadrat data provided in Appendix 6.

An average presence of 19.0 natives and 10.5 introduced species were recorded within Ranford Bushland quadrats. The lowest percentage (<5%) of the total number of native species was observed in quadrat RF02, while 24.1% of the total native species richness was observed in quadrat RF05. Few species identified were common across the quadrats with 22% of natives only found in their respective quadrat and 31.2% of species found across two to three quadrats (Table 36).

Of the 31 families within Ranford Bushland, Myrtaceae was the most species rich containing 15 native species. *Banksia* and *Melaleuca* were the most taxa rich genera, each containing four species.

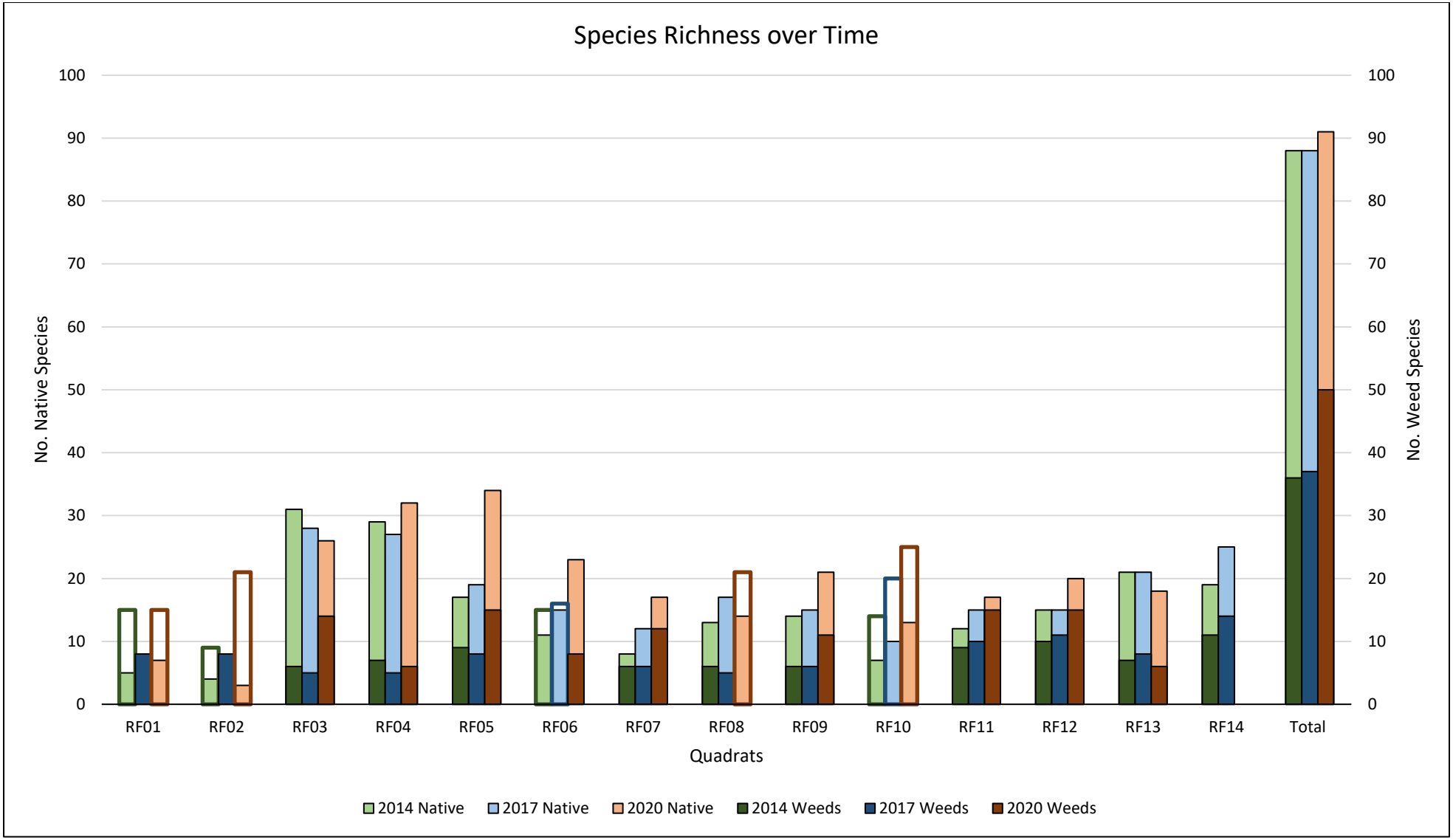


Figure 25: Change in species richness in quadrats at Ranford Bushland over time

Table 36: Ranford Bushland comparison of flora composition and diversity per quadrat between Natural Area (2014 & 2020) and Ecoscape (2017)

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
Natural Area (2014)					
RF01	15	75	5	-	-
RF02	9	69	4	-	-
RF03	6	16	31	-	-
RF04	7	19	29	-	-
RF05	9	35	17	-	-
RF06	15	58	11	-	-
RF07	6	43	8	-	-
RF08	6	32	13	-	-
RF09	6	30	14	-	-
RF10	14	67	7	-	-
RF11	9	43	12	-	-
RF12	10	40	15	-	-
RF13	7	25	21	-	-
RF14	11	37	19	-	-
Average	9.3	33.9	18.3	-	-
Ecoscape (2017)					
RF01	8	57	6	22	0.736

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
RF02	8	67	4	10	0.533
RF03	5	15	28	145	0.951
RF04	5	16	27	104	0.963
RF05	8	30	19	92	0.967
RF06	16	52	15	151	0.871
RF07	6	33	12	306	0.825
RF08	5	23	17	106	0.901
RF09	6	29	15	128	0.854
RF10	20	67	10	342	0.805
RF11	10	40	15	337	0.822
RF12	11	42	15	127	0.919
RF13	8	28	21	386	0.892
RF14	14	36	25	164	0.965
Average	11.0	35.3	20.3	225.7	0.925
Natural Area (2020)					
RF01	15	68	7	17	0.809
RF02	21	88	3	20	0.621
RF03	14	35	26	193	0.949
RF04	6	16	32	207	0.939

Quadrats per Year	Introduced		Native		
	No. Species	% Species	No. Species	Total Count Organisms	Simpsons Diversity Index (SDI)
RF05	15	31	34	209	0.967
RF06	8	26	23	362	0.882
RF07	12	41	17	436	0.753
RF08	21	60	14	334	0.621
RF09	11	34	21	257	0.881
RF10	25	66	13	384	0.661
RF11	15	47	17	748	0.640
RF12	15	43	20	470	0.803
RF13	6	25	18	316	0.868
RF14					
Average	10.5	33.9	19.0	393.0	0.836

Thysanotus patersonii

Hibbertia hypericoides subsp. *hypericoides*

Petrophile linearis
(Pixie Mops)

Cape Weed
(**Arctotheca calendula)*

Pimpernel
*(*Lysimachia arvensis)*

Arum Lily
(*Zantedeschia aethiopica)

Figure 26: Examples of native and introduced flora found in Clifton Buffer and Reserve. * denotes introduced species

13.2 Vegetation Types

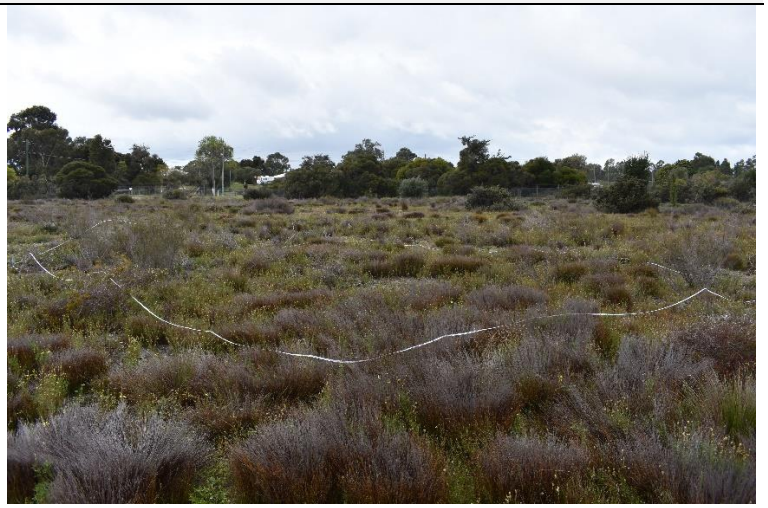
Seven vegetation types were recorded within Ranford Bushland. The vegetation types of Mixed Open Shrubland (MOS) and Open *Melaleuca preissiana* Woodland (MpOW) were observed in three quadrats, while the remaining vegetation types only occurred in one to two quadrats (Table 37). RF14 was not surveyed at it was demolished for construction works associated with development of the adjacent train line.

Table 37: Vegetation types within Ranford Bushland

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BaAfW	*Banksia attenuata* and *Allocasuarina fraseriana* Woodland	*Banksia menziesii* and *Allocasuarina fraseriana* Woodland over *Hibbertia hypericoides, Patersonia occidentalis* and *Desmocladus flexuosus*	RF03	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
BaBmLW	Low *Banksia* Woodland	Low *Banksia woodland over Xanthorrhoea brunonis* and *Dasypogon bromeliifolius*	RF04 RF05	
CcKgLOW	Low Open *Corymbia calophylla* and *Kunzea glabrescens* Woodland	Low open *Corymbia calophylla* and *Kunzea glabrescens* woodland over weedy understory	RF02	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
EtKgLW	Low *Eucalyptus todtiana* and *Kunzea glabrescens* Woodland	Low *Eucalyptus todtiana* and *Kunzea glabrescens* woodland over mixed shrubland and weedy understory	RF01	
HaS	*Hypocalymma angustifolium* Shrubland	*Hypocalymma angustifolium* and mixed shrubland over mixed understory	RF06 RF12	

Vegetation Type Code	Vegetation Type Name	Description	Floristic Quadrats	Photo
MOS	Mixed Open Shrubland	Mixed Open Shrubland over mixed heathland	RF07 RF08 RF13	
MpOW	Open *Melaleuca preissiana* Woodland	Open *Melaleuca preissiana* woodland over mixed shrubland and mixed sedges	RF09 RF10 RF11	

13.3 Vegetation Condition

Vegetation condition ranged from Excellent to Degraded. No quadrats recorded Completely Degraded or Pristine vegetation, with the most prevalent condition being Very Good (38.5%) followed by quadrats in Excellent and Degraded condition at 15.4% (Table 38).

Table 38: Vegetation condition of quadrats in Ranford Bushland

Category		Quadrats	%
6	Pristine		0
5	Excellent	RF06, RF09	15.4
4	Very Good	RF03, RF04, RF05, RF08, RF12	38.5
3	Good	RF07, RF10, RF11, RF13	30.8
2	Degraded	RF01, RF02	15.4
1	Completely Degraded		0

13.4 Floristic Analysis

The Bray-Curtis similarity analysis showed two distinct floristic groups separating RF01 and RF02 from the remaining quadrats. This is due to a high introduced species with low native diversity, both quadrats have *Kunzea* glabrescens as a dominant. Three vegetation types, MOS, HaS and MpOW form another floristic group with a similarity of approximately 35%, no one vegetation type is separate from one another, this is due to similar shrub and understory species. The two vegetation types with dominant *Banksia* species were grouped together with a similarity of approximately 35% with the vegetation type BaBmLW forming a distinct vegetation type at 55% similarity (Figure 27%).

A summary of the results are as follows:

- **BaAfW** (*Banksia attenuata* and *Allocasuarina fraseriana* Woodland), quadrat RF03. The floristic analysis was separate from other vegetation types with a similarity of approximately 35% to the vegetation type BaBmLW.
- **BaBmLW** (Low *Banksia attenuata* and *Banksia menziesii* Woodland), quadrats RF04 and RF05. The floristic analysis grouped these two quadrats together sharing a similarity of approximately 55%, indicating this vegetation type is a unique floristic unit.
- **CcKgLOW** (Low Open *Corymbia calophylla* and *Kunzea glabrescens* Woodland), quadrat RF02. The floristic analysis identified the most similar (≈45%) vegetation type was EtKgLW (RF01). The dominant shrub *Kunzea glabrescens* was only present within these two vegetation types.
- **EtKgLW** (Low *Eucalyptus todtiana* and *Kunzea glabrescens* Woodland), quadrat RF01. The floristic analysis identified the most similar (≈45%) vegetation type was CcKgLW (RF02). The dominant shrub *Kunzea glabrescens* was only present within these two vegetation types.
- **HaS** (*Hypocalymma angustifolium* Shrubland), quadrats RF06 and RF12. The floristic analysis grouped these two quadrats separately with a similarity of approximately 50%. Quadrat RF12 was slightly more similar (≈55%) to RF09 (MpOW).
- **MOS** (Mixed Open Shrubland), quadrats RF07, RF08 and RF13. The floristic analysis grouped these quadrats in two groups, with a similarity of approximately 30%. Quadrats RF07 and RF13 were the most similar (≈50%) to each other. While RF08, shared approximately 45% similarity with vegetation type MpOW (RF10), this likeness is due to the high weed diversity with quadrats sharing one native and 14 weeds species.

- **MpOW** (Open *Melaleuca preissiana* Woodland), quadrat RF09, RF10 and RF11. The floristic survey formed three groups with a similarity of approximately 35%. Each quadrat shared the most similarity with shrubland vegetation types (MOS and HaS). Quadrat RF09 and RF10 shared likeness with vegetation type HaS having similarities of approximately 55% and 45%, respectively. Quadrat RF11 shared likeness to vegetation type MOS having a similarity of approximately 48%.

13.5 Floristic Community Types Analysis against Gibson *et al* (1994)

Data form the 13 quadrats within Ranford Bushland were compared against the Gibson *et al.* (1994) dataset creating a resemblance matrix (Table 39). The most likely FCT's were chosen based on factors linked to the quadrat including similarity, location, vegetation composition and structure. If similarity was low and no consistent vegetation composition or structure between the quadrat and FCT, the most similar FCT could not be determined. By comparing Gibson similarity and general vegetation and structure two floristic community types (FCT) were found to be the most likely, namely,

- *Melaleuca preissiana* woodlands (FCT4) and
- Central *Banksia attenuata* – *Banksia menziesii* woodlands (FCT23a).

However, eight quadrats had low similarity or features and did not resemble most similar FCT's, they were unable to identify a likely FCT, these were RF01, RF02, RF06, RF07, RF08, RF10, RF11, RF12 and RF13. None of the quadrats were found to be significantly similar to a specific FCT, the highest similarity found was in RF05 of 41.76% against quadrat HARRY-4, referring to FCT23a.

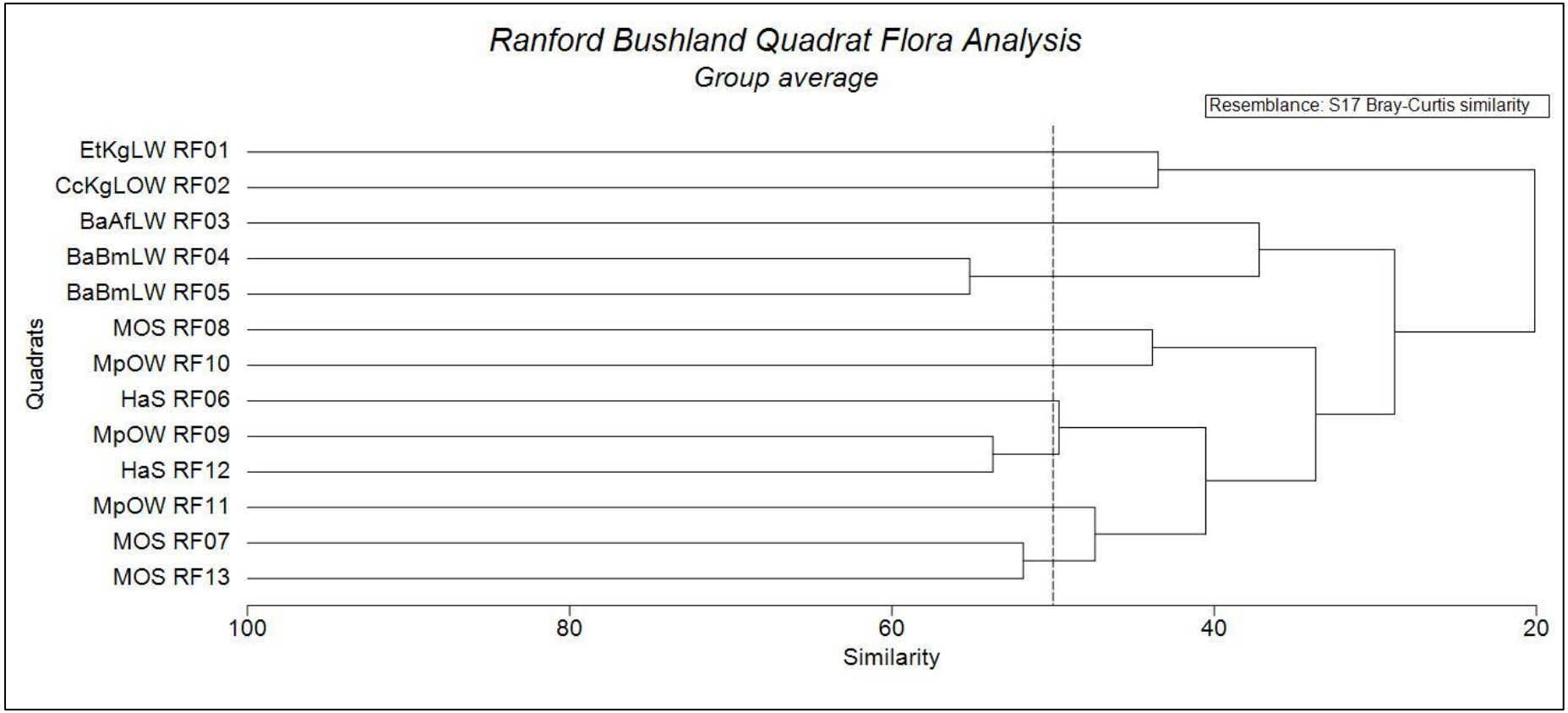


Figure 27: Ranford Bushland floristic analysis of the Quadrat data

Table 39: Ranford Bushland quadrat comparison to *Gibson et al.* (1994) dataset

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
RF01	Low *Eucalyptus todtiana* and *Kunzea glabrescens* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	3.98% (n = 41)	17.14% WELL-1	Similarity was low across quadrats <25%. The greatest similarity was quadrat CHIDPT-1 with 21.43% in **FCT24**. Due to the lack of native with high weed species the vegetation and structure is not similar enough for these FCT's to be likely.
		FCT24: Northern Spearwood shrublands and woodlands (P3)	9.81% (n = 25)	21.43% CHIDPT-1	
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands	5.76% (n = 38)	18.18% WOODV-1	
RF02	Low Open *Corymbia calophylla* and *Kunzea glabrescens* Woodland	**FCT21c:** Low lying *Banksia attenuata* woodlands or shrublands (P3)	8.50% (n = 16)	21.05% PLINE-7	**FCT24** had the highest average similarity (24.14%) and greatest similarity of quadrat CHIDPT-1 (24.14%). Due to the lack of native with high weed species the vegetation and structure is not similar enough for these FCT's to be likely.
		FCT24: Northern Spearwood shrublands and woodlands (P3)	12.73% (n = 25)	24.14% CHIDPT-1	
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands	8.98% (n = 38)	22.95% NEER-23	
RF03	*Banksia menziesii* and *Allocasuarina fraseriana* Woodland	**FCT21c:** Low lying *Banksia attenuata* woodlands or shrublands (P3)	24.63% (n = 16)	36.59% FL-5	**FCT23a** had the highest average similarity (30.83%) and greatest similarity of quadrat YULE-2 (40.82%). Structure and vegetation consistent with **FCT23a**.
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	30.83% (n = 19)	40.82% YULE-2	
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands (P3)	21.11% (n = 38)	31.68% NEER-8	
RF04	Low *Banksia* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	24.42% (n = 41)	35.14% MILT-6	While **FCT21c** had the highest average similarity (27.41%), the greatest similarity was quadrat HARRY-4 (37.5%)
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	27.41% (n = 16)	35.00% LOW07	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	26.25% (n = 19)	37.50% HARRY-4	in **FCT23a**. Structure and vegetation more consistent with **FCT23a**.
RF05	Low *Banksia* Woodland	**FCT21a:** Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	22.77% (n = 41)	32.38% NINE-2	**FCT23a** had the highest average similarity (27.58%) and greatest similarity of quadrat HARRY-4 (41.76%). Structure and vegetation consistent with **FCT23a**.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	24.83% (n = 16)	31.11% DEJONG-C	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	27.58% (n = 19)	41.76% HARRY-4	
RF06	*Hypocalymma angustifolium* Shrubland	**FCT4:** *Melaleuca preissiana* damplands	17.80% (n =16)	28.99% FL-9	**FCT23a** had the highest average similarity (22.58%) and greatest similarity of quadrat HURST03 (30.61%). Structure and vegetation are not consistent with any FCT's. No categorisation can be made.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	21.09% (n = 16)	30.14% LOW07	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	22.58% (n = 19)	30.61% HURST03	
RF07	Mixed Open Shrubland	**FCT4:** *Melaleuca preissiana* damplands	11.36% (n =16)	19.51% ROWE02	Similarity was low across quadrats <25%. The greatest similarity was in quadrats YULE-1 of 20.93% in **FCT23a.** Structure and vegetation are not consistent with any FCT's. No categorisation can be made.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	13.09% (n = 16)	19.67% HYMUS03	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	13.86% (n = 19)	20.93% YULE-1	
RF08	Mixed Open Shrubland	**FCT21c:** Low lying *Banksia attenuata* woodlands or shrublands (P3)	9.70% (n = 16)	18.18% LOW07	Similarity was low across quadrats <25%. The greatest similarity was in quadrats NAVB-4 of 21.33% in **FCT23a.** Structure and vegetation are not consistent with any FCT's. No categorisation can be made.
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	10.65% (n = 19)	17.48% HURST02	
		FCT24: Northern Spearwood shrublands and woodlands (P3)	12.72% (n = 25)	21.33% NAVB-4	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
RF09	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	18.19% (n =16)	26.47% C58-1	While **FCT21c** had the highest average similarity (18.96%), the greatest similarity was quadrat GUTHR-2 (30.14%) in **FCT5**. However, structure and vegetation more consistent with **FCT4**.
		FCT5: Mixed shrub damplands	15.88% (n =14)	30.14% GUTHR-2	
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	18.96% (n = 16)	28.57% TWIN-8	
RF10	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	6.35% (n =16)	13.33% KOOLJ-1	While **FCT24** had the highest average similarity (14.16%), the greatest similarity was quadrat LOW10a (23.66%) in **FCT21a**. Vegetation and structure more consistent with **FCT4** No categorisation can be made due to low similarity.
		FCT21a: Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	6.18% (n = 41)	23.66% LOW10A	
		FCT24: Northern Spearwood shrublands and woodlands (P3)	14.16% (n = 25)	21.18% NEER-1	
RF11	Open *Melaleuca preissiana* Woodland	**FCT4:** *Melaleuca preissiana* damplands	14.78% (n =16)	22.86% FL-9	While **FCT23a** had the highest average similarity (12.67%), the greatest similarity was quadrat LOW10A (25.29%) in **FCT21a**. However, structure and vegetation more consistent with **FCT4**.
		FCT21a: Central *Banksia attenuata* – *Eucalyptus marginata* woodlands	11.75% (n = 41)	25.29% LOW10A	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	12.67% (n = 19)	24.50% HURST01	
RF12	*Hypocalymma angustifolium* Shrubland	**FCT21c:** Low lying *Banksia attenuata* woodlands or shrublands (P3)	14.65% (n = 16)	23.88% HYMUS03	**FCT28** had the highest average similarity (15.17%) and greatest similarity of quadrat NEER-6 (26.19%). Structure and vegetation are not consistent with any FCT's. No categorisation can be made.
		FCT24: Northern Spearwood shrublands and woodlands (P3)	15.13% (n = 25)	24.69% BOLD-1	
		FCT28: Spearwood *Banksia attenuata* or *Banksia attenuata - Eucalyptus* woodlands	15.17% (n = 38)	26.19% NEER-6	

Quadrat	Veg Type Classified	FCT Name (Highlighted most likely)	Average similarity	Max similarity Quadrat Name	Comments
RF13	Mixed Open Shrubland	**FCT4:** *Melaleuca preissiana* damplands	14.00% (n =16)	23.08% GUTHR-1	**FCT23a** had the highest average similarity (16.89%) and greatest similarity of quadrat TWIN-8 (25.71%). Structure and vegetation are not consistent with any FCT's. No categorisation can be made.
		FCT21c: Low lying *Banksia attenuata* woodlands or shrublands (P3)	16.28% (n = 16)	25.71% TWIN-8	
		FCT23a: Central *Banksia attenuata* – *Banksia menziesii* woodlands	16.89% (n = 19)	24.18% HURST01	

13.6 Threatened and Priority Ecological Communities

A review of the PMST report indicated the potential presence of three conservation significant ecological communities listed as Matters of Environmental Significance potentially occurring within QPROS namely,

- *Banksia Woodlands of the Swan Coastal Plain*
- *Clay Pan of the Swan Coastal Plain*
- *Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain*.

The 2020 survey confirmed that no threatened or priority communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) were determined within Ranford Bushland. With Banksia Woodlands of the Swan Coastal Plain (FCT23a) being the closest threatened ecological community. This FCT is a subgroup of the Banksia Woodlands of the Swan Coastal Plain but does not have its own conservation ratings for Western Australia or the Commonwealth and is not considered threatened or priority community.

14.0 Implications - Ranford Bushland

14.1 Flora

During the September 2020 botanical survey, a total of 141 flora species from 31 families were recorded, of which no conservation significant species were identified. The species mix included 50 introduced species (35.5%) and 91 native species (64.5%). Previous surveys by Natural Area (2014) and Ecoscape (2017) identified lower species richness with a total of 124 and 125 species, respectively (Figure 25). The 2020 survey identified at least 12 additional introduced species than previous survey years (Figure 25).

14.1.1 Species Diversity

Species richness within Ranford Bushland in 2020 ranged from moderate to low, with RF02 containing the lowest species richness of three native species, while RF05 was the richest containing 34 native species (RF05) (Figure 28).

The average number of species per quadrat different slightly over the six years, with the highest number of native species recorded in 2017 (35.3, n = 14) than that of 2014 and 2020 (33.9 n=14 and 33.9 n = 13) (Table 36). Historic data highlights trends of species richness over time, with more than half (61.3%, n = 13) of quadrats increasing and only 23.1% decreasing over time (Figure 28).

Species diversity was calculated using the Simpsons Diversity Index (SDI) to assess species richness and abundance (Colwell, 2009). Species diversity 2014 was unable to be calculated as abundance was not recorded. Species diversity in 2020 was good to moderate, ranging between 0.62 and 0.97 SDI, this similar to 2017 ranging between 0.53 and 0.96 (Table 36 and Figure 28).

Quadrats with a *Banksia* vegetation type consistently identified an SDI of >0.90. The remaining vegetation types were variable in species diversity, showing no clear trends over time. A total of 61.5% of quadrats showed a decrease in species diversity between 2017 and 2020 (Figure 28). Quadrat RF08 observed the greatest decrease of 0.90 to 0.62, this coincided the highest increase of weed species with an additional 16 species identified (Table 36).

14.1.2 Introduced Flora

During the September 2020 flora survey, 50 weed species were identified in Ranford Bushland (Table 39). Quadrat RF10 had the highest number of species (25), while RF04 and RF13 had four species (Figure 25 and Table 36).

Weed species within the 13 quadrats made up between 4% and 16.6% of the total species. Previous surveys from 2014 and 2017 (n=14) identified similar percentage ranging between 4% and 16% of the total species richness (Table 36).

Ten species were identified in 50-60% of quadrats in 2020, these highlighted light red in Table 33. Of these, only two were observed every survey year in 50-60% of quadrats *Hypochaeris glabra* and *Ursinia anthemoides* subsp. *anthemoides* (highlighted dark red) (Table 39). Fourteen species (highlighted yellow) observed in 2020 had not been identified in previous year (Table 39).

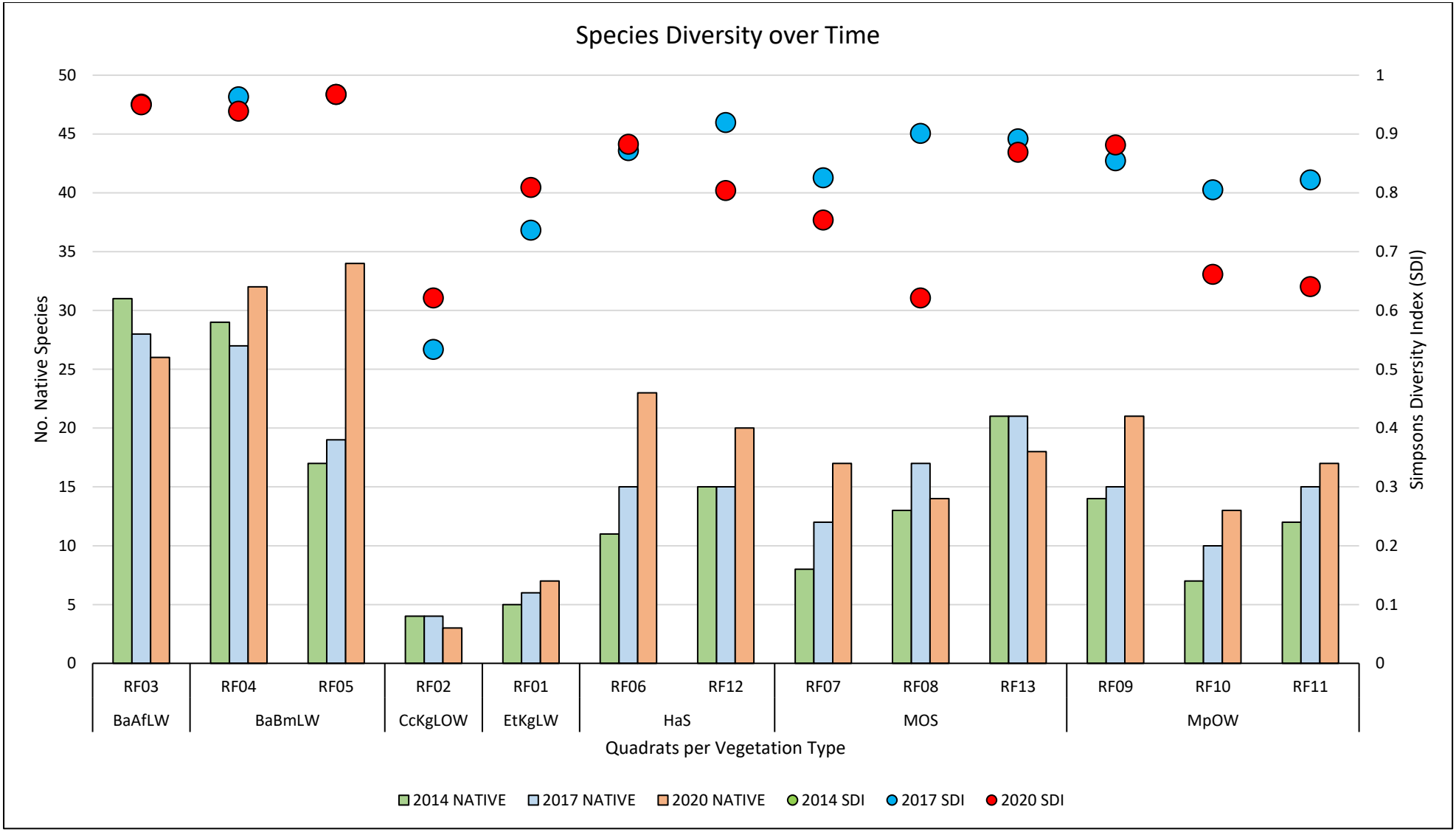


Table 28: Species Diversity of native flora in Ranford Bushland over time

Table 39: Weed species present in Ranford Bushland quadrats over time

Species	RF01	RF02	RF03	RF04	RF05	RF06	RF07	RF08	RF09	RF10	RF11	RF12	RF13
Aira cupaniana			X		X	X			X		X	X	
Arctotheca calendula					X		X	X		X	X	X	X
Asparagus asparagoides	X				X								
Avena barbata		X						X					
Brassica turnifortii	X	X					X	X		X		X	
Briza maxima			X	X					X			X	
Briza minor											X		
Carpobrotus edulis			X	X	X			X			X	X	X
Cirsium vulgare		X											
Crassula alata								X		X			
Cotula turbinata			X			X	X	X	X		X	X	
Crassula glomerata							X						
Disa bracteata		X					X						
Echium plantagineum								X					
Ehrharta calycina	X		X			X			X				
Ehrharta longifolia				X	X		X	X		X	X		
Erigeron sumatrensis		X			X								
Erodium botrys	X												
Euphorbia peplus	X	X						X		X			

Species	RF01	RF02	RF03	RF04	RF05	RF06	RF07	RF08	RF09	RF10	RF11	RF12	RF13
Euphorbia terracina										X			
Freesia x leichtlinii								X					
Fumaria capreolata	X	X								X			
Gallium aparine	X				X			X	X	X			
Gallium murale											X		
Geranium molle	X		X				X	X		X	X	X	
Gladiolus caryophyllaceus			X		X	X	X		X	X	X	X	X
Hypochaeris glabra		X	X		X	X	X	X	X		X	X	X
Hypochaeris radicata		X		X						X			
Leontodon rhagadioloides	X	X				X							
Lotus angustissimus		X								X	X		
Lysimachia arvensis	X	X	X	X	X				X	X	X	X	
Medicago polymorpha	X	X	X		X			X		X		X	
Olea europaea		X											
Oxalis pes-caprae		X								X			
Pelargonium capitatum					X							X	
Petrorhagia dubia								X		X			
Poa annua					X								
Romulea rosea								X		X	X		
Stellaria media								X		X		X	

Species	RF01	RF02	RF03	RF04	RF05	RF06	RF07	RF08	RF09	RF10	RF11	RF12	RF13
Solanum nigrum	X				X					X			
Sonchus oleraceus	X	X	X	X	X		X			X			
Stachys arvensis									X				
Stellaria media			X							X			
Trifolium campestre		X						X		X		X	
Urospermum picroides		X						X		X			
Ursinia anthemoides subsp. *anthemoides*			X			X	X	X	X	X	X	X	X
Vicia sativa	X	X											
Vulpia myuros	X	X					X		X				X
Wahlenbergia capensis		X	X			X		X		X			
Zantedeschia aethiopica											X		

14.1.3 Conservation Significant Flora

No priority or threatened species were recorded during the September 2020 flora survey. However, the Priority 4 *Dodonaea hackettiana* was observed in 2014 and 2017 within RF14, since 2017 this quadrat has been cleared. Previous surveys identified RF14 as having a vegetation type of *Banksia* Woodland, three remaining quadrats (RF03, RF04 and RF05) have the same or similar vegetation type (Table 40). The presence of *Dodonaea hackettiana* within these vegetation types is possible given the proximity of the RF14 population, however, this species is not endemic to this area with its suitable habitat consisting of coastal limestone outcrops.

14.2 Vegetation Types

Seven vegetation types were identified in 2020 throughout the 13 quadrats in Ranford Bushland, with MOS and MpOW the most prominent being observed in three quadrats (Table 40); RF14 was cleared after 2017 and therefore will no longer be included in reporting.

Vegetation types have not significantly changed since 2014. With quadrat RF06 changing from *Xanthorrhoea preissii* dominant in 2014 and 2017 to *Hypocalymma angustifolium* in 2020 and no *X. preissii* identified within the quadrat (Table 40).

Table 40: Ranford Bushland comparison of the vegetation types in the permanent quadrats between 2014 and 2020.

