Natural Area
CONSULTING MANAGEMENT SERVICES

City of Wanneroo

Two Rocks Beach Access Way

Targeted Survey

Priority Species CPS -9578/2

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Acknowledgement of Country

Ngala kaaditj Noongar moort keyen kaadak nidja boodja.
Natural Area acknowledges the Traditional Owners of the lands on which we operate, and recognises their continuing connection to lands, waters and communities.

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Quality management system registered to ISO 9001:2015
Occupational health and safety management system registered to ISO 45001:2018

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V1	Dec 2025	Changes to address client comments	JW	KE	Released

Executive Summary

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Wanneroo (the City) to undertake a targeted flora survey within Two Rocks, prior to the clearing of native coastal vegetation to make way for the Two Rocks Beach Access Way project. The targeted flora survey will identify, flag and record the GPS coordinates of priority flora species within 30 m of the proposed clearing site as part of Condition 10 (b) of Native Vegetation Clearing Permit CPS 9578/2. The survey will locate and flag the following species:

- *Beyeria cinerea* subsp. *cinerea*
- *Leucopogon maritimus*
- *Stylidium maritimum.*

The targeted flora survey marks the locations of the priority flora species to ensure their protection and compliance with Clearing Permit CPS 9578/2, prior to the Unexploded Ordnance (UXO) search and remediation, construction of beach access road, carpark, pathway and associated infrastructure.

A total of 149 *Beyeria cinerea* subsp. *cinerea* and 1 *Leucopogon maritimus* were recorded within 30 m of the proposed clearing area. Four (4) *Beyeria cinerea* subsp. *cinerea* and no *Leucopogon maritimus* were recorded within the proposed clearing activity area. The population present within the 30 m of the site were demarcated and flagged using yellow flags and flagging tape.

No clearing of priority flora is to occur except for where it is specific as part of Condition 10 (a) Flora Management of CPS 9578/2. This condition states that no more than four *Beyeria cinerea* subsp. *cinerea* are to be cleared.

All personnel involved in clearing activities should be informed of the presence of priority flora within the site. These personnel should receive adequate training to identify these species and to implement a management action plan in the event that additional priority species are encountered during the clearing activities. All flagging tape is to be removed following the completion of clearing activities.

Contents

1.0 Introduction

Natural Area Consulting Management Services (Natural Area) was contracted by the City of Wanneroo (the City) to undertake a targeted flora survey within Two Rocks prior to the clearing of native coastal vegetation to make way for the Two Rocks Beach Access Way project (the site). The targeted flora survey will identify, flag and record the GPS coordinates of priority flora species within 30 m of the proposed clearing site as part of Native Vegetation Clearing Permit CPS 9578/2. The survey will locate and flag the following species:

- *Beyeria cinerea* subsp. *cinerea*
- *Leucopogon maritimus*
- *Stylidium maritimum.*

The targeted flora survey will inform the City of accurate locations of the priority flora species to ensure their protection and compliance with CPS 9578/2, prior to the Unexploded Ordnance (UXO) search and remediation, construction of beach access road, carpark, pathway and associated infrastructure.

1.1 Location

The proposed clearing area is 1.56 ha and located approximately 68.5 km from the Perth Central Business District (CBD) within Two Rocks, City of Wanneroo. The site spans across Crown Reserves 20561 and 30959, and Lot 8989 on Deposited Plan 21332 (Figure 1).

1.2 Scope

The scopes of works undertaken by Natural Area included:

- A desktop assessment of relevant information pertaining to significant flora and threatened ecological communities, within a 10 km radius of the survey site. The following databases and surveys were consulted:
  - Department of Biodiversity, Conservation and Attractions (DBCA) flora and ecological communities databases.
  - NatureMap.
  - Protected Matters Search Tool (PMST).
  - Previous biological survey, *Two Rocks Beach Access Way, Flora and Vegetation Survey-Detailed and Targeted survey* (One Tree Botanical, 2020).
  - Site characteristics including landform, geology, and soil complex.
- A targeted flora survey to:
  - Identify the presence of *Beyeria cinerea* subsp. *cinerea*, *Leucopogon maritimus*, and *Stylidium maritimum* present within 30 m of site.
  - Mark the GPS location of priority flora within 30 m of site.
  - Flag the priority flora identified within 30 m of site.

1.3 Legislative Context

State and Federal environment-related laws impact how environmental values are governed in Western Australia. The following legislation and policies are relevant to this report.