Quadrat	2020	2017	2014
RF01	EtKgLW Low *Eucalyptus todtiana, Kunzea glabrescens* Woodland	*Eucalyptus todtiana* over *Kunzea glabrescens, Regelia ciliata* *Leontodon rhagadioloides, Euphorbia peplus, Lysimachia arvensis*	*Corymbia calophylla* and *Eucalyptus* Woodland
RF02	CcKgLOW Low Open *Corymbia calophylla* and *Kunzea glabrescens* Woodland	*Corymbia calophylla* over *Kunzea glabrescens* *Leontodon rhagadioloides, Euphorbia peplus*	*Corymbia calophylla* and *Eucalyptus* Woodland
RF03	BaAfLW *Banksia attenuata* and *Allocasuarina fraseriana* Woodland	*Banksia attenuata, Allocasuarina fraseriana* over *Adenanthos cygnorum* subsp*. cygnorum* *Hibbertia hypericoides, Patersonia occidentalis, Hibbertia subvaginata*	*Banksia* and *Allocasuarina fraseriana* Woodland
RF04	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia attenuata, Banksia ilicifolia, Banksia menziesii* over *Macrozamia riedlei, Beaufortia elegans, Acacia pulchella* *Dasypogon bromeliifolius, Lyginia barbata*	*Banksia* Woodland
RF05	BaBmLW Low *Banksia attenuata, Banksia menziesii* Woodland	*Banksia attenuata, Banksia menziesii* over *Xanthorrhoea preissii, Regelia inops* *Dasypogon bromeliifolius, Scholtzia involucrata*	*Banksia* Woodland
RF06	HaS	*Xanthorrhoea preissii* over	Open *Xanthorrhoea preissii* Shrubland

Quadrat	2020	2017	2014
	Hypocalymma angustifolium Shrubland	*Phlebocarya ciliata, Dasypogon bromeliifolius*	
RF07	MOS Mixed Open Shrubland	*Pericalymma ellipticum, Astartea scoparia* over *Hypolaena exsulca, Lyginia imberbis, Hypolaena exsulca*	*Pericalymma ellipticum* Shrubland
RF08	MOS Mixed Open Shrubland	*Hypocalymma angustifolium, Adenanthos obovatus* over *Dasypogon bromeliifolius, Phlebocarya ciliata, Lyginia imberbis*	*Hypocalymma angustifolium* and *Adenanthos obovatus* Shrubland
RF09	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Hypocalymma angustifolium, Astartea scoparia Dasypogon bromeliifolius*	*Hypocalymma angustifolium* and *Adenanthos obovatus* Shrubland
RF10	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Astartea scoparia Lepidosperma longitudinale*	*Hypocalymma angustifolium* and *Adenanthos obovatus* Shrubland
RF11	MpOW Open *Melaleuca preissiana* Woodland	*Melaleuca preissiana* over *Regelia ciliata Lepidosperma longitudinale*	Open *Melaleuca preissiana* Woodland
RF12	HaS	*Adenanthos obovatus, Melaleuca seriata, Hypocalymma angustifolium Phlebocarya ciliata, Lyginia imberbis*	*Hypocalymma angustifolium* and *Adenanthos obovatus* Shrubland
RF13	MOS Mixed Open Shrubland	*Verticordia drummondii Lyginia imberbis, Hypolaena exsulca*	MOS Mixed Open Shrubland
RF14	(cleared)	*Banksia attenuata, Banksia menziesii, Banksia ilicifolia Xanthorrhoea preissii Dasypogon bromeliifolius, Lyginia barbata*	*Banksia* Woodland

14.3 Threatened and Priority Ecological Communities

According to NationalMap, a threatened ecological community (TEC) is listed within Ranford Bushland (DBCA, 2021d). The threatened ecological community *Banksia Woodlands of the Swan Coastal Plain* listed as Endangered under the EPBC Act 1999 (Cwlth) has the potential to occur within this site.

The 2020 floristic analysis found that 92% of quadrats showed similarities to two floristic community of the TEC *Banksia Woodlands of the Swan Coastal Plain*. Similarities between 18% and 41% to the Priority 3, FCT21c floristic community *Low lying Banksia attenuata woodlands or shrublands* and similarities between 21% and 24% to the Priority 2, FCT24 Northern Spearwood shrublands and woodlands.

Natural Area (2020) surveyed the permanent quadrats within Ranford Bushland (23.65 ha), with identification of several vegetation types. The vegetation types of MpOW, HaS and MOS, show inconsistencies in vegetation and structure to FCT21c and are unlikely to be categorised as a TEC. The three *Banksia* Woodlands quadrats (RF03, RF04 and RF05) all had vegetation conditions of Very Good in 2020. Reassessment of patch sizes and their condition is required to properly assess whether the *Banksia* woodlands are classified as a TEC, as per the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Threatened Species Scientific Committee, 2016).

14.4 Vegetation Condition

Vegetation condition within Ranford Bushland ranged from Excellent to Degraded in 2020. Previous surveys classified quadrats between Excellent and Good condition. Quadrat RF14 was cleared after 2017. Majority of the quadrats (61.5%, n = 13) exhibited a decline in condition. Of these, 2 quadrats declined from Good to Degraded. No quadrats showed an increase in vegetation condition; however, 38.5% of quadrats did not change over time, remaining in either Very Good or Excellent condition (Table 41).

Table 41: Ranford Bushland comparison of vegetation condition of quadrats between 2014, 2017 and 2020.

Quadrat	2014	2017	2020
RF01	3	3	2
RF02	3	3	2
RF03	4	4	4
RF04	4	4	4
RF05	4	4	4
RF06	5	5	5
RF07	4	4	3
RF08	5	5	4
RF09	5	5	5
RF10	4	4	3
RF11	4	4	3
RF12	5	5	4
RF13	4	3	3
RF14	4	4	

(6 = Pristine, 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Degraded and 1 = Very Degraded)

15.0 References

Biodiversity Conservation Act 2016 (WA). Retrieved from https://www.legislation.wa.gov.au/legislation/statutes.nsf/main_mrtitle_13811_homepage.html

Bureau of Meteorology. (2021). *Climate Data Online*. Retrieved from http://www.bom.gov.au/climate/data/

Colwell, R. K. (2009). Biodiversity: concepts, patterns, and measurement. *The Princeton guide to ecology*, *663*, 257-263.

Department of Agriculture, Water and the Environment. (2019). Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands of the Swan Coastal Plain Ecological Community. Retrieved from http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf

Department of the Agriculture, Water and the Environment. (2021). *Protected Matters Search Tool*. Retrieved from http://www.environment.gov.au/epbc/pmst/.

Department of Biodiversity, Conservation and Attractions. (2020). *Conservation Codes*. Retrieved from https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/Conservation%20code%20definitions.pdf

Department of Biodiversity of Conservation and Attractions (2021a). *NationalMap – Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*. Retrieved from http://nationalmap.gov.au

Department of Biodiversity, Conservation and Attractions. (2021b). *NatureMap*. Retrieved from http://naturemap.dpaw.wa.gov.au/default.aspx.

Department of Biodiversity, Conservation and Attractions. (2021c). *FloraBase*. Retrieved from https://florabase.dpaw.wa.gov.au/

Department of Biodiversity of Conservation and Attraction (2021d). *NationalMap – Threatened Ecological Communities (DBCA-038)*. Retrieved from http://nationalmap.gov.au

Department of Planning, Lands and Heritage (2021). *NationalMap – Geomorphic Wetlands, Swan Coastal Plain (DBCA-019)*. Retrieved from http://nationalmap.gov.au

Department of Primary Industries and Regional Development. (2021a). *NRInfo: Soils and Contours*. Retrieved from https://www.agric.wa.gov.au/resource-assessment/nrinfo-western-australia.

Department of Primary Industries and Regional Development. (2021b). *NRInfo: DBCA_Vegetation_Complexes*. Retrieved from https://maps.agric.wa.gov.au/nrm-info/

Environmental Protection Authority. (2020). *Technical Guidance, Terrestrial vertebrate fauna surveys for environmental impact assessment.* Retrieved from

https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf

Environmental Protection and Biodiversity Conservation Act 1999 (Cwlth). Retrieved from https://www.legislation.gov.au/Series/C2004A00485

Gibson, N., Keighery, B. J., Keighery G.J., Burbidge, A.H., & Lyons, M. N. (1994). *A floristic Survey of the Southern Swan Coastal Plain*. Perth, W.A: Department of Conservation and Land Management and Conservation Council of Western Australia

Government of Western Australian. (2000). *Bush Forever* (Vol. 2). Perth, W.A: Department of Environmental Protection

Heddle, E., Loneragan, O., & Havel, J. (1980). *Vegetation Complexes of the Darling System Western Australia. In Atlas of Natural Resources - Darling System, Western Australia (pp. 37 - 72).* Canberra, W.A: Department of Conservation and Environment, Western Australia.

Mitchell, D., Williams, K., & Desmond, A. (2002). *Swan Coastal Plain 2 (SWA2 – Swan Coastal Plain Subregion)*. Retrieved from http://www.dpaw.wa.gov.au/about-us/science-andresearch/biological-surveys/117-a-biodiversity-audit-of-wa.

Appendix 1: NatureMap, 5km

Appendix 1.1 Queens Park Regional Open Space

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 01/09/2020

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	115° 57' 43" E,31° 59' 59" S
Buffer	5km
Group By	Species Group

Species Group	Species	Records
Amphibian	10	176
Bird	154	33597
Bryopsid (Moss)	18	26
Dicotyledon	628	2433
Fish	3	11
Fungus	34	70
Gymnosperm	2	20
Invertebrate	97	385
Lichen	1	1
Mammal	17	81
Monocotyledon	400	1547
Pteridophyte (Fern)	7	16
Reptile	49	378
Slime Mould	6	8
TOTAL	**1426**	**38749**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25398	*Crinia georgiana (Quacking Frog)*			
2.	25399	*Crinia glauerti (Clicking Frog)*			
3.	25400	*Crinia insignifera (Squelching Froglet)*			
4.	25409	*Heleioporus barycragus (Hooting Frog)*			
5.	25410	*Heleioporus eyrei (Moaning Frog)*			
6.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
7.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
8.	25388	*Litoria moorei (Motorbike Frog)*			
9.	25420	*Myobatrachus gouldii (Turtle Frog)*			
10.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
Bird					
11.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
12.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
13.	24262	*Acanthiza inornata (Western Thornbill)*			
14.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
15.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
16.	25536	*Accipiter fasciatus (Brown Goshawk)*			
17.	24282	*Accipiter fasciatus subsp. fasciatus (Brown Goshawk)*			
18.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
19.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
20.	24310	*Anas castanea (Chestnut Teal)*			
21.	24312	*Anas gracilis (Grey Teal)*			
22.	24313	*Anas platyrhynchos (Mallard)*			
23.		*Anas platyrhynchos subsp. domesticus*			
24.	24315	*Anas rhynchotis (Australasian Shoveler)*			
25.	24316	*Anas superciliosa (Pacific Black Duck)*			
26.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
27.		*Anser anser*			
28.	24561	*Anthochaera carunculata (Red Wattlebird)*			
29.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
30.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
31.	24285	*Aquila audax (Wedge-tailed Eagle)*			
32.	41324	*Ardea modesta (great egret, white egret)*			
33.	24340	*Ardea novaehollandiae (White-faced Heron)*			
34.	24341	*Ardea pacifica (White-necked Heron)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
35.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
36.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
37.	24318	*Aythya australis (Hardhead)*			
38.		*Barnardius zonarius*			
39.	24319	*Biziura lobata (Musk Duck)*			
40.	24359	*Burhinus grallarius (Bush Stone-curlew)*			
41.	25714	*Cacatua pastinator (Western Long-billed Corella)*			
42.	25715	*Cacatua roseicapilla (Galah)*			
43.	25716	*Cacatua sanguinea (Little Corella)*			
44.	24729	*Cacatua tenuirostris (Eastern Long-billed Corella)*	Y		
45.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
46.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
47.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
48.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
49.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
50.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
51.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
52.		*Chroicocephalus novaehollandiae*			
53.	25601	*Chrysococcyx lucidus (Shining Bronze Cuckoo)*			
54.	24288	*Circus approximans (Swamp Harrier)*			
55.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
56.	24399	*Columba livia (Domestic Pigeon)*	Y		
57.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
58.	24362	*Coracina novaehollandiae subsp. novaehollandiae (Black-faced Cuckoo-shrike)*			
59.	25592	*Corvus coronoides (Australian Raven)*			
60.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
61.	25595	*Cracticus tibicen (Australian Magpie)*			
62.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
63.	25596	*Cracticus torquatus (Grey Butcherbird)*			
64.	24322	*Cygnus atratus (Black Swan)*			
65.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
66.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
67.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
68.		*Egretta garzetta*			
69.		*Egretta novaehollandiae*			
70.		*Elanus axillaris*			
71.	24290	*Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)*			
72.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
73.		*Eolophus roseicapillus*			
74.	24651	*Eopsaltria australis subsp. griseogularis (Western Yellow Robin)*			
75.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
76.	25621	*Falco berigora (Brown Falcon)*			
77.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
78.	24472	*Falco cenchroides subsp. cenchroides (Australian Kestrel, Nankeen Kestrel)*			
79.	25623	*Falco longipennis (Australian Hobby)*			
80.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
81.	25727	*Fulica atra (Eurasian Coot)*			
82.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
83.	25729	*Gallinula tenebrosa (Dusky Moorhen)*			
84.	24763	*Gallinula tenebrosa subsp. tenebrosa (Dusky Moorhen)*			
85.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
86.		*Gallus gallus*			
87.	42314	*Gavicalis virescens (Singing Honeyeater)*			
88.	25530	*Gerygone fusca (Western Gerygone)*			
89.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
90.	24443	*Grallina cyanoleuca (Magpie-lark)*			
91.	24295	*Haliastur sphenurus (Whistling Kite)*			
92.	47965	*Hieraaetus morphnoides (Little Eagle)*			
93.	25734	*Himantopus himantopus (Black-winged Stilt)*			
94.	24491	*Hirundo neoxena (Welcome Swallow)*			
95.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
96.	25661	*Lichmera indistincta (Brown Honeyeater)*			
97.	24582	*Lichmera indistincta subsp. indistincta (Brown Honeyeater)*			
98.		*Lophoictinia isura*			
99.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
100.	25651	*Malurus lamberti (Variegated Fairy-wren)*			
101.	25654	*Malurus splendens (Splendid Fairy-wren)*			
102.	24583	*Manorina flavigula (Yellow-throated Miner)*			
103.	25758	*Megalurus gramineus (Little Grassbird)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
104.	47997	*Melanodryas cucullata (Hooded Robin)*			
105.	25663	*Melithreptus brevirostris (Brown-headed Honeyeater)*			
106.	24587	*Melithreptus chloropsis (Western White-naped Honeyeater)*			
107.	24598	*Merops ornatus (Rainbow Bee-eater)*			
108.		*Microcarbo melanoleucos*			
109.	24738	*Neophema elegans (Elegant Parrot)*			
110.	24739	*Neophema petrophila (Rock Parrot)*			
111.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
112.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
113.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
114.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
115.	24624	*Pachycephala rufiventris subsp. rufiventris (Rufous Whistler)*			
116.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
117.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
118.	25682	*Pardalotus striatus (Striated Pardalote)*			
119.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
120.	48060	*Petrochelidon ariel (Fairy Martin)*			
121.	48061	*Petrochelidon nigricans (Tree Martin)*			
122.	48066	*Petroica boodang (Scarlet Robin)*			
123.	24659	*Petroica goodenovii (Red-capped Robin)*			
124.	25697	*Phalacrocorax carbo (Great Cormorant)*			
125.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
126.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
127.	25699	*Phalacrocorax varius (Pied Cormorant)*			
128.	24409	*Phaps chalcoptera (Common Bronzewing)*			
129.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
130.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
131.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
132.	24842	*Platalea regia (Royal Spoonbill)*			
133.	25720	*Platycercus icterotis (Western Rosella)*			
134.	25703	*Podargus strigoides (Tawny Frogmouth)*			
135.	25704	*Podiceps cristatus (Great Crested Grebe)*			
136.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
137.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
138.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
139.	24769	*Porzana fluminea (Australian Spotted Crake)*			
140.	24771	*Porzana tabuensis (Spotless Crake)*			
141.	24702	*Pterodroma brevirostris (Kerguelen Petrel)*			
142.		*Purpureicephalus spurius*			
143.	48096	*Rhipidura albiscapa (Grey Fantail)*			
144.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
145.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
146.	30948	*Smicrornis brevirostris (Weebill)*			
147.	24525	*Sterna fuscata subsp. nubilosa (Sooty Tern)*			
148.	24329	*Stictonetta naevosa (Freckled Duck)*			
149.	25589	*Streptopelia chinensis (Spotted Turtle-Dove)*	Y		
150.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
151.	30950	*Streptopelia senegalensis subsp. senegalensis (Laughing Turtle-Dove)*	Y		
152.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
153.	24682	*Tachybaptus novaehollandiae subsp. novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
154.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
155.	48597	*Thalasseus bergii (Crested Tern)*		IA	
156.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
157.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
158.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
159.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
160.	25723	*Trichoglossus haematodus (Rainbow Lorikeet)*			
161.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
162.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
163.	24852	*Tyto alba subsp. delicatula (Barn Owl)*			
164.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Bryopsid (Moss)