1.3.1 Relevant Legislation

***Biosecurity and Agriculture Management Act 2007* (WA)**

The *Biosecurity and Agriculture Management Act 2007* (WA) (BAM Act) regulates the framework for plant and animal pest and disease biosecurity in Western Australia. The framework provides for the control of declared flora and fauna species (declared organisms) that are known to be a significant environmental threat and the management, control and prevention of these declared plants and animals.

***Biodiversity Conservation Act 2016* (WA)**

The *Biodiversity Conservation Act 2016* (WA) (BC Act) aims to protect and conserve biodiversity as well as to promote the ecologically sustainable use of biodiversity components in the State. The BC Act provides the statute relating to conservation and legal protection of flora, fauna, and ecological communities. The BC Act follows the principles of ecologically sustainable development, detailing that decision-making processes should effectively integrate long-term and short-term economic, environmental, social, and equity considerations.

***Environmental Protection Act 1986* (WA)**

The *Environmental Protection Act 1986* (WA) (EP Act) provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement, and management of the environment connected with the foregoing. The Environmental Protection Authority (EPA) is established under this act and provides a structured policy framework that is consistent with the EP A*ct*. The EPA produces the guidelines and procedures associated with conducting environmental assessments in line with the EP Act.

***Environment Protection and Biodiversity Conservation Act 1999* (Cth)**

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) serves to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. The primary objective of the EPBC Act is to promote the conservation of biodiversity and the sustainable use of natural resources while allowing for ecologically sustainable development. The EPBC Act allows for the creation of conservation agreements between the Australian government and individuals, communities, or organisations to support the conservation of biodiversity.

***Soil and Land Conservation Act 1945* (WA)**

The *Soil and Land Conservation Act 1945* (WA) serves to conserve soil and land resources, and to mitigate the impacts of erosion, salinity, and flooding. This Act outlines the mitigation and prevention of land degradation, promoting soil conservation and land management and the administration of Land Conservation District Committees (LCDC).

1.3.2 Relevant Planning and Policy

Australian Weeds Strategy 2017-2027

The Australian Weeds Strategy 2017-2027 provides a strategic framework for managing weeds at a national level (Invasive Plants and Animals Committee, 2016). As part of the implementation of the National Weeds Strategy, 32 Weeds of National Significance are identified as nationally agreed priority plant species for control and management based on the criteria of invasiveness and impact characteristics, potential and current area of spread and economic, environmental, and social impacts.

Australia's Biodiversity Conservation Strategy 2010-2030

Australia's Biodiversity Conservation Strategy 2010-2030 aims to protect biological diversity and maintain ecological processes and systems (Natural Resource Management Ministerial Council, 2010).