165.	32314	*Archidium rehmannii*			
166.	32315	*Barbula calycina*			
167.	32330	*Bryum argenteum*			
168.	32461	*Campylopus bicolor var. bicolor*			
169.	32338	*Campylopus introflexus*	Y		
170.	32347	*Ditrichum difficile*			
171.	32368	*Fissidens taylorii*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
172.	32370	*Funaria hygrometrica*			
173.	32375	*Gemmabryum chrysoneuron*			
174.	32376	*Gemmabryum dichotomum*			
175.	32380	*Gemmabryum pachythecum*			
176.	44608	*Rosulabryum billarderii*			
177.	32429	*Rosulabryum torquescens*			
178.	32432	*Schizymenium bryoides*			
179.	32433	*Sematophyllum homomallum*			
180.	32437	*Syntrichia antarctica*			
181.	32438	*Syntrichia pagorum*			
182.	32440	*Tayloria octoblepharum*			
Dicotyledon					
183.	19708	*Abutilon grandifolium*	Y		
184.	15466	*Acacia applanata*			
185.	3294	*Acacia dentifera*			
186.	11926	*Acacia drewiana subsp. drewiana*			
187.	3374	*Acacia huegelii*			
188.	3382	*Acacia incrassata*			
189.	3383	*Acacia incurva*			
190.	3409	*Acacia lasiocarpa (Panjang)*			
191.	11611	*Acacia lasiocarpa var. lasiocarpa*			
192.	17861	*Acacia longifolia*	Y		
193.	17464	*Acacia longifolia subsp. longifolia*	Y		
194.	17860	*Acacia podalyriifolia*	Y		
195.	15481	*Acacia pulchella var. glaberrima*			
196.	15483	*Acacia pulchella var. pulchella*			
197.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
198.	30033	*Acacia saligna subsp. lindleyi*			
199.	30032	*Acacia saligna subsp. saligna*			
200.	3541	*Acacia sessilis*			
201.	3557	*Acacia stenoptera (Narrow Winged Wattle)*			
202.	3602	*Acacia willdenowiana (Grass Wattle)*			
203.	7811	*Acanthospermum hispidum (Starburr)*	Y		
204.	6205	*Actinotus leucocephalus (Flannel Flower)*			
205.	14970	*Adenanthos barbiger*			
206.	1775	*Adenanthos cygnorum (Common Woollybush)*			
207.	11837	*Adenanthos cygnorum subsp. cygnorum (Common Woollybush)*			
208.	1728	*Allocasuarina fraseriana (Sheoak, Kondil)*			
209.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
210.	1734	*Allocasuarina microstachya*			
211.	2648	*Alternanthera denticulata (Lesser Joyweed)*			
212.	7820	*Ambrosia artemisiifolia (Annual Ragweed, Bitterweed, Hay-feverweed, Hog-weed)*	Y		
213.	7821	*Ambrosia psilostachya (Perennial Ragweed)*	Y		
214.	13267	*Amyema linophylla subsp. linophylla*			
215.	2383	*Amyema preissii (Wireleaf Mistletoe)*			
216.	6300	*Andersonia aristata (Rice Flower)*			
217.	6309	*Andersonia gracilis*		T	
218.	6312	*Andersonia involucrata*			
219.	7833	*Angianthus preissianus*			
220.	17455	*Anredera cordifolia*	Y		
221.	12724	*Anthotium junciforme*			
222.	3686	*Aotus cordifolia*			
223.	3688	*Aotus gracillima*			
224.	12040	*Apium prostratum subsp. prostratum var. prostratum (Sea Celery)*			
225.	7838	*Arctotheca calendula (Cape Weed, African Marigold)*	Y		
226.		*Astartea aff. fascicularis sthcst*			
227.	20350	*Astartea affinis (West-coast Astartea)*			
228.	20249	*Astartea leptophylla (River-bank Astartea)*			
229.	20283	*Astartea scoparia (Common Astartea)*			
230.	6327	*Astroloma foliosum (Candle Cranberry)*			
231.	6330	*Astroloma macrocalyx (Swan Berry)*			
232.	6334	*Astroloma pallidum (Kick Bush)*			
233.	6337	*Astroloma stomarrhena (Red Swamp Cranberry)*			
234.	6339	*Astroloma xerophyllum*			
235.	2471	*Atriplex prostrata (Hastate Orache)*	Y		
236.	36441	*Babingtonia camphorosmae (Camphor Myrtle)*			
237.	45403	*Babingtonia pelloeae (Pelloe's Babingtonia)*			
238.	45402	*Babingtonia urbana (Coastal Plain Babingtonia)*		P3	
239.	32682	*Banksia armata var. armata*			
240.	1800	*Banksia attenuata (Slender Banksia, Piara)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
241.	32576	*Banksia dallanneyi (Couch Honeypot)*			
242.	32580	*Banksia dallanneyi subsp. dallanneyi var. dallanneyi*			
243.	32577	*Banksia dallanneyi subsp. dallanneyi var. mellicula*			
244.	1819	*Banksia grandis (Bull Banksia, Pulgarla)*			
245.	1822	*Banksia ilicifolia (Holly-leaved Banksia)*			
246.	1823	*Banksia incana*			
247.	33399	*Banksia incana var. incana*			
248.	1830	*Banksia littoralis (Swamp Banksia, Pungura)*			
249.	1834	*Banksia menziesii (Firewood Banksia)*			
250.	32211	*Banksia mimica (Summer Honeypot)*		T	
251.	32202	*Banksia nivea (Honeypot Dryandra, Pudjarn)*			
252.	32138	*Banksia pteridifolia subsp. vernalis*		P3	
253.	32080	*Banksia sessilis var. sessilis*			
254.	1852	*Banksia telmatiaea (Swamp Fox Banksia)*			
255.	1855	*Banksia victoriae (Woolly Orange Banksia)*			
256.	5387	*Beaufortia macrostemon (Darling Range Beaufortia)*			
257.	5393	*Beaufortia squarrosa (Sand Beaufortia, Sand Bottlebrush, Puno)*			
258.	7046	*Bellardia trixago (Bellardia)*	Y		
259.	48868	*Bellardia viscosa*	Y		
260.	25798	*Billardiera fusiformis (Australian Bluebell)*			
261.	4413	*Boronia crenulata (Aniseed Boronia)*			
262.	16636	*Boronia crenulata subsp. viminea*			
263.	4414	*Boronia cymosa (Granite Boronia)*			
264.	4417	*Boronia dichotoma*			
265.	17665	*Boronia purdieana subsp. purdieana*			
266.	4438	*Boronia ramosa*			
267.	11381	*Boronia ramosa subsp. anethifolia*			
268.	4444	*Boronia tenuis (Blue Boronia)*		P4	
269.	3710	*Bossiaea eriocarpa (Common Brown Pea)*			
270.	6341	*Brachyloma preissii (Globe Heath)*			
271.	7878	*Brachyscome iberidifolia*			
272.	3000	*Brassica tournefortii (Mediterranean Turnip)*	Y		
273.	3178	*Byblis gigantea (Rainbow Plant)*		P3	
274.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
275.	2854	*Calandrinia granulifera (Pygmy Purslane)*			
276.	2856	*Calandrinia liniflora (Parakeelya)*			
277.	16365	*Calandrinia sp. Kenwick (G.J. Keighery 10905)*			
278.	20096	*Calandrinia sp. Piawaning (A.C. Beauglehole 12257)*		P1	
279.	4717	*Callitriche stagnalis (Common Starwort)*	Y		
280.	5411	*Calothamnus hirsutus*			
281.	5415	*Calothamnus lateralis*			
282.	35816	*Calothamnus quadrifidus subsp. quadrifidus*			
283.	5429	*Calothamnus sanguineus (Silky-leaved Blood flower, Pindak)*			
284.	16492	*Calycopeplus paucifolius*			
285.	5439	*Calytrix angulata (Yellow Starflower)*			
286.	5441	*Calytrix aurea*			
287.	13653	*Calytrix breviseta subsp. breviseta*		T	
288.	5458	*Calytrix flavescens (Summer Starflower)*			
289.	5476	*Calytrix sapphirina*			
290.		*Calytrix sp.*			
291.	11351	*Cassytha aurea var. hirta*			
292.	2951	*Cassytha flava (Dodder Laurel)*			
293.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
294.	11501	*Cassytha glabella forma casuarinae*			
295.	2957	*Cassytha racemosa (Dodder Laurel)*			
296.	11242	*Cassytha racemosa forma pilosa*			
297.	11799	*Cassytha racemosa forma racemosa*			
298.		*Cassytha sp. scps*			Y
299.	1742	*Casuarina obesa (Swamp Sheoak, Kuli)*			
300.	7917	*Centaurea solstitialis (St Barnaby's Thistle, Yellow Star Thistle)*	Y		
301.	6539	*Centaurium erythraea (Common Centaury)*	Y		
302.	6542	*Centaurium tenuiflorum*	Y		
303.	6214	*Centella asiatica*			
304.	7918	*Centipeda cunninghamii (Common Sneezewood, Gukwonderuk, Old Man Weed)*			
305.	5498	*Chamelaucium uncinatum (Geraldton Wax)*			
306.	3169	*Cheiranthera preissiana*			
307.	3753	*Chorizema dicksonii (Yellow-eyed Flame Pea)*			
308.	7933	*Chthonocephalus pseudevax (Woolly Groundheads)*			
309.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
310.	48838	*Citrullus amarus*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
311.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
312.	4551	*Comesperma ciliatum*			
313.	14663	*Comesperma griffinii*		P2	
314.	4559	*Comesperma polygaloides (Small Milkwort)*			
315.	4560	*Comesperma rhadinocarpum (Slender-fruited Comesperma)*		P3	
316.		*Comesperma sp. Brix1R (possibly virigatum)*			Y
317.	4564	*Comesperma virgatum (Milkwort)*			
318.	48634	*Commersonia corniculata*			
319.	15607	*Conospermum acerosum subsp. acerosum*			
320.	15041	*Conospermum canaliculatum*			
321.	15516	*Conospermum canaliculatum subsp. canaliculatum*			
322.	16853	*Conospermum capitatum subsp. glabratum*			
323.	1875	*Conospermum huegelii (Slender Smokebush)*			
324.	1882	*Conospermum stoechadis (Common Smokebush)*			
325.	1885	*Conospermum triplinervium (Tree Smokebush)*			
326.	13999	*Conospermum undulatum*		T	
327.	6347	*Conostephium minus (Pink-tipped Pearl flower)*			
328.	6348	*Conostephium pendulum (Pearl Flower)*			
329.	6349	*Conostephium preissii*			
330.	5502	*Conothamnus trinervis*			
331.	7939	*Conyza bonariensis (Flaxleaf Fleabane)*	Y		
332.	7941	*Conyza parva*	Y		
333.		*Conyza sp. Brix1R*			Y
334.		*Conyza sp. Brix4*			Y
335.	20074	*Conyza sumatrensis*	Y		
336.	2891	*Corrigiola litoralis (Strapwort)*	Y		
337.	17104	*Corymbia calophylla (Marri)*			
338.	7943	*Cotula australis (Common Cotula)*			
339.	7944	*Cotula bipinnata (Ferny Cotula)*	Y		
340.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
341.	7946	*Cotula cotuloides (Smooth Cotula)*			
342.	7947	*Cotula turbinata (Funnel Weed)*	Y		
343.	17701	*Crassula closiana*			
344.	3137	*Crassula colorata (Dense Stonecrop)*			
345.	11709	*Crassula colorata var. acuminata*			
346.	11563	*Crassula colorata var. colorata*			
347.	3138	*Crassula decumbens (Rufous Stonecrop)*			
348.	3142	*Crassula natans*	Y		
349.	15706	*Crassula natans var. minus*	Y		
350.	35838	*Cristonia biloba subsp. biloba*			
351.	13527	*Croninia kingiana*			
352.	13470	*Cryptandra arbutiflora var. arbutiflora*			
353.	4809	*Cryptandra pungens*			
354.	4810	*Cryptandra scoparia*			
355.	6663	*Cuscuta epithymum (Lesser Dodder, Greater Dodder)*	Y		
356.	11021	*Cuscuta planiflora*	Y		
357.	7454	*Dampiera linearis (Common Dampiera)*			
358.	7462	*Dampiera pedunculata*			
359.	7484	*Dampiera trigona (Angled-stem Dampiera)*			
360.	5508	*Darwinia citriodora (Lemon-scented Darwinia)*			
361.	6218	*Daucus glochidiatus (Australian Carrot)*			
362.	3793	*Daviesia angulata*			
363.	19747	*Daviesia decurrens subsp. decurrens*			
364.	3807	*Daviesia divaricata (Marno)*			
365.	18560	*Daviesia divaricata subsp. divaricata*			
366.	3815	*Daviesia horrida (Prickly Bitter-pea)*			
367.	3824	*Daviesia nudiflora*			
368.	16585	*Daviesia nudiflora subsp. nudiflora*			
369.	3832	*Daviesia physodes*			
370.	3845	*Daviesia triflora*			
371.	18589	*Diplopeltis huegelii subsp. lehmannii*			
372.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
373.	3091	*Drosera bulbigena (Midget Sundew)*			
374.	48751	*Drosera drummondii*			
375.	3095	*Drosera erythrorhiza (Red Ink Sundew)*			
376.	3097	*Drosera gigantea (Giant Sundew)*			
377.	3098	*Drosera glanduligera (Pimpernel Sundew)*			
378.	13195	*Drosera helodes*			
379.	3101	*Drosera heterophylla (Swamp Rainbow)*			
380.	3106	*Drosera macrantha (Bridal Rainbow)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
381.	3109	*Drosera menziesii (Pink Rainbow)*			
382.	48709	*Drosera minutiflora*			
383.	3113	*Drosera neesii (Jewel Rainbow)*			
384.	3114	*Drosera nitidula (Shining Sundew)*			
385.	3115	*Drosera occidentalis (Western Sundew)*		P4	
386.	29178	*Drosera porrecta*			
387.	3128	*Drosera ramellosa (Branched Sundew)*			
388.	8911	*Drosera rosulata*			
389.		*Drosera sp.*			
390.	49090	*Drosera sp. Branched styles (S.C. Coffey 193)*			
391.	3131	*Drosera stolonifera (Leafy Sundew)*			
392.	13205	*Drosera tubaestylis*			
393.	3135	*Drosera zonaria (Painted Sundew)*			
394.	33500	*Dysphania ambrosioides (Mexican Tea)*	Y		
395.	7374	*Ecballium elaterium (Squirting Cucumber)*	Y		
396.	8450	*Eclipta prostrata*	Y		
397.	5187	*Elatine gratioloides (Waterwort)*			
398.	6132	*Epilobium ciliatum*	Y		
399.	6133	*Epilobium hirtigerum (Hairy Willow Herb)*			
400.	14289	*Epilobium tetragonum subsp. tetragonum*	Y		
401.	5540	*Eremaea fimbriata*			
402.	5541	*Eremaea pauciflora*			
403.	14104	*Eremaea pauciflora var. pauciflora*			
404.	17150	*Eremophila glabra subsp. chlorella*		T	
405.	6219	*Eryngium pinnatifidum (Blue Devils)*			
406.	41801	*Eryngium pinnatifidum subsp. Palustre (G.J. Keighery 13459)*		P3	
407.	41810	*Eryngium sp. Subdecumbens (G.J. Keighery 5390)*		P3	
408.	48633	*Erythrina crista-galli*	Y		Y
409.	18299	*Erythrina x sykesii*	Y		
410.	17359	*Eucalyptus botryoides*	Y		
411.	5580	*Eucalyptus camaldulensis (River Gum, Yabalinyba)*			
412.	48440	*Eucalyptus grandis*	Y		
413.	5708	*Eucalyptus marginata (Jarrah, Djara)*			
414.	13547	*Eucalyptus marginata subsp. marginata (Jarrah)*			
415.	5763	*Eucalyptus rudis (Flooded Gum, Kulurda)*			
416.	13511	*Eucalyptus rudis subsp. rudis*			
417.	5790	*Eucalyptus todtiana (Coastal Blackbutt)*			
418.	3872	*Euchilopsis linearis (Swamp Pea)*			
419.	29940	*Euphorbia maculata*	Y		
420.	34757	*Euphorbia prostrata*	Y		
421.	4648	*Euphorbia terracina (Geraldton Carnation Weed)*	Y		
422.	3880	*Eutaxia virgata*			
423.	8365	*Fumaria bastardii*	Y		
424.	2969	*Fumaria capreolata (Whiteflower Fumitory)*	Y		
425.	31532	*Fumaria muralis subsp. muralis*	Y		
426.		*Fumaria sp.*			
427.	7976	*Galinsoga parviflora (Potato Weed)*	Y		
428.	3887	*Gastrolobium acutum*			
429.	20475	*Gastrolobium capitatum*			
430.	20483	*Gastrolobium linearifolium*			
431.	3923	*Gastrolobium spathulatum (Poison Bush)*			
432.	16311	*Gazania linearis*	Y		
433.	6143	*Glischrocaryon aureum (Common Popflower)*			
434.	7061	*Glossostigma drummondii (Mudmat)*			
435.	7991	*Gnephosis drummondii*			
436.	8002	*Gnephosis tenuissima*			
437.		*Gnephosis tenuissima - drummondii complex*			
438.		*Gnephosis tenuissima-drummondii complex*			
439.	6587	*Gomphocarpus fruticosus (Narrowleaf Cottonbush)*	Y		
440.	3945	*Gompholobium aristatum*			
441.	10909	*Gompholobium confertum*			
442.	3950	*Gompholobium knightianum*			
443.	3951	*Gompholobium marginatum*			
444.	3956	*Gompholobium shuttleworthii*			
445.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
446.	6149	*Gonocarpus cordiger*			
447.	6159	*Gonocarpus nodulosus*			
448.	6160	*Gonocarpus paniculatus*			
449.	6161	*Gonocarpus pithyoides*			
450.	29362	*Goodenia coerulea*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
451.	7517	*Goodenia incana (Hoary Goodenia)*			
452.	12551	*Goodenia micrantha*			
453.	7538	*Goodenia pulchella*			
454.	19286	*Goodenia pulchella subsp. Coastal Plain A (M. Hislop 634)*			
455.	19284	*Goodenia pulchella subsp. Coastal Plain B (L.W. Sage 2336)*			
456.	14282	*Gratiola pubescens*			
457.	1964	*Grevillea bipinnatifida (Fuchsia Grevillea)*			
458.	19628	*Grevillea bipinnatifida subsp. bipinnatifida*			
459.	1997	*Grevillea endlicheriana (Spindly Grevillea)*			
460.	2032	*Grevillea leucopteris (White Plume Grevillea)*			
461.	2066	*Grevillea pilulifera (Woolly-flowered Grevillea)*			
462.	15839	*Grevillea preissii subsp. preissii*			
463.	2107	*Grevillea thelemanniana (Spider Net Grevillea)*		T	
464.	2136	*Hakea candolleana*			
465.	2137	*Hakea ceratophylla (Horned Leaf Hakea)*			
466.	2143	*Hakea conchifolia (Shell-leaved Hakea)*			
467.	2158	*Hakea erinacea (Hedge-hog Hakea)*			
468.	2166	*Hakea incrassata (Marble Hakea)*			
469.	2175	*Hakea lissocarpha (Honey Bush)*			
470.	2185	*Hakea myrtoides (Myrtle Hakea)*			
471.	2197	*Hakea prostrata (Harsh Hakea)*			
472.	2203	*Hakea ruscifolia (Candle Hakea)*			
473.	31793	*Hakea sp. Eastern coastal plain (G.J. Keighery 8014)*			
474.	2212	*Hakea sulcata (Furrowed Hakea)*			
475.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
476.	2215	*Hakea undulata (Wavy-leaved Hakea)*			
477.	2216	*Hakea varia (Variable-leaved Hakea)*			
478.	6178	*Haloragis scoparia*		P1	
479.	8008	*Helianthus annuus (Sunflower, Common Sunflower)*	Y		
480.	3016	*Heliophila pusilla*	Y		
481.	16933	*Hemiandra glabra*			
482.	6838	*Hemiandra linearis (Speckled Snakebush)*			
483.	6839	*Hemiandra pungens (Snakebush)*			
484.	41020	*Hemiphora bartlingii (Woolly Dragon)*			
485.	41042	*Hemiphora uncinata*			
486.	5112	*Hibbertia aurea*			
487.	5114	*Hibbertia commutata*			
488.	19778	*Hibbertia glomerata subsp. darlingensis*			
489.	5134	*Hibbertia huegelii*			
490.	5135	*Hibbertia hypericoides (Yellow Buttercups)*			
491.	45534	*Hibbertia hypericoides subsp. hypericoides*			
492.	5146	*Hibbertia montana*		P4	
493.	5148	*Hibbertia mylnei*			
494.	5152	*Hibbertia ovata*			
495.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
496.	5169	*Hibbertia serrata (Serrate Leaved Guinea Flower)*			
497.	5172	*Hibbertia stellaris (Orange Stars)*			
498.	48381	*Hibbertia striata*			
499.	6222	*Homalosciadium homalocarpum*			
500.	3966	*Hovea pungens (Devil's Pins, Puyenak)*			
501.	3968	*Hovea trisperma (Common Hovea)*			
502.	12859	*Hovea trisperma var. trisperma*			
503.	12741	*Hyalosperma cotula*			
504.	5216	*Hybanthus calycinus (Wild Violet)*			
505.	6223	*Hydrocotyle alata*			
506.	6226	*Hydrocotyle callicarpa (Small Pennywort)*			
507.	6229	*Hydrocotyle diantha*			
508.	6233	*Hydrocotyle lemnoides (Aquatic Pennywort)*		P4	
509.	6238	*Hydrocotyle ranunculoides*	Y		
510.	5817	*Hypocalymma angustifolium (White Myrtle, Kudjid)*			
511.	5825	*Hypocalymma robustum (Swan River Myrtle)*			
512.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
513.	2221	*Isopogon asper*			
514.	29775	*Isopogon drummondii*		P3	
515.	2229	*Isopogon dubius (Pincushion Coneflower)*			
516.	2237	*Isopogon sphaerocephalus (Drumstick Isopogon)*			
517.	7396	*Isotoma hypocrateriformis (Woodbridge Poison)*			
518.	7398	*Isotoma pusilla (Small Isotome)*			
519.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
520.	3992	*Isotropis cuneifolia (Granny Bonnets)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
521.	19700	*Isotropis cuneifolia subsp. cuneifolia*			
522.	16317	*Isotropis cuneifolia subsp. glabra*		P3	
523.	3998	*Jacksonia angulata*			
524.	4010	*Jacksonia floribunda (Holly Pea)*			
525.	4012	*Jacksonia furcellata (Grey Stinkwood)*			
526.	20462	*Jacksonia gracillima*		P3	
527.	4018	*Jacksonia lehmannii*			
528.	4025	*Jacksonia restioides*			
529.	4029	*Jacksonia sternbergiana (Stinkwood, Kapur)*			
530.	4044	*Kennedia prostrata (Scarlet Runner)*			
531.	7068	*Kickxia spuria (Roundleaf Toadflax)*	Y		
532.	5832	*Kunzea ericifolia (Spearwood, Pondil)*			
533.	15498	*Kunzea glabrescens (Spearwood)*			
534.	5835	*Kunzea micrantha*			
535.	17461	*Kunzea micrantha subsp. micrantha*			
536.	17785	*Kunzea micrantha subsp. petiolata*			
537.	3669	*Labichea punctata (Lance-leaved Cassia)*			
538.	18585	*Lagenophora huegelii*			
539.	14646	*Lagunaria patersonia*	Y		
540.	2249	*Lambertia multiflora (Many-flowered Honeysuckle)*			
541.	14083	*Lambertia multiflora var. darlingensis*			
542.	6733	*Lantana camara (Common Lantana)*	Y		
543.	5025	*Lasiopetalum bracteatum (Helena Velvet Bush)*		P4	
544.	45081	*Lasiopetalum glutinosum subsp. glutinosum*		P3	
545.	4052	*Latrobea tenella*			
546.	4959	*Lawrencia squamata*			
547.	7572	*Lechenaultia expansa*			
548.	44490	*Leontodon rhagadioloides*	Y		
549.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
550.	2344	*Leptomeria empetriformis*			
551.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
552.	6374	*Leucopogon conostephioides*			
553.	6397	*Leucopogon glaucifolius*			
554.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
555.	6439	*Leucopogon pulchellus (Beard-heath)*			
556.	6444	*Leucopogon sprengelioides*			
557.	6445	*Leucopogon squarrosus*			
558.	40803	*Leucopogon squarrosus subsp. squarrosus*			
559.	6447	*Leucopogon strictus*			
560.	7674	*Levenhookia preissii (Preiss's Stylewort)*			
561.	7676	*Levenhookia pusilla (Midget Stylewort)*			
562.	7677	*Levenhookia stipitata (Common Stylewort)*			
563.	4363	*Linum trigynum (French Flax)*	Y		
564.	36160	*Liparophyllum capitatum*			
565.	9289	*Lobelia anceps (Angled Lobelia)*			
566.	7402	*Lobelia gibbosa (Tall Lobelia)*			
567.	7406	*Lobelia rhombifolia (Tufted Lobelia)*			
568.	7407	*Lobelia rhytidosperma (Wrinkled-seeded Lobelia)*			
569.	7408	*Lobelia tenuior (Slender Lobelia)*			
570.	3048	*Lobularia maritima (Sweet Alyssum)*	Y		
571.	4059	*Lotus angustissimus (Narrowleaf Trefoil)*	Y		
572.	8564	*Lotus subbiflorus*	Y		
573.	44680	*Ludwigia repens*	Y		
574.	4067	*Lupinus luteus (Yellow Lupin)*	Y		
575.	2396	*Lysiana casuarinae*			
576.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
577.	36373	*Lysimachia minima*	Y		
578.	6456	*Lysinema ciliatum (Curry Flower)*			
579.	34736	*Lysinema pentapetalum*			
580.	5281	*Lythrum hyssopifolia (Lesser Loosestrife)*	Y		
581.	2839	*Macarthuria australis*			
582.	17106	*Macarthuria keigheryi*		T	
583.	4070	*Macroptilium atropurpureum (Purple Bean)*	Y		
584.	4079	*Medicago polymorpha (Burr Medic)*	Y		
585.	4080	*Medicago sativa (Alfalfa)*	Y		
586.	37580	*Melaleuca acutifolia*			
587.	19721	*Melaleuca armillaris*	Y		
588.	5881	*Melaleuca brevifolia*			
589.	40780	*Melaleuca citrina*	Y		
590.	13273	*Melaleuca incana subsp. incana*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
591.	5926	*Melaleuca lateritia (Robin Redbreast Bush)*			
592.	5932	*Melaleuca leucadendra*			
593.	5943	*Melaleuca nesophila (Mindiyed)*			
594.	20297	*Melaleuca osullivanii*			
595.	18394	*Melaleuca parviceps*			
596.	5952	*Melaleuca preissiana (Moonah)*			
597.	48990	*Melaleuca quinquenervia*	Y		
598.	5959	*Melaleuca rhaphiophylla (Swamp Paperbark)*			
599.	5961	*Melaleuca scabra (Rough Honeymyrtle, Wurru Bush)*			
600.	5964	*Melaleuca seriata*			
601.	5978	*Melaleuca teretifolia (Banbar)*			
602.	37683	*Melaleuca viminalis*		P2	
603.	5987	*Melaleuca viminea (Mohan)*			
604.	13280	*Melaleuca viminea subsp. viminea*			
605.	4516	*Melia azedarach (White Cedar)*			
606.	8106	*Millotia tenuifolia (Soft Millotia)*			
607.	4100	*Mirbelia spinosa*			
608.	4963	*Modiola caroliniana*	Y		
609.	7378	*Momordica balsamina (Balsam Apple)*	Y		
610.	7410	*Monopsis debilis*	Y		
611.	37440	*Monopsis debilis var. depressa*	Y		
612.	4662	*Monotaxis grandiflora (Diamond of the Desert)*			
613.	19585	*Monotaxis grandiflora var. grandiflora*			
614.	14187	*Myriocephalus occidentalis*			
615.	6189	*Myriophyllum crispatum*			
616.	6193	*Myriophyllum echinatum*		P3	
617.	6464	*Needhamiella pumilio*			
618.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
619.	2923	*Nymphaea odorata (Fragrant Waterlily)*	Y		
620.	6138	*Oenothera drummondii (Beach Evening Primrose)*	Y		
621.	16390	*Oenothera drummondii subsp. drummondii*	Y		
622.	6139	*Oenothera glazioviana (Evening Primrose)*	Y		
623.	16347	*Oenothera laciniata*	Y		
624.	6140	*Oenothera mollissima*	Y		
625.	6142	*Oenothera stricta (Common Evening Primrose)*	Y		
626.	14292	*Oenothera stricta subsp. stricta*	Y		
627.	2365	*Olax benthamiana*			
628.	2367	*Olax scalariformis*			
629.	8127	*Olearia axillaris (Coastal Daisybush)*			
630.	8143	*Olearia paucidentata (Autumn Scrub Daisy)*			
631.	18254	*Opercularia apiciflora*			
632.	18255	*Opercularia vaginata (Dog Weed)*			
633.	29276	*Opuntia monacantha (Barbary Fig)*	Y		
634.	5227	*Opuntia stricta (Common Prickly Pear)*	Y		
635.	36177	*Ornduffia albiflora*			
636.	36200	*Ornduffia submersa*		P4	
637.	4352	*Oxalis glabra*	Y		
638.	4356	*Oxalis pes-caprae (Soursob)*	Y		
639.	4358	*Oxalis purpurea (Largeflower Wood Sorrel)*	Y		
640.	7089	*Parentucellia latifolia (Common Bartsia)*	Y		
641.	16477	*Pericalymma ellipticum var. ellipticum*			
642.	16478	*Pericalymma ellipticum var. floridum*			
643.	13911	*Persicaria decipiens*			
644.	2255	*Persoonia angustiflora*			
645.	2262	*Persoonia elliptica (Spreading Snottygobble)*			
646.	2273	*Persoonia saccata (Snottygobble)*			
647.	2284	*Petrophile biloba (Granite Petrophile)*			
648.	20391	*Petrophile juncifolia*			
649.	2299	*Petrophile linearis (Pixie Mops)*			
650.	2301	*Petrophile macrostachya*			
651.	2308	*Petrophile seminuda*			
652.	2312	*Petrophile striata*			
653.	18529	*Philotheca spicata (Pepper and Salt)*			
654.	16825	*Phyllangium divergens*			
655.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
656.	11404	*Pimelea imbricata var. major*			
657.	11402	*Pimelea imbricata var. piligera*			
658.	18117	*Pimelea rosea subsp. rosea*			
659.	12041	*Pimelea suaveolens subsp. suaveolens*			
660.	5268	*Pimelea sulphurea (Yellow Banjine)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
661.	7303	*Plantago lanceolata (Ribwort Plantain)*	Y		
662.	6253	*Platysace filiformis*			
663.	6255	*Platysace juncea*			
664.	11132	*Platysace ramosissima*		P3	
665.	4524	*Platytheca galioides*			
666.	8173	*Podolepis capillaris (Wiry Podolepis)*			
667.	8175	*Podolepis gracilis (Slender Podolepis)*			
668.	8177	*Podolepis lessonii*			
669.	8182	*Podotheca angustifolia (Sticky Longheads)*			
670.	8188	*Pogonolepis stricta*			
671.	2416	*Polygonum arenastrum (Sand Wireweed)*	Y		
672.	2419	*Polygonum aviculare (Wireweed)*	Y		
673.		*Polypompholyx tenella scps*			
674.	4691	*Poranthera microphylla (Small Poranthera)*			
675.	2884	*Portulaca oleracea (Purslane, Wakati)*			
676.	13255	*Pterochaeta paniculata*			
677.	2716	*Ptilotus declinatus (Curved Mulla Mulla)*			
678.	2720	*Ptilotus esquamatus*			
679.	2742	*Ptilotus manglesii (Pom Poms, Mulamula)*			
680.	2753	*Ptilotus pyramidatus*		T	Y
681.	11615	*Ptilotus sericostachyus subsp. roseus*		P1	
682.	4181	*Pultenaea reticulata*			
683.	8195	*Quinetia urvillei*			
684.	2933	*Ranunculus muricatus (Sharp Buttercup)*	Y		
685.	11927	*Ranunculus sessiliflorus var. sessiliflorus*			
686.	6012	*Regelia ciliata*			
687.	13312	*Rhodanthe pyrethrum*			
688.	17020	*Robinia pseudoacacia*	Y		
689.	3066	*Rorippa nasturtium-aquaticum (Watercress)*	Y		
690.	20496	*Rubus laudatus*	Y		
691.	2432	*Rumex conglomeratus (Clustered Dock)*	Y		
692.	2433	*Rumex crispus (Curled Dock)*	Y		
693.	2907	*Sagina procumbens (Spreading Pearlwort)*	Y		
694.	48430	*Salicornia quinqueflora*			
695.	6483	*Samolus junceus*			
696.	6484	*Samolus repens (Creeping Brookweed)*			
697.	7368	*Scabiosa atropurpurea (Purple Pincushion)*	Y		
698.	7613	*Scaevola glandulifera (Viscid Hand-flower)*			
699.	7619	*Scaevola lanceolata (Long-leaved Scaevola)*			
700.	13182	*Scaevola repens var. repens*			
701.	48834	*Schinus terebinthifolia*	Y		
702.	6263	*Schoenolaena juncea*			
703.	6033	*Scholtzia involucrata (Spiked Scholtzia)*			
704.	20663	*Senecio multicaulis subsp. multicaulis*			
705.	8220	*Senecio vulgaris (Common Groundsel)*	Y		
706.	4980	*Sida hookeriana*			
707.	2909	*Silene gallica (French Catchfly)*	Y		
708.	8224	*Siloxerus filifolius*			
709.	8225	*Siloxerus humifusus (Procumbent Siloxerus)*			
710.	14583	*Siloxerus multiflorus*			
711.	6988	*Solanum americanum (Glossy Nightshade)*	Y		
712.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
713.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
714.	4205	*Sphaerolobium linophyllum*			
715.	4206	*Sphaerolobium macranthum*			
716.	6930	*Stachys arvensis (Staggerweed)*	Y		
717.	4716	*Stachystemon vermicularis*			
718.	13475	*Stenanthemum humile*			
719.	19403	*Stenopetalum gracile*			
720.	2316	*Stirlingia latifolia (Blueboy)*			
721.	2317	*Stirlingia simplex*			
722.	18564	*Stylidium aceratum*		P3	
723.	7681	*Stylidium affine (Queen Triggerplant)*			
724.	7684	*Stylidium amoenum (Lovely Triggerplant)*			
725.	30278	*Stylidium androsaceum*			
726.	30276	*Stylidium bicolor*			
727.	48457	*Stylidium bindoon*			
728.	7693	*Stylidium brunonianum (Pink Fountain Triggerplant)*			
729.	7696	*Stylidium calcaratum (Book Triggerplant)*			
730.	7699	*Stylidium carnosum (Fleshy-leaved Triggerplant)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
731.	7712	*Stylidium despectum (Dwarf Triggerplant)*			
732.	7713	*Stylidium dichotomum (Pins-and-needles)*			
733.	7716	*Stylidium diuroides (Donkey Triggerplant)*			
734.	11808	*Stylidium diuroides subsp. diuroides*			
735.	7717	*Stylidium divaricatum (Daddy-long-legs)*			
736.	7721	*Stylidium emarginatum (Biddy-four-legs)*			
737.	7734	*Stylidium guttatum (Dotted Triggerplant)*			
738.	7742	*Stylidium inundatum (Hundreds and Thousands)*			
739.	7756	*Stylidium longitubum (Jumping Jacks)*		P4	
740.	7768	*Stylidium obtusatum (Pinafore Triggerplant)*			
741.	7771	*Stylidium periscelianthum (Pantaloon Triggerplant)*		P3	
742.	7772	*Stylidium perpusillum (Tiny Triggerplant)*			
743.	7773	*Stylidium petiolare (Horn Triggerplant)*			
744.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
745.	7781	*Stylidium pubigerum (Yellow Butterfly Triggerplant)*			
746.	7782	*Stylidium pulchellum (Thumbelina Triggerplant)*			
747.	7785	*Stylidium repens (Matted Triggerplant)*			
748.		*Stylidium roseo-alatum*			
749.	7790	*Stylidium roseoalatum (Pink-wing Triggerplant)*			
750.	45594	*Stylidium tenue subsp. majusculum (Showy Fountain Triggerplant)*			
751.	23511	*Stylidium thesioides (Delicate Triggerplant)*			
752.	7806	*Stylidium utricularioides (Pink Fan Triggerplant)*			
753.	48297	*Styphelia filifolia*		P3	
754.	6476	*Styphelia tenuiflora (Common Pinheath)*			
755.	2639	*Suaeda australis (Seablite)*			
756.	25902	*Symphyotrichum squamatum (Bushy Starwort)*	Y		
757.	2321	*Synaphea acutiloba (Granite Synaphea)*			
758.	2323	*Synaphea gracillima*			
759.	2324	*Synaphea petiolaris (Synaphea)*			
760.	16864	*Synaphea petiolaris subsp. petiolaris*			
761.	18590	*Synaphea sp. Fairbridge Farm (D. Papenfus 696)*		T	
762.	2329	*Synaphea spinulosa*			
763.	15532	*Synaphea spinulosa subsp. spinulosa*			
764.	31718	*Tecticornia lepidosperma*			
765.	4251	*Templetonia drummondii*			
766.	48342	*Tetratheca hirsuta subsp. hirsuta*			
767.	4537	*Tetratheca nuda*			
768.	5084	*Thomasia grandiflora (Large Flowered Thomasia)*			
769.	5087	*Thomasia macrocarpa (Large Fruited Thomasia)*			
770.	6280	*Trachymene pilosa (Native Parsnip)*			
771.	4383	*Tribulus terrestris (Caltrop)*	Y		
772.	8251	*Trichocline spathulata (Native Gerbera)*			
773.	17145	*Trifolium angustifolium var. angustifolium*	Y		
774.	4291	*Trifolium arvense (Hare's Foot Clover)*	Y		
775.	4292	*Trifolium campestre (Hop Clover)*	Y		
776.	4295	*Trifolium dubium (Suckling Clover)*	Y		
777.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
778.	1139	*Trithuria bibracteata*			
779.	1141	*Trithuria submersa*			
780.	33418	*Trymalium odoratissimum subsp. odoratissimum*			
781.	8255	*Ursinia anthemoides (Ursinia)*	Y		
782.	38388	*Ursinia anthemoides subsp. anthemoides*	Y		
783.	7138	*Utricularia inaequalis*			
784.	7145	*Utricularia menziesii (Redcoats)*			
785.	7148	*Utricularia multifida*			
786.	7153	*Utricularia tenella*			
787.	7157	*Utricularia violacea (Violet Bladderwort)*			
788.	7665	*Velleia trinervis*			
789.	15725	*Verbesina encelioides*	Y		
790.	6070	*Verticordia acerosa*			
791.	15431	*Verticordia acerosa var. acerosa*			
792.	12388	*Verticordia acerosa var. preissii*			
793.	6076	*Verticordia densiflora (Compacted Featherflower)*			
794.	15432	*Verticordia densiflora var. densiflora*			
795.	6088	*Verticordia huegelii (Variegated Featherflower)*			
796.	15433	*Verticordia huegelii var. huegelii*			
797.	14714	*Verticordia lindleyi subsp. lindleyi*		P4	
798.	6107	*Verticordia pennigera*			
799.	6110	*Verticordia plumosa (Plumed Featherflower)*			
800.	12449	*Verticordia plumosa var. brachyphylla*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
801.	4320	*Vicia hirsuta (Hairy Vetch)*	Y		
802.	4322	*Vicia sativa (Common Vetch)*	Y		
803.	12070	*Vicia sativa subsp. sativa*	Y		
804.	29491	*Vicia tetrasperma*	Y		Y
805.	4325	*Viminaria juncea (Swishbush, Koweda)*			
806.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
807.	7389	*Wahlenbergia preissii*			
808.	6658	*Wilsonia backhousei (Narrow-leaf Wilsonia)*			
809.	6289	*Xanthosia huegelii*			
810.	2331	*Xylomelum occidentale (Woody Pear, Djandin)*			
Fish					
811.		*Afurcagobius suppositus*			
812.	34028	*Galaxias occidentalis (Western Minnow)*			
813.		*Nannoperca vittata*			
Fungus					
814.	48332	*Amanita preissii (Cinnamon-ring Lepidella)*		P3	
815.	45014	*Amanita quenda*		P1	
816.	43542	*Amanita wadjukiorum*		P3	
817.	38757	*Amanita xanthocephala*			
818.		*Boletus sp.*			
819.		*Byssomerulius corium*			
820.		*Colus pusillus*			
821.	38774	*Cortinarius archeri*			
822.		*Cortinarius sublargus*			
823.	38780	*Crepidotus eucalyptorum*			
824.		*Dermocybe clelandii*			
825.	38784	*Descomyces albus*			
826.		*Fomitopsis lilacinogilva*			
827.		*Gymnopilus allantopus*			
828.		*Gymnopilus purpuratus*			
829.		*Hexagonia vesparia*			
830.		*Hygrocybe astatogala*			
831.	48552	*Inocybe tomentipes*			
832.	38799	*Inocybe violaceocaulis*			
833.		*Laccaria lateritia*			
834.	38804	*Lactarius eucalypti*			
835.	38811	*Mycena clarkeana*			
836.	38816	*Omphalotus nidiformis*			
837.	48853	*Phaeotrametes decipiens*			
838.		*Phellinus gilvus*			
839.		*Phytophthora cinnamomi*			
840.		*Pisolithus sp.*			
841.	38825	*Pluteus pauperculus*			
842.	44729	*Porostereum crassum*			
843.	48835	*Pycnoporus coccineus*			
844.	38832	*Resupinatus cinerascens*			
845.	38836	*Russula erumpens*			
846.		*Scleroderma cepa*			
847.		*Tubaria rufofulva*			
Gymnosperm					
848.	36520	*Callitris acuminata (Dwarf Cypress)*			
849.	36600	*Callitris pyramidalis (Swamp Cypress)*			
Invertebrate					
850.		*Akamptogonus novarae*			
851.		*Aname mainae*			
852.		*Aname tepperi*			
853.		*Anisops hyperion*			
854.		*Araneus eburneiventris*			
855.		*Araneus senicaudatus*			
856.		*Araneus talipedatus*			
857.		*Argiope trifasciata*			
858.		*Artema atlanta*			
859.		*Artoria linnaei*			
860.		*Artoriopsis eccentrica*			
861.		*Artoriopsis joergi*			
862.		*Austracantha minax*			
863.	48574	*Australotomurus morbidus (cemetery springtail, Guildford springtail)*		P3	
864.		*Badumna insignis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
865.		*Ballarra longipalpus*			
866.		*Ceinidae sp.*			
867.		*Ceratopogonidae sp.*			
868.	33939	*Cherax cainii (Marron)*			
869.		*Cherax destructor*			
870.		*Cherax quinquecarinatus*			
871.		*Chironominae sp.*			
872.		*Cormocephalus aurantiipes*			
873.		*Cormocephalus novaehollandiae*			
874.		*Cormocephalus rubriceps*			
875.		*Cormocephalus strigosus*			
876.		*Cryptoerithus quobba*			
877.		*Cyclosa trilobata*			
878.		*Delena cancerides*			
879.		*Dingosa murata*			
880.		*Dingosa serrata*			
881.		*Dytiscidae sp.*			
882.		*Eriophora biapicata*			
883.		*Eulimnadia sp.*			
884.		*Eupograpta kottae*			
885.		*Eurytion incisunguis*			Y
886.	48581	*Glossurocolletes bilobatus (a short-tongued bee (southwest), short-tongued bee)*		P2	
887.		*Gripopterygidae sp.*			
888.		*Hebridae sp.*			
889.		*Hemicorduliidae sp.*			
890.		*Henicops dentatus*			
891.		*Hogna crispipes*			
892.		*Holasteron perth*			
893.		*Holasteron wamuseum*			Y
894.		*Hydrophilidae sp.*			
895.		*Idiommata blackwalli*			
896.	48935	*Idiosoma sigillatum (Swan Coastal Plain shield-backed trapdoor spider)*		P3	
897.		*Isopeda leishmanni*			
898.		*Kangarosa properipes*			
899.		*Lampona cylindrata*			
900.		*Latrodectus hasseltii*			
901.	33983	*Leioproctus douglasiellus (a short-tongued bee)*		T	
902.		*Leptoceridae sp.*			
903.		*Longepi woodman*			
904.		*Lycosa godeffroyi*			
905.		*Lynceus sp.*			
906.		*Maratus pavonis*			
907.		*Missulena granulosa*			
908.		*Missulena occatoria*			
909.		*Mituliodon tarantulinus*			
910.		*Mitzoruga insularis*			
911.		*Myandra bicincta*			
912.		*Myandra cambridgei*			
913.	33984	*Neopasiphae simplicior (a short-tongued bee)*		T	
914.		*Nephila edulis*			
915.		*Nicodamus mainae*			
916.		*Notiasemus glauerti*			
917.		*Oecobius navus*			
918.		*Oligochaeta sp.*			
919.		*Orthocladiinae sp.*			
920.		*Ostearius melanopygius*			
921.		*Palaemonidae sp.*			
922.		*Phenasteron longiconductor*			
923.		*Phreatoicidae sp.*			
924.		*Phryganoporus gausapatus subsp. occidentalis*			Y
925.		*Physidae sp.*			
926.		*Pinkfloydia harveii*			
927.		*Raveniella cirrata*			
928.		*Raveniella peckorum*			
929.		*Simuliidae sp.*			
930.		*Steatoda capensis*			
931.		*Steatoda grossa*			
932.		*Storena formosa*			
933.		*Supunna funerea*			
934.		*Supunna picta*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
935.		*Tamopsis perthensis*			
936.		*Tasmanicosa leuckartii*			
937.		*Tegenaria atrica*			Y
938.		*Tipulidae sp.*			
939.		*Trichocyclus balladong*			
940.		*Urodacus novaehollandiae*			
941.		*Urodacus planimanus*			
942.		*Venator immansueta*			
943.		*Venatrix pullastra*			
944.	34113	*Westralunio carteri (Carter's Freshwater Mussel)*		T	
945.		*Westrarchaea spinosa*			
946.		*Zachria flavicoma*			
Lichen					
947.	28060	*Siphula coriacea*			
Mammal					
948.	24251	*Bos taurus (European Cattle)*	Y		
949.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
950.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
951.	24041	*Felis catus (Cat)*	Y		
952.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
953.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
954.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
955.	24223	*Mus musculus (House Mouse)*	Y		
956.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
957.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
958.	48070	*Phascogale tapoatafa subsp. wambenger (South-western Brush-tailed Phascogale, Wambenger)*		S	
959.	24234	*Pseudomys delicatulus (Delicate Mouse)*			
960.	24243	*Rattus fuscipes (Western Bush Rat)*			
961.	24245	*Rattus rattus (Black Rat)*	Y		
962.		*Sminthopsis murina*			
963.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
964.	24206	*Vespadelus regulus (Southern Forest Bat)*			
Monocotyledon					
965.	1205	*Acanthocarpus canaliculatus*			
966.	23474	*Agrostocrinum hirsutum*			
967.	1261	*Agrostocrinum scabrum (Blue Grass Lily)*			
968.	23501	*Agrostocrinum scabrum subsp. scabrum*			
969.	184	*Aira caryophyllea (Silvery Hairgrass)*	Y		
970.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
971.	1056	*Alexgeorgea nitens*			
972.	48626	*Althenia australis*			
973.	13380	*Amphibromus nervosus*			
974.	197	*Amphipogon debilis*			
975.	200	*Amphipogon turbinatus*			
976.	1058	*Anarthria gracilis*			
977.	11470	*Anigozanthos bicolor subsp. bicolor*			
978.	1411	*Anigozanthos manglesii (Mangles Kangaroo Paw, Kurulbrang)*			
979.	11261	*Anigozanthos manglesii subsp. manglesii*			
980.	1416	*Anigozanthos viridis (Green Kangaroo Paw, Kurulbardang)*			
981.	11566	*Anigozanthos viridis subsp. viridis*			
982.	1117	*Aphelia cyperoides*			
983.	1118	*Aphelia drummondii*			
984.	43548	*Aphelia sp. Albany (B.G. Briggs 596)*			
985.	141	*Aponogeton hexatepalus (Stalked Water Ribbons)*		P4	
986.	1264	*Arnocrinum preissii*			
987.	1201	*Asparagus officinalis (Asparagus)*	Y		
988.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
989.	38480	*Austrostipa bronwenae*		T	
990.	17234	*Austrostipa compressa*			
991.	17237	*Austrostipa elegantissima*			
992.	17241	*Austrostipa hemipogon*			
993.	37421	*Austrostipa sp. Marchagee (B.R. Maslin 1407)*			
994.	17257	*Austrostipa variabilis*			
995.	233	*Avena barbata (Bearded Oat)*	Y		
996.		*Avena sp. Yule5*			Y
997.	18279	*Babiana angustifolia*	Y		
998.	740	*Baumea arthrophylla*			
999.	743	*Baumea juncea (Bare Twigrush)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1000.	745	*Baumea preissii*			
1001.	1417	*Blancoa canescens (Winter Bell)*			
1002.	749	*Bolboschoenus caldwellii (Marsh Club-rush)*			
1003.	48689	*Bolboschoenus fluviatilis*		P1	
1004.	1272	*Borya scirpoidea*			
1005.	1273	*Borya sphaerocephala (Pincushions)*			
1006.	244	*Briza maxima (Blowfly Grass)*	Y		
1007.	245	*Briza minor (Shivery Grass)*	Y		
1008.	246	*Bromus alopecuros*	Y		
1009.	248	*Bromus catharticus (Prairie Grass)*	Y		
1010.	249	*Bromus diandrus (Great Brome)*	Y		
1011.	250	*Bromus hordeaceus (Soft Brome)*	Y		
1012.	1366	*Bulbine semibarbata (Leek Lily)*			
1013.	1383	*Burchardia bairdiae*			
1014.	12770	*Burchardia congesta*			
1015.	1385	*Burchardia multiflora (Dwarf Burchardia)*			
1016.	1276	*Caesia micrantha (Pale Grass Lily)*			
1017.	1277	*Caesia occidentalis*			
1018.	15330	*Caladenia arenicola*			
1019.	1586	*Caladenia discoidea (Dancing Orchid)*			
1020.	1590	*Caladenia ferruginea (Rusty Spider Orchid)*			
1021.	1592	*Caladenia flava (Cowslip Orchid)*			
1022.	15348	*Caladenia flava subsp. flava*			
1023.	15354	*Caladenia hirta subsp. hirta*			
1024.	1596	*Caladenia huegelii (Grand Spider Orchid)*		T	
1025.	15365	*Caladenia longicauda subsp. longicauda*			
1026.	17760	*Caladenia nobilis*			
1027.	15503	*Caladenia paludosa*			
1028.	15377	*Caladenia reptans subsp. reptans*			
1029.	1213	*Calectasia cyanea (Blue Tinsel Lily)*		T	
1030.	1214	*Calectasia grandiflora (Blue Tinsel Lily)*			
1031.	19309	*Calectasia narragara*			
1032.	754	*Carex divisa (Divided Sedge)*	Y		
1033.	755	*Carex fascicularis (Tassel Sedge)*			
1034.	759	*Carex tereticaulis*		P3	
1035.	1162	*Cartonema philydroides*			
1036.	760	*Caustis dioica*			
1037.	41564	*Cenchrus clandestinus (Kikuyu Grass)*	Y		
1038.	41566	*Cenchrus longisetus (Feathertop)*	Y		
1039.	41563	*Cenchrus purpureus (Elephant Grass)*	Y		
1040.	1120	*Centrolepis alepyroides*			
1041.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
1042.	1125	*Centrolepis drummondiana*			
1043.	1129	*Centrolepis glabra (Smooth Centrolepis)*			
1044.	1131	*Centrolepis inconspicua*			
1045.	1134	*Centrolepis polygyna (Wiry Centrolepis)*			
1046.	17685	*Chaetanthus aristatus*			
1047.	1280	*Chamaescilla corymbosa (Blue Squill)*			
1048.	11299	*Chamaescilla corymbosa var. corymbosa*			
1049.	19338	*Chamaescilla gibsonii*		P3	
1050.	1513	*Chasmanthe floribunda (African Cornflag)*	Y		
1051.	267	*Chloris gayana (Rhodes Grass)*	Y		
1052.	17706	*Chordifex sinuosus*			
1053.	763	*Chorizandra enodis (Black Bristlerush)*			
1054.	764	*Chorizandra multiarticulata*			
1055.	32999	*Colocasia esculenta var. esculenta*	Y		
1056.	11513	*Conostylis aculeata subsp. cygnorum*			
1057.	1420	*Conostylis androstemma (Trumpets)*			
1058.	1423	*Conostylis aurea (Golden Conostylis)*			
1059.	1429	*Conostylis caricina*			
1060.	12035	*Conostylis caricina subsp. caricina*			
1061.	11695	*Conostylis festucacea subsp. festucacea*			
1062.	1436	*Conostylis juncea*			
1063.	1454	*Conostylis setigera (Bristly Cottonhead)*			
1064.	11597	*Conostylis setigera subsp. setigera*			
1065.		*Conostylis sp.*			
1066.	15114	*Cyanicula gemmata*			
1067.	768	*Cyathochaeta avenacea*			
1068.	769	*Cyathochaeta clandestina*			
1069.	40661	*Cycnogeton lineare*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1070.	283	*Cynodon dactylon (Couch)*	Y		
1071.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
1072.	18318	*Cyperus involucratus*	Y		
1073.	806	*Cyperus polystachyos (Bunchy Sedge)*			
1074.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
1075.	816	*Cyperus tenuiflorus (Scaly Sedge)*	Y		
1076.	17692	*Cytogonidium leptocarpoides*			
1077.	1218	*Dasypogon bromeliifolius (Pineapple Bush)*			
1078.	1220	*Dasypogon obliquifolius*			
1079.	17691	*Desmocladus fasciculatus*			
1080.	16595	*Desmocladus flexuosus*			
1081.	46362	*Desmocladus lateriflorus*			
1082.	1287	*Dichopogon capillipes*			
1083.	1289	*Dichopogon preissii*			
1084.	1509	*Dioscorea hastifolia (Warrine, Wararn)*			
1085.	48378	*Diplachne fusca subsp. fusca*			
1086.	19649	*Disa bracteata*	Y		
1087.	12943	*Diuris brumalis*			
1088.	11049	*Diuris corymbosa*			
1089.	42231	*Diuris decrementa*			
1090.	1634	*Diuris laxiflora (Bee Orchid)*			
1091.	12939	*Diuris magnifica*			
1092.	1637	*Diuris purdiei (Purdie's Donkey Orchid)*		T	
1093.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
1094.	15406	*Drakaea gracilis*			
1095.	328	*Echinochloa colona (Awnless Barnyard Grass)*	Y		
1096.	11105	*Echinochloa crus-galli*	Y		
1097.	329	*Echinochloa crus-pavonis (South American Barnyard Grass)*	Y		
1098.	337	*Echinochloa pyramidalis (Antelope Grass)*	Y		
1099.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
1100.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
1101.	822	*Eleocharis acuta (Common Spikerush)*			
1102.	17605	*Eleocharis keigheryi*		T	
1103.	352	*Eleusine coracan (Indian Millet)*	Y		
1104.	353	*Eleusine indica (Crowsfoot Grass)*	Y		
1105.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
1106.	1644	*Elythranthera emarginata (Pink Enamel Orchid)*			
1107.	1645	*Epiblema grandiflorum (Babe-in-a-cradle)*			
1108.	374	*Eragrostis cilianensis (Stinkgrass)*	Y		
1109.	376	*Eragrostis curvula (African Lovegrass)*	Y		
1110.	379	*Eragrostis elongata (Clustered Lovegrass)*			
1111.	15414	*Eriochilus helonomos*			
1112.	15415	*Eriochilus scaber subsp. scaber*			
1113.	20216	*Ficinia nodosa (Knotted Club Rush)*			
1114.	894	*Fimbristylis velata*			
1115.	907	*Gahnia trifida (Coast Saw-sedge)*			
1116.	1518	*Gladiolus angustus (Long Tubed Painted Lady)*	Y		
1117.	18298	*Gladiolus carneus*	Y		
1118.	1520	*Gladiolus caryophyllaceus (Wild Gladiolus)*	Y		
1119.	17043	*Glyceria declinata*	Y		
1120.	1464	*Haemodorum brevisepalum*			
1121.	1468	*Haemodorum laxum*			
1122.	1469	*Haemodorum loratum*		P3	
1123.	1472	*Haemodorum simplex*			
1124.	1474	*Haemodorum sparsiflorum*			
1125.	1475	*Haemodorum spicatum (Mardja)*			
1126.	1293	*Hensmania turbinata*			
1127.	1526	*Hesperantha falcata*	Y		
1128.	448	*Hordeum glaucum (Northern Barley Grass)*	Y		
1129.	450	*Hordeum marinum*	Y		
1130.	166	*Hydrilla verticillata (Water Thyme)*			
1131.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
1132.	1070	*Hypolaena exsulca*			
1133.	17841	*Hypolaena pubescens*			
1134.	910	*Isolepis cernua (Nodding Club-rush)*			
1135.	20199	*Isolepis cernua var. cernua*			
1136.	20200	*Isolepis cernua var. setiformis*			
1137.	912	*Isolepis cyperoides*			
1138.	914	*Isolepis hookeriana (Bristle Club Rush)*			
1139.	14540	*Isolepis hystrix*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1140.	917	*Isolepis marginata (Coarse Club-rush)*			
1141.	919	*Isolepis oldfieldiana*			
1142.	10831	*Isolepis prolifera (Budding Club-rush)*	Y		
1143.	924	*Isolepis stellata (Star Club-rush)*			
1144.	1298	*Johnsonia pubescens (Pipe Lily)*			
1145.	19632	*Johnsonia pubescens subsp. pubescens*			
1146.	1178	*Juncus bufonius (Toad Rush)*	Y		
1147.	1180	*Juncus capitatus (Capitate Rush)*	Y		
1148.	11922	*Juncus kraussii subsp. australiensis*			
1149.	1188	*Juncus pallidus (Pale Rush)*			
1150.	1189	*Juncus pauciflorus (Loose Flower Rush)*			
1151.	1196	*Juncus usitatus (Common Rush)*	Y		
1152.	1221	*Kingia australis (Kingia, Pulonok)*			
1153.	20019	*Lachnagrostis filiformis*			
1154.	19955	*Lachnagrostis plebeia*			
1155.	28342	*Landoltia punctata (Thin Duckweed)*			
1156.	1307	*Laxmannia ramosa (Branching Lily)*			
1157.	11911	*Laxmannia ramosa subsp. ramosa*			
1158.	11464	*Laxmannia sessiliflora subsp. australis*			
1159.	1309	*Laxmannia squarrosa*			
1160.	1051	*Lemna disperma (Duckweed)*			
1161.	925	*Lepidosperma angustatum*			
1162.	937	*Lepidosperma longitudinale (Pithy Sword-sedge)*			
1163.	940	*Lepidosperma pubisquameum*			
1164.	942	*Lepidosperma rostratum*		T	
1165.	944	*Lepidosperma scabrum*			
1166.		*Lepidosperma sp.*			
1167.	29150	*Lepidosperma sp. Margaret River (B.J. Lepschi 1841)*			
1168.	1653	*Leporella fimbriata (Hare Orchid)*			
1169.	1077	*Leptocarpus canus (Hoary Twine-rush)*			
1170.	1078	*Leptocarpus coangustatus*			
1171.	46375	*Leptocarpus decipiens*			
1172.	46380	*Leptocarpus kraussii*			
1173.	46382	*Leptocarpus roycei*			
1174.	19241	*Lepyrodia curvescens*		P2	
1175.	1085	*Lepyrodia glauca*			
1176.	1088	*Lepyrodia macra (Large Scale Rush)*			
1177.	1090	*Lepyrodia muirii*			
1178.	475	*Lolium multiflorum (Italian Ryegrass)*	Y		
1179.	478	*Lolium rigidum (Wimmera Ryegrass)*	Y		
1180.		*Lolium sp.*			
1181.	11384	*Lolium temulentum forma temulentum*	Y		
1182.	11073	*Lolium x hybridum*	Y		
1183.	1223	*Lomandra caespitosa (Tufted Mat Rush)*			
1184.	1228	*Lomandra hermaphrodita*			
1185.	1229	*Lomandra integra*			
1186.	1232	*Lomandra micrantha (Small-flower Mat-rush)*			
1187.	14542	*Lomandra micrantha subsp. micrantha*			
1188.	1234	*Lomandra nigricans*			
1189.	1236	*Lomandra odora (Tiered Matrush)*			
1190.	1239	*Lomandra preissii*			
1191.	1240	*Lomandra purpurea (Purple Mat Rush)*			
1192.	1243	*Lomandra sericea (Silky Mat Rush)*			
1193.	1246	*Lomandra suaveolens*			
1194.	1097	*Lyginia barbata*			
1195.	18049	*Lyginia imberbis*			
1196.	1656	*Lyperanthus serratus (Rattle Beak Orchid)*			
1197.	20639	*Megathyrsus maximus var. maximus*	Y		
1198.	14985	*Melinis repens*	Y		
1199.	955	*Mesomelaena pseudostygia*			
1200.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
1201.	485	*Microlaena stipoides (Weeping Grass)*			
1202.	1658	*Microtis atrata (Swamp Mignonette Orchid)*			
1203.	10954	*Microtis media (Tall Mignonette Orchid)*			
1204.	15419	*Microtis media subsp. media*			
1205.	19179	*Moraea flaccida (One-leaf Cape Tulip)*	Y		
1206.	19178	*Moraea lewisiae*	Y		
1207.	19438	*Moraea ochroleuca*	Y		
1208.	44495	*Narcissus tazetta subsp. tazetta*	Y		
1209.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1210.	1381	*Nothoscordum gracile*	Y		
1211.	11749	*Orthrosanthus laxus var. laxus (Morning Iris)*			
1212.	168	*Ottelia ovalifolia (Swamp Lily)*			
1213.	14531	*Ottelia ovalifolia subsp. ovalifolia*			
1214.	23500	*Paracaleana hortiorum*			
1215.	527	*Paspalum dilatatum*	Y		
1216.	528	*Paspalum distichum (Water Couch)*	Y		
1217.	532	*Paspalum urvillei (Vasey Grass)*	Y		
1218.	1546	*Patersonia juncea (Rush Leaved Patersonia)*			
1219.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
1220.	30472	*Patersonia occidentalis var. occidentalis*			
1221.	43760	*Pauridia occidentalis*			
1222.	43761	*Pauridia occidentalis var. occidentalis*			
1223.	40422	*Pentameris pallida*	Y		
1224.	551	*Phalaris minor (Lesser Canary Grass)*	Y		
1225.	20460	*Pheladenia deformis*			
1226.	1172	*Philydrella drummondii*			
1227.	1173	*Philydrella pygmaea (Butterfly Flowers)*			
1228.	14306	*Philydrella pygmaea subsp. pygmaea*			
1229.	1478	*Phlebocarya ciliata*			
1230.	1479	*Phlebocarya filifolia*			
1231.	571	*Poa annua (Winter Grass)*	Y		
1232.	578	*Poa porphyroclados*			
1233.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
1234.	583	*Polypogon tenellus*			
1235.	109	*Potamogeton crispus (Curly Pondweed)*			
1236.	1670	*Prasophyllum drummondii (Swamp Leek Orchid)*			
1237.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
1238.	16688	*Prasophyllum gracile*			
1239.	1676	*Prasophyllum hians (Yawning Leek Orchid)*			
1240.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
1241.	1686	*Pterostylis barbata (Bird Orchid)*			
1242.	1687	*Pterostylis dilatata*			
1243.	44527	*Pterostylis erubescens*			
1244.	11118	*Pterostylis pyramidalis (Snail Orchid)*			
1245.	1693	*Pterostylis recurva (Jug Orchid)*			
1246.	12217	*Pterostylis sanguinea*			
1247.		*Pterostylis sp.*			
1248.	1698	*Pterostylis vittata (Banded Greenhood)*			
1249.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
1250.	1554	*Romulea flava*	Y		
1251.	1556	*Romulea rosea (Guildford Grass)*	Y		
1252.	14924	*Romulea rosea var. communis*	Y		
1253.	11151	*Rostraria pumila*	Y		
1254.	40431	*Rytidosperma acerosum*			
1255.	40425	*Rytidosperma caespitosum*			
1256.	40427	*Rytidosperma setaceum*			
1257.	17591	*Sagittaria platyphylla*	Y		
1258.	48356	*Schoenoplectus tabernaemontani*			
1259.	971	*Schoenus andrewsii*			
1260.	973	*Schoenus asperocarpus (Poison Sedge)*			
1261.	974	*Schoenus benthamii*		P3	
1262.	975	*Schoenus bifidus*			
1263.	978	*Schoenus brevisetis*			
1264.	979	*Schoenus caespititius*			
1265.	980	*Schoenus capillifolius*		P3	
1266.	984	*Schoenus curvifolius*			
1267.	985	*Schoenus discifer*			
1268.	986	*Schoenus efoliatus*			
1269.	987	*Schoenus elegans*			
1270.	991	*Schoenus grammatophyllus*			
1271.	994	*Schoenus humilis*			
1272.	996	*Schoenus laevigatus*			
1273.	998	*Schoenus latitans*			
1274.	999	*Schoenus loliaceus*		P2	
1275.	1002	*Schoenus nanus (Tiny Bog Rush)*			
1276.	1003	*Schoenus natans (Floating Bog-rush)*		P4	
1277.	1006	*Schoenus odontocarpus*			
1278.	1007	*Schoenus pedicellatus*			
1279.	1008	*Schoenus pennisetis*		P3	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1280.	1009	*Schoenus pleiostemoneus*			
1281.	17614	*Schoenus plumosus*			
1282.	1011	*Schoenus rigens*			
1283.	1013	*Schoenus sculptus (Gimlet Bog-rush)*			
1284.	16280	*Schoenus sp. Beaufort (G.J. Keighery 6291)*		P1	
1285.	17731	*Schoenus sp. Waroona (G.J. Keighery 12235)*		P3	
1286.	1016	*Schoenus subbarbatus (Bearded Bog-rush)*			
1287.	1017	*Schoenus subbulbosus*			
1288.	1018	*Schoenus subfascicularis*			
1289.	1019	*Schoenus subflavus (Yellow Bog-rush)*			
1290.	1026	*Schoenus unispiculatus*			
1291.	17409	*Schoenus variicellae*			
1292.	609	*Setaria palmifolia (Palm Grass)*	Y		
1293.	611	*Setaria sphacelata (South African Pigeon Grass)*	Y		
1294.	616	*Sorghum bicolor (Grain Sorghum)*	Y		
1295.	1312	*Sowerbaea laxiflora (Purple Tassels)*			
1296.	1558	*Sparaxis bulbifera*	Y		
1297.	635	*Sporobolus virginicus (Marine Couch)*			
1298.	1260	*Stypandra glauca (Blind Grass)*			
1299.	1033	*Tetraria australiensis*		T	
1300.	1036	*Tetraria octandra*			
1301.	1701	*Thelymitra antennifera (Vanilla Orchid)*			
1302.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
1303.	1702	*Thelymitra campanulata (Shirt Orchid)*			
1304.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
1305.	1707	*Thelymitra flexuosa (Twisted Sun Orchid)*			
1306.	11053	*Thelymitra macrophylla*			
1307.		*Thelymitra sp.*			
1308.	1715	*Thelymitra spiralis (Curlylocks)*			
1309.	1718	*Thelymitra villosa (Custard Orchid)*			
1310.	20731	*Thelymitra vulgaris*			
1311.	1317	*Thysanotus anceps*		P3	
1312.	1318	*Thysanotus arbuscula*			
1313.	1319	*Thysanotus arenarius*			
1314.	1320	*Thysanotus asper (Hairy Fringe Lily)*			
1315.	1338	*Thysanotus manglesianus (Fringed Lily)*			
1316.		*Thysanotus manglesianus/patersonii complex*			
1317.	1339	*Thysanotus multiflorus (Many-flowered Fringe Lily)*			
1318.	1343	*Thysanotus patersonii*			
1319.	46055	*Thysanotus sp. Coastal plain (N.H. Brittan 66/63)*			
1320.	1351	*Thysanotus sparteus*			
1321.	1354	*Thysanotus tenellus*			
1322.	1357	*Thysanotus thyrsoideus*			
1323.	1358	*Thysanotus triandrus*			
1324.	17684	*Tremulina tremula*			
1325.	11112	*Tribolium uniolae*	Y		
1326.	1481	*Tribonanthes australis (Southern Tiurndin)*			
1327.	1482	*Tribonanthes brachypetala (Nodding Tiurndin)*			
1328.	1483	*Tribonanthes longipetala (Branching Tiurndin)*			
1329.	8798	*Tribonanthes uniflora (Woolly Tiurndin)*			
1330.	8799	*Tribonanthes variabilis (Hairy-stigma Tiurndin)*			
1331.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
1332.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
1333.	1362	*Tricoryne humilis*			
1334.	1363	*Tricoryne tenella*			
1335.	1038	*Tricostularia neesii*			
1336.	33676	*Triglochin calcitrapa*			
1337.	33677	*Triglochin centrocarpa*			
1338.	146	*Triglochin minutissima*			
1339.	147	*Triglochin mucronata*			
1340.	148	*Triglochin muelleri*			
1341.	18587	*Triglochin nana*			
1342.		*Triglochin sp. scps*			
1343.		*Triglochin sp.Brixton 04 (possibly T. mullerii)*			Y
1344.	150	*Triglochin stowardii*			
1345.	98	*Typha domingensis (Bulrush, Djandjid)*			
1346.	99	*Typha orientalis (Bulrush, Cumbungi)*			
1347.	722	*Vulpia bromoides (Squirrel Tail Fescue)*	Y		
1348.	724	*Vulpia myuros (Rat's Tail Fescue)*	Y		
1349.	33101	*Vulpia myuros forma myuros*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1350.	13103	*Watsonia borbonica*	Y		
1351.	1566	*Watsonia marginata*	Y		
1352.	1567	*Watsonia meriana (Bulbil Watsonia)*	Y		
1353.	18108	*Watsonia meriana var. bulbillifera*	Y		
1354.	18118	*Watsonia meriana var. meriana*	Y		
1355.	1569	*Watsonia versfeldii*	Y		
1356.	1394	*Wurmbea dioica (Early Nancy)*			
1357.		*Wurmbea dioica subsp. aff. alba (gjk 12803)*			
1358.	12072	*Wurmbea dioica subsp. alba*			
1359.	1251	*Xanthorrhoea brunonis*			
1360.	14544	*Xanthorrhoea brunonis subsp. brunonis*			
1361.	1252	*Xanthorrhoea drummondii*			
1362.	1256	*Xanthorrhoea preissii (Grass tree, Palga)*			
1363.	20658	*Xanthorrhoea sp. Lesueur (G.J. Keighery 16404)*			
1364.	1049	*Zantedeschia aethiopica (Arum Lily)*	Y		
Pteridophyte (Fern)					
1365.	42902	*Azolla rubra*			
1366.	31	*Cheilanthes austrotenuifolia*			
1367.	11	*Isoetes drummondii (Quillwort)*			
1368.	17	*Ophioglossum lusitanicum (Adders Tongue)*			
1369.	4	*Phylloglossum drummondii (Pigmy Clubmoss)*			
1370.	78	*Pilularia novae-hollandiae (Austral Pillwort)*			
1371.	6	*Selaginella gracillima (Tiny Clubmoss)*			
Reptile					
1372.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
1373.	24991	*Aprasia repens (Sand-plain Worm-lizard)*			
1374.	42381	*Brachyurophis semifasciatus (Southern Shovel-nosed Snake)*			
1375.	43380	*Chelodina colliei (South-western Snake-necked Turtle)*			
1376.	24980	*Christinus marmoratus (Marbled Gecko)*			
1377.	30893	*Cryptoblepharus buchananii*			
1378.	25020	*Cryptoblepharus plagiocephalus*			
1379.	24883	*Ctenophorus ornatus (Ornate Crevice-Dragon)*			
1380.	25027	*Ctenotus australis*			
1381.	25039	*Ctenotus fallens*			
1382.	25040	*Ctenotus gemmula (Jewelled South-west Ctenotus (Swan Coastal Plain subpop P3), skink)*			
1383.	25049	*Ctenotus labillardieri*			
1384.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
1385.	24999	*Delma grayii*			
1386.	25296	*Demansia psammophis subsp. reticulata (Yellow-faced Whipsnake)*			
1387.	25325	*Dendrelaphis punctulata (Green Tree Snake)*			
1388.	24939	*Diplodactylus polyophthalmus*			
1389.	25250	*Elapognathus coronatus (Crowned Snake)*			
1390.	25119	*Hemiergis quadrilineata*			
1391.	24961	*Heteronotia binoei (Bynoe's Gecko)*			
1392.	25133	*Lerista elegans*			
1393.	25147	*Lerista lineata (Perth Slider, Lined Skink)*		P3	
1394.	25005	*Lialis burtonis*			
1395.	25184	*Menetia greyii*			
1396.	25240	*Morelia spilota subsp. imbricata (Carpet Python)*			
1397.	25191	*Morethia lineoocellata*			
1398.	25192	*Morethia obscura*			
1399.	25248	*Neelaps bimaculatus (Black-naped Snake)*			
1400.	25249	*Neelaps calonotos (Black-striped Snake, black-striped burrowing snake)*		P3	
1401.	25252	*Notechis scutatus (Tiger Snake)*			
1402.	25253	*Parasuta gouldii*			
1403.	25007	*Pletholax gracilis subsp. gracilis (Keeled Legless Lizard)*			
1404.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
1405.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
1406.	25261	*Pseudechis australis (Mulga Snake)*			
1407.	25345	*Pseudemydura umbrina (Western Swamp Tortoise, Western Swamp Turtle)*		T	
1408.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
1409.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
1410.	25266	*Simoselaps bertholdi (Jan's Banded Snake)*			
1411.	24943	*Strophurus spinigerus subsp. inornatus*			
1412.	24942	*Strophurus spinigerus subsp. spinigerus*			
1413.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
1414.	25519	*Tiliqua rugosa*			
1415.	25204	*Tiliqua rugosa subsp. aspera*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1416.	25207	*Tiliqua rugosa subsp. rugosa*			
1417.	24983	*Underwoodisaurus milii (Barking Gecko)*			
1418.	25218	*Varanus gouldii (Bungarra or Sand Monitor)*			
1419.	25225	*Varanus rosenbergi (Heath Monitor)*			
1420.	25526	*Varanus tristis (Racehorse Monitor)*			