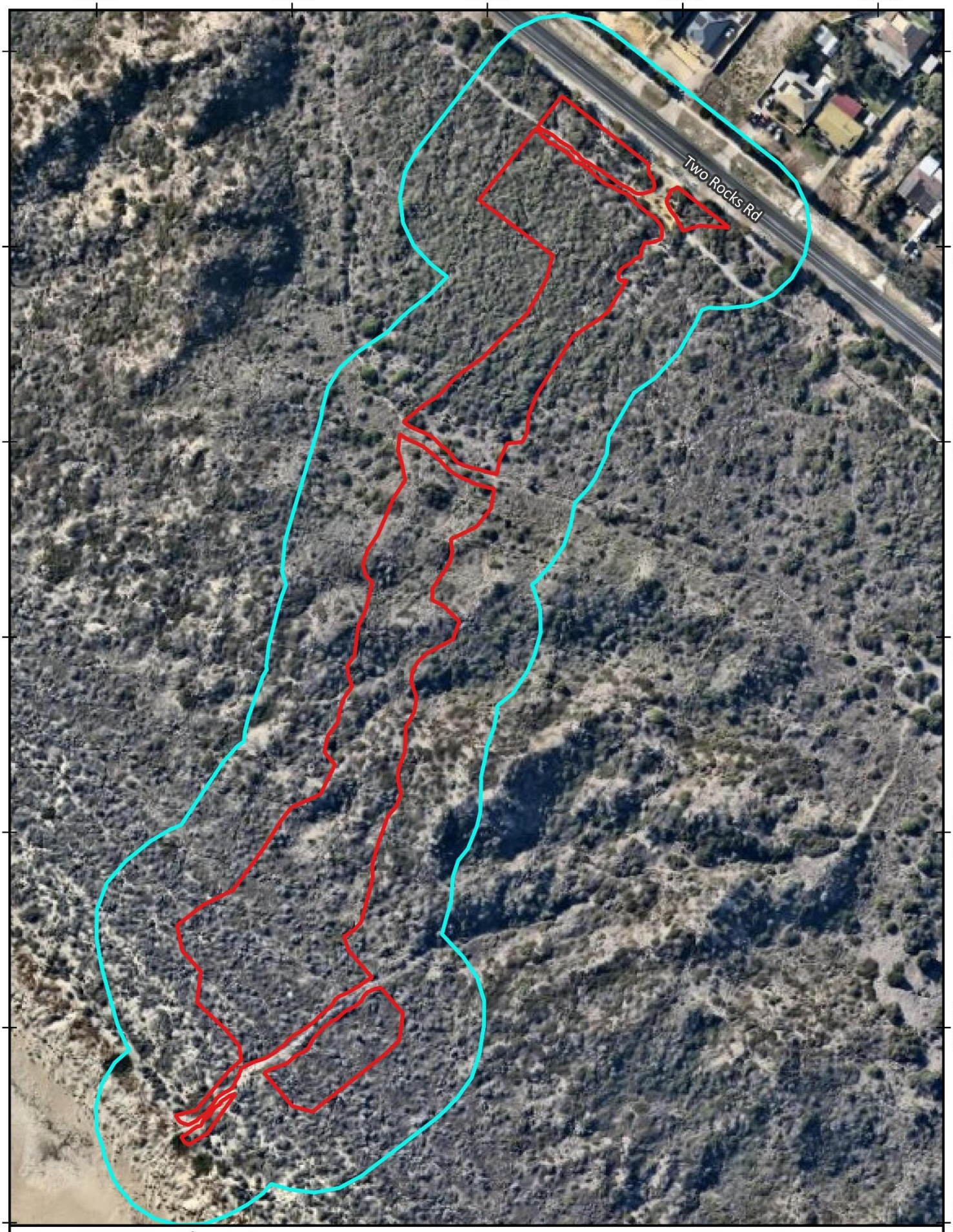

Figure 1:
Site Boundary

Two Rocks, Western Australia

Legend

- 30 m Buffer
- Clearing Boundary

CPS 9578/2

Client:	City of Wanneroo
Date:	11/12/2025
Created by:	J. Gannaway
Image Source:	Nearmap, 2025
Datum:	GDA2020 / MGA zone 50
Scale:	1: 1800

0 50 m

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2.0 Site Characteristics

2.1 Regional Context

The survey site is located within the north-western portion of the Swan Coastal Plain (SWA02) IBRA subregion (Department of Climate Chance, Energy, the Environment and Water (DCCEEW), 2024). The Swan Coastal Plain is characterised by a low-lying woodland plain, with sandy soils dominated by Banksia and Tuarts, to Duri crusted Mesozoic sediments with thick Jarrah Woodlands (Mitchell *et al.*, 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 (BoM) (2025); Gingin Aero, site number 009178, the region is subject to:

- Average rainfall of 636.4 mm per annum, with majority of rainfall between June and August (1996 - 2025) (BoM, 2025).
- Average maximum temperature range of 18.4 °C in July to 33.3 °C in January and February (1996 - 2025) (BoM, 2025).
- Average minimum temperature ranging from 6.6 °C in July and August to 17.0 °C in February (1996 - 2025) (BoM, 2025).

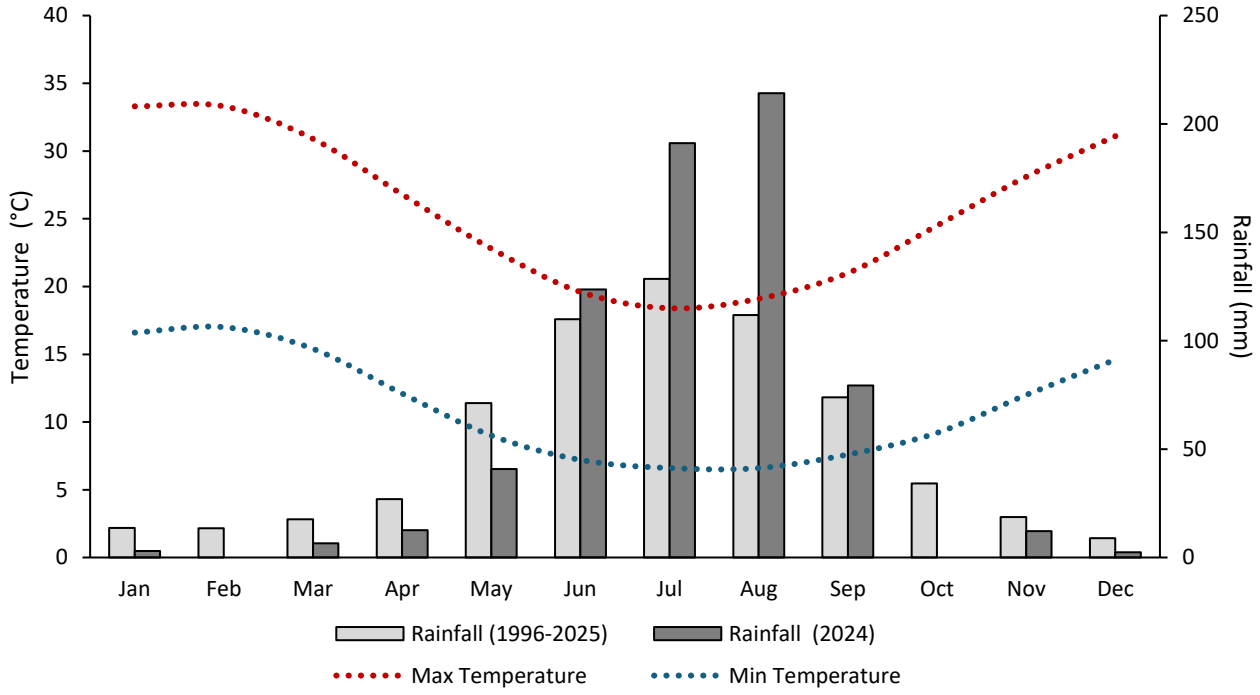

Figure 2: Temperature and rainfall data for the Gingin Aero, site number 009178. Source: BoM, 2025.

2.3 Topography and Soils

Four soil types were identified within the survey site, being the Quindalup South System (Department of Primary Industries and Regional Development (DPIRD), 2022) (Table 1 and Figure 3). The site ranges from 4 m Australian Height Datum (AHD) in the west end undulating to 14 m in the centre and 10 m AHD in the East (DPIRD, 2019).

Table 1: Soil types within the site

Name	Symbol	Description
Quindalup South water, beach phase	211QuU_BEACH	Beach
Quindalup South shallow sand flat phase	211Qu__Qs	Undulating landscapes with shallow calcareous sands over limestone and much rock outcrop
Quindalup South youngest dune phase	211Qu__Q4	The youngest phase. Irregular dunes with slopes up to 20%. Loose pale brown calcareous sand with no soil profile development
Quindalup South third dune phase	211Qu__Q3	The third phase. Irregular dunes with high relief and slopes up to 20%. Loose calcareous sand with little surface organic staining and incipient cementation at depth

Source: DPIRD, 2022.

2.4 Vegetation Complexes

One vegetation complex exists within the survey site boundary, the Quindalup Complex (DBCA, 2018). It is described by Heddle *et al*. (1980) as being restricted to the coastal dune system which can be divided into two vegetation structures called the 'strand' and 'fore dune'. The vegetation through the complex differs in physiognomy and species composition due to environmental factors such as degree of shelter and exposure to salt laden winds (Heddle *et al.* 1980) (Figure 4). The pre-European extent of this vegetation complex remaining is:

- 60.49 % within the Swan Coastal Plain
- 60.70 % within the City of Wanneroo (Government of Western Australia, 2019).