Slime Mould

1421.	38969	*Arcyria minuta*			
1422.	38978	*Badhamia panicea*			
1423.	39030	*Enerthenema papillatum*			
1424.	39033	*Fuligo septica*			
1425.	39074	*Physarum pusillum*			
1426.	39097	*Trichia decipiens*			

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

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

Appendix 1.2 Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 01/09/2020

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	115° 54' 23" E,32° 05' 05" S
Buffer	5km
Group By	Species Group

Species Group	Species	Records
Amphibian	7	58
Bird	136	4792
Dicotyledon	245	1231
Fish	1	1
Fungus	23	57
Gymnosperm	2	19
Invertebrate	47	127
Mammal	16	173
Monocotyledon	190	1046
Reptile	35	253
Slime Mould	61	87
TOTAL	**763**	**7844**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Amphibian					
1.	25398	*Crinia georgiana (Quacking Frog)*			
2.	25399	*Crinia glauerti (Clicking Frog)*			
3.	25400	*Crinia insignifera (Squelching Froglet)*			
4.	25410	*Heleioporus eyrei (Moaning Frog)*			
5.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
6.	25388	*Litoria moorei (Motorbike Frog)*			
7.	25420	*Myobatrachus gouldii (Turtle Frog)*			
Bird					
8.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
9.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
10.	24262	*Acanthiza inornata (Western Thornbill)*			
11.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
12.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
13.	25536	*Accipiter fasciatus (Brown Goshawk)*			
14.	24283	*Accipiter fasciatus subsp. didimus (Brown Goshawk)*			
15.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
16.	24312	*Anas gracilis (Grey Teal)*			
17.	24315	*Anas rhynchotis (Australasian Shoveler)*			
18.	24316	*Anas superciliosa (Pacific Black Duck)*			
19.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
20.	24561	*Anthochaera carunculata (Red Wattlebird)*			
21.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
22.	24285	*Aquila audax (Wedge-tailed Eagle)*			
23.	41324	*Ardea modesta (great egret, white egret)*			
24.	24340	*Ardea novaehollandiae (White-faced Heron)*			
25.	24341	*Ardea pacifica (White-necked Heron)*			
26.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
27.	24352	*Artamus cinereus subsp. melanops (Black-faced Woodswallow)*			
28.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
29.	24318	*Aythya australis (Hardhead)*			
30.		*Barnardius zonarius*			
31.	24319	*Biziura lobata (Musk Duck)*			
32.	25714	*Cacatua pastinator (Western Long-billed Corella)*			
33.	25715	*Cacatua roseicapilla (Galah)*			
34.	25716	*Cacatua sanguinea (Little Corella)*			
35.	24729	*Cacatua tenuirostris (Eastern Long-billed Corella)*	Y		
36.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
37.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
38.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
39.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
40.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
41.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
42.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
43.		*Chroicocephalus novaehollandiae*			
44.	24288	*Circus approximans (Swamp Harrier)*			
45.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
46.	24399	*Columba livia (Domestic Pigeon)*	Y		
47.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
48.	24362	*Coracina novaehollandiae subsp. novaehollandiae (Black-faced Cuckoo-shrike)*			
49.	25592	*Corvus coronoides (Australian Raven)*			
50.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
51.	25701	*Coturnix ypsilophora (Brown Quail)*			
52.	24420	*Cracticus nigrogularis (Pied Butcherbird)*			
53.	25595	*Cracticus tibicen (Australian Magpie)*			
54.	24422	*Cracticus tibicen subsp. dorsalis (White-backed Magpie)*			
55.	24423	*Cracticus tibicen subsp. tibicen (Black-backed Magpie)*			
56.	25596	*Cracticus torquatus (Grey Butcherbird)*			
57.	24424	*Cracticus torquatus subsp. torquatus (Grey Butcherbird)*			
58.	24322	*Cygnus atratus (Black Swan)*			
59.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
60.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
61.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			
62.		*Egretta novaehollandiae*			
63.		*Elanus axillaris*			
64.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
65.		*Eolophus roseicapillus*			
66.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
67.	25623	*Falco longipennis (Australian Hobby)*			
68.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
69.	25727	*Fulica atra (Eurasian Coot)*			
70.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
71.	25729	*Gallinula tenebrosa (Dusky Moorhen)*			
72.	24763	*Gallinula tenebrosa subsp. tenebrosa (Dusky Moorhen)*			
73.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
74.	42314	*Gavicalis virescens (Singing Honeyeater)*			
75.	25530	*Gerygone fusca (Western Gerygone)*			
76.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
77.	24443	*Grallina cyanoleuca (Magpie-lark)*			
78.	24295	*Haliastur sphenurus (Whistling Kite)*			
79.	47965	*Hieraaetus morphnoides (Little Eagle)*			
80.	25734	*Himantopus himantopus (Black-winged Stilt)*			
81.	24491	*Hirundo neoxena (Welcome Swallow)*			
82.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
83.	25661	*Lichmera indistincta (Brown Honeyeater)*			
84.	25683	*Lonchura castaneothorax (Chestnut-breasted Mannikin)*			
85.		*Lophoictinia isura*			
86.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
87.	25654	*Malurus splendens (Splendid Fairy-wren)*			
88.	25758	*Megalurus gramineus (Little Grassbird)*			
89.	25663	*Melithreptus brevirostris (Brown-headed Honeyeater)*			
90.	24598	*Merops ornatus (Rainbow Bee-eater)*			
91.		*Microcarbo melanoleucos*			
92.	24738	*Neophema elegans (Elegant Parrot)*			
93.	25747	*Ninox connivens (Barking Owl)*			
94.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
95.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
96.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
97.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
98.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
99.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
100.	25682	*Pardalotus striatus (Striated Pardalote)*			
101.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
102.	48060	*Petrochelidon ariel (Fairy Martin)*			
103.	48061	*Petrochelidon nigricans (Tree Martin)*			
104.	48066	*Petroica boodang (Scarlet Robin)*			
105.	24659	*Petroica goodenovii (Red-capped Robin)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
106.	25697	*Phalacrocorax carbo (Great Cormorant)*			
107.	25698	*Phalacrocorax melanoleucos (Little Pied Cormorant)*			
108.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
109.	24409	*Phaps chalcoptera (Common Bronzewing)*			
110.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
111.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
112.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
113.	25720	*Platycercus icterotis (Western Rosella)*			
114.	24747	*Platycercus spurius (Red-capped Parrot)*			
115.	25721	*Platycercus zonarius (Australian Ringneck, Ring-necked Parrot)*			
116.	24750	*Platycercus zonarius subsp. semitorquatus (Twenty-eight Parrot)*			
117.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
118.	25703	*Podargus strigoides (Tawny Frogmouth)*			
119.	25704	*Podiceps cristatus (Great Crested Grebe)*			
120.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
121.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
122.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
123.	24771	*Porzana tabuensis (Spotless Crake)*			
124.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
125.		*Purpureicephalus spurius*			
126.	48096	*Rhipidura albiscapa (Grey Fantail)*			
127.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
128.	24454	*Rhipidura leucophrys subsp. leucophrys (Willie Wagtail)*			
129.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
130.	30948	*Smicrornis brevirostris (Weebill)*			
131.	25589	*Streptopelia chinensis (Spotted Turtle-Dove)*	Y		
132.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
133.	30950	*Streptopelia senegalensis subsp. senegalensis (Laughing Turtle-Dove)*	Y		
134.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
135.	24682	*Tachybaptus novaehollandiae subsp. novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
136.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
137.	48136	*Threskiornis moluccus (Australian White Ibis)*			
138.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
139.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
140.	25723	*Trichoglossus haematodus (Rainbow Lorikeet)*			
141.	24755	*Trichoglossus haematodus subsp. moluccanus (Rainbow Lorikeet)*	Y		
142.	24386	*Vanellus tricolor (Banded Lapwing)*			
143.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

Dicotyledon

144.		*?Epilobium sp.*			
145.		*?Jacksonia furcellata*			Y
146.		*?Kennedia prostrata*			Y
147.		*?Kunzea glabrescens*			
148.		*?Symphyotrichum squamatum*			Y
149.		*?Trachymene pilosa*			Y
150.		*Acacia ?longifolia*			Y
151.	3207	*Acacia alata (Winged Wattle)*			
152.	15466	*Acacia applanata*			
153.	3237	*Acacia benthamii*		P2	
154.	3374	*Acacia huegelii*			
155.	17861	*Acacia longifolia*	Y		
156.	17464	*Acacia longifolia subsp. longifolia*	Y		
157.	3502	*Acacia pulchella (Prickly Moses)*			
158.	3527	*Acacia saligna (Orange Wattle, Kudjong)*			
159.	30032	*Acacia saligna subsp. saligna*			
160.		*Acacia sp.*			
161.	3557	*Acacia stenoptera (Narrow Winged Wattle)*			
162.	11837	*Adenanthos cygnorum subsp. cygnorum (Common Woollybush)*			
163.	1791	*Adenanthos obovatus (Basket Flower)*			
164.	48513	*Aizoon pubescens*	Y		
165.	1728	*Allocasuarina fraseriana (Sheoak, Kondil)*			
166.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
167.	3686	*Aotus cordifolia*			
168.	3692	*Aotus procumbens*			
169.	20350	*Astartea affinis (West-coast Astartea)*			
170.	20283	*Astartea scoparia (Common Astartea)*			
171.	7851	*Asteridea pulverulenta (Common Bristle Daisy)*			
172.	6323	*Astroloma ciliatum (Candle Cranberry)*			
173.	6339	*Astroloma xerophyllum*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
174.	1800	*Banksia attenuata (Slender Banksia, Piara)*			
175.	1822	*Banksia ilicifolia (Holly-leaved Banksia)*			
176.		*Banksia ilicifolia/menziesii*			Y
177.	1830	*Banksia littoralis (Swamp Banksia, Pungura)*			
178.	1834	*Banksia menziesii (Firewood Banksia)*			
179.	5382	*Beaufortia elegans (Elegant Beaufortia)*			
180.	48868	*Bellardia viscosa*	Y		
181.	16636	*Boronia crenulata subsp. viminea*			
182.	4438	*Boronia ramosa*			
183.	11381	*Boronia ramosa subsp. anethifolia*			
184.	3710	*Bossiaea eriocarpa (Common Brown Pea)*			
185.	7867	*Brachyscome bellidioides*			
186.	7878	*Brachyscome iberidifolia*			
187.	3178	*Byblis gigantea (Rainbow Plant)*		P3	
188.	2848	*Calandrinia corrigioloides (Strap Purslane)*			
189.	5415	*Calothamnus lateralis*			
190.	5458	*Calytrix flavescens (Summer Starflower)*			
191.	5460	*Calytrix fraseri (Pink Summer Calytrix)*			
192.	17318	*Cardiospermum grandiflorum*	Y		
193.	2795	*Carpobrotus edulis (Hottentot Fig)*	Y		
194.	18321	*Casuarina glauca*	Y		
195.	7916	*Centaurea melitensis (Maltese Cockspur, Malta Thistle)*	Y		
196.	7925	*Chondrilla juncea (Skeleton Weed)*	Y		
197.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
198.	6348	*Conostephium pendulum (Pearl Flower)*			
199.	6349	*Conostephium preissii*			
200.	17104	*Corymbia calophylla (Marri)*			
201.	7945	*Cotula coronopifolia (Waterbuttons)*	Y		
202.	3136	*Crassula alata*	Y		
203.	3137	*Crassula colorata (Dense Stonecrop)*			
204.	29054	*Crepis foetida subsp. foetida (Stinking Hawksbeard)*	Y		
205.	13527	*Croninia kingiana*			
206.	7451	*Dampiera lavandulacea*			
207.	7454	*Dampiera linearis (Common Dampiera)*			
208.	15656	*Daviesia brachyphylla*			
209.	19747	*Daviesia decurrens subsp. decurrens*			
210.	18560	*Daviesia divaricata subsp. divaricata*			
211.	3832	*Daviesia physodes*			
212.	3845	*Daviesia triflora*			
213.	6616	*Dichondra repens (Kidney Weed)*			
214.	4763	*Dodonaea hackettiana (Hackett's Hopbush)*		P4	
215.		*Drosera ?paleacea*			Y
216.		*Drosera ?porrecta*			
217.	48751	*Drosera drummondii*			
218.	3095	*Drosera erythrorhiza (Red Ink Sundew)*			
219.	3106	*Drosera macrantha (Bridal Rainbow)*			
220.	3109	*Drosera menziesii (Pink Rainbow)*			
221.	3114	*Drosera nitidula (Shining Sundew)*			
222.	3118	*Drosera pallida (Pale Rainbow)*			
223.	29178	*Drosera porrecta*			
224.		*Drosera sp. "climbing"*			
225.	3131	*Drosera stolonifera (Leafy Sundew)*			
226.	3135	*Drosera zonaria (Painted Sundew)*			
227.	5187	*Elatine gratioloides (Waterwort)*			
228.	6133	*Epilobium hirtigerum (Hairy Willow Herb)*			
229.	13949	*Eremaea asterocarpa*			
230.	13950	*Eremaea asterocarpa subsp. asterocarpa*			
231.	14097	*Eremaea asterocarpa subsp. brachyclada*			
232.	5541	*Eremaea pauciflora*			
233.	17150	*Eremophila glabra subsp. chlorella*		T	
234.	18301	*Eriobotrya japonica*	Y		
235.	5708	*Eucalyptus marginata (Jarrah, Djara)*			
236.	13547	*Eucalyptus marginata subsp. marginata (Jarrah)*			
237.	5763	*Eucalyptus rudis (Flooded Gum, Kulurda)*			
238.		*Eucalyptus sp.*			
239.	5790	*Eucalyptus todtiana (Coastal Blackbutt)*			
240.	3872	*Euchilopsis linearis (Swamp Pea)*			
241.	3880	*Eutaxia virgata*			
242.	2969	*Fumaria capreolata (Whiteflower Fumitory)*	Y		
243.	7323	*Galium murale (Small Goosegrass)*	Y		

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
244.	20475	*Gastrolobium capitatum*			
245.	20483	*Gastrolobium linearifolium*			
246.	4339	*Geranium molle (Dove's Foot Cranesbill)*	Y		
247.	10909	*Gompholobium confertum*			
248.	3957	*Gompholobium tomentosum (Hairy Yellow Pea)*			
249.	6161	*Gonocarpus pithyoides*			
250.	37500	*Grammatotheca bergiana var. bergiana*	Y		
251.	2216	*Hakea varia (Variable-leaved Hakea)*			
252.	16933	*Hemiandra glabra*			
253.	6839	*Hemiandra pungens (Snakebush)*			
254.	38320	*Hemiandra sp. Jurien (B.J. Conn & M.E. Tozer BJC 3885)*			
255.	5134	*Hibbertia huegelii*			
256.		*Hibbertia huegelii complex*			
257.	5135	*Hibbertia hypericoides (Yellow Buttercups)*			
258.	45534	*Hibbertia hypericoides subsp. hypericoides*			
259.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
260.	43280	*Hibbertia sericosepala*			
261.	5172	*Hibbertia stellaris (Orange Stars)*			
262.	5173	*Hibbertia subvaginata*			
263.	6222	*Homalosciadium homalocarpum*			
264.	3968	*Hovea trisperma (Common Hovea)*			
265.	12859	*Hovea trisperma var. trisperma*			
266.	5216	*Hybanthus calycinus (Wild Violet)*			
267.	5817	*Hypocalymma angustifolium (White Myrtle, Kudjid)*			
268.	35070	*Hypocalymma angustifolium subsp. Swan Coastal Plain (G.J. Keighery 16777)*			
269.	5825	*Hypocalymma robustum (Swan River Myrtle)*			
270.	8086	*Hypochaeris glabra (Smooth Catsear)*	Y		
271.	9352	*Hypochaeris radicata (Flat Weed, Cats-ear)*	Y		
272.	4012	*Jacksonia furcellata (Grey Stinkwood)*			
273.	20462	*Jacksonia gracillima*		P3	
274.	4044	*Kennedia prostrata (Scarlet Runner)*			
275.	15498	*Kunzea glabrescens (Spearwood)*			
276.	2249	*Lambertia multiflora (Many-flowered Honeysuckle)*			
277.	4052	*Latrobea tenella*			
278.	6879	*Lavandula stoechas (Italian Lavender)*	Y		
279.	7574	*Lechenaultia floribunda (Free-flowering Leschenaultia)*			
280.	44490	*Leontodon rhagadioloides*	Y		
281.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
282.	2344	*Leptomeria empetriformis*			
283.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
284.	6374	*Leucopogon conostephioides*			
285.	6425	*Leucopogon oxycedrus*			
286.	6434	*Leucopogon polymorphus*			
287.	6440	*Leucopogon racemulosus*			
288.	40803	*Leucopogon squarrosus subsp. squarrosus*			
289.	6451	*Leucopogon tenuis*			
290.	7674	*Levenhookia preissii (Preiss's Stylewort)*			
291.	7677	*Levenhookia stipitata (Common Stylewort)*			
292.	7408	*Lobelia tenuior (Slender Lobelia)*			
293.	8564	*Lotus subbiflorus*	Y		
294.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
295.	6458	*Lysinema elegans*			
296.	34736	*Lysinema pentapetalum*			
297.	2838	*Macarthuria apetala*			
298.	4077	*Medicago minima (Small Burr Medic)*	Y		
299.	5952	*Melaleuca preissiana (Moonah)*			
300.	5959	*Melaleuca rhaphiophylla (Swamp Paperbark)*			
301.	5964	*Melaleuca seriata*			
302.	5978	*Melaleuca teretifolia (Banbar)*			
303.	5980	*Melaleuca thymoides*			
304.	5983	*Melaleuca trichophylla*			
305.	8106	*Millotia tenuifolia (Soft Millotia)*			
306.	16693	*Minuartia mediterranea*	Y		
307.	4666	*Monotaxis occidentalis*			
308.	2401	*Nuytsia floribunda (Christmas Tree, Mudja)*			
309.	4113	*Ornithopus compressus (Yellow Serradella)*	Y		
310.	17756	*Osteospermum ecklonis*	Y		
311.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
312.	4346	*Pelargonium littorale*			
313.	6006	*Pericalymma ellipticum (Swamp Teatree)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
314.	16477	*Pericalymma ellipticum var. ellipticum*			
315.	16478	*Pericalymma ellipticum var. floridum*			
316.	11020	*Persicaria hydropiper*			
317.	2273	*Persoonia saccata (Snottygobble)*			
318.	2299	*Petrophile linearis (Pixie Mops)*			
319.	18529	*Philotheca spicata (Pepper and Salt)*			
320.	16177	*Phyllangium paradoxum*			
321.	4141	*Phyllota gracilis*			
322.	5252	*Pimelea lanata*			
323.	5268	*Pimelea sulphurea (Yellow Banjine)*			
324.	8165	*Pithocarpa pulchella (Beautiful Pithocarpa)*			
325.	18353	*Pithocarpa pulchella var. pulchella*			
326.	6249	*Platysace compressa (Tapeworm Plant)*			
327.	6253	*Platysace filiformis*			
328.	4524	*Platytheca galioides*			
329.	8175	*Podolepis gracilis (Slender Podolepis)*			
330.	8182	*Podotheca angustifolia (Sticky Longheads)*			
331.	8183	*Podotheca chrysantha (Yellow Podotheca)*			
332.	8184	*Podotheca gnaphalioides (Golden Long-heads)*			
333.	2905	*Polycarpon tetraphyllum (Fourleaf Allseed)*	Y		
334.	4691	*Poranthera microphylla (Small Poranthera)*			
335.		*Poranthera microphylla/moorokatta*			
336.	2718	*Ptilotus drummondii (Narrowleaf Mulla Mulla)*			
337.	4181	*Pultenaea reticulata*			
338.	8195	*Quinetia urvillei*			
339.	2933	*Ranunculus muricatus (Sharp Buttercup)*	Y		
340.	6012	*Regelia ciliata*			
341.	6014	*Regelia inops*			
342.	4822	*Rhamnus alaternus (Buckthorn)*	Y		
343.	13300	*Rhodanthe citrina*			
344.	2429	*Rumex acetosella (Sorrel)*	Y		
345.	2433	*Rumex crispus (Curled Dock)*	Y		
346.	2906	*Sagina apetala (Annual Pearlwort)*	Y		
347.	13182	*Scaevola repens var. repens*			
348.	48834	*Schinus terebinthifolia*	Y		
349.	6033	*Scholtzia involucrata (Spiked Scholtzia)*			
350.	8225	*Siloxerus humifusus (Procumbent Siloxerus)*			
351.	7022	*Solanum nigrum (Black Berry Nightshade)*	Y		
352.	45036	*Solidago chilensis*	Y		
353.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
354.	2912	*Spergula arvensis (Corn Spurry)*	Y		
355.	20302	*Sphaerolobium hygrophilum*			
356.	4211	*Sphaerolobium vimineum (Leafless Globe Pea)*			
357.	19704	*Stenanthemum sublineare*		P2	
358.	2316	*Stirlingia latifolia (Blueboy)*			
359.	7684	*Stylidium amoenum (Lovely Triggerplant)*			
360.	25831	*Stylidium araeophyllum (Stilt Walker)*			
361.		*Stylidium araeophyllum/neurophyllum*			
362.	7693	*Stylidium brunonianum (Pink Fountain Triggerplant)*			
363.	25800	*Stylidium paludicola*		P3	
364.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
365.	7777	*Stylidium preissii (Lizard Triggerplant)*			
366.	7785	*Stylidium repens (Matted Triggerplant)*			
367.	20521	*Stylidium rigidulum*			
368.	7798	*Stylidium schoenoides (Cow Kicks)*			
369.		*Stylidium sp.*			
370.	48297	*Styphelia filifolia*		P3	
371.	18590	*Synaphea sp. Fairbridge Farm (D. Papenfus 696)*		T	
372.	6280	*Trachymene pilosa (Native Parsnip)*			
373.	4383	*Tribulus terrestris (Caltrop)*	Y		
374.	4289	*Trifolium angustifolium (Narrowleaf Clover)*	Y		
375.	17145	*Trifolium angustifolium var. angustifolium*	Y		
376.	4737	*Tripterococcus brunonis (Winged Stackhousia)*			
377.	44444	*Tripterococcus sp. Brachylobus (A.S. George 14234)*		P4	
378.	8254	*Urospermum picroides (False Hawkbit)*	Y		
379.	8255	*Ursinia anthemoides (Ursinia)*	Y		
380.	7157	*Utricularia violacea (Violet Bladderwort)*			
381.	7108	*Veronica arvensis (Wall Speedwell)*	Y		
382.	6077	*Verticordia drummondii (Drummond's Featherflower)*			
383.	14714	*Verticordia lindleyi subsp. lindleyi*		P4	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
384.	7384	*Wahlenbergia capensis (Cape Bluebell)*	Y		
385.	7389	*Wahlenbergia preissii*			
386.	8282	*Waitzia suaveolens (Fragrant Waitzia)*			
387.	6289	*Xanthosia huegelii*			
388.	2331	*Xylomelum occidentale (Woody Pear, Djandin)*			
Fish					
389.		*Atherinosoma wallacei*			
Fungus					
390.		*Agaricus sp.*			
391.	38757	*Amanita xanthocephala*			
392.	38848	*Bolbitius titubans*			
393.		*Calocera guepinioides*			
394.	38767	*Campanella gregaria*			
395.	38776	*Cortinarius phalarus*			
396.	38780	*Crepidotus eucalyptorum*			
397.		*Dermocybe clelandii*			
398.		*Gymnopilus allantopus*			
399.	38795	*Hygrocybe conica*			
400.	48549	*Inocybe subferruginea*			
401.	38808	*Limacella pitereka*			
402.		*Mycena carmeliana*			
403.		*Mycena nargan*			
404.	38813	*Mycena subgalericulata*			
405.	38816	*Omphalotus nidiformis*			
406.	49073	*Peziza austrogeaster*			
407.		*Pholiota communis*			
408.		*Phytophthora cinnamomi*			
409.	49071	*Picipes badius*			
410.		*Poronia erici*			
411.		*Schizophyllum commune*			
412.		*Tremella mesenterica*			
Gymnosperm					
413.	18119	*Macrozamia fraseri*			
414.	85	*Macrozamia riedlei (Zamia, Djiridji)*			
Invertebrate					
415.		*Aname mainae*			
416.		*Aname tepperi*			
417.		*Artoria flavimana*			
418.		*Artoria linnaei*			
419.		*Artoria taeniifera*			
420.		*Backobourkia heroine*			
421.		*Ballarra longipalpus*			
422.	33939	*Cherax cainii (Marron)*			
423.		*Cherax destructor*			
424.		*Cherax preissii*			
425.		*Cherax quinquecarinatus*			
426.		*Cherax sp.*			
427.		*Cormocephalus aurantiipes*			
428.		*Cormocephalus rubriceps*			
429.		*Cryptoerithus quobba*			
430.		*Dingosa serrata*			
431.		*Eodelena convexa*			
432.		*Eodelena lapidicola*			
433.		*Erythracarus decoris*			
434.		*Gea theridioides*			
435.		*Henicops dentatus*			
436.		*Idiommata blackwalli*			
437.	48935	*Idiosoma sigillatum (Swan Coastal Plain shield-backed trapdoor spider)*		P3	
438.		*Isopeda leishmanni*			
439.		*Ixodes australiensis*			
440.		*Lampona cylindrata*			
441.		*Latrodectus hasseltii*			
442.		*Longepi woodman*			
443.		*Lycosa gilberta*			
444.		*Maratus pavonis*			
445.		*Missulena granulosa*			
446.		*Mituliodon tarantulinus*			
447.		*Mitzoruga insularis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
448.		*Notiasemus glauerti*			
449.		*Phenasteron longiconductor*			
450.		*Pinkfloydia harveii*			
451.		*Poltys laciniosus*			
452.		*Prionosternum scutatum*			
453.		*Raveniella cirrata*			
454.		*Raveniella peckorum*			
455.		*Scolopendra laeta*			
456.		*Supunna funerea*			
457.		*Supunna picta*			
458.	33992	*Synemon gratiosa (Graceful Sunmoth)*		P4	
459.		*Synothele rastelloides*			
460.		*Urodacus novaehollandiae*			
461.		*Venator immansueta*			
Mammal					
462.	47713	*Austronomus australis (White-striped Free-tailed Bat)*			
463.	24186	*Chalinolobus gouldii (Gould's Wattled Bat)*			
464.	24041	*Felis catus (Cat)*	Y		
465.	30916	*Funambulus pennanti (Indian Palm Squirrel)*	Y		
466.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
467.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
468.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
469.	24223	*Mus musculus (House Mouse)*	Y		
470.	24146	*Myrmecobius fasciatus (Numbat, Walpurti)*		T	
471.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
472.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
473.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
474.	24245	*Rattus rattus (Black Rat)*	Y		
475.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
476.	24206	*Vespadelus regulus (Southern Forest Bat)*			
477.	24040	*Vulpes vulpes (Red Fox)*	Y		
Monocotyledon					
478.		*?Arnocrinum preissii*			
479.		*?Desmocladus flexuosus*			Y
480.		*?Haemodorum spicatum*			
481.		*?Lepidosperma squamatum*			Y
482.		*?Lepidosperma squamatum s.l.*			
483.		*?Lomandra sericea*			Y
484.		*?Microtis media*			Y
485.		*?Rytidosperma occidentalis*			
486.		*?Rytidosperma sp.*			Y
487.		*?Vulpia sp.*			Y
488.	184	*Aira caryophyllea (Silvery Hairgrass)*	Y		
489.		*Aira caryophyllea/cupaniana group*			
490.	187	*Aira praecox (Early Hairgrass)*	Y		
491.	13380	*Amphibromus nervosus*			
492.	200	*Amphipogon turbinatus*			
493.	1409	*Anigozanthos humilis (Catspaw)*			
494.	1411	*Anigozanthos manglesii (Mangles Kangaroo Paw, Kurulbrang)*			
495.	11261	*Anigozanthos manglesii subsp. manglesii*			
496.	141	*Aponogeton hexatepalus (Stalked Water Ribbons)*		P4	
497.	1264	*Arnocrinum preissii*			
498.	20752	*Asparagus aethiopicus*	Y		
499.	1364	*Asphodelus fistulosus (Onion Weed)*	Y		
500.		*Austrostipa ?compressa*			
501.	17234	*Austrostipa compressa*			
502.	233	*Avena barbata (Bearded Oat)*	Y		
503.	740	*Baumea arthrophylla*			
504.	1417	*Blancoa canescens (Winter Bell)*			
505.	244	*Briza maxima (Blowfly Grass)*	Y		
506.	245	*Briza minor (Shivery Grass)*	Y		
507.		*Briza sp.*			
508.	249	*Bromus diandrus (Great Brome)*	Y		
509.	12770	*Burchardia congesta*			
510.	1276	*Caesia micrantha (Pale Grass Lily)*			
511.		*Caladenia ?flava*			
512.	15330	*Caladenia arenicola*			
513.	1586	*Caladenia discoidea (Dancing Orchid)*			
514.	1592	*Caladenia flava (Cowslip Orchid)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
515.	1596	*Caladenia huegelii (Grand Spider Orchid)*		T	
516.	15361	*Caladenia longicauda subsp. calcigena*			
517.	1605	*Caladenia marginata (White Fairy Orchid)*			
518.	15503	*Caladenia paludosa*			
519.		*Caladenia sp.*			
520.	18019	*Caladenia vulgata*			
521.	15398	*Caladenia xantha*			
522.	19309	*Calectasia narragara*			
523.	1121	*Centrolepis aristata (Pointed Centrolepis)*			
524.	1125	*Centrolepis drummondiana*			
525.	1132	*Centrolepis mutica*			
526.	17685	*Chaetanthus aristatus*			
527.	1280	*Chamaescilla corymbosa (Blue Squill)*			
528.	11299	*Chamaescilla corymbosa var. corymbosa*			
529.	1418	*Conostylis aculeata (Prickly Conostylis)*			
530.	11826	*Conostylis aculeata subsp. aculeata*			
531.	1436	*Conostylis juncea*			
532.	1454	*Conostylis setigera (Bristly Cottonhead)*			
533.	11597	*Conostylis setigera subsp. setigera*			
534.	15404	*Cyanicula sericea*			
535.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
536.	18198	*Cyperus papyrus*	Y		
537.	806	*Cyperus polystachyos (Bunchy Sedge)*			
538.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
539.	10942	*Cyrtostylis tenuissima*			
540.	1218	*Dasypogon bromeliifolius (Pineapple Bush)*			
541.	17691	*Desmocladus fasciculatus*			
542.	16595	*Desmocladus flexuosus*			
543.	11636	*Dianella revoluta var. divaricata*			
544.	19649	*Disa bracteata*	Y		
545.		*Diuris corymbosa/magnifica*			
546.	10796	*Diuris drummondii (Tall Donkey Orchid)*		T	
547.	1637	*Diuris purdiei (Purdie's Donkey Orchid)*		T	
548.	1639	*Drakaea elastica (Glossy-leaved Hammer Orchid)*		T	
549.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
550.	13635	*Drakaea micrantha*		T	
551.	347	*Ehrharta calycina (Perennial Veldt Grass)*	Y		
552.	349	*Ehrharta longiflora (Annual Veldt Grass)*	Y		
553.	822	*Eleocharis acuta (Common Spikerush)*			
554.	15410	*Eriochilus dilatatus subsp. dilatatus*			
555.	15412	*Eriochilus dilatatus subsp. multiflorus*			
556.	15414	*Eriochilus helonomos*			
557.	15415	*Eriochilus scaber subsp. scaber*			
558.	10802	*Eriochilus tenuis*			
559.	430	*Festuca arundinacea (Tall Fescue)*	Y		
560.	1520	*Gladiolus caryophyllaceus (Wild Gladiolus)*	Y		
561.	1472	*Haemodorum simplex*			
562.	1475	*Haemodorum spicatum (Mardja)*			
563.	1293	*Hensmania turbinata*			
564.	449	*Hordeum leporinum (Barley Grass)*	Y		
565.	452	*Hyparrhenia hirta (Tambookie Grass)*	Y		
566.	1070	*Hypolaena exsulca*			
567.	20200	*Isolepis cernua var. setiformis*			
568.	917	*Isolepis marginata (Coarse Club-rush)*			
569.	10831	*Isolepis prolifera (Budding Club-rush)*	Y		
570.	19632	*Johnsonia pubescens subsp. pubescens*			
571.	1177	*Juncus articulatus (Jointed Rush)*	Y		
572.	1178	*Juncus bufonius (Toad Rush)*	Y		
573.	1186	*Juncus microcephalus*	Y		
574.	13562	*Lachenalia aloides*	Y		
575.	20019	*Lachnagrostis filiformis*			
576.	1307	*Laxmannia ramosa (Branching Lily)*			
577.	11911	*Laxmannia ramosa subsp. ramosa*			
578.	1309	*Laxmannia squarrosa*			
579.	925	*Lepidosperma angustatum*			
580.	41649	*Lepidosperma rigidulum*			
581.		*Lepidosperma sp.*			
582.		*Lepidosperma sp. Brixton Street*			Y
583.		*Lepidosperma sp. Brixton Street broad inflorescence*			
584.		*Lepidosperma sp. Darling Scarp*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
585.	945	*Lepidosperma squamatum*			
586.		*Lepidosperma squamatum s.l.*			
587.	1653	*Leporella fimbriata (Hare Orchid)*			
588.	15418	*Leptoceras menziesii*			
589.	48640	*Limnobium laevigatum*	Y		Y
590.	475	*Lolium multiflorum (Italian Ryegrass)*	Y		
591.		*Lomandra ?caespitosa*			
592.	1223	*Lomandra caespitosa (Tufted Mat Rush)*			
593.	1228	*Lomandra hermaphrodita*			
594.	14542	*Lomandra micrantha subsp. micrantha*			
595.	1234	*Lomandra nigricans*			
596.	1236	*Lomandra odora (Tiered Matrush)*			
597.	1239	*Lomandra preissii*			
598.	1243	*Lomandra sericea (Silky Mat Rush)*			
599.		*Lomandra sp.*			
600.	1246	*Lomandra suaveolens*			
601.	1097	*Lyginia barbata*			
602.		*Lyginia barbata/imberbis*			
603.	18049	*Lyginia imberbis*			
604.	485	*Microlaena stipoides (Weeping Grass)*			
605.	15419	*Microtis media subsp. media*			
606.		*Orchidaceae sp.*			Y
607.	527	*Paspalum dilatatum*	Y		
608.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
609.	30472	*Patersonia occidentalis var. occidentalis*			
610.	1478	*Phlebocarya ciliata*			
611.	1479	*Phlebocarya filifolia*			
612.	571	*Poa annua (Winter Grass)*	Y		
613.	582	*Polypogon monspeliensis (Annual Beardgrass)*	Y		
614.	1671	*Prasophyllum elatum (Tall Leek Orchid)*			
615.	1673	*Prasophyllum gibbosum (Humped Leek Orchid)*			
616.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
617.	1676	*Prasophyllum hians (Yawning Leek Orchid)*			
618.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
619.	1680	*Prasophyllum parvifolium (Autumn Leek Orchid)*			
620.	10853	*Prasophyllum plumiforme*			
621.	1681	*Prasophyllum regium (King Leek Orchid)*			
622.		*Pterostylis aff. nana*			
623.		*Pterostylis nana "short sepal"*			
624.	1693	*Pterostylis recurva (Jug Orchid)*			
625.	12217	*Pterostylis sanguinea*			
626.		*Pterostylis sp.*			
627.	1698	*Pterostylis vittata (Banded Greenhood)*			
628.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
629.	1556	*Romulea rosea (Guildford Grass)*	Y		
630.	40426	*Rytidosperma occidentale*			
631.	973	*Schoenus asperocarpus (Poison Sedge)*			
632.	974	*Schoenus benthamii*		P3	
633.	978	*Schoenus brevisetis*			
634.	979	*Schoenus caespititius*			
635.	980	*Schoenus capillifolius*		P3	
636.	983	*Schoenus cruentus*			
637.	984	*Schoenus curvifolius*			
638.	17614	*Schoenus plumosus*			
639.	19453	*Setaria parviflora*	Y		
640.	1560	*Sparaxis pillansii (Harlequin Flower)*	Y		
641.		*Thelymitra ?graminea*			Y
642.	11143	*Thelymitra graminea*			
643.	1710	*Thelymitra mucida (Plum Orchid)*			
644.	1716	*Thelymitra tigrina (Tiger Orchid)*			
645.	20731	*Thelymitra vulgaris*			
646.		*Thysanotus ?thyrsoideus*			
647.	1318	*Thysanotus arbuscula*			
648.	1338	*Thysanotus manglesianus (Fringed Lily)*			
649.		*Thysanotus manglesianus/patersonii complex*			
650.	1339	*Thysanotus multiflorus (Many-flowered Fringe Lily)*			
651.	1343	*Thysanotus patersonii*			
652.	13783	*Thysanotus sp. Badgingarra (E.A. Griffin 2511)*		P2	
653.	46055	*Thysanotus sp. Coastal plain (N.H. Brittan 66/63)*			
654.	1351	*Thysanotus sparteus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
655.	1354	*Thysanotus tenellus*			
656.	1357	*Thysanotus thyrsoideus*			
657.	1358	*Thysanotus triandrus*			
658.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
659.	1363	*Tricoryne tenella*			
660.	147	*Triglochin mucronata*			
661.	99	*Typha orientalis (Bulrush, Cumbungi)*			
662.	722	*Vulpia bromoides (Squirrel Tail Fescue)*	Y		
663.	724	*Vulpia myuros (Rat's Tail Fescue)*	Y		
664.	1569	*Watsonia versfeldii*	Y		
665.	1251	*Xanthorrhoea brunonis*			
666.	1256	*Xanthorrhoea preissii (Grass tree, Palga)*			
667.		*Xanthorrhoea sp.*			
Reptile					
668.	42368	*Acritoscincus trilineatus (Western Three-lined Skink)*			
669.	24991	*Aprasia repens (Sand-plain Worm-lizard)*			
670.	42381	*Brachyurophis semifasciatus (Southern Shovel-nosed Snake)*			
671.	24980	*Christinus marmoratus (Marbled Gecko)*			
672.	30893	*Cryptoblepharus buchananii*			
673.	25020	*Cryptoblepharus plagiocephalus*			
674.	30899	*Ctenophorus adelaidensis (Southern Heath Dragon, Western Heath Dragon)*			
675.	25027	*Ctenotus australis*			
676.	25039	*Ctenotus fallens*			
677.	25047	*Ctenotus impar*			
678.	25766	*Delma fraseri (Fraser's Legless Lizard)*			
679.	24999	*Delma grayii*			
680.	25468	*Demansia psammophis (Yellow-faced Whipsnake)*			
681.	44654	*Diplodactylus lateroides (Speckled Stone Gecko)*			
682.	25100	*Egernia napoleonis*			
683.	25119	*Hemiergis quadrilineata*			
684.	25133	*Lerista elegans*			
685.	25147	*Lerista lineata (Perth Slider, Lined Skink)*		P3	
686.	25005	*Lialis burtonis*			
687.	25184	*Menetia greyii*			
688.	25191	*Morethia lineoocellata*			
689.	25192	*Morethia obscura*			
690.	25249	*Neelaps calonotos (Black-striped Snake, black-striped burrowing snake)*		P3	
691.	25253	*Parasuta gouldii*			
692.	25255	*Parasuta nigriceps*			
693.	25509	*Pletholax gracilis (Keeled Legless Lizard)*			
694.	25007	*Pletholax gracilis subsp. gracilis (Keeled Legless Lizard)*			
695.	25510	*Pogona minor (Dwarf Bearded Dragon)*			
696.	24907	*Pogona minor subsp. minor (Dwarf Bearded Dragon)*			
697.	25511	*Pseudonaja affinis (Dugite)*			
698.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
699.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
700.	25203	*Tiliqua occipitalis (Western Bluetongue)*			
701.	25519	*Tiliqua rugosa*			
702.	25207	*Tiliqua rugosa subsp. rugosa*			
Slime Mould					
703.	38963	*Arcyria affinis*			Y
704.	38964	*Arcyria cinerea*			
705.	38965	*Arcyria denudata*			
706.	38966	*Arcyria ferruginea*			
707.	38967	*Arcyria incarnata*			
708.	44709	*Arcyria major*			Y
709.	38970	*Arcyria obvelata*			
710.	38973	*Arcyria pomiformis*			
711.	38974	*Arcyria stipata*			
712.	38975	*Badhamia capsulifera*			Y
713.	38981	*Calomyxa metallica*			
714.	38982	*Ceratiomyxa fruticulosa*			
715.	38983	*Clastoderma debaryanum*			
716.	38984	*Collaria arcyrionema*			
717.	38988	*Comatricha laxa*			
718.	38990	*Comatricha nigra*			
719.	38991	*Comatricha pulchella*			
720.	38997	*Craterium leucocephalum*			
721.	38998	*Craterium minutum*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
722.	39001	*Cribraria cancellata*			
723.	39002	*Cribraria microcarpa*			
724.	39003	*Cribraria minutissima*			
725.	39008	*Diachea leucopodia*			
726.	39011	*Diderma asteroides*			
727.	48606	*Diderma rufostriatum*			Y
728.	39020	*Didymium difforme*			
729.		*Didymium minus*			Y
730.	39023	*Didymium perforatum*			Y
731.	39024	*Didymium serpula*			
732.	39025	*Didymium squamulosum*			
733.	39029	*Echinostelium minutum*			
734.	42241	*Elaeomyxa reticulospora*			Y
735.	39030	*Enerthenema papillatum*			
736.	39033	*Fuligo septica*			
737.	39041	*Licea kleistobolus*			
738.	39046	*Licea rufocuprea*			Y
739.	39048	*Lycogala epidendrum*			
740.	39054	*Oligonema schweinitzii*			
741.	39058	*Perichaena depressa*			
742.	39061	*Physarum bitectum*			
743.	39062	*Physarum bivalve*			
744.	39063	*Physarum cinereum*			
745.	39064	*Physarum citrinum*			Y
746.	39065	*Physarum compressum*			
747.	39069	*Physarum famintzinii*			Y
748.	39072	*Physarum melleum*			
749.	39074	*Physarum pusillum*			
750.	39076	*Physarum sessile*			Y
751.	39079	*Physarum viride*			
752.	39083	*Stemonitis fusca*			
753.	39088	*Stemonitis virginiensis*			
754.	39090	*Stemonitopsis gracilis*			
755.	40882	*Stemonitopsis hyperopta*			
756.	39095	*Trichia botrytis*			
757.	39096	*Trichia contorta*			
758.	39097	*Trichia decipiens*			
759.	39100	*Trichia persimilis*			
760.	39101	*Trichia varia*			
761.	39102	*Trichia verrucosa*			
762.	39103	*Tubifera ferruginosa*			
763.	39104	*Willkommlangea reticulata*			

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

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

Appendix 2: Protected Matters Search Tool, 5km

Appendix 2.1 Queens Park Regional Open Space

Australian Government
Department of the Environment and Energy

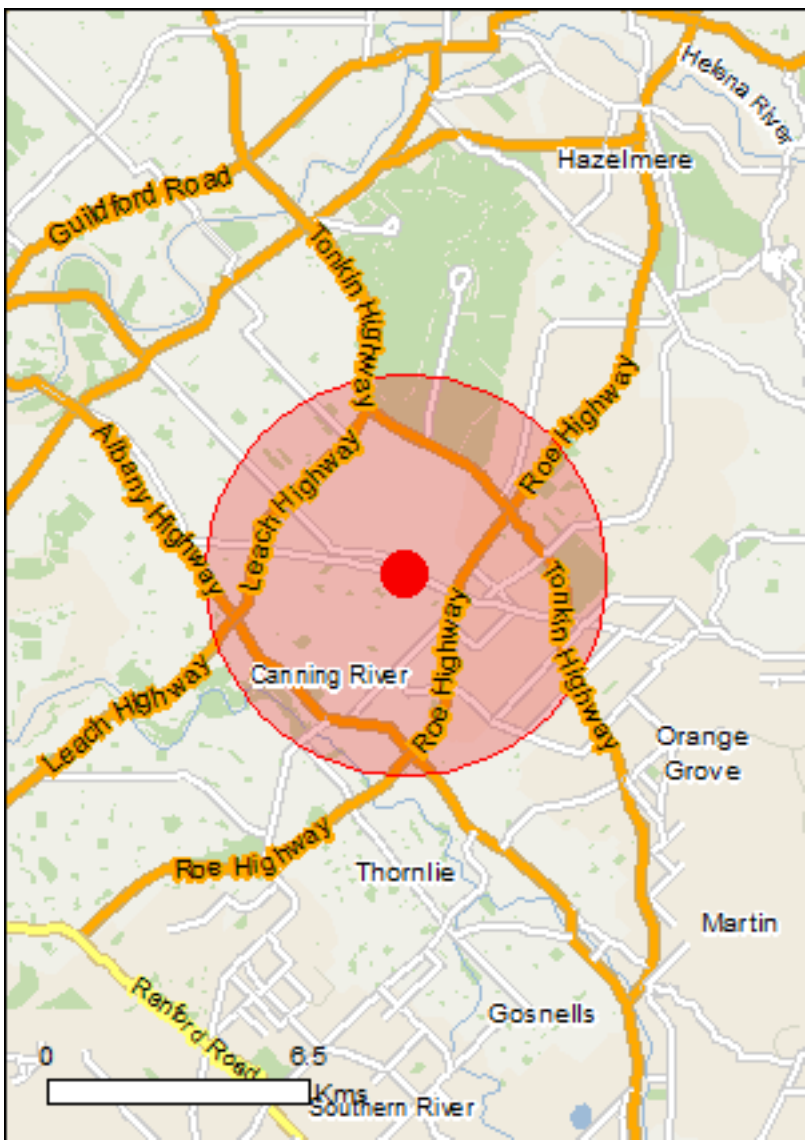
EPBC Act Protected Matters Report

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.

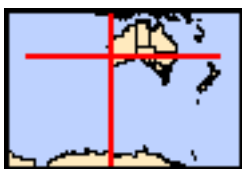
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 01/09/20 16:57:47



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

Coordinates
Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	39
Listed Migratory Species:	9

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.

Commonwealth Land:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	6
Regional Forest Agreements:	None
Invasive Species:	46
Nationally Important Wetlands:	2
Key Ecological Features (Marine)	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
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area
Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain	Endangered	Community known to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Roosting known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Insects		

Name	Status	Type of Presence
Leioproctus douglasiellus a short-tongued bee [66756]	Critically Endangered	Species or species habitat known to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat may occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
Plants		
Acacia anomala Grass Wattle, Chittering Grass Wattle [8153]	Vulnerable	Species or species habitat may occur within area
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat known to occur within area
Austrostipa bronwenae [87808]	Endangered	Species or species habitat known to occur within area
Banksia mimica Summer Honeypot [82765]	Endangered	Species or species habitat likely to occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
Calytrix breviseta subsp. breviseta Swamp Starflower [23879]	Endangered	Species or species habitat known to occur within area
Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [88881]	Endangered	Species or species habitat may occur within area
Conospermum undulatum Wavy-leaved Smokebush [24435]	Vulnerable	Species or species habitat likely to occur within area
Diplolaena andrewsii [6601]	Endangered	Species or species habitat likely to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved	Endangered	Species or species

Name	Status	Type of Presence
Hammer Orchid, Warty Hammer Orchid [16753]		habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat known to occur within area
Eremophila glabra subsp. chlorella [84927]	Endangered	Species or species habitat known to occur within area
Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat likely to occur within area
Grevillea thelemanniana Spider Net Grevillea [32835]	Critically Endangered	Species or species habitat known to occur within area
Lepidosperma rostratum Beaked Lepidosperma [14152]	Endangered	Species or species habitat known to occur within area
Macarthuria keigheryi Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
Ptilotus pyramidatus Pyramid Mulla-mulla [18216]	Critically Endangered	Species or species habitat known to occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat known to occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat likely to occur within area
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Tringa nebularia 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 - AIRTC CANNINGTON

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
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Canning River	WA
Dundas Road	WA
Kenwick Wetlands	WA
Unnamed WA29815	WA
Unnamed WA37997	WA
Unnamed WA49363	WA

Invasive Species	[Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
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
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf		Species or species habitat likely to occur

Name	Status	Type of Presence
Madeiravine, Potato Vine [2643]		within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus declinatus Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to 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
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands [Resource Information]

Name	State
Brixton Street Swamps	WA
Perth Airport Woodland Swamps	WA

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-31.99964 115.96213

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.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix 2.2 Arrowgrass Reserve, Caladenia Wetland Reserve, Clifton Buffer and Reserve and Ranford Bushland

Australian Government
Department of the Environment and Energy

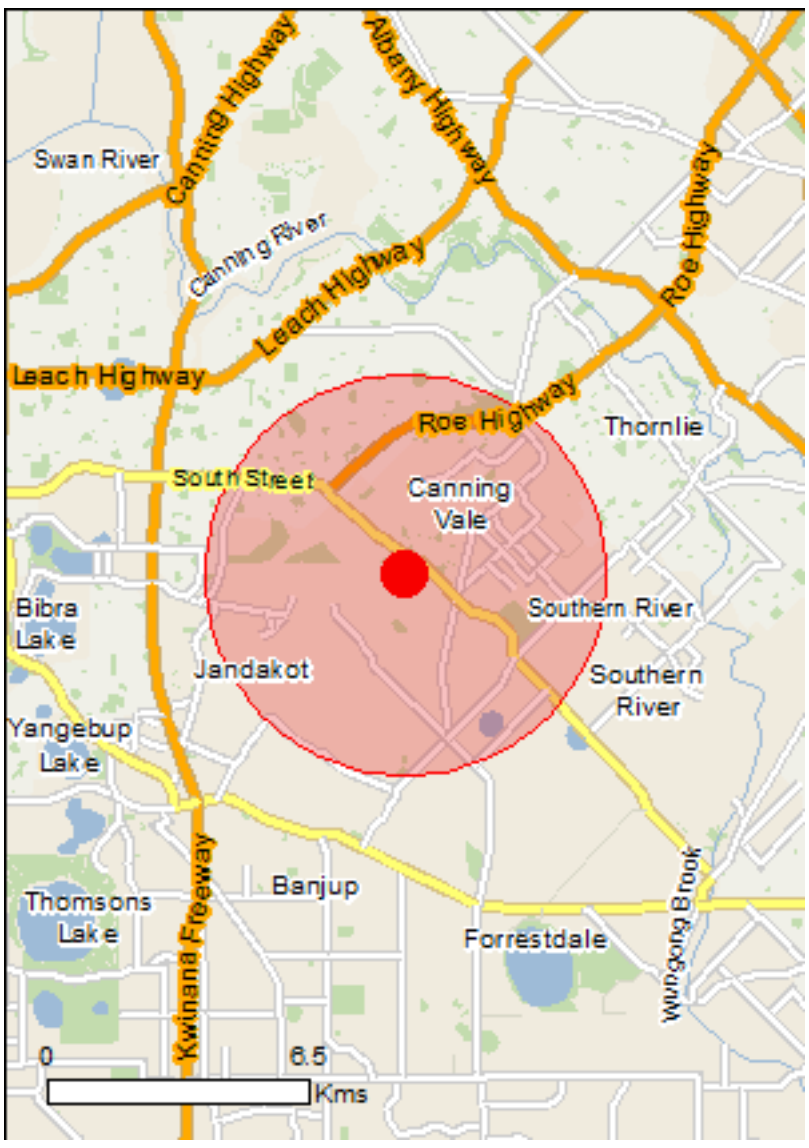
EPBC Act Protected Matters Report

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.

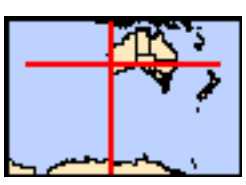
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 01/09/20 17:18:32



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.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	28
Listed Migratory Species:	10

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.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	40
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Forrestdale and thomsons lakes	Within 10km of Ramsar

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
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Roosting known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Austrostipa jacobsiana [87809]	Critically Endangered	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat known to occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area
Eremophila glabra subsp. chlorella [84927]	Endangered	Species or species habitat likely to occur within area
Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
Lepidosperma rostratum Beaked Lepidosperma [14152]	Endangered	Species or species habitat likely to occur within area
Macarthuria keigheryi Keighery's Macarthuria [64930]	Endangered	Species or species habitat likely to occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Thelymitra dedmaniarum		
Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia		
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 -

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
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardea alba](#) Great Egret, White Egret [59541]		Breeding known to occur within area
[Ardea ibis](#) Cattle Egret [59542]		Species or species habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat may occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Pachyptila turtur](#) Fairy Prion [1066]		Species or species habitat likely to occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area
[Rostratula benghalensis (sensu lato)](#) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
[Thinornis rubricollis](#) Hooded Plover [59510]		Species or species habitat may occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista linifolia Flax-leaved Broom, Mediterranean Broom, Flax Broom [2800]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur

Name	Status	Type of Presence 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 area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands [Resource Information]

Name	State
Gibbs Road Swamp System	WA

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

-32.08451 115.90634

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:

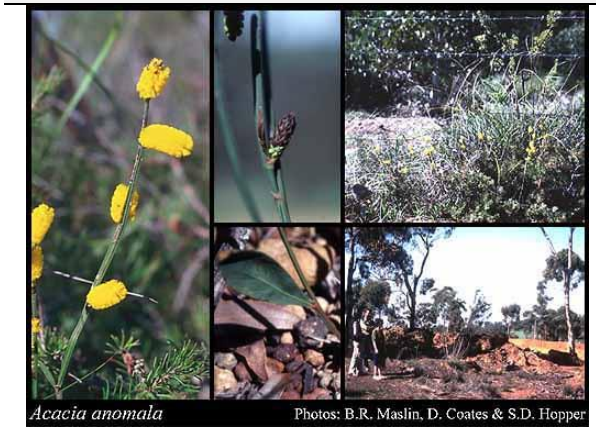
-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, 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.