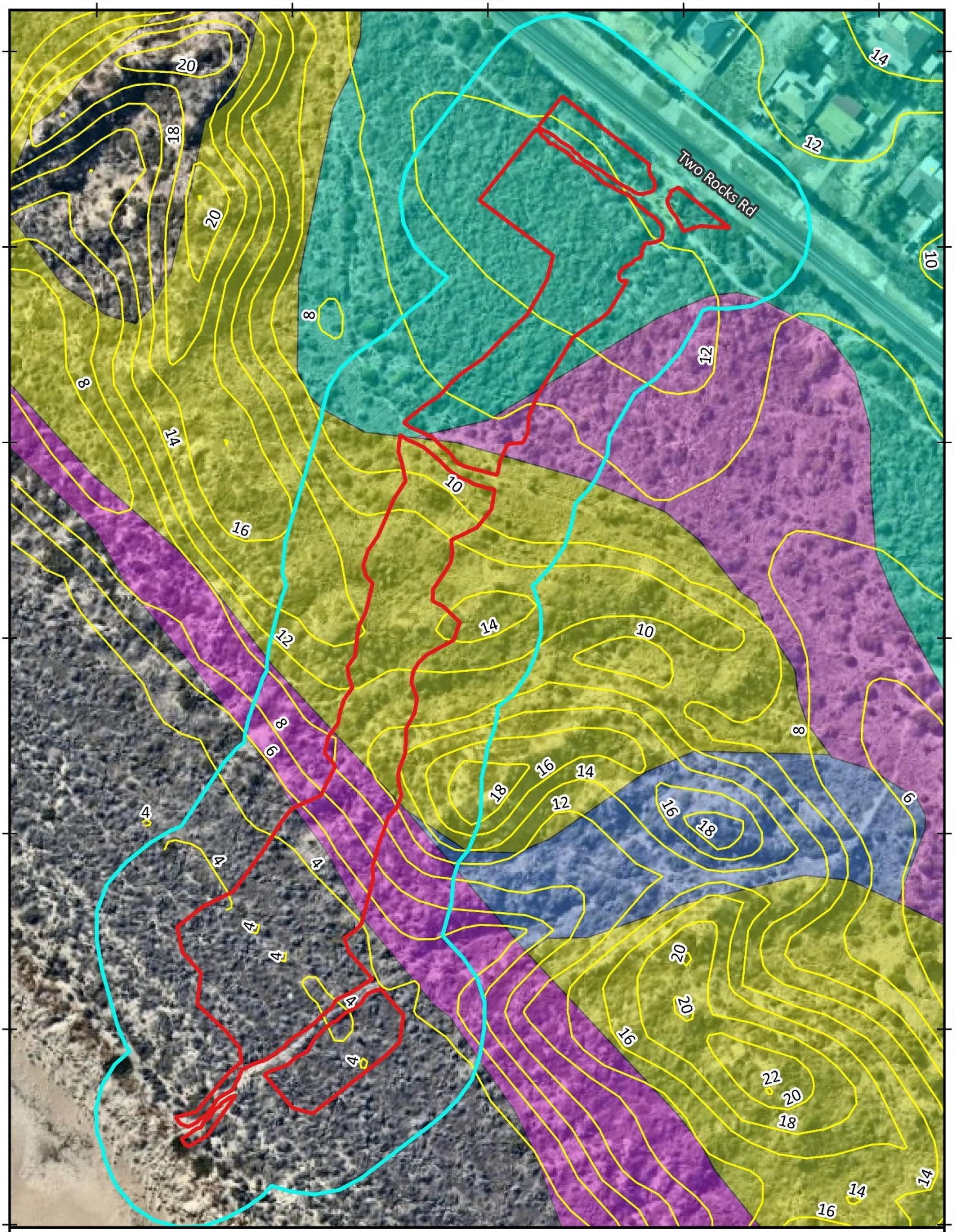

Figure 3:
Soil and Topography

Two Rocks, Western Australia

Legend

- Contours (2m)
- 211Qu__Q3
- 211Qu__Q4
- 211Qu__Qs
- 211Qu__Qu
- 211QuU_BEACH
- 30 m Buffer
- Clearing Boundary CPS 9578/2

Client:	City of Wanneroo
Date:	12/12/2025
Created by:	J. Gannaway
Image Source:	Nearmap, 2025
Datum:	GDA2020 / MGA zone 50
Scale:	1: 1800

0 50 m

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2.5 Heritage Values

The site is within the Whadjuk People Indigenous Land Use Agreement area (Landgate, 2025). There are no previous records of Aboriginal or European heritage recorded within the survey area (DPLH, 2025).

2.6 Ecological Linkages and Bush Forever Area

The site contains one of the Perth Regional Ecological Linkage Networks (ID 1) running through the entirety of the site (Figure 5) (Western Australian Local Government Association (WALGA), 2004). This ecological linkage links Bush Forever Sites 406 through to 315 and maintains connectivity within the Quindalup Complex along the coastline. The survey site contains one Bush Forever area (ID 397) within the centre of the site boundary (Department of Planning, Lands and Heritage (DPLH), 2019).

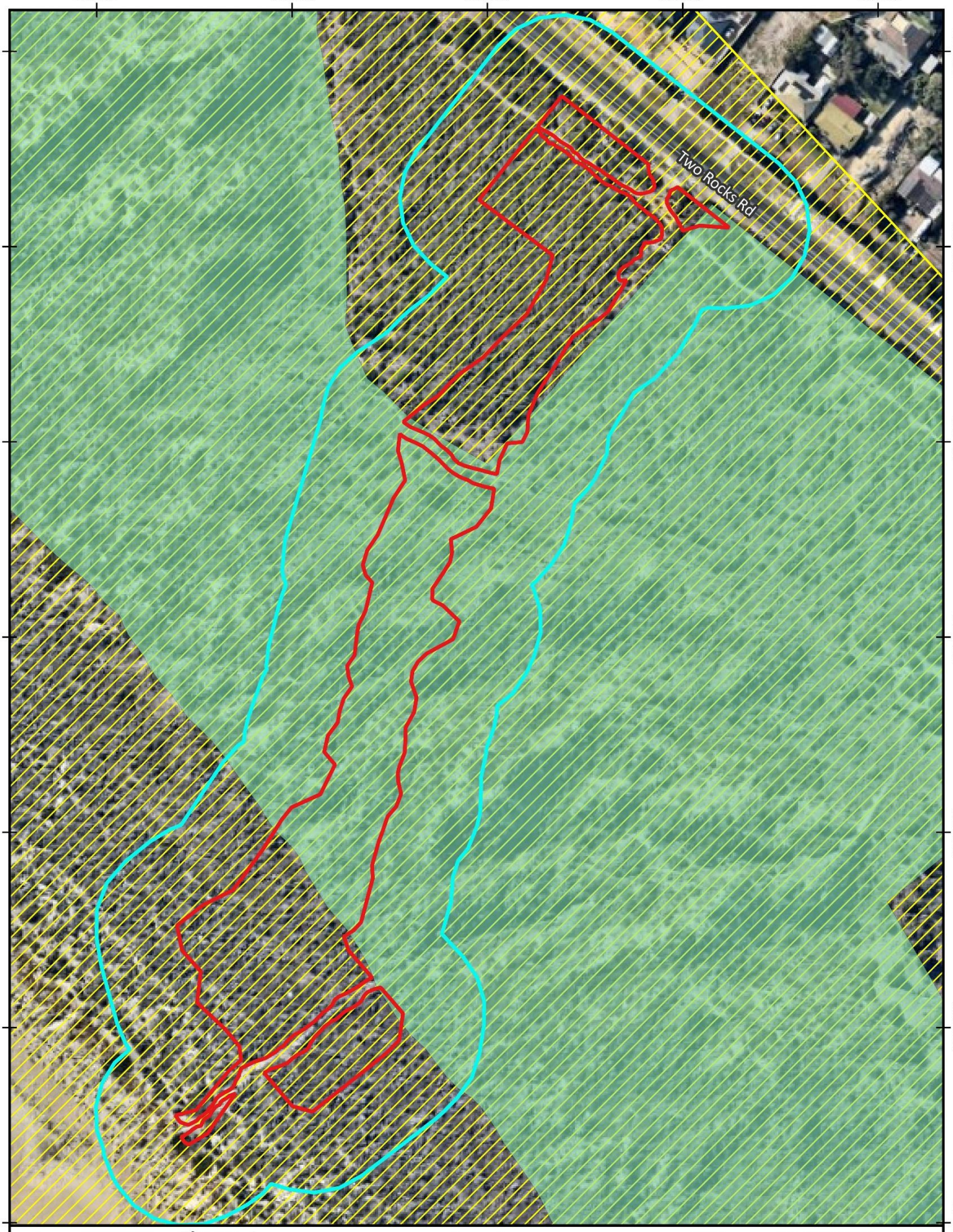

Figure 4:
Ecological Linkages and Bush Forever Areas

Two Rocks, Western Australia

Legend

- Bush Forever Areas (ID 397)
- Ecological Linkage (ID 1)
- 30 m Buffer
- Clearing Boundary CPS 9578/2

Client:	City of Wanneroo
Date:	12/12/2025
Created by:	J. Gannaway
Image Source:	Nearmap, 2025
Datum:	GDA2020 / MGA zone 50
Scale:	1: 1800

0 50 m

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3.0 Methodology

3.1 Desktop and Literature Review

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

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

The following databases were accessed to obtain relevant information:

- NatureMap (DBCA, 2025a)
- Protected Matters Search Tool (DCCEEW, 2025) (Appendix 2)
- FloraBase (Western Australian Herbarium, 1998-)
- Threatened and priority flora database searches (DBCA, 2025b)
- Threatened and priority ecological community database searches (DBCA, 2025c).