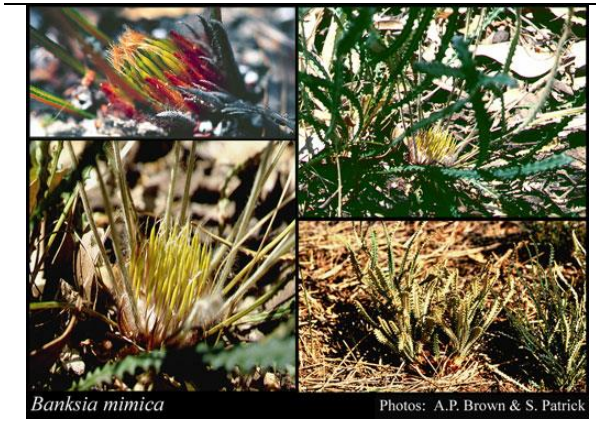
Please feel free to provide feedback via the Contact Us page.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix 3: Threatened Priority Flora

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Grass Wattle	Slender, rush-like shrub, 0.2-0.5 m high. Fl. yellow.	Aug to Sept.	Lateritic soils. Slopes.	T, VU	N	Soil type not suitable
		Shrub, ca 1 m high. Fl. yellow	, Aug to Sep.	Sand. Typically on limestone breakaways.	P2	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Slender Andersonia	Slender erect or open straggly shrub, 0.1-0.5(-1) m high. Fl. white-pink-purple.	Sep to Nov	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps.	EN/T	Y	Soil type may suitable
	Stalked Water Ribbons	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green-white.	Jul to Oct.	Mud. Freshwater: ponds, rivers, claypans.	P4	N	Habitat not suitable
Austrostipa bronwenae		No information available			T, EN		Unable to assess

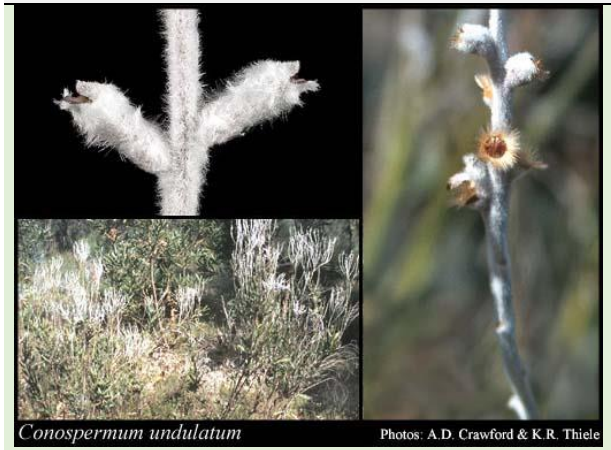
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
Austrostipa jacobsiana		No information available			T		Unable to assess
Babingtonia urbana	Coastal Plain Babingtonia				P3		Unable to assess
	Summer Honeypot	Prostrate, lignotuberous shrub, 0.15-0.4 m high.	Fl. yellow-brown, Dec or Jan to Feb.	White or grey sand over laterite, sandy loam.	T	Y	Soil type not suitable

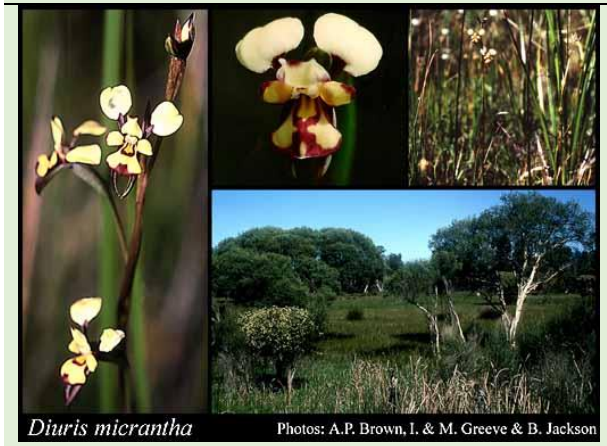
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Prostrate, lignotuberous shrub, to 0.4 m high.	Fl. cream-white/yellow, Sep to Oct.	White/grey sand over laterite.	P3	Y	Soil type not suitable
Bolboschoenus fluviatilis		No information.			P1		Unable to assess
	Blue Boronia	Procumbent or erect & slender shrub, 0.1-0.5 m high. Fl. blue/pink-white	Aug to Nov	Laterite, stony soils, granite	P4	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Small, branched perennial, herb (or sub-shrub), to 0.45 m high.	Fl. pink-purple/white, Sep to Dec or Jan.	Sandy-peat swamps. Seasonally wet areas.	P3	N	Soil type may be suitable
	Grand Spider-orchid	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red	Sep to Oct	Grey or brown sand, clay loam	EN/T	Y	Soil type may be suitable
Calandrinia uncinella	(Syn. *Calandrinia sp. Piawaning)*	No information available			P1		Unable to assess

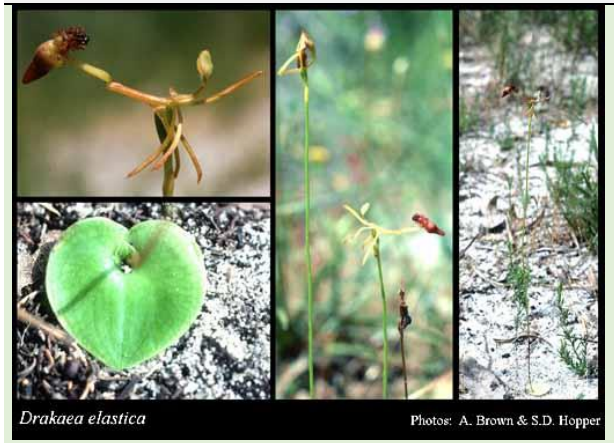
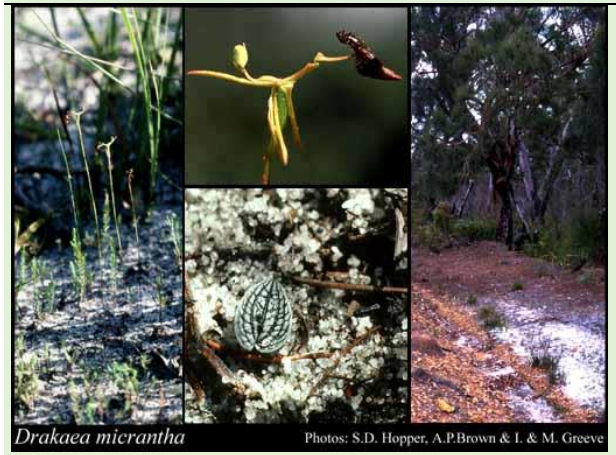
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Blue Tinsel Lily	Rhizomatous, clump forming, woody perennial, herb, 0.1-0.6 m high, to 0.3 m wide.	. Fl. blue/purple, Jun to Oct.	White, grey or yellow sand, gravel.	T	Y	Soil type may be suitable
		Shrub, 0.4-1 m high.	Fl. purple-blue, Oct to Nov.	Sandy clay. Swampy flats.	EN	N	Habitat not suitable
Carex tereticaulis		Monoecious, rhizomatous, tufted perennial, grass-like	Fl. brown, Sep to Oct.	Black peaty sand.	P3	Y	Soil type may be suitable

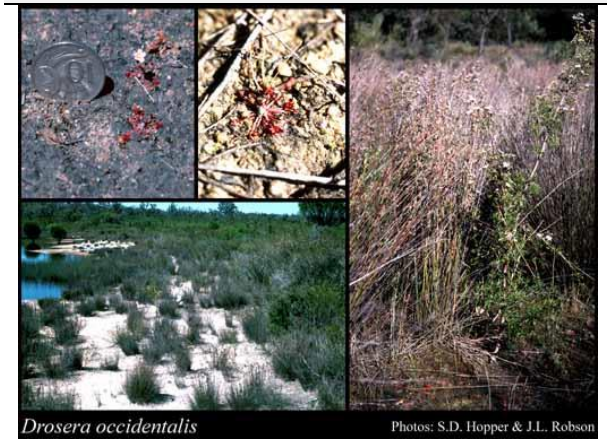
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		or herb (sedge), 0.7 m high.					
Comesperma griffinii		Annual or perennial, herb, to 0.15 m high. Fl. white.	Oct.	Yellow or grey sand. Plains.	P2	Y	Soil type may be suitable
Comesperma rhadinocarpum	Slender-fruited Comesperma	Perennial, herb. Fl. blue.	Oct to Nov.	Sandy soils.	P3	Y	Soil type may be suitable
Chamaescilla gibsonii		Clumped tuberous, herb	. Fl. blue, Sep.	Clay to sandy clay. Winter-wet flats, shallow water-filled claypans.	P3	N	Habitat not suitable
Chamelaucium lullfitzii	(Syn. Chamelaucium sp. Gingin)	No information available.			EN		Unable to assess

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Erect, compact shrub, 0.6-2 m high.	Fl. white-other, May to Oct.	Grey or yellow-orange clayey sand.	T, VU	Y	Soil type may be suitable
		Erect shrub, 0.5-1 m high, inner involucral bracts glabrous, leaves broadly cordate. Fl. Red.	July to Oct	Loam, clay. Granite outcrops & hillsides.	T	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Tall Donkey Orchid	Tuberous, perennial, herb, 0.5-1.05 m high.	Fl. yellow, Nov to Dec or Jan.	Low-lying depressions, swamps.	T, VU	Y	Habitat may suitable
	Dwarf Bee-Orchid	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown.	Sep to Oct	Brown loamy clay. Winter-wet swamps, in shallow water.	VU	N	Habitat may be suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Purdie's Donkey-orchid	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. Yellow.	Sept to Oct.	Grey-black sand, moist. Winter-wet swamps.	T	Y	Habitat may suitable
	Hackett's Hopbush	Erect shrub or tree, 1-5 m high. Fl. yellow-green/red	mainly Jul to Oct	Sand. Outcropping limestone	P4	N	Soil type may be suitable

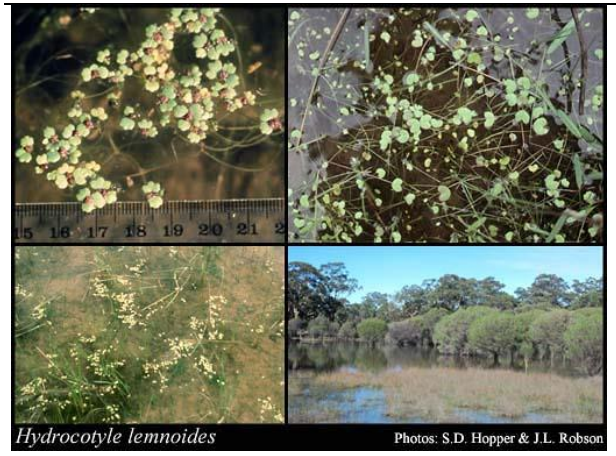
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid	Tuberous, perennial, herb, 0.12-0.3 m high.	Fl. red & green & yellow, Oct to Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.	EN, T	Y	Soil type may be suitable
		Tuberous, perennial, herb, 0.15-0.3 m high.	Fl. red & yellow, Sep to Oct.	White-grey sand.	T, VU	Y	Soil type may be suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Western Sundew	Fibrous-rooted, rosetted perennial, herb, to 0.025 m high. Fl. pink/white	Oct to Dec or Jan		P4		Unable to assess
		Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high.	Fl. green, Aug to Nov.	Emergent in freshwater: creeks, claypans. Clay, sandy loam.	VU, T	N	Habitat not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Prostrate & spreading or sprawling shrub, 0.2-1 m high.	Fl. green-yellow, Jul to Nov.	Sandy clay. Winter-wet depressions.	T, EN	N	Soil type not suitable
Eryngium pinnatifidum subsp. Palustre		No information available			P3		Unable to assess
Eryngium sp. Subdecumbens		No information available			P3		Unable to assess

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Cadda Road Mallee	(Mallee), to 5 m high, bark rough, flaky.	Fl. white, Oct to Dec or Jan to Feb.	Sandy soils with lateritic gravel.	T, EN	N	Soil type not suitable
Grevillea curviloba	(Syn. Grevillea curviloba subsp. incurva)	Prostrate to erect shrub, 0.1-2.5 m high.	Fl. white-cream, Aug to Oct	Grey sand, sandy loam. Winter-wet heath.	T, EN	Y	Habitat may suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Spreading, lignotuberous shrub, 0.3-1.5 m high.	Fl. pink-red, May to Nov.	Sand, sandy clay. Winter-wet low-lying flats.	T, CR	Y	Habitat may be suitable
Haemodorum loratum		Bulbaceous, perennial, herb, 0.45-1.2(-2) m high.	Fl. black/ brown-black /green, Nov.	Grey or yellow sand, gravel.	P3	N	Soil type not suitable
Haloragis scoparia		Perennial, herb, 0.3-0.6 m high.			P1		Unable to assess

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Erect, straggling or sprawling shrub, 0.1-0.7 m high.	Fl. yellow, Jul to Oct.	Loam over granite, lateritic soils, gravel. Granite rocks, lateritic ridges & boulders, hills.	P4	N	Soil type not suitable
	Aquatic Pennywort	Aquatic, floating annual, herb. Fl. purple.	Aug to Oct.	Swamps.	P4	N	Habitat not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
Isopogon autumnalis	Autumn Isopogon Previous name: *Isopogon drummondii*	No information available			P3		Unable to assess
Isotropis cuneifolia subsp. glabra		Prostrate to ascending, spreading perennial, herb or shrub, 0.05-0.15 m high.	Fl. yellow/orange & red, Sep.	Sand, clay loam. Winter-wet flats.	P3	N	Soil type not suitable
		No information available.			P3		Unable to assess

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Helena Velvet Bush	Erect, open shrub, 0.4-1.5 m high. Fl. pink-purple.	Aug to Nov.	Sandy clay, clay, lateritic gravel. Along drainage lines, creeks, gullies, granite outcrops.	P4	N	Soil type not suitable
Lasiopetalum glutinosum subsp. glutinosum		No information available.			P3		Unable to assess
Lepidosperma rostratum		Rhizomatous, tufted perennial, grass-like or herb (sedge), 0.5 m high.	Fl. brown..	Peaty sand, clay	T, EN	N	Soil type not suitable
Lepyrodia curvescens		Dioecious, shortly creeping, tufted rhizomatous, herb, 0.24-0.4 m high, rhizomes on surface or to 1 cm deep.	Fl. Sep to Nov.	Sand, laterite. Seasonally inundated swampland.	P2	Y	Soil type may be suitable

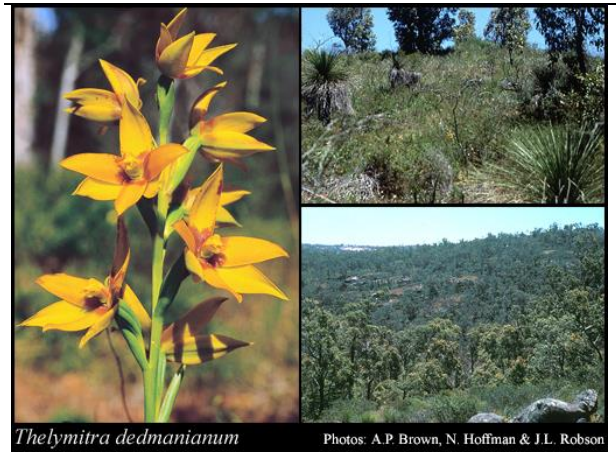
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Erect or spreading perennial, herb or shrub, 0.2-0.4 m high, 0.3-0.6 m wide.	Fl. Sep to Dec or Feb to Mar.	White or grey sand.	T, EN	Y	Soil type may be suitable
Melaleuca viminalis		No information available			P2		Unable to assess
Myriophyllum echinatum		Erect annual, herb, 0.02-0.03 m high.	Fl. red, Nov.	Clay. Winter-wet flats.	P3	N	Soil type not suitable
Ornduffia submersa		No information available.			P4		Unable to assess
Platysace ramosissima		Perennial, herb, to 0.3 m high.	Fl. white-cream, Oct to Nov.	Sandy soils.	P3	Y	Soil type may be suitable
Ptilotus pyramidatus		Small Herb, Fl white			T		Unable to assess

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
Ptilotus sericostachyus subsp. *roseus*		Prostrate to ascending perennial, herb. Fl. pink-white	Sep to Dec		P1		Unable to assess
Schoenus benthamii		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	P3	Y	Soil type may be suitable
Schoenus loliaceus		Annual, grass-like or herb (sedge), 0.03-0.06 m high.	Fl. Aug to Nov.	Sandy soils. Winter-wet depressions.	P2	Y	Soil type may be suitable
	Floating Bog-rush	Aquatic annual, grass-like or herb (sedge), 0.3 m high. Fl. brown	Oct	Winter-wet depressions	P4	Y	Soil type may be suitable
Schoenus capillifolius		Semi-aquatic tufted annual, grass-like or herb (sedge), 0.05 m high. Fl. green.	Oct to Nov.	Brown mud. Claypans.	P3	N	Soil type not suitable

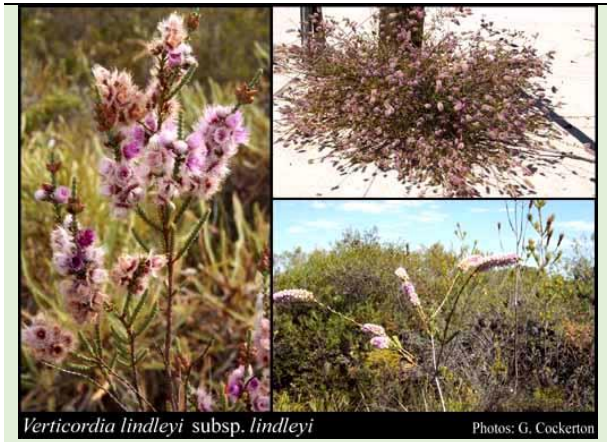
Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
Schoenus pennisetis		Tufted annual, grass-like or herb (sedge), 0.05-0.15 m high.	Fl. purple-black, Aug to Sep.	Grey or peaty sand, sandy clay. Swamps, winter-wet depressions.	P3	N	Soil type not suitable
Schoenus sp. Beaufort		Annual, grass-like or herb (sedge), ca 0.05 m high.	Fl. green.	Mud. Winter-wet claypans.	P1	N	Soil type not suitable
Schoenus sp. Waroona		Tufted annual, grass-like or herb (sedge), 0.02-0.06 m high.	Fl. brown-red-green, Oct to Nov..	Clay or sandy clay. Winter-wet flats	P3	N	Soil type not suitable
Stenanthemum sublineare		Erect shrub, to 0.1 m high. Fl. green,	Oct to Dec.	Littered white sand. Coastal plain.	P2	Y	Soil type may be suitable
Stylidium aceratum		Fibrous rooted annual, herb, 0.05-0.09 m high, leaves spathulate. Fl. pink/white	Oct to Nov	Sandy soils. Swamp heathland	P3	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Jumping Jacks	Erect annual (ephemeral), herb, 0.05-0.12 m high.	Fl. pink, Oct to Dec.	Sandy clay, clay. Seasonal wetlands.	P4	N	Soil type not suitable
Stylidium periscelianthum	Pantaloon Triggerplant	Bulb-forming perennial, herb, 0.07-0.15 m high.	Fl. pink, Sep to Oct.	Loamy clay, moist soils pockets. Wet flats, low granitic hills.	P3	N	Soil type not suitable
Styphelia filifolia		No information available			P3		Unable to assess
Stylidium paludicola		Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin entire,	Oct to Dec	Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland	P3	N	Soil type may be suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink					
 *Synaphea* sp. Fairbridge Farm (D. Papenfus 696) Photos: R. Butcher		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.	T, EN	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
		Rhizomatous, tufted perennial, grass-like or herb (sedge), to 1 m high. Fl. brown	Nov to Dec		T		Unable to assess
	Cinnamon Sun Orchid	Tuberous, perennial, herb, to 0.8 m high. Fl. Yellow.	Nov to Dec or Jan.	Granite.	T	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
	Star Orchid	Tuberous, perennial, herb, 0.15-0.25 m high. Fl. yellow & brown.	Oct to Nov	Sand, gravel, lateritic loam.	T	N	Soil type not suitable
		Rhizomatous, leafless perennial, herb, to 0.4 m high.	Fl. purple, Oct to Dec.	White or grey sand, lateritic gravel, laterite.	P3	N	Soil type not suitable
Thysanotus sp. Badgingarra		Perennial, herb (with tuberous roots), ca 0.35 m high. Fl. blue	Dec	Grey sand with lateritic gravel	P2	N	Soil type not suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	cons code	Likelihood (Y/N)	Comment
Tripterococcus sp. Brachylobus		No information available			P4		Unable to assess
		Erect shrub, 0.2-0.75 m high. Fl. pink	May or Nov to Dec or Jan	Sand, sandy clay. Winter-wet depressions	P4	Y	Soil type may be suitable

Appendix 4: Conservation Codes

Conservation codes are used to describe the status of species and ecological communities that are no longer common and under threat of extinction. Species and communities can be listed under state legislation and/or commonwealth legislation.

Western Australia

Conservation Code	Name	Description
T	Threatened	Flora and fauna listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).
EX	Extinct species	Flora or fauna 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).
EW	Extinct in the wild species	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).
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).
CD	Species of special conservation interest (conservation dependent fauna)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).
Schedule 1 species that are ranked by the DBCA according to their level of threat using IUCN Red List criteria		
CR	Critically endangered	Species facing an extremely high risk of extinction in the wild in the immediate future
EN	Endangered	Species facing a very high risk of extinction in the wild in the near future

Conservation Code	Name	Description
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
Taxa that have not been adequately surveyed for listing under Schedule 1 or 2 of the Wildlife Protection Act are added to the Priority Lists under priorities 1, 2 or 3, according to the priority for further survey and evaluation of their conservation status.		
1	Priority One	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
2	Priority Two	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, 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.
3	Priority Three	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.
4	Priority Four	(a) Rare. Species 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 species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Conservation Code	Name	Description
		Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

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

Commonwealth

Category	Description
Critically Endangered	Taxa facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Taxa facing a very high risk of extinction in the wild in the near future
Vulnerable	Taxa facing a high risk of extinction in the wild in the medium term

(Source: Department of the Agriculture, Water and the Environment. (2021a)

Appendix 5: Species Matrix

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Poaceae	**Aira cupaniana*		X	X	X	X
Asteraceae	**Arctotheca calendula*				X	X
Asparagaceae	**Asparagus asparagoides*				X	X
Poaceae	**Avena barbata*				X	X
Brassicaceae	**Brassica tournefortii*					X
Poaceae	**Briza maxima*		X	X	X	X
Poaceae	**Briza minor*					X
Poaceae	**Bromus diandrus*				X	
Cyperaceae	**Carex divisa*				X	
Aizoaceae	**Carpobrotus edulis*		X			X
Asteraceae	**Cirsium vulgare*					X
Asteraceae	**Cotula turbinata*					X
Crassulaceae	**Crassula alata*		X	X		X
Crassulaceae	**Crassula glomerata*					X
Orchidaceae	**Disa bracteata*				X	X
Scrophulariaceae	**Dischisma capitatum*				X	
Boraginaceae	**Echium plantagineum*					X
Poaceae	**Ehrharta calycina*	X	X	X	X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Poaceae	**Ehrharta erecta*	X				
Poaceae	**Ehrharta longiflora*				X	X
Asteraceae	**Erigeron sumatrensis*					X
Geraniaceae	**Erodium botrys*					X
Euphorbiaceae	**Euphorbia peplus*					X
Euphorbiaceae	**Euphorbia terracina*				X	X
Iridaceae	**Freesia alba* x *leichtlinii*				X	X
Papaveraceae	**Fumaria capreolata*		X		X	X
Rubiaceae	**Galium aparine*		X			X
Rubiaceae	**Galium murale*				X	X
Geraniaceae	**Geranium molle*					X
Iridaceae	**Gladiolus caryophyllaceus*	X	X	X	X	X
Iridaceae	**Gladiolus undulatus*				X	
Asteraceae	**Hypochaeris glabra*	X	X	X	X	X
Asteraceae	**Hypochaeris radicata*		X		X	X
Poaceae	**Lagurus ovatus*			X		
Asteraceae	**Leontodon rhagadioloides*					X
Poaceae	**Lolium rigidum*				X	
Fabaceae	**Lotus angustissimus*					X
Primulaceae	**Lysimachia arvensis*		X		X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Fabaceae	**Medicago polymorpha*					X
Oleaceae	**Olea europaea*	X			X	X
Oxalidaceae	**Oxalis pes-caprae*				X	X
Geraniaceae	**Pelargonium capitatum*		X			X
Caryophyllaceae	**Petrorhagia dubia*			X		X
Poaceae	**Poa annua*					X
Brassicaceae	**Raphanus raphanistrum*				X	
Iridaceae	**Romulea rosea*		X		X	X
Anacardiaceae	**Schinus terebinthifolia*				X	
Caryophyllaceae	**Silene gallica*				X	X
Solanaceae	**Solanum nigrum*				X	X
Asteraceae	**Sonchus oleraceus*	X	X	X	X	X
Lamiaceae	**Stachys arvensis*					X
Caryophyllaceae	**Stellaria media*				X	X
Fabaceae	**Trifolium campestre*					X
Asteraceae	**Urospermum picroides*		X		X	X
Asteraceae	**Ursinia anthemoides* subsp. *anthemoides*	X	X	X	X	X
Fabaceae	**Vicia sativa*				X	X
Poaceae	**Vulpia myuros*					X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Campanulaceae	**Wahlenbergia capensis*		X		X	X
Arecaceae	**Washingtonia filifera*				X	
Iridaceae	**Watsonia meriana*				X	
Araceae	**Zantedeschia aethiopica*					X
Fabaceae	*Acacia applanata*	X	X		X	
Fabaceae	*Acacia huegelii*				X	
Fabaceae	*Acacia pulchella*	X	X		X	X
Fabaceae	*Acacia saligna*				X	X
Proteaceae	*Adenanthos cygnorum* subsp. *cygnorum*	X			X	X
Proteaceae	*Adenanthos obovatus*		X	X		X
Restionaceae	*Alexgeorgea nitens*				X	
Casuarinaceae	*Allocasuarina fraseriana*	X		X	X	X
Poaceae	*Amphipogon turbinatus*	X			X	X
Haemodoraceae	*Anigozanthos manglesii*	X				
Hemerocallidaceae	*Arnocrinum preissii*	X			X	
Myrtaceae	*Astartea affinis*				X	
Myrtaceae	*Astartea scoparia*		X			X
Asparagaceae	*Asteridea pulverulenta*				X	
Asteraceae	*Asteridea pulverulenta*				X	

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Ericaceae	*Astroloma xerophyllum*				X	
Poaceae	*Austrostipa compressa*					X
Poaceae	*Austrostipa* sp.				X	
Proteaceae	*Banksia attenuata*	X	X	X	X	X
Proteaceae	*Banksia ilicifolia*	X	X			X
Proteaceae	*Banksia littoralis*					X
Proteaceae	*Banksia menziesii*	X	X		X	X
Myrtaceae	*Beaufortia elegans*		X			X
Rutaceae	*Boronia crenulata* subsp. *viminea*			X		
Rutaceae	*Boronia dichotoma*		X			
Rutaceae	*Boronia ramosa*	X	X		X	
Fabaceae	*Bossiaea eriocarpa*	X	X	X	X	X
Fabaceae	*Bossiaea ornata*				X	
Colchicaceae	*Burchardia congesta*	X	X		X	X
Hemerocallidaceae	*Caesia occidentalis*	X			X	
Orchidaceae	*Caladenia arenicola*			X		
Orchidaceae	*Caladenia flava* subsp. *flava*	X	X	X	X	X
Orchidaceae	*Caladenia huegelii*		X			
Orchidaceae	*Caladenia latifolia*				X	
Montiaceae	*Calandrinia corrigioloides*			X		X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Montiaceae	*Calandrinia granulifera*				X	X
Myrtaceae	*Calytrix flavescens*		X			X
Lauraceae	*Cassytha glabella*					X
Lauraceae	*Cassytha racemosa*		X			X
Centrolepidaceae	*Centrolepis drummondiana*					X
Cyperaceae	*Chaetospora curvifolia*	X	X			X
Xanthorrhoeaceae	*Chamaescilla corymbosa*			X	X	X
Proteaceae	*Conospermum triplinervium*				X	
Ericaceae	*Conostephium pendulum*	X	X	X	X	
Haemodoraceae	*Conostylis aculeata* subsp. *cygnorum*				X	X
Haemodoraceae	*Conostylis juncea*	X	X		X	X
Myrtaceae	*Corymbia calophylla*				X	X
Hemerocallidaceae	*Corynotheca micrantha*				X	
Cyperaceae	*Cyathochaeta avenacea*				X	
Goodeniaceae	*Dampiera linearis*	X	X		X	X
Dasypogonaceae	*Dasypogon bromeliifolius*	X	X	X	X	X
Apiaceae	*Daucus glochidiatus*				X	
Fabaceae	*Daviesia decurrens*	X		X		
Fabaceae	*Daviesia divaricata*				X	

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Fabaceae	*Daviesia physodes*				X	
Restionaceae	*Desmocladus fasciculatus*	X			X	
Restionaceae	*Desmocladus flexuosus*		X		X	X
Hemerocallidaceae	*Dianella revoluta*				X	
Orchidaceae	*Diuris corymbosa*	X	X		X	
Orchidaceae	*Diuris* sp.				X	
Droseraceae	*Drosera erythrorhiza*	X		X	X	
Droseraceae	*Drosera glanduligera*			X	X	
Droseraceae	*Drosera menziesii*		X			
Droseraceae	*Drosera pallida*	X	X			
Droseraceae	*Drosera sp.*				X	
Droseraceae	*Drosera stolonifera*				X	
Droseraceae	*Drosera zonaria*		X			
Myrtaceae	*Eremaea pauciflora* var. *pauciflora*				X	
Orchidaceae	*Eriochilus* sp.	X			X	
Orchidaceae	*Eriochilus dilatatus*	X				
Myrtaceae	*Eucalyptus marginata* subsp. *marginata*	X	X		X	
Myrtaceae	*Eucalyptus rudis* subsp. *rudis*				X	
Myrtaceae	*Eucalyptus todtiana*	X		X	X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Fabaceae	*Euchilopsis linearis*			X		X
Fabaceae	*Gompholobium tomentosum*	X	X	X	X	X
Haemodoraceae	*Haemodorum spicatum*				X	
Proteaceae	*Hakea prostrata*				X	
Fabaceae	*Hardenbergia comptoniana*				X	
Dilleniaceae	*Hibbertia hypericoides* subsp. *hypericoides*	X			X	X
Dilleniaceae	*Hibbertia racemosa*	X	X	X	X	X
Dilleniaceae	*Hibbertia subvaginata*		X			
Apiaceae	*Homalosciadium homalocarpum*					X
Fabaceae	*Hovea trisperma*	X	X	X	X	X
Myrtaceae	*Hypocalymma angustifolium*		X	X		X
Restionaceae	*Hypolaena exsulca*	X	X	X	X	X
Cyperaceae	*Isolepis cernua*		X		X	
Cyperaceae	*Isolepis marginata*			X	X	X
Cyperaceae	*Isotropis cuneifolia*					X
Fabaceae	*Jacksonia floribunda*				X	
Fabaceae	*Jacksonia furcellata*	X	X	X	X	
Fabaceae	*Jacksonia sternbergiana*				X	
Fabaceae	*Kennedia prostrata*				X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Myrtaceae	*Kunzea glabrescens*	X	X	X		X
Asteraceae	*Lagenophora huegelii*				X	X
Asparagaceae	*Laxmannia sessiliflora*	X	X		X	X
Asparagaceae	*Laxmannia squarrosa*		X		X	
Goodeniaceae	*Lechenaultia floribunda*	X				
Cyperaceae	*Lepidosperma longitudinale*				X	X
Cyperaceae	*Lepidosperma pubisquameum*	X				
Cyperaceae	*Lepidosperma* sp.				X	
Cyperaceae	*Lepidosperma squamatum*		X		X	
Cyperaceae	*Lepidosperma oldhamii*				X	
Cyperaceae	*Lepidosperma scabrum*				X	
Orchidaceae	*Leporella fimbriata*					X
Ericaceae	*Leucopogon conostephioides*		X	X		X
Ericaceae	*Leucopogon polymorphus*		X			
Asparagaceae	*Lomandra caespitosa*	X	X	X	X	X
Asparagaceae	*Lomandra hermaphrodita*	X	X	X	X	X
Asparagaceae	*Lomandra nigricans*	X	X		X	
Asparagaceae	*Lomandra preissii*	X	X		X	
Asparagaceae	*Lomandra sericea*			X		
Asparagaceae	*Lomandra suaveolens*				X	

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Restionaceae	*Loxocarya cinerea*			X	X	
Anarthriaceae	*Lyginia barbata*	X	X		X	X
Anarthriaceae	*Lyginia imberbis*	X	X	X	X	X
Zamiaceae	*Macrozamia fraseri*		X			
Zamiaceae	*Macrozamia riedlei*				X	X
Myrtaceae	*Melaleuca preissiana*		X	X	X	X
Myrtaceae	*Melaleuca rhaphiophylla*				X	
Myrtaceae	*Melaleuca seriata*					X
Myrtaceae	*Melaleuca sp.*				X	
Myrtaceae	*Melaleuca thymoides*	X	X			X
Myrtaceae	*Melaleuca trichophylla*			X		X
Cyperaceae	*Mesomelaena pseudostygia*				X	
Cyperaceae	*Mesomelaena tetragona*	X			X	
Orchidaceae	*Microtis media* subsp. *media*	X	X		X	X
Asteraceae	*Millotia myosotidifolia*		X	X		X
Loranthaceae	*Nuytsia floribunda*		X	X		X
Iridaceae	*Patersonia occidentalis*	X	X	X	X	X
Myrtaceae	*Pericalymma ellipticum*		X	X		X
Proteaceae	*Persoonia saccata*	X				
Proteaceae	*Petrophile linearis*	X	X		X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Rutaceae	*Philotheca spicata*	X	X		X	
Haemodoraceae	*Phlebocarya ciliata*	X	X	X	X	X
Loganiaceae	*Phyllangium paradoxum*		X	X		X
Apiaceae	*Platysace filiformis*	X				X
Elaeocarpaceae	*Platytheca galioides*			X		
Asteraceae	*Podotheca angustifolia*				X	X
Asteraceae	*Podotheca gnaphalioides*				X	
Phyllanthaceae	*Poranthera microphylla*				X	X
Phyllanthaceae	*Poranthera moorokatta*			X		
Orchidaceae	*Pterostylis recurva*	X	X		X	
Orchidaceae	*Pterostylis vittata*				X	X
Orchidaceae	*Pterostylis sanguinea*				X	
Orchidaceae	*Pyrorchis nigricans*	X			X	
Asteraceae	*Quinetia urvillei*		X	X		X
Myrtaceae	*Regelia ciliata*	X	X			X
Myrtaceae	*Regelia inops*		X			X
Asteraceae	*Rhodanthe citrina*					X
Cyperaceae	*Schoenus efoliatus*		X	X		X
Cyperaceae	*Schoenus pedicellatus*	X	X	X		X
Myrtaceae	*Scholtzia involucrata*		X	X	X	X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Asteraceae	*Senecio condylus*		X			X
Asteraceae	*Siloxerus humifusus*					X
Asparagaceae	*Sowerbaea laxiflora*				X	
Proteaceae	*Stirlingia latifolia*	X			X	X
Stylidiaceae	*Stylidium amoenum*		X	X		X
Stylidiaceae	*Stylidium neurophyllum*				X	
Stylidiaceae	*Stylidium repens*	X	X	X	X	X
Stylidiaceae	*Stylidium schoenoides*			X		X
Ericaceae	*Styphelia xerophylla*				X	
Asteraceae	*Styphelia pallida*				X	
Ericaceae	*Styphelia propinqua*	X				
Proteaceae	*Synaphea spinulosa* subsp. *spinulosa*				X	
Cyperaceae	*Tetraria octandra*				X	
Orchidaceae	*Thelymitra crinita*			X		X
Orchidaceae	*Thelymitra macrophylla*		X			
Orchidaceae	*Thelymitra* sp.				X	
Asparagaceae	*Thysanotus manglesianus*				X	
Asparagaceae	*Thysanotus multiflorus*	X	X			
Asparagaceae	*Thysanotus patersonii*	X	X			X

Family	Taxon	Arrowgrass Bushland	Caladenia Wetland Reserve	Clifton Buffer and Reserve	QPROS	Ranford Bushland
Asparagaceae	*Thysanotus sparteus*	X	X		X	
Asparagaceae	*Thysanotus thyrsoideus*	X				X
Araliaceae	*Trachymene pilosa*	X	X	X	X	X
Hemerocallidaceae	*Tricoryne elatior*	X	X	X	X	X
Campanulaceae	*Wahlenbergia preissii*		X			X
Asteraceae	*Waitzia suaveolens*		X	X		X
Xanthorrhoeaceae	*Xanthorrhoea brunonis*	X	X	X	X	X
Xanthorrhoeaceae	*Xanthorrhoea preissii*	X	X	X	X	X
Apiaceae	*Xanthosia huegelii*	X			X	

Appendix 6: Quadrat Data

Arrowgrass Reserve

Quadrat No.: AG01
Survey Date: 14/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Arrowgrass Reserve
Topography: Plain
Aspect: North
Slope: 0%
Soil: Grey sand
Gravel 0%
Rock: 0%
Leaf Litter: 20%
Bare Ground: 1%
Drainage: Well
Condition: Very Good

Vegetation Type: *Banksia menziesii* and *Allocasuarina fraseriana* Woodland
Notes: Dieback

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	4	0.1	0.5
Adenanthos cygnorum	Shrub	4	4	3
Allocasuarina fraseriana	Tree	9	12	30
Amphipogon turbinatus	Perennial Grass	1	0.1	0.1
Anigozanthos manglesii	Perennial Herb	7	0.5	2
Arnocrinum preissii	Perennial Herb	1	0.3	0.1
Banksia menziesii	Tree	1a 2d	6	6
Boronia ramosa	Shrub	5	0.3	1
Bossiaea eriocarpa	Shrub	7	0.5	1
Burchardia congesta	Perennial Herb	10	0.5	0.5
Caesia occidentalis	Perennial Herb	8	0.5	0.5
Dampiera linearis	Perennial Herb	2	0.1	0.1
Dasypogon bromeliifolius	Perennial Herb	13	0.5	6
Desmocladus fasciculatus	Rush	1	0.1	0.1
Diuris corymbosa	Perennial Herb	4	0.3	0.3
Drosera pallida	Perennial Herb	3	0.5	0.2
Drosera erythrorhiza	Perennial Herb	60	0.1	4
Eriochilus sp.	Perennial Herb	8	0.1	0.1
Gompholobium tomentosum	Shrub	14	1	6
Hibbertia hypericoides subsp. *hypericoides*	Shrub	2	0.1	0.2
Hibbertia racemosa	Shrub	2	0.3	0.5
Kunzea glabrescens	Shrub	1	4	5
Laxmannia sessiliflora	Perennial Herb	2	0.1	0.1