Conservation code definitions for the State and Commonwealth are provided in Appendix 2. Information relating to conservation significant species from database searches were summarised into field reference guides to aid with on-ground flora which is provided in Appendix 3.

3.2 Targeted Flora Survey

The targeted flora survey was conducted in line with *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority (EPA), 2016). Samples were collected, or photographs taken of unfamiliar species to enable later identification.

Natural Area undertook the survey on October 17, 2025, with key data recorded using QField software on a handheld tablet. Survey activities included:

- Traversing the entirety of the site and conducting a search for *Beyeria cinerea* subsp. *cinerea*, *Leucopogon maritimus*, and *Stylidium maritimum*.
- Marking locations of any conservation significant flora identified using yellow flagging tape and markers.
- Recording the reproductive state of the targeted species (i.e. immature fruit, dehisced fruit, flower bud, flower).
- Recording evidence of disturbance.

3.3 Limitations

The limitations associated with the targeted flora survey undertaken are outlined in Table 2 below.

Table 2: Targeted flora survey limitations

Potential Limitation	Degree of Limitation	Comments
Availability of contextual information	None	Broad regional and local contextual information was readily available for the site.
Competency/ experience of team	None	Survey activities were undertaken by experienced environmental scientists who have experience undertaking detailed flora surveys within the Swan Coastal Plain.
Proportion of flora recorded/ collected, any identification issues	None	The priority flora *Beyeria cinerea* subsp. *cinerea* and *Leucopogon maritimus* were identified and recorded on site. No *Stylidium maritimum* were recorded on site.
Survey effort and extent	None	The site was covered in 10 m wide transects to record the priority species. The site was covered at approximately 0.13 ha per hour.
Access restrictions	None	No access restrictions were present across the survey area, with the entire site able to be traversed.
Survey timing	Minor	The survey was undertaken during spring which is the optimal season for flora surveys within the Swan Coastal Plain subregion. Whilst the survey was undertaken during flowering season, some species flower earlier or later in the season and therefore may not be able to be identified. *Leucopogon maritimus* and *Beyeria cinerea* subsp. *cinerea* are perennial shrubs which had features readily available for identification. The survey was undertaken during the peak flowering period for *Stylidium maritimum* but was not recorded within the site. It is possible that the higher-than-average rainfall recorded in July and August 2025 (BOM, 2025) may have shifted the phenological timing of native species, impacting their detectability. Additionally, the increased rainfall has presented higher densities of weed species, this higher density may further impact the presence of native flora through competition and habitat alteration.
Disturbances	None	No recent disturbances which may have had an impact on survey results (e.g. fire, recent clearing or floods) were identified during the survey.

4.0 Flora Survey Results

4.1 Desktop Survey

A desktop survey of online databases indicated the potential for a total of 30 conservation significant species to occur within 10 km of the survey area (Table 3). NatureMap indicated 19 conservation significant flora species listed under the BC Act or by the Western Australian Herbarium (1998-), as potentially occurring within 10 km radius of the site (DBCA, 2025a). A review of the PMST report (DCCEEW, 2025) indicated 10 significant flora species listed under the EPBC Act as potentially occurring within a 10 km radius of the site (Appendix 1). A review of the DBCA (2025b) threatened and priority flora database indicated 19 threatened or priority species have been recorded within 10 km of the site.

A review of the 2019 surveys undertaken by One Tree Botanical (2020) highlighted three priority flora species were recorded in the survey area. The priority species recorded were *Leucopogon maritimus* (P1), *Beyeria cinerea* subsp*. cinerea* (P3) and *Stylidium maritimum* (P3). *Beyeria-cinerea* subsp. *cinerea* was recorded in the 2019 One Tree Botanical survey but was not recorded in the online database searches.

Of the conservation significant species potentially found in the area, it was determined that the site conditions (soil type, drainage, location) may be suitable for 8 (highlighted green) of these species (Table 3). Conservation code descriptions are provided in Appendix 2.