Native Species	Landform	Count	Height (m)	Cover (%)
Lomandra caespitosa	Perennial Herb	4	0.1	0.1
Lomandra hermaphrodita	Perennial Herb	6	0.1	0.1
Lomandra nigricans	Perennial Herb	3	0.1	0.1
Lomandra preissii	Perennial Herb	3	0.1	0.1
Mesomelaena tetragona	Sedge	7	0.5	3
Microtis media	Perennial Herb	4	0.3	0.1
Patersonia occidentalis	Perennial Herb	15	0.5	10
Pyrorchis nigricans	Perennial Herb	2	0.1	0.1
Stirlingia latifolia	Shrub	14	0.5	3
Thysanotus multiflorus	Perennial Herb	2	0.1	0.1
Thysanotus thyrsoideus	Perennial Herb	4	0.1	0.1
Thysanotus sparteus	Perennial Herb	3	0.3	0.1
Trachymene pilosa	Annual Herb	20	0.1	0.1
Tricoryne elatior	Perennial Herb	3	0.1	0.1
Xanthorrhoea brunonis	Shrub	4	1	1.5
Xanthorrhoea preissii	Shrub	6	1.5	5
Xanthosia huegelii	Perennial Herb	1	0.1	0.1
Weed Species	Landform	Count	Height (m)	Cover (%)
**Ehrharta calycina*	Perennial Grass	20	1	0.5
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	28	0.5	0.5
**Hypochaeris glabra*	Annual Herb	20	0.1	0.5
**Olea europaea*	Tree	1	0.5	0.1
**Sonchus oleraceus*	Annual Herb	1	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	60	0.1	3

Quadrat No.: AG02
Survey Date: 14/09/2020
Personnel: SH
Latitude:
Longitude:
Environmentally Sensitive
Location: Arrowgrass Reserve
Topography: Plain
Aspect: North
Slope: 0%
Soil: Grey sand
Gravel 0%
Rock: 0%
Leaf Litter: 7%
Bare Ground: 100%
Drainage: Well
Condition: Very Good

Vegetation Type: *Eucalyptus marginata* and *Banksia menziesii* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	1	0.1	0.1
Acacia pulchella	Shrub	1	1	0.5
Banksia ilicifolia	Tree	1	6	1
Banksia menziesii	Tree	2d,2a	5	5
Bossiaea eriocarpa	Shrub	5	0.3	0.5
Caesia occidentalis	Perennial Herb	1	0.3	0.1
Caladenia flava	Perennial Herb	7	0.1	0.1
Chaetospora curvifolia	Sedge	4	0.3	1.5
Conostylis juncea	Perennial Herb	2	0.1	0.1
Dasypogon bromeliifolius	Perennial Herb	26	0.3	8
Daviesia decurrens	Shrub	1	0.3	0.5
Drosera erythrorhiza	Perennial Herb	50	0.1	4
Eriochilus dilatatus	Perennial Herb	2	0.1	0.1
Eucalyptus marginata	Tree	1	7	7
Gompholobium tomentosum	Shrub	10	0.5	5
Hibbertia racemosa	Shrub	5	0.3	1
Jacksonia furcellata	Shrub	4	1	1
Lechenaultia floribunda	Shrub	5	0.3	1
Lepidosperma pubisquameum	Sedge	1	0.3	0.1
Lomandra caespitosa	Perennial Herb	3	0.1	0.1
Lomandra hermaphrodita	Perennial Herb	3	0.1	0.1
Lyginia imberbis	Rush	4	0.5	3
Melaleuca thymoides	Shrub	2	1.5	1
Patersonia occidentalis	Perennial Herb	10	0.3	4
Phlebocarya ciliata	Perennial Herb	12	0.5	4

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Pterostylis sanguinea	Perennial Herb	10	0.1	0.1
Regelia ciliata	Shrub	3d 1a	2	1.5
Styphelia propinqua	Shrub	10	0.5	5
Thysanotus patersonii	Perennial Herb	1	0.1	0.1
Trachymene pilosa	Annual Herb	40	0.1	3
Xanthorrhoea brunonis	Shrub	10	1	3
Xanthorrhoea preissii	Shrub	8	1.5	7.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	10	0.3	0.5
**Gladiolus caryophyllaceus*	Perennial Herb / Bulb	5	0.5	0.1
**Hypochaeris glabra*	Annual Herb	40	0.1	2
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	30	0.1	1

Quadrat No.: AG03
Survey Date: 14/09/2020
Personnel: SH
Latitude:
Longitude:
Environmentally Sensitive
Location: Arrowgrass Reserve
Topography: Plain
Aspect: North
Slope: 0%
Soil: Grey Sand
Gravel 0%
Rock: 0%
Leaf Litter: 6%
Bare Ground: 1%
Drainage: Well
Condition: Very Good

Vegetation Type: *Banksia attenuata* and *Eucalyptus todtiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	1	1.5	0.1
Adenanthos cygnorum	Shrub	1	3	0.1
Allocasuarina fraseriana	Tree	3	4	15
Banksia attenuata	Tree	1a, 4d	2	15
Boronia ramosa	Shrub	2	0.1	1.5
Bossiaea eriocarpa	Shrub	4	0.3	0.5
Burchardia congesta	Perennial Herb	6	0.3	8
Caladenia flava	Perennial Herb	40	0.1	2
Chaetospora curvifolia	Sedge	3	0.2	0.5
Conostephium pendulum	Shrub	1	0.3	0.5
Conostylis juncea	Perennial Herb	5	0.1	0.1
Dampiera linearis	Perennial Herb	10	0.1	0.5
Dasypogon bromeliifolius	Perennial Herb	20	0.5	0.5
Drosera pallida	Perennial Herb	1	0.1	0.1
Drosera erythrorhiza	Perennial Herb	50	0.1	0.5
Eriochilus sp.	Perennial Herb	3	0.1	1
Eucalyptus todtiana	Tree	1	8	30
Gompholobium tomentosum	Shrub	4	0.5	0.1
Hibbertia racemosa	Shrub	2	0.1	4
Hovea trisperma	Shrub	4	0.3	0.1
Hypolaena exsulca	Rush	1	0.1	8
Jacksonia furcellata	Shrub	1	1	0.5
Lomandra caespitosa	Perennial Herb	1	0.3	0.5
Lomandra preissii	Perennial Herb	3	0.3	0.5
Lyginia barbata	Rush	1	0.5	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Melaleuca thymoides	Shrub	1	0.1	0.5
Patersonia occidentalis	Perennial Herb	3	0.5	0.1
Persoonia saccata	Shrub	1	0.5	0.5
Petrophile linearis	Shrub	3	0.5	1
Philotheca spicata	Shrub	1	1	0.1
Phlebocarya ciliata	Perennial Herb	5	0.5	0.5
Platysace filiformis	Perennial Herb	3	0.5	0.1
Pterostylis sanguinea	Perennial Herb	2	0.1	0.1
Schoenus pedicellatus	Sedge	11	0.5	0.5
Stirlingia latifolia	Shrub	5	1.5	40
Stylidium repens	Perennial Herb	1	0.1	0.5
Styphelia propinqua	Shrub	3	0.5	0.1
Thysanotus multiflorus	Perennial Herb	1	0.1	2
Trachymene pilosa	Annual Herb	50	0.1	3
Xanthorrhoea brunonis	Shrub	2	1	0.1
Xanthorrhoea preissii	Shrub	7	1.5	2
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	1	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	9	0.5	0.1
**Hypochaeris glabra*	Annual Herb	60	0.1	15
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	60	0.1	15

Caladenia Wetland Reserve

Quadrat No.: CA01
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude: Environmentally Sensitive
Longitude: Environmentally Sensitive
Location: Caladenia Wetland Reserve
Topography: Mid slope
Aspect: Southeast
Slope: 0-3%
Soil: Grey sand
Gravel 0%
Rock: 0%
Leaf Litter: 2%
Bare Ground: 4%
Drainage: Well
Condition: Excellent

Vegetation Type: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	2a,1d	1	0.5
Banksia attenuata	Tree	1	10	2
Banksia ilicifolia	Tree	2	4	5
Banksia menziesii	Tree	0	8	2
Beaufortia elegans	Shrub	1d, 6a	1.5	6
Boronia ramosa	Shrub	3	0.3	0.5
Bossiaea eriocarpa	Shrub	10	0.3	1.5
Burchardia congesta	Perennial Herb	50	0.5	0.1
Caladenia flava subsp. *flava*	Perennial Herb	12	0.1	0.1
Calytrix flavescens	Shrub	8	0.3	2
Chaetospora curvifolia	Sedge	2	0.2	0.1
Conostephium pendulum	Shrub	2	0.2	0.1
Desmocladus flexuosus	Rush	13	0.2	10
Drosera pallida	Perennial Herb	10	0.1	0.1
Drosera zonaria	Perennial Herb	12	0.1	0.1
Gompholobium tomentosum	Shrub	3	0.3	0.1
Hibbertia subvaginata	Shrub	3	0.3	0.2
Jacksonia furcellata	Shrub	1	0.5	0.5
Leucopogon conostephioides	Shrub	4	0.3	1
Lomandra caespitosa	Perennial Herb	4	0.2	0.1
Lomandra hermaphrodita	Perennial Herb	1	0.2	0.1
Lomandra nigricans	Perennial Herb	3	0.3	0.1

Native Species	Landform	Count	Height (m)	Cover (%)
Lyginia barbata	Rush	103	0.5	40
Macrozamia fraseri	Shrub	1	0.3	0.1
Melaleuca thymoides	Shrub	2	1.5	2
Nuytsia floribunda	Tree	1	1	1
Patersonia occidentalis	Perennial Herb	1	0.3	0.3
Petrophile linearis	Shrub	8	0.5	2
Scholtzia involucrata	Shrub	1	0.5	0.5
Senecio condylus	Annual Herb	2	0.1	0.1
Stylidium repens	Perennial Herb	2	0.1	0.1
Thysanotus patersonii	Perennial Herb	6	0.4	0.1
Trachymene pilosa	Annual Herb	20	0.1	0.1
Tricoryne elatior	Perennial Herb	1	0.1	0.1
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Crassula alata*	Annual Herb	20	0.1	0.1
**Ehrharta calycina*	Perennial Herb	12	0.3	0.5
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	90	1	2
**Hypochaeris radicata*	Annual Herb	120	0.1	8
**Pelargonium capitatum*	Perennial Herb	1	0.4	0.1
**Sonchus oleraceus*	Annual Herb	20	0.2	0.5
**Urospermum picroides*	Annual Herb	70	0.2	5
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	150	0.3	30
**Wahlenbergia capensis*	Annual Herb	1	0.1	0.1

Quadrat No.: CA02
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude:
Longitude: Environmentally Sensitive
Location: Caladenia Wetland Reserve
Topography: Mid slope
Aspect: Northeast
Slope: 0-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 0%
Bare Ground: 3%
Drainage: Well
Condition: Excellent

Vegetation Type: *Melaleuca preissiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	1	1.5	0.5
Adenanthos obovatus	Shrub	9	1	3
Astartea scoparia	Shrub	6	1	1
Caladenia flava subsp. *flava*	Perennial Herb	2	0.1	0.1
Cassytha racemosa	Perennial Herb	1	0.5	0.1
Dampiera linearis	Perennial Herb	8	0.2	0.2
Dasypogon bromeliifolius	Perennial Herb	16	0.2	10
Diuris corymbosa	Perennial Herb	62	0.3	3
Hypocalymma angustifolium	Shrub	20	1	20
Hypolaena exsulca	Rush	2	0.3	0.5
Isolepis cernua	Sedge	20	0.1	0.2
Laxmannia sessiliflora	Perennial Herb	1	0.1	0.5
Leucopogon conostephioides	Shrub	1	0.3	0.5
Lyginia imberbis	Rush	1	0.3	0.1
Melaleuca preissiana	Tree	0	6	10
Pericalymma ellipticum	Shrub	1	1.5	1
Phlebocarya ciliata	Perennial Herb	52	0.5	25
Regelia inops	Shrub	15	1.5	50
Schoenus efoliatus	Sedge	12a, 1d	0.3	2
Senecio condylus	Annual Herb	1	0.1	0.1
Thysanotus patersonii	Perennial Herb	5	0.5	0.1
Trachymene pilosa	Annual Herb	80	0.1	1
Waitzia suaveolens	Annual Herb	20	0.1	0.1

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Crassula alata*	Annual Herb	23	0.1	0.1
**Ehrharta calycina*	Perennial Grass	13	0.3	0.5
**Galium aparine*	Annual Herb	100	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	25	0.5	0.5
**Hypochaeris radicata*	Annual Herb	60	0.1	2
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	80	0.3	5

Quadrat No.: CA03
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude: Environmentally Sensitive
Longitude:
Location: Caladenia Wetland Reserve
Topography: Mid slope
Aspect: South
Slope: 0-3%
Soil: Brown Loamy Sand
Rock: 0%
Leaf Litter: 10%
Bare Ground: 6%
Drainage: Well
Condition: Excellent

Vegetation Type: *Melaleuca preissiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	5	0.5	0.5
Astartea scoparia	Shrub	16	0.5	5
Boronia dichotoma	Shrub	1	0.5	0.1
Caladenia flava subsp. *flava*	Perennial Herb	15	0.2	0.2
Cassytha racemosa	Perennial Herb	5	1	1
Conostephium pendulum	Shrub	2	0.3	0.1
Dasypogon bromeliifolius	Perennial Herb	5	0.3	2
Diuris corymbosa	Perennial Herb	10	0.4	0.5
Eucalyptus marginata subsp. *marginata*	Tree	1	0.1	0.1
Gompholobium tomentosum	Shrub	1	0.3	0.1
Hibbertia racemosa	Shrub	7	0.2	2
Hypocalymma angustifolium	Shrub	5	0.5	2
Kunzea glabrescens	Shrub	13	0.5	2
Laxmannia sessiliflora	Perennial Herb	2	0.1	0.1
Laxmannia squarrosa	Perennial Herb	1	0.1	0.1
Leucopogon conostephioides	Shrub	5	0.3	1
Lomandra caespitosa	Perennial Herb	5	0.5	0.5
Lomandra hermaphrodita	Perennial Herb	1	0.3	0.1
Lyginia imberbis	Rush	4	0.3	0.5
Melaleuca preissiana	Tree	3	10	50
Melaleuca thymoides	Shrub	1	0.3	0.1
Millotia myosotidifolia	Annual Herb	2	0.1	0.1
Phlebocarya ciliata	Perennial herb	1	0.5	0.5
Phyllangium paradoxum	Annual Herb	20	0.1	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Pterostylis recurva	Perennial Herb	4	0.2	0.1
Quinetia urvillei	Annual Herb	15	0.1	0.1
Regelia ciliata	Shrub	21	1	35
Senecio condylus	Annual Herb	5	0.3	0.5
Stylidium repens	Perennial Herb	8	0.1	1
Thysanotus multiflorus	Perennial Herb	3	0.2	0.5
Trachymene pilosa	Annual Herb	35	0.1	2
Wahlenbergia preissii	Annual Herb	1	0.1	0.1
Xanthorrhoea brunonis	Shrub	1	1.5	0.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Aira cupaniana*	Annual Grass	6	0.1	0.1
**Briza maxima*	Annual Grass	2	0.1	0.1
**Carpobrotus edulis*	Perennial Herb	1	0.3	2
**Ehrharta calycina*	Perennial Grass	10	0.3	0.5
**Fumaria capreolata*	Annual Herb	1	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	22	0.5	0.5
**Hypochaeris glabra*	Annual Herb	200	0.1	20
**Lysimachia arvensis*	Annual Herb	10	0.2	0.1
**Sonchus oleraceus*	Annual Herb	3	0.1	0.1
**Ursinia anthemoides* subsp. a*nthemoides*	Annual Herb	60	0.2	5

Quadrat No.: CA04
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude: Environmentally Sensitive
Longitude:
Location: Caladenia Wetland Reserve
Topography: Flat
Aspect: South
Slope: 0%
Soil: Brown Sand
Rock: 0%
Leaf Litter: 3%
Bare Ground: 3%
Drainage: Well
Condition: Very Good

Vegetation Type: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	3a, 2d	0.5	0.1
Banksia attenuata	Tree	1	8	7
Banksia menziesii	Tree	2a,1d	8	25
Boronia ramosa	Shrub	3	0.3	0.5
Bossiaea eriocarpa	Shrub	20	0.3	3
Burchardia congesta	Perennial Herb	15	0.3	0.1
Caladenia flava subsp. *flava*	Perennial Herb	20	0.1	0.5
Caladenia huegelii (T)	Perennial Herb	3	0.5	0.1
Calytrix flavescens	Shrub	26	0.3	15
Chaetospora curvifolia	Sedge	2	0.2	0.1
Conostephium pendulum	Shrub	2	0.3	0.2
Conostylis juncea	Perennial Herb	1	0.1	0.1
Diuris corymbosa	Perennial Herb	4	0.4	0.1
Drosera menziesii	Perennial Herb	1	0.1	0.1
Gompholobium tomentosum	Shrub	1	0.5	0.5
Hibbertia racemosa	Shrub	3	0.2	0.1
Hypolaena exsulca	Rush	1	0.1	0.1
Jacksonia furcellata	Shrub	1	1.5	1
Leucopogon conostephioides	Shrub	2	0.3	0.5
Lomandra caespitosa	Perennial Herb	3	0.3	0.5
Lomandra hermaphrodita	Perennial Herb	4	0.3	0.5
Lomandra nigricans	Perennial Herb	2	0.3	0.1
Lomandra preissii	Perennial Herb	3	0.3	0.5
Lyginia barbata	Rush	34	0.3	60
Patersonia occidentalis	Perennial Herb	9	0.4	2

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Scholtzia involucrata	Shrub	2	0.3	0.2
Stylidium repens	Perennial Herb	1	0.1	0.1
Thysanotus multiflorus	Perennial Herb	1	0.3	0.5
Trachymene pilosa	Annual Herb	20	0.1	0.2
Xanthorrhoea brunonis	Shrub	1	0.5	0.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Grass	10	0.2	0.2
**Ehrharta calycina*	Perennial Grass	35	0.5	2
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	55	0.5	1
**Hypochaeris glabra*	Annual Herb	34	0.1	8
**Romulea rosea*	Perennial Herb	10	0.1	0.1
**Sonchus oleraceus*	Annual Herb	15	0.3	0.2
**Urospermum picroides*	Annual Herb	6	0.2	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	120	0.3	8

Quadrat No.: CA05
Survey Date: 18/09/2020
Personnel: SH. KS. LC
Latitude: Environmentally Sensitive
Longitude:
Location: Caladenia Wetland Reserve
Topography: Mid Slope
Aspect: North
Slope: 0-3%
Soil: Brown Sand
Rock: 0%
Leaf Litter: 15%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	1	0.2	0.1
Acacia pulchella	Shrub	2	0.5	0.1
Banksia attenuata	Tree	15	6	50
Banksia ilicifolia	Tree	2a, 1d	5	3
Banksia menziesii	Tree	2	4	5
Bossiaea eriocarpa	Shrub	16	0.3	3
Burchardia congesta	Perennial Herb	17	0.5	0.2
Caladenia flava	Perennial Herb	8	0.4	0.1
Calytrix flavescens	Shrub	2	0.1	0.1
Cassytha racemosa	Perennial Herb	1	0.1	0.1
Chaetospora curvifolia	Sedge	2	0.2	0.1
Conostephium pendulum	Shrub	11	0.5	5
Conostylis juncea	Perennial Herb	3	0.1	1
Dampiera linearis	Perennial Herb	10	0.2	1
Dasypogon bromeliifolius	Perennial Herb	60	0.3	15
Drosera menziesii	Perennial Herb	1	0.3	0.1
Gompholobium tomentosum	Shrub	7	0.5	2
Hibbertia racemosa	Shrub	5	0.4	1
Hovea trisperma	Shrub	12	0.3	1
Lepidosperma squamatum	Sedge	1	0.5	0.1
Leucopogon conostephioides	Shrub	1	0.2	0.1
Leucopogon polymorphus	Shrub	2	0.5	0.5
Lomandra caespitosa	Perennial Herb	8	0.2	0.1
Lomandra hermaphrodita	Perennial Herb	4	0.3	0.1
Lomandra preissii	Perennial Herb	1	0.3	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Lyginia barbata	Rush	10	0.5	5
Lyginia imberbis	Rush	4	0.3	1
Melaleuca thymoides	Shrub	2	1.5	1
Microtis media subsp. *media*	Perennial Herb	5	0.1	0.1
Patersonia occidentalis	Perennial Herb	3	0.5	1.5
Petrophile linearis	Shrub	2	0.3	0.1
Philotheca spicata	Shrub	2	0.5	0.5
Phlebocarya ciliata	Perennial Herb	3	0.3	0.5
Pterostylis recurva	Perennial Herb	7	0.4	0.1
Schoenus pedicellatus	Rush	4	0.3	0.5
Stylidium amoenum	Perennial Herb	1	0.1	0.1
Thelymitra macrophylla	Perennial Herb	1	0.2	0.1
Thysanotus multiflorus	Perennial Herb	1	0.1	0.1
Thysanotus sparteus	Perennial Herb	1	0.2	0.1
Trachymene pilosa	Annual Herb	1	0.1	0.1
Tricoryne elatior	Perennial Herb	2	0.5	0.1
Xanthorrhoea brunonis	Shrub	11	1	3
Xanthorrhoea preissii	Shrub	11	1	10
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	3	0.3	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	4	0.1	0.1

Clifton Buffer and Reserve

Quadrat No.: CB01
Survey Date: 14/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Clifton Buffer
Topography: Mid Slope
Aspect: North
Slope: 0-3%
Soil: Brown Sand
Rock: 0%
Leaf Litter: 15%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: *Melaleuca preissiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Adenanthos obovatus	Shrub	10	1	3
Boronia crenulata subsp. *viminea*	Shrub	3	0.5	0.5
Daviesia decurrens	Shrub	9	0.5	4
Drosera glanduligera	Perennial Herb	10	0.1	0.1
Euchilopsis linearis	Shrub	2	0.3	1.5
Hypocalymma angustifolium	Shrub	25	1	30
Hypolaena exsulca	Rush	3	0.3	0.5
Isolepis marginata	Sedge	6	0.1	0.1
Kunzea glabrescens	Shrub	1	0.1	0.1
Lomandra caespitosa	Perennial Herb	60	0.3	15
Lomandra sericea	Perennial Herb	1	0.1	0.1
Loxocarya cinerea	Rush	1	0.1	0.1
Lyginia imberbis	Rush	4	0.5	0.5
Melaleuca preissiana	Tree	2	2	5
Pericalymma ellipticum	Shrub	7a, 3d	1.5	4
Phlebocarya ciliata	Perennial Herb	27	0.5	20
Phyllangium paradoxum	Annual Herb	10	0.1	0.1
Platytheca galioides	Shrub	1	0.1	0.1
Poranthera moorokatta (P4)	Annual Herb	2	0.1	0.1
Schoenus efoliatus	Sedge	5	0.3	1
Stylidium repens	Perennial Herb	4	0.1	0.1
Waitzia suaveolens	Annual Herb	3	0.1	0.1
Xanthorrhoea brunonis	Shrub	9	1	1
Xanthorrhoea preissii	Shrub	4	1.5	6

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Aira cupaniana*	Annual Grass	15	0.1	0.1
**Crassula alata*	Annual Herb	10	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	10	0.3	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	1	0.1	0.1

Quadrat No.: CB02
Survey Date: 15/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Clifton Buffer
Topography: Mid Slope
Aspect: North
Slope: 0%
Soil: Brown Loamy Sand
Rock: 0%
Leaf Litter: 30%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: *Banksia attenuata* Low Open Forest

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	3	2	0.5
Allocasuarina fraseriana	Tree	1	0.1	0.1
Banksia attenuata	Tree	14a 2d	6	60
Bossiaea eriocarpa	Shrub	3	0.3	0.5
Caladenia arenicola	Perennial Herb	1	0.4	0.1
Caladenia flava	Perennial Herb	7	0.3	0.1
Chamaescilla corymbosa	Perennial Herb	51	0.1	4
Conostephium pendulum	Shrub	1	0.1	0.1
Dasypogon bromeliifolius	Perennial Herb	37	0.5	40
Drosera erythrorhiza	Perennial Herb	7	0.1	0.1
Gompholobium tomentosum	Shrub	2	0.5	0.1
Hardenbergia comptoniana	Shrub		0.3	0.1
Hovea trisperma	Shrub	5	0.3	0.5
Kunzea glabrescens	Shrub	3	3	1
Lomandra hermaphrodita	Perennial Herb	2	0.1	0.1
Lomandra sericea	Perennial Herb	2	0.3	0.1
Phlebocarya ciliata	Perennial Herb	10	0.3	2
Schoenus pedicellatus	Sedge	7	0.3	3
Stylidium amoenum	Perennial Herb	2	0.1	0.1
Stylidium schoenoides	Perennial Herb	1	0.3	0.1
Thelymitra crinita	Perennial Herb	1	0.1	0.1
Trachymene pilosa	Annual herb	1	0.1	0.1
Tricoryne elatior	Perennial Herb	4	0.1	0.5
Xanthorrhoea brunonis	Shrub	9	1	4
Xanthorrhoea preissii	Shrub	3	1.5	2

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Grass	3	0.1	0.1
**Lagurus ovatus*	Annual Grass	8	0.1	0.1
**Sonchus oleraceus*	Annual Herb	8	0.1	0.1

Quadrat No.: CB03
Survey Date: 14/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Clifton Buffer
Topography: Mid Slope
Aspect: Southwest
Slope: 1-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 1%
Bare Ground: 10%
Drainage: Well
Condition: Excellent

Vegetation Type: *Eucalyptus todtiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Adenanthos obovatus	Shrub	2	0.5	0.5
Bossiaea eriocarpa	Shrub	2	0.1	0.1
Caladenia flava subsp. *flava*	Perennial Herb	6	0.1	0.1
Calandrinia corrigioloides	Annual Herb	15	0.1	1
Chamaescilla corymbosa	Perennial Herb	1	0.1	0.1
Eucalyptus todtiana	Tree	2	1.5	2
Gompholobium tomentosum	Shrub	1	0.3	0.1
Hibbertia racemosa	Shrub	4	0.5	1
Jacksonia furcellata	Shrub	1	1.5	0.5
Leucopogon conostephioides	Shrub	2	0.5	0.5
Lomandra sericea	Perennial Herb	9	0.5	2
Lyginia imberbis	Rush	10	0.5	6
Melaleuca trichophylla	Shrub	40	0.5	25
Millotia myosotidifolia	Annual Herb	3	0.1	0.1
Nuytsia floribunda	Tree	1	6	5
Patersonia occidentalis	Perennial Herb	3	0.5	1
Phlebocarya ciliata	Perennial Herb	30	0.3	25
Quinetia urvillei	Annual Herb	5	0.1	0.1
Scholtzia involucrata	Shrub	15	0.5	10
Trachymene pilosa	Annual Herb	3	0.1	0.1
Xanthorrhoea brunonis	Shrub	3	1	1
Xanthorrhoea preissii	Shrub	11	1.5	25
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Herb	10	0.1	0.5
**Ehrharta calycina*	Perennial Grass	4	0.3	0.1

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	3	0.3	0.1
**Hypochaeris glabra*	Annual Herb	60	0.1	10
**Petrorhagia dubia*	Annual Herb	1	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	50	0.1	10

Queens Park Regional Open Space

Quadrat No.: QP01
Survey Date: 17/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Flat
Aspect: Southeast
Slope: 0%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 15%
Bare Ground: 1%
Drainage: Well
Condition: Excellent

Vegetation Type: *Allocasuarina fraseriana, Banksia attenuata and Corymbia calophylla* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	42a 5d	1	20
Alexgeorgea nitens	Rush	10	0.1	5
Allocasuarina fraseriana	Tree	4a 1d	4	3
Asteridea pulverulenta	Annual Herb	50	0.2	1
Banksia attenuata	Tree	1d	4	2
Boronia ramosa	Shrub	2	0.1	0.1
Bossiaea eriocarpa	Shrub	10	0.3	2.5
Burchardia congesta	Perennial Herb	30	0.5	2
Caladenia flava subsp. *flava*	Perennial Herb	7	0.1	0.1
Conostylis aculeata subsp. *cygnorum*	Perennial Herb	2	0.1	0.1
Conostylis juncea	Perennial Herb	4	0.2	0.5
Corymbia calophylla	Tree	4a2d	15	25
Cyathochaeta avenacea	Sedge	2	1	1
Dampiera linearis	Perennial Herb	30	0.1	1
Desmocladus fasciculatus	Rush	10	0.1	2
Diuris corymbosa	Perennial Herb	3	0.4	0.1
Drosera stolonifera	Perennial Herb	40	0.1	1
Gompholobium tomentosum	Shrub	3	0.5	0.5
Hibbertia hypericoides subsp. *hypericoides*	Shrub	10	0.5	4
Hibbertia racemosa	Shrub	3	0.3	1
Hovea trisperma	Shrub	4	0.3	0.1
Hypolaena exsulca	Rush	1	0.2	0.1
Lagenophora huegelii	Annual Herb	8	0.1	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Lepidosperma angustifolium	Sedge	2	0.3	0.5
Lomandra caespitosa	Perennial Herb	4	0.2	0.5
Lomandra preissii	Perennial Herb	3	0.3	1
Lyginia imberbis	Rush	2	0.5	1
Mesomelaena tetragona	Sedge	2	0.5	0.5
Patersonia occidentalis	Perennial Herb	5	0.3	1
Poranthera microphylla	Annual Herb	3	0.1	0.1
Pterostylis vittata	Perennial Herb	1	0.1	0.1
Sowerbaea laxiflora	Perennial Herb	23	0.3	15
Stirlingia latifolia	Shrub	16	0.5	3
Synaphea spinulosa subsp. *spinulosa*	Shrub	1	0.1	0.1
Thysanotus manglesianus	Perennial Herb	5	0.5	0.5
Trachymene pilosa	Annual Herb	10	0.1	0.1
Xanthorrhoea preissii	Shrub	1	1	1.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Grass	20	0.3	0.5
**Ehrharta calycina*	Perennial Grass	9	0.3	0.5
**Freesia alba × leichtlinii*	Perennial Herb/Bulb	20	0.2	0.5
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	21	1	1
**Hypochaeris glabra*	Annual Herb	30	0.1	1
**Lysimachia arvensis*	Annual Herb	20	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	40	0.2	1

Quadrat No.: QP02
Survey Date: 16/09/2020
Personnel: SH
Latitude:
Longitude:
Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: West
Slope: 1-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 20%
Bare Ground: 1%
Drainage: Well
Condition: Excellent

Vegetation Type: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	9	0.5	0.5
Alexgeorgea nitens	Rush	20	0.1	4
Asteridea pulverulenta	Annual Herb	50	0.1	0.5
Banksia attenuata	Tree	1	3	2
Banksia menziesii	Tree	4a 3d	5	25
Bossiaea eriocarpa	Shrub	8	0.3	1.5
Burchardia congesta	Perennial Herb	55	0.5	1
Caladenia flava subsp. *flava*	Perennial Herb	10	0.1	0.1
Chamaescilla corymbosa	Perennial Herb	1	0.1	0.1
Conostephium pendulum	Shrub	2	0.2	0.5
Cyathochaeta avenacea	Sedge	3	1	1.5
Dampiera linearis	Perennial Herb	4	0.2	0.1
Dasypogon bromeliifolius	Perennial Herb	3	0.2	0.1
Desmocladus fasciculatus	Rush	3	0.1	0.5
Diuris corymbosa	Perennial Herb	30	0.2	0.5
Drosera stolonifera	Perennial Herb	5	0.1	0.1
Gompholobium tomentosum	Shrub	3	0.3	0.1
Haemodorum spicatum	Perennial Herb	5	0.5	0.1
Hibbertia hypericoides subsp. *hypericoides*	Shrub	26	0.5	25
Hibbertia racemosa	Shrub	9	0.5	4
Hovea trisperma	Shrub	7	0.5	0.5
Jacksonia floribunda	Shrub	2	0.2	0.1
Jacksonia sternbergiana	Shrub	3a 1d	3	3
Lepidosperma oldhamii	Sedge	1	0.5	0.1
Lomandra caespitosa	Perennial Herb	6	0.3	0.5

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Lyginia imberbis	Rush	4	0.5	1
Patersonia occidentalis	Perennial Herb	2	0.3	0.5
Pterostylis vittata	Perennial Herb	5	0.3	0.1
Scholtzia involucrata	Shrub	3	0.3	0.5
Sowerbaea laxiflora	Perennial Herb	6	0.1	1
Stylidium repens	Perennial Herb	5	0.1	0.5
Stylidium neurophyllum	Perennial Herb	3	0.1	0.1
Synaphea spinulosa subsp. *spinulosa*	Shrub	5	0.3	1
Thysanotus manglesianus	Perennial Herb	6	0.5	0.5
Trachymene pilosa	Annual Herb	25	0.1	0.5
Tricoryne elatior	Perennial Herb	4	0.3	0.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	3	0.5	0.5
**Freesia* alba x leichtlinii	Perennial Herb/Bulb	2	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	50	1	1.5
**Hypochaeris glabra*	Annual Herb	30	0.5	0.1
**Romulea rosea*	Perennial Herb	10	0.2	0.1
**Ursinia anthemoides*	Annual Herb	25	0.5	0.5

Quadrat No.: QP03
Survey Date: 17/09/2020
Personnel: KS, MG
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Flat
Aspect: West
Slope: 0%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 30%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: Banksia Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	15	0.3	2
Alexgeorgea nitens	Rush	16	0.2	20
Allocasuarina fraseriana	Tree	2	8	8
Amphipogon turbinatus	Perennial Grass	6	0.3	1
Asteridea pulverulenta	Shrub	30	0.1	0.1
Banksia attenuata	Tree	2	8	10
Banksia menziesii	Tree	6	8	15
Boronia racemosa	Shrub	1	0.1	0.1
Bossiaea eriocarpa	Shrub	7	0.3	2
Bossiaea ornata	Shrub	1	0.1	0.1
Burchardia congesta	Perennial Herb	60	0.3	0.5
Caladenia flava subsp. *flava*	Perennial Herb	3	0.1	0.1
Conostephium pendulum	Shrub	2	0.1	0.1
Conostylis aculeata subsp. *cygnorum*	Perennial Herb	1	0.1	0.1
Corynotheca micrantha	Perennial Herb	3	0.3	1.5
Daviesia divaricata	Shrub	1	2	0.1
Diuris corymbosa	Perennial Herb	25	0.1	0.2
Drosera erythrorhiza	Perennial Herb	2	0.1	0.1
Gompholobium tomentosum	Shrub	1	0.5	0.5
Haemodorum spicatum	Perennial Herb	2	0.1	0.1
Hibbertia hypericoides subsp. *hypericoides*	Shrub	15	0.5	30
Hovea trisperma	Shrub	1	0.1	0.1
Kennedia prostrata	Shrub	2	0.2	1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Laxmannia sessiliflora	Perennial Herb	15	0.1	0.1
Lepidosperma scabrum	Sedge	3	0.5	0.5
Lomandra caespitosa	Perennial Herb	7	0.2	0.5
Lomandra preissii	Perennial Herb	3	0.1	0.5
Lomandra suaveolens	Perennial Herb	2	0.2	0.1
Lomandra hermaphrodita	Perennial Herb	3	0.1	0.1
Lyginia imberbis	Rush	6	0.1	0.2
Microtis media subsp. *media*	Perennial Herb	1	0.1	0.1
Patersonia occidentalis	Perennial Herb	10	0.5	15
Sowerbaea laxiflora	Perennial Herb	15	0.3	0.1
Stirlingia latifolia	Shrub	4	0.5	1
Stylidium neurophyllum	Perennial Herb	5	0.1	0.1
Stylidium repens	Perennial Herb	40	0.1	2
Thysanotus manglesianus	Perennial Herb	12	0.5	0.5
Trachymene pilosa	Annual herb	15	0.1	0.1
Xanthorrhoea brunonis	Shrub	3	1	3
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	24	0.5	1
**Hypochaeris glabra*	Annual Herb	1	0.1	0.1
**Romulea rosea*	Perennial Herb	10	0.1	0.1
**Schinus terebinthifolia*	Tree	2	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	6	0.1	0.1

Quadrat No.: QP04
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude: Environmentally Sensitive
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: East
Slope: 0-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 2%
Bare Ground: 1%
Drainage: Well
Condition: Excellent

Vegetation Type: Banksia Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	6	1.5	1
Amphipogon turbinatus	Perennial Grass	1	0.1	0.1
Asteridea pulverulenta	Shrub	30	0.2	0.5
Banksia attenuata	Tree	0	5	3
Banksia menziesii	Tree	1a 2d	6	15
Boronia ramosa	Shrub	1	0.2	0.1
Bossiaea eriocarpa	Shrub	3	0.3	1
Burchardia congesta	Perennial Herb	68	0.5	1
Conostephium pendulum	Shrub	1	0.2	0.1
Corynotheca micrantha	Perennial Herb	2	0.1	0.1
Desmocladus flexuosus	Rush	3	0.2	1
Diuris corymbosa	Perennial Herb	5	0.5	0.1
Drosera erythrorhiza	Perennial Herb	11	0.1	0.1
Eremaea pauciflora subsp. *pauciflora*	Shrub	7	1.5	40
Gompholobium tomentosum	Shrub	3	0.3	0.5
Hibbertia hypericoides subsp. *hypericoides*	Shrub	4	0.5	2
Hovea trisperma	Shrub	5	0.3	0.2
Lomandra caespitosa	Perennial Herb	2	0.2	0.1
Lomandra hermaphrodita	Perennial Herb	6	0.1	0.5
Lyginia barbata	Rush	20	0.5	15
Lyginia imberbis	Rush	2	0.5	1
Mesomelaena pseudostygia	Sedge	32	0.5	6
Patersonia occidentalis	Perennial Herb	3	0.3	1
Petrophile linearis	Shrub	1	0.2	0.1
Sowerbaea laxiflora	Perennial Herb	6	0.2	2

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Stirlingia latifolia	Shrub	20	1	10
Stylidium repens	Perennial Herb	2	0.1	0.5
Styphelia xerophylla	Shrub	1	0.1	0.1
Thysanotus manglesianus	Perennial Herb	1	0.1	0.1
Trachymene pilosa	Annual Herb	50	0.1	1
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Aira cupaniana*	Annual Grass	1	0.1	0.1
**Ehrharta calycina*	Perennial Grass	15	0.3	1
**Fumaria capreolata*	Annual Herb	15	0.3	2
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	35	0.5	2
**Hypochaeris glabra*	Annual Herb	100	0.1	2
**Lysimachia arvensis*	Annual Herb	1	0.1	0.1
**Solanum nigrum*	Annual Herb	1	0.3	0.1
**Sonchus oleraceus*	Annual Herb	22	0.3	0.5
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	100	0.3	2

Quadrat No.: QP05
Survey Date: 17/09/2020
Personnel: SH
Latitude:
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Flat
Aspect: East
Slope: 0%
Soil: Loamy Brown Clay
Rock: 0%
Leaf Litter: 20%
Bare Ground: 0%
Drainage: Moderate
Condition: Degraded

Vegetation Type: *Eucalyptus rudis Melaleuca rhaphiophylla* Woodland

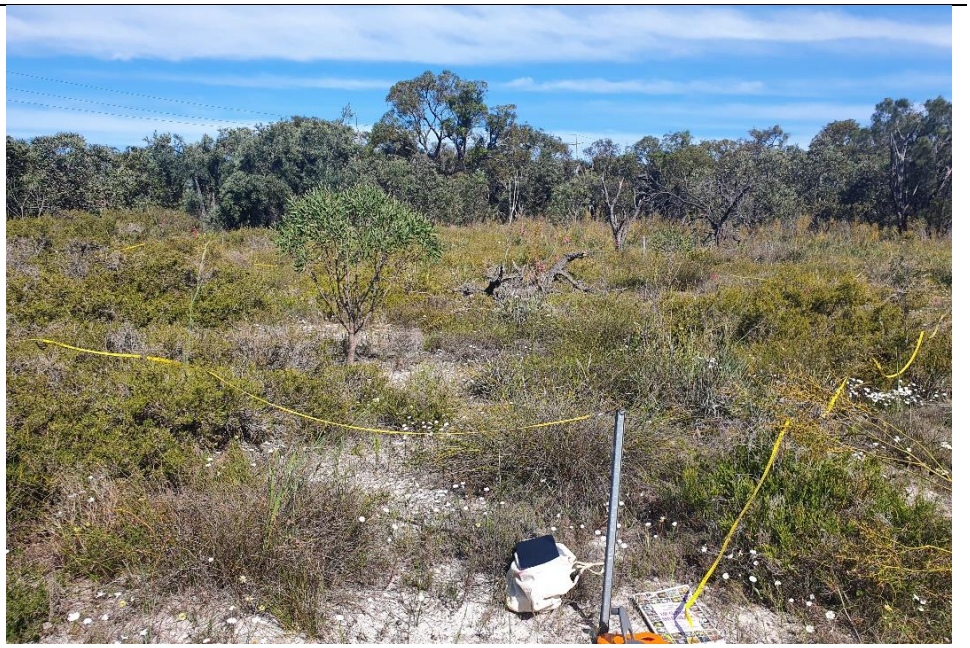
Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Eucalyptus rudis subsp. *rudis*	Tree	1	15	7
Melaleuca rhaphiophylla	Tree	9	8	60
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Bromus diandrus*	Annual Grass	3	0.2	0.1
**Carex divisa*	Sedge	200	0.5	75
**Ehrharta longiflora*	Annual Grass	40	0.4	3
**Fumaria capreolata*	Annual Herb	3	0.2	0.1
**Oxalis pes-caprae*	Perennial Herb	1	0.1	0.1
**Sonchus oleraceus*	Annual Herb	3	0.3	0.1

Quadrat No.: QP06
Survey Date: 17/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Flat
Aspect: East
Slope: 0%
Soil: Loamy Brown Clay
Rock: 0%
Leaf Litter: 90%
Bare Ground: 0%
Drainage: Moderate
Condition: Degraded

Vegetation Type: *Corymbia calophylla Allocasuarina fraseriana* Woodland

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Allocasuarina fraseriana	Tree	3	10	5
Burchardia congesta	Perennial Herb	4	0.1	0.1
Conostylis juncea	Perennial Herb	2	0.1	0.1
Corymbia calophylla	Tree	3	3	7
Dasypogon bromeliifolius	Perennial Herb	2	0.1	0.5
Eucalyptus marginata subsp. *marginata*	Tree	3	6	15
Lepidosperma sp.	Perennial Herb	20		3
Lomandra caespitosa	Perennial Herb	4	0.1	0.5
Lomandra hermaphrodita	Perennial Herb	1	0.3	0.1
Lomandra preissii	Perennial Herb	1	0.3	0.1
Melaleuca preissiana	Tree	4	6	50
Phlebocarya ciliata	Perennial Herb		0.2	0.1
Stirlingia latifolia	Shrub	11	0.5	2
Trachymene pilosa	Annual Herb	6	0.1	0.1
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	5	0.3	0.5
**Freesia* alba x leichtlinii	Perennial Herb/Bulb	1	0.1	0.1
**Fumaria capreolata*	Annual Herb	7	0.1	0.5
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	1	0.2	0.1
**Hypochaeris radicata*	Annual Herb	1	0.1	0.1
**Olea europaea*	Tree	1	0.1	0.1
**Schinus terebinthifolius*	Tree	3	0.1	0.1
**Sonchus oleraceus*	Annual Herb	1	0.1	0.1
**Urospermum picroides*	Annual Herb	1	0.1	0.1

Quadrat No.: QP07
Survey Date: 17/09/2020
Personnel: SH, LC
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Mid Slope
Aspect: East
Slope: 0-3%
Soil: White Sand
Rock: 0%
Leaf Litter: 50%
Bare Ground: 5%
Drainage: Well
Condition: Excellent



Vegetation Type: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Alexgeorgea nitens	Rush	3	0.2	3
Amphipogon turbinatus	Perennial Grass	1	0.1	0.1
Arnocrinum preissii	Perennial Herb	2	0.1	0.1
Asteridea pulverulenta	Shrub	100	0.2	1
Astroloma xerophyllum	Shrub	1	0.1	0.1
Austrostipa sp.	Perennial Grass	5	0.1	0.1
Boronia racemosa	Shrub	1	0.1	0.1
Bossiaea eriocarpa	Shrub	5	0.5	1
Burchardia congesta	Perennial Herb	11	0.5	0.1
Calandrinia granulifera	Annual Herb	30	0.1	0.1
Conospermum triplinervium	Perennial Herb	2	1	1.5
Conostylis aculeata subsp. *cygnorum*	Perennial Herb	1	0.1	0.1
Corynotheca micrantha	Perennial Herb	1	0.1	0.1
Dasypogon bromeliifolius	Perennial Herb	3	0.2	0.2
Eremaea pauciflora subsp. *pauciflora*	Shrub	9	0.5	50
Gompholobium tomentosum	Shrub	2	0.1	0.1
Isolepis marginata	Sedge	8	0.1	0.1
Jacksonia floribunda	Shrub	1	0.5	0.5
Laxmannia sessiliflora	Perennial Herb	6	0.1	0.5
Lomandra caespitosa	Perennial Herb	1	0.1	0.1
Lomandra hermaphrodita	Perennial Herb	3	0.1	0.2
Lyginia barbata	Rush	7	0.5	8
Lyginia imberbis	Rush	6	0.3	4
Patersonia occidentalis	Perennial Herb	3	0.3	1
Phlebocarya ciliata	Perennial Herb	1	0.3	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Podotheca angustifolia	Annual Herb	20	0.1	0.2
Podotheca gnaphalioides	Annual Herb	3	0.1	0.1
Poranthera microphylla	Annual Herb	2	0.1	0.1
Stirlingia latifolia	Shrub	5	0.5	3
Thysanotus manglesianus	Perennial Herb	8	0.5	0.1
Trachymene pilosa	Annual Herb	8	0.1	0.1
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Aira cupaniana*	Annual Grass	1	0.1	0.1
**Briza maxima*	Annual Grass	30	0.1	0.5
**Dischisma capitatum*	Annual Herb	1	0.1	0.1
**Ehrharta calycina*	Perennial Grass	25	0.3	2
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	39	0.6	2
**Hypochaeris glabra*	Annual Herb	38	0.1	1
**Romulea rosea*	Perennial Herb	15	0.2	0.1
**Sonchus oleraceus*	Annual Herb	3	0.2	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	36	0.2	6
**Wahlenbergia capensis*	Annual Herb	2	0.1	0.1

Quadrat No.: QP08
Survey Date: 16/09/2020
Personnel: SH
Latitude:
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Northeast
Slope: 1-3%
Soil: Loamy Brown Sand
Rock: 0%
Leaf Litter: 70%
Bare Ground: 0%
Drainage: Well
Condition: Good

Vegetation Type: *Corymbia calophylla* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	4	1	1
Allocasuarina fraseriana	Tree	1	0.5	0.5
Bossiaea eriocarpa	Shrub	1	0.3	
Burchardia congesta	Perennial Herb	73	0.5	0.5
Caladenia flava subsp. *flava*	Perennial Herb	8	0.1	0.1
Corymbia calophylla	Tree	18	20	60
Corynotheca micrantha	Perennial Herb	21	0.2	1
Dasypogon bromeliifolius	Perennial Herb	10	0.3	3
Daviesia physodes	Shrub	1	0.1	0.1
Desmocladus flexuosa	Rush	51	0.1	2
Drosera stolonifera	Perennial Herb	3	0.1	0.1
Hibbertia hypericoides subsp. *hypericoides*	Shrub	9	0.3	3
Lomandra hermaphrodita	Perennial Herb	2	0.3	0.1
Lomandra suaveolens	Perennial Herb	20	0.3	4
Macrozamia riedlei	Shrub	1	0.2	0.1
Microtis media subsp. *media*	Perennial Herb	4	0.4	0.1
Pterostylis vittata	Perennial Herb	2	0.1	0.1
Xanthorrhoea brunonis	Shrub	11	0.5	1
Weed Species		**Count**	**Height (m)**	**Cover (%)**
**Asparagus asparagoides*	Perennial Herb	2	0.1	0.1
**Briza maxima*	Annual Grass	40	0.2	1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	7	0.5	0.1
**Romulea rosea*	Perennial Herb	50	0.3	0.5
**Schinus terebinthifolia*	Tree	1	0.5	0.1
**Vicia sativa*	Annual Herb	2	0.1	0.1

Quadrat No.: QP09
Survey Date: 16/09/2020
Personnel: SH
Latitude:
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Southwest
Slope: 1-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 95%
Bare Ground: 10%
Drainage: Well
Condition: Degraded

Vegetation Type: *Melaleuca preissiana* Woodland

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Melaleuca preissiana	Tree	14	6	70
Melaleuca rhaphiophylla	Tree	1	2.5	1.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Fumaria capreolata*	Annual Herb	7	0.1	0.1
**Sonchus oleraceus*	Annual Herb	4	0.1	0.1

Quadrat No.: QP10
Survey Date: 16/09/2020
Personnel: SH
Latitude:
Longitude:
Environmentally Sensitive
Location: Queens Park ROS
Topography: Flat
Aspect: Southwest
Slope: 0%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 40%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: *Banksia attenuata Eucalyptus marginata* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	4	0.1	0.1
Acacia huegelii	Shrub	1	0.3	0.5
Alexgeorgea nitens	Rush	20	0.1	4
Allocasuarina fraseriana	Tree		6	1
Banksia menziesii	Tree	4	8	40
Boronia ramosa	Shrub	1	0.1	0.1
Bossiaea eriocarpa	Shrub	5	0.3	1
Burchardia congesta	Perennial Herb	20	0.3	0.5
Chamaescilla corymbosa	Perennial Herb	10	0.1	0.5
Conostephium pendulum	Shrub	2	0.3	0.1
Conostylis juncea	Perennial Herb	14	0.1	1
Dampiera linearis	Perennial Herb	19	0.1	1
Dasypogon bromeliifolius	Perennial Herb	2	0.3	0.5
Desmocladus fasciculatus	Rush	2	0.1	1
Desmocladus flexuosus	Rush	6	0.1	3
Diuris sp.	Perennial Herb	1	0.1	0.1
Drosera stolonifera	Perennial Herb	36	0.1	1
Eucalyptus marginata subsp. *marginata*	Tree	2	8	15
Gompholobium tomentosum	Shrub	4	0.5	0.5
Hibbertia hypericoides subsp. *hypericoides*	Shrub	8	0.5	9
Hypolaena exsulca	Rush	4	0.2	0.5
Lepidosperma sp.	Sedge	2	0.5	0.1
Lomandra hermaphrodita	Perennial Herb	1	0.1	0.1
Lomandra preissii	Perennial Herb	6	0.3	1
Mesomelaena tetragona	Annual Herb	2	0.5	1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Petrophile linearis	Shrub	5	0.3	1
Stirlingia latifolia	Shrub	24	0.3	4
Tetraria octandra	Sedge	5	0.5	2
Thelymitra crinita	Perennial Herb	1	0.1	0.1
Thysanotus manglesianus	Perennial Herb	2	0.3	0.1
Tricoryne elatior	Perennial Herb	2	0.3	1
Xanthorrhoea preissii	Shrub	1	1.5	0.5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta calycina*	Perennial Grass	3	0.3	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	8	0.5	0.1
**Hypochaeris glabra*	Annual Herb	15	0.1	0.1
**Romulea rosea*	Perennial Herb	100	0.3	1

Quadrat No.: QP11
Survey Date: 16/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Flat
Aspect: Southwest
Slope: 1-3%
Soil: Loamy Sand
Rock: 0%
Leaf Litter: 40%
Bare Ground: 0%
Drainage: Well
Condition: Very Good

Vegetation Type: *Corymbia calophylla Eucalyptus marginata* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	4	0.2	0.1
Alexgeorgea nitens	Rush	3	0.1	0.5
Banksia menziesii	Tree	1	0.1	0.1
Bossiaea eriocarpa	Shrub	1	0.2	0.1
Burchardia congesta	Perennial Herb	15	0.5	1
Caladenia latifolia	Perennial Herb	1	0.1	0.1
Conostylis juncea	Perennial Herb	3	0.1	0.1
Corymbia calophylla	Tree	4	20	60
Dampiera linearis	Perennial Herb	22	0.1	0.5
Dasypogon bromeliifolius	Perennial Herb	7	0.5	30
Drosera stolonifera	Perennial Herb	4	0.2	0.1
Eucalyptus marginata subsp. *marginata*	Tree	4	5	20
Jacksonia floribunda	Shrub	2	1.8	0.5
Jacksonia furcellata	Shrub	5	0.5	3
Lomandra hermaphrodita	Perennial Herb	1	0.1	0.1
Lomandra preissii	Perennial Herb	2	0.5	0.5
Lyginia imberbis	Rush	2	0.5	0.1
Macrozamia riedlei	Shrub	2	0.3	0.1
Patersonia occidentalis	Perennial Herb	2	0.3	0.5
Petrophile linearis	Shrub	1	0.3	0.5
Philotheca spicata	Shrub	1	0.3	0.1
Phlebocarya ciliata	Perennial Herb	5	0.4	6
Pterostylis vittata	Perennial Herb	1	0.3	0.1
Tricoryne elatior	Perennial Herb	5	0.3	1
Xanthorrhoea brunonis	Shrub	8	1	2

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Asparagus asparagoides*	Perennial Herb	2	0.1	0.1
**Avena barbata*	Annual Grass	1	0.1	0.1
**Disa bracteata*	Perennial Herb	2	0.1	0.1
**Ehrharta calycina*	Perennial Grass	3	0.3	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	2	0.5	0.1
**Romulea rosea*	Perennial Herb	10	0.2	0.1
**Schinus terebinthifolia*	Tree	3	0.1	0.1

Quadrat No.: QP12
Survey Date: 16/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Flat
Aspect: West
Slope: 0%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 40%
Bare Ground: 95%
Drainage: Well
Condition: Good

Vegetation Type: *Eucalyptus marginata Banksia attenuata* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Adenanthos cygnorum subsp. *cygnorum*	Shrub	1	1.8	1
Allocasuarina fraseriana	Tree	1	0.5	0.5
Banksia menziesii	Tree	10	6	65
Boronia ramosa	Shrub	1	0.1	0.1
Bossiaea eriocarpa	Shrub	3	0.1	0.1
Burchardia congesta	Perennial Herb	12	0.3	1
Caladenia latifolia	Perennial Herb	31	0.1	0.5
Dasypogon bromeliifolius	Perennial Herb	30	0.5	4
Daviesia physodes	Shrub	1	0.5	0.5
Dianella revoluta	Perennial Herb	1	1	0.5
Eriochilus sp.	Perennial Herb	1	0.1	0.1
Eucalyptus marginata subsp. *marginata*	Tree	3	15	15
Gompholobium tomentosum	Shrub	5	0.3	1
Hovea trisperma	Shrub	2	0.5	0.1
Jacksonia floribunda	Shrub	1	1	0.5
Kennedia prostrata	Shrub	1	0.1	0.1
Lepidosperma sp.	Sedge	5	0.5	1.5
Lomandra hermaphrodita	Perennial Herb	1	0.3	0.1
Lomandra preissii	Perennial Herb	3	0.5	0.5
Lyginia imberbis	Rush	6	0.5	2
Patersonia occidentalis	Perennial Herb	1	0.5	0.1
Phlebocarya ciliata	Perennial Herb	3	0.3	0.5
Pterostylis vittata	Perennial Herb	2	0.1	0.1
Thysanotus manglesianus	Perennial Herb	1	0.5	0.1
Thysanotus sparteus	Perennial Herb	1	0.5	0.1

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Disa bracteata*	Perennial Herb	3	0.1	0.1
**Ehrharta calycina*	Perennial Grass	3	0.3	0.5
**Fumaria capreolata*	Annual Herb	1	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	3	0.3	0.1
**Hypochaeris radicata*	Annual Herb	3	0.1	0
**Raphanus raphanistrum*	Annual Herb	1	0.1	0.1
**Romulea rosea*	Perennial Herb	100	0.3	2
**Schinus terebinthifolius*	Tree	2	0.1	0.1
**Sonchus oleraceus*	Annual Herb	3	0.1	0.1
**Urospermum picroides*	Annual Herb	6	0.1	0.5

Quadrat No.: QP13
Survey Date: 16/09/2020
Personnel: SH
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Southeast
Slope: 1-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 10%
Bare Ground: 1%
Drainage: Well
Condition: Degraded

Vegetation Type: *Melaleuca preissiana* Woodland

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Astartea affinis	Shrub	10	2.5	50
Melaleuca preissiana	Tree	2	8	60
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Arctotheca calendula*	Annual Herb	6	0.3	0.5
**Asparagus asparagoides*	Perennial Herb	1	0.3	0.1
**Euphorbia terracina*	Perennial Herb	2	0.3	0.1
**Fumaria capreolata*	Annual Herb	50	0.5	80
**Galium aparine*	Annual Herb	200	0.1	3
**Hypochaeris glabra*	Annual Herb	4	0.1	0.1
**Lolium rigidum*	Annual Grass	100	0.3	2
**Romulea rosea*	Perennial Herb	10	0.2	0.1
**Schinus terebinthifolia*	Tree	4	0.1	0.1
**Solanum nigrum*	Annual Herb	2	0.3	0.1
**Sonchus oleraceus*	Annual Herb	15	0.1	0.1
**Stellaria media*	Annual Herb	5	0.1	0.1

Quadrat No.: QP14
Survey Date: 17/09/2020
Personnel: SH
Latitude:
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Northwest
Slope: 1-3%
Soil: Grey Sand
Rock: 0%
Leaf Litter: 10%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Notes: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Alexgeorgea nitens	Rush	50	0.1	40
Amphipogon turbinata	Perennial Grass	1	0.4	0.1
Banksia attenuata	Tree	12a,1d	6	25
Banksia menziesii	Tree	4	4	20
Bossiaea eriocarpa	Shrub	6	0.3	1
Burchardia congesta	Perennial Herb	100	0.5	4
Corynotheca micrantha	Perennial Herb	6	0.5	2
Desmocladus flexuosus	Rush	10	0.1	20
Dianella revoluta	Perennial Herb	4	1	0.5
Gompholobium tomentosum	Shrub	1	0.2	0.1
Haemodorum spicatum	Perennial Herb	5	0.5	0.1
Hibbertia hypericoides subsp. *hypericoides*	Shrub	1	0.3	0.1
Jacksonia floribunda	Shrub	1a, 1d	0.5	0.5
Kennedia prostrata	Shrub	2	0.1	0.1
Laxmannia sessiliflora	Sedge	2	0.3	0.5
Lomandra hermaphrodita	Perennial Herb	1	0.3	0.1
Lomandra caespitosa	Perennial Herb	12	0.2	1
Lyginia barbata	Rush	3	0.5	0.5
Lyginia imberbis	Rush	3	0.5	0.5
Macrozamia riedlei	Shrub	1	1.5	2
Patersonia occidentalis	Perennial Herb	7	0.5	2
Stirlingia latifolia	Shrub	5	1	1
Thysanotus manglesianus	Perennial Herb	5	0.5	0.1
Trachymene pilosa	Annual Herb	30	0.1	0.5

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Asparagus asparagoides*	Perennial Herb	1	0.1	0.1
**Avena barbata*	Annual Grass	6	0.3	0.1
**Briza maxima*	Annual Grass	30	0.1	0.5
**Ehrharta calycina*	Perennial Grass	7	0.2	0.5
**Freesia alba* x *leichtlinii*	Perennial Herb/Bulb	1	0.1	0.1
**Fumaria capreolata*	Annual Herb	35	0.2	2
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	1	0.5	0.1
**Hypochaeris glabra*	Annual Herb	100	0.1	2
**Romulea rosea*	Perennial Herb	10	0.1	0.1
**Sonchus oleraceus*	Annual Herb	9	0.1	0.5
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	30	0.1	0.5

Quadrat No.: QP15
Survey Date: 17/09/2020
Personnel: SH, LC
Latitude:
Longitude:
Environmentally Sensitive
Location: Queens Park ROS
Topography: Lower Slope
Aspect: Northwest
Slope: 0%
Soil: Brown Sand
Rock: 0%
Leaf Litter: 20%
Bare Ground: 10%
Drainage: Well
Condition: Good

Vegetation Type: *Melaleuca preissiana* and *Eucalyptus todtiana* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	2	0.1	0.1
Caesia occidentalis	Perennial Herb	1	0.1	0.1
Caladenia flava subsp. *flava*	Perennial Herb	26	0.1	0.2
Conostylis juncea	Perennial Herb	2	0.1	0.1
Corynotheca micrantha	Perennial Herb	4	0.2	4
Dasypogon bromeliifolius	Perennial Herb	6	0.5	10
Daucus glochidiatus	Annual Herb	100	0.1	2
Desmocladus fasciculatus	Rush	5	0.1	0.2
Drosera glanduligera	Perennial Herb	31	0.1	0.1
Eucalyptus todtiana	Tree	1	7	7
Hakea prostrata	Shrub	1	1	3
Jacksonia furcellata	Shrub	7	0.5	1
Lepidosperma longitudinale	Sedge	10	0.5	4
Lomandra caespitosa	Perennial Herb	1	0.1	0.1
Lomandra preissii	Perennial Herb	2	0.3	0.1
Lomandra hermaphrodita	Perennial Herb	5	0.3	0.5
Melaleuca preissiana	Tree	3	9	40
Phlebocarya ciliata	Perennial Herb	4	0.3	4
Podotheca gnaphalioides	Annual Herb	35	0.2	0.5
Stirlingia lateriflora	Shrub	7	0.2	0.5
Trachymene pilosa	Annual Herb	20	0.1	2
Tricoryne elatior	Perennial Herb	2	0.3	0.1
Xanthorrhoea brunonis	Shrub	7	0.5	5
Xanthosia huegelii	Shrub	14	0.1	1.5

Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Asparagus asparagoides*	Perennial Herb	2	0.1	0.1
**Ehrharta calycina*	Perennial Grass	33	0.5	1
**Freesia alba* x *leichtlinii*	Perennial Herb/Bulb	3	0.1	0.1
**Gladiolus undulatus*	Perennial Herb/Bulb	1	0.1	0.1
**Hypochaeris glabra*	Annual Herb	65	0.1	10
**Hypochaeris radicata*	Annual Herb	34	0.1	5
**Lysimachia arvensis*	Annual Herb	100	0.2	10
**Olea europaea*	Tree	1	0.1	0.1
**Romulea rosea*	Perennial Herb	35	0.2	1
**Solanum nigrum*	Annual Herb	1	0.1	0.1
**Sonchus oleraceus*	Annual Herb	5	0.1	0.5
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	20	0.1	15

Quadrat No.: QP16
Survey Date: 17/09/2020
Personnel: SH, LC
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Northwest
Slope: 0-3%
Soil: Brown Sand
Rock: 0%
Leaf Litter: 70%
Bare Ground: 0%
Drainage: Well
Condition: Excellent

Vegetation Type: *Corymbia calophylla* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia applanata	Shrub	9	0.1	0.1
Acacia pulchella	Shrub	7	0.5	1
Alexgeorgea nitens	Rush	13	0.1	8
Bossiaea eriocarpa	Shrub	16	0.2	2
Burchardia congesta	Perennial Herb	30	0.3	0.1
Conostylis juncea	Perennial Herb	7	0.1	0.1
Corymbia calophylla	Tree	9a, 1d 3 seedlings	10	75
Dasypogon bromeliifolius	Perennial Herb	13	0.2	30
Diuris corymbosa	Perennial Herb	5	0.1	0.1
Drosera sp.	Perennial Herb	3	0.1	0.1
Gompholobium tomentosum	Shrub	1	0.5	0.1
Hovea trisperma	Shrub	13	0.2	1
Hypolaena exsulca	Rush	2	0.1	0.1
Laxmannia sessiliflora	Perennial Herb	3	0.1	0.1
Lepidosperma squamatum	Sedge	1	0.1	0.1
Lomandra caespitosa	Perennial Herb	1	0.1	0.1
Lomandra preissii	Perennial Herb	2	0.3	0.2
Lomandra suaveolens	Perennial Herb	3	0.1	0.1
Lyginia barbata	Rush	30	0.1	35
Microtis media subsp. *media*	Perennial Herb	1	0.1	0.1
Patersonia occidentalis	Perennial Herb	14	0.2	2
Phlebocarya ciliata	Perennial Herb	9	0.2	1
Pterostylis sanguinea	Perennial Herb	4	0.1	0.1
Pyrorchis nigricans	Perennial Herb	2	0.1	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Stirlingia latifolia	Shrub	1	0.3	0.1
Stylidium neurophyllum	Perennial Herb	1	0.1	0.1
Thysanotus manglesianus	Perennial Herb	4	0.2	0.1
Tricoryne elatior	Perennial Herb	8	0.1	2
Xanthorrhoea preissii	Shrub	5	1	5
Xanthorrhoea brunonis	Shrub	5	0.5	5
Xanthosia huegelii	Perennial Herb	3	0.1	0.1
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Grass	50	0.2	0.2
**Disa bracteata*	Perennial Herb	3	0.1	0.1
**Ehrharta calycina*	Perennial Grass	9	0.5	0.1
**Freesia alba* x *leichtlinii*	Perennial Herb/Bulb	23	0.1	0.1
**Washingtonia filifera*	Tree	5	0.1	0.1

Quadrat No.: QP17
Survey Date: 18/09/2020
Personnel: SH, KS, LC
Latitude:
Longitude: Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: South
Slope: 0-3%
Soil: Loamy Brown Sand
Rock: 0%
Leaf Litter: 40%
Bare Ground: 0%
Drainage: Well
Condition: Very Good

Vegetation Type: *Corymbia calophylla* and *Eucalyptus Marginata* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia saligna	Shrub	1	3	0.1
Alexgeorgea nitens	Rush	6	0.1	1
Burchardia congesta	Perennial Herb	38	0.5	1
Corymbia calophylla	Tree	3a 1d	20	15
Dasypogon bromeliifolius	Perennial Herb	6	0.1	2
Eucalyptus marginata subsp. *marginata*	Tree	0	6	4
Hardenbergia comptoniana	Shrub	3	1	1.5
Hibbertia hypericoides subsp. *hypericoides*	Shrub	9	0.5	10
Isolepis cernua	Sedge	1	0.1	0.1
Lepidosperma angustifolium	Sedge	2	0.3	0.5
Lomandra caespitosa	Perennial Herb	4	0.5	0.5
Lomandra preissii	Perennial Herb	1	0.3	0.5
Mesomelaena pseudostygia	Annual Herb	13	0.5	10
Microtis media subsp. *media*	Perennial Herb	1	0.1	0.1
Patersonia occidentalis	Perennial Herb	1	0.3	0.1
Stirlingia latifolia	Shrub	3	0.3	0.5
Synaphea spinulosa subsp. *spinulosa*	Shrub	3	0.1	1
Thysanotus manglesianus	Perennial Herb	5	0.5	0.5
Xanthorrhoea brunonis	Shrub	5	0.5	1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Xanthorrhoea preissii		5	1.5	4
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Ehrharta longiflora*	Annual Grass	25	0.3	2
**Euphorbia terracina*	Perennial Herb	2	0.2	0.1
**Fumaria capreolata*	Annual Herb	32	0.3	5
**Hypochaeris glabra*	Annual Herb	20	0.1	0.5
**Lolium rigidum*	Annual Grass	30	0.3	2
**Lysimachia arvensis*	Annual Herb	100	0.1	10
**Romulea rosea*	Perennial Herb	50	0.1	1
**Silene gallica*	Annual Herb	10	0.3	1
**Solanum nigrum*	Annual Herb	1	0.1	0.1
**Sonchus oleraceus*	Annual Herb	40	0.3	1
**Stellaria media*	Annual Herb	10	0.3	0.4
**Urospermum picroides*	Annual Herb	23	0.2	0.5
**Vicia sativa*	Annual Herb	10	0.1	0.1

Quadrat No.: QP18
Survey Date: 17/09/2020
Personnel: KS, MG
Latitude:
Longitude:
Environmentally Sensitive
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Northeast
Slope: 0-3%
Soil: White Sand
Rock: 0%
Leaf Litter: 20%
Bare Ground: 15%
Drainage: Well
Condition: Excellent

Notes: *Banksia* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Adenanthos cygnorum subsp. *cygnorum*	Shrub	2	4	30
Alexgeorgea nitens	Rush	30	0.1	55
Allocasuarina fraseriana	Tree	1	1	1
Asteridea pulverulenta	Shrub	35	0.1	0.1
Banksia attenuata	Tree	1	9	5
Banksia menziesii	Tree	2a 2d	6	10
Boronia ramosa	Shrub	2	0.3	0.1
Bossiaea eriocarpa	Shrub	2	0.2	0.5
Burchardia congesta	Perennial Herb	70	0.3	1
Conostephium pendulum	Shrub	1	0.1	0.1
Corynotheca micrantha	Perennial Herb	7	0.1	3
Diuris corymbosa	Perennial Herb	42	0.1	1
Gompholobium tomentosum	Shrub	1	0.1	0.1
Hibbertia hypericoides subsp. *hypericoides*	Shrub	1	0.3	0.5
Jacksonia floribunda	Shrub	5	0.5	2
Laxmannia sessiliflora	Perennial Herb	10	0.1	5
Lomandra hermaphrodita	Perennial Herb	2	0.1	0.1
Lomandra caespitosa	Perennial Herb	2	0.1	0.1
Loxocarya cinerea	Rush	4	0.1	0.1
Lyginia imberbis	Rush	5	0.3	2
Macrozamia riedlei	Shrub	2	3	10
Phlebocarya ciliata	Perennial Herb	1	0.1	0.1
Pterostylis sanguinea	Perennial Herb	4	0.1	0.1
Scholtzia involucrata	Shrub	1	0.3	0.1
Sowerbaea laxiflora	Perennial Herb	20	0.2	0.5
Stirlingia latifolia	Shrub	3	0.5	0.1

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Thysanotus manglesianus	Perennial Herb	1	0.1	0.1
Trachymene pilosa	Annual Herb	40	0.1	0.5
Weed Species		**Count**	**Height (m)**	**Cover (%)**
**Ehrharta erecta*	Perennial Grass	3	0.1	0.1
**Fumaria capreolata*	Annual Herb	3	0.3	0.5
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	13	0.8	0.1
**Hypochaeris radicata*	Annual Herb	20	0.1	0.3
**Romulea rosea*	Perennial Herb	5	0.1	0.1
**Schinus terebinthifolia*	Tree	2	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	25	0.1	0.5

Quadrat No.: QP19
Survey Date: 22/09/2020
Personnel: SH. LC
Latitude: Environmentally Sensitive
Longitude:
Location: Queens Park ROS
Topography: Mid Slope
Aspect: Northwest
Slope: 1-3%
Soil: Loamy Sand
Rock: 0%
Leaf Litter: 20%
Bare Ground: 4%
Drainage: Well
Condition: Excellent

Vegetation Type: *Eucalyptus marginata* and *Banksia menziesii* Woodland

Native Species	Landform	Count	Height (m)	Cover (%)
Acacia pulchella	Shrub	2	0.3	0.1
Alexgeorgea nitens	Rush	200	0.1	40
Asteridea pulverulenta	Shrub	250	0	3
Banksia menziesii	Tree	4	5	7
Boronia ramosa	Shrub	1	0.2	0.1
Bossiaea eriocarpa	Shrub	6	0.4	1.5
Burchardia congesta	Perennial Herb	14	0.5	0.1
Corynotheca micrantha	Perennial Herb	2	0.5	0.5
Dasypogon bromeliifolius	Perennial Herb	2	0.5	0.5
Eucalyptus marginata subsp. *marginata*	Tree	1	11	20
Gompholobium tomentosum	Shrub	5	0.2	1
Hibbertia hypericoides subsp. *marginata*	Shrub	1	0.3	0.5
Isolepis marginata	Sedge	1	0.1	0.1
Jacksonia floribunda	Shrub	4	1.5	1
Laxmannia squarrosa	Perennial Herb	1	0.1	0.1
Lepidosperma squamatum	Sedge	10	0.5	3
Lomandra caespitosa	Perennial Herb	3	0.3	0.5
Lomandra hermaphrodita	Perennial Herb	6	0.2	0.5
Lomandra nigricans	Perennial Herb	1	0.2	0.1
Lomandra preissii	Perennial Herb	1	0.3	0.1
Lyginia barbata	Rush	6	0.5	2
Lyginia imberbis	Rush	13	0.5	5
Patersonia occidentalis	Perennial Herb	35	0.5	20
Petrophile linearis	Shrub	1	0.3	0.1
Philotheca spicata	Shrub	1	0.5	0.5

Native Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
Phlebocarya ciliata	Perennial Herb	4	0.3	0.5
Poranthera microphylla	Annual Herb	5	0.1	0.1
Stylidium neurophyllum	Perennial Herb	14	0.3	0.1
Stylidium repens	Perennial Herb	1	0.1	0.1
Styphelia pallida	Shrub	1	0.1	0.1
Thysanotus manglesianus	Perennial Herb	6	0.4	0.5
Trachymene pilosa	Annual Herb	55	0.1	2
Tricoryne elatior	Perennial Herb	8	0.3	1
Xanthorrhoea brunonis	Shrub	2	1	1
Xanthorrhoea preissii	Shrub	6	1.5	5
Weed Species	**Landform**	**Count**	**Height (m)**	**Cover (%)**
**Briza maxima*	Annual Grass	5	0.1	0.1
**Ehrharta longiflora*	Annual Grass	8	0.3	1
**Freesia alba* x *leichtlinii*	Perennial Herb/Bulb	20	0.2	0.1
**Fumaria capreolata*	Annual Herb	1	0.1	0.1
**Gladiolus caryophyllaceus*	Perennial Herb/Bulb	9	0.4	0.2
**Hypochaeris glabra*	Annual Herb	27	0.1	2
**Urospermum picroides*	Annual Herb	10	0.1	0.1
**Ursinia anthemoides* subsp. *anthemoides*	Annual Herb	100	0.3	1.5
**Wahlenbergia capensis*	Annual Herb	2	0.3	0.1