Table 3: Threatened and priority flora species within 10 km of the Two Rocks Beach Access Way

Species Name	Cons Code (Cth)	Cons Code (WA)	Nature Map	PMST	DBCA	One Tree Botanical (2020)
Acacia benthamii		P2	x		x	
Andersonia gracilis	EN	VU		x		
Banksia mimica	EN	VU		x		
Beyeria cinerea subsp*. cinerea*		P3				x
Calandrinia oraria		P3	x		x	
Conostylis bracteata		P3	x		x	
Conostylis pauciflora subsp*. euryrhipis*		P4	x		x	
Diuris micrantha	VU	VU		x		
Diuris purdiei	EN	EN		x		
Drakaea elastica	EN	CR		x		
Eleocharis keigheryi	VU	VU		x		
Eucalyptus argutifolia	VU	VU	x	x	x	
Eucalyptus foecunda subsp*. foecunda*		P4	x		x	
Hibbertia leptotheca		P3	x		x	
Lasiopetalum membranaceum		P3	x		x	

Species Name	Cons Code (Cth)	Cons Code (WA)	Nature Map	PMST	DBCA	One Tree Botanical (2020)
Lecania sylvestris		P2	x		x	
Lecania turicensis var. *turicensis*		P2	x		x	
Lepidium pseudotasmanicum		P4	x		x	
Leucopogon maritimus		P1	x		x	x
Macarthuria keigheryi	EN	EN		x		
Melaleuca sp. Wanneroo (G.J. Keighery 16705)	EN	EN		x		
Paracaleana dixonii	EN	VU		x		
Pimelea calcicola		P3	x		x	
Placynthium nigrum		P3	x		x	
Rinodina bischoffii		P2	x		x	
Sphaerolobium calcicola		P3	x		x	
Stylidium maritimum		P3	x		x	x
Styphelia filifolia		P3	x		x	
Styphelia porcata		P3	x		x	

4.1.1 Threatened and Priority Ecological Communities

A review of the PMST report (DCCEEW, 2025) and DBCA database search (DBCA, 2025c) identified five listed threatened ecological communities that could potentially occur within 10 km of the site (Table 4). Two priority ecological communities were previously recorded in the survey area by One Tree Botanical (2020) the priority ecological communities included Coastal shrublands on shallow sands (floristic community type 29a) and Northern Spearwood shrublands and woodlands (floristic community type 24).

Table 4: Potential threatened and priority ecological communities within 10 km of the Two Rocks Beach Access Way

Commonwealth Name	State Name	Cons Code (WA)	Cons Code (Cth)
Aquatic Root Mat Community in Caves of the Swan Coastal Plain	Acacia shrublands on taller dunes	P3	
	Aquatic Root Mat Community Number 1 of Caves of the Swan Coastal Plain	CR	EN
Banksia Woodlands of the Swan Coastal Plain ecological community	Banksia Woodlands of the Swan Coastal Plain ecological community	P3	EN
	Coastal shrublands on shallow sands	P3	
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	*Melaleuca huegelii - M. systena* shrublands of limestone ridges (floristic community type 26a as originally described in Gibson *et al*. 1994)	CR	CR
Sedgelands in Holocene dune swales of the southern Swan Coastal Plain	Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in in Gibson *et al.* 1994)	CR	EN
Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain ecological community	Southern *Eucalyptus gomphocephala-Agonis flexuosa* woodlands	P3	CR
	Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	P3	CR
	Quindalup *Eucalyptus gomphocephala* and/or *Agonis flexuosa* woodlands		CR

4.2 Flora Survey Results

Of the potential conservation significant flora species identified to potentially occur on site, only two were recorded within 30 m of the proposed clearing area, *Beyeria cinerea* subsp. *cinerea* and *Leucopogon maritimus*. *Beyeria cinerea* subsp. *cinerea* is listed as Priority 3 by DBCA and *Leucopogon maritimus* is listed as Priority 1. The location of these species are provided in Figure 7.

A total of 149 *Beyeria cinerea* subsp. *cinerea* were recorded within 30 m of the proposed clearing area. *Beyeria cinerea* subsp. *cinerea* was recorded primarily within low open shrubland areas on consolidated sand dunes. Flora species recorded nearby included *Olearia axillaris*, *Acacia cyclops*, *Melaleuca systema* and *Lomandra maritima*.

Figure 5: *Beyeria cinerea* subsp. *cinerea* recorded and marked within the site.

One *Leucopogon maritimus* was recorded within 30 m of the proposed clearing area. Leucopogon maritimus was recorded primarily within low open shrubland areas on consolidated sand dunes. Flora species recorded nearby included *Olearia axillaris*, *Acacia cyclops*, *Melaleuca systema* and Lo*mandra maritima*.

Figure 6: *Leucopogon maritimus* recorded within the site.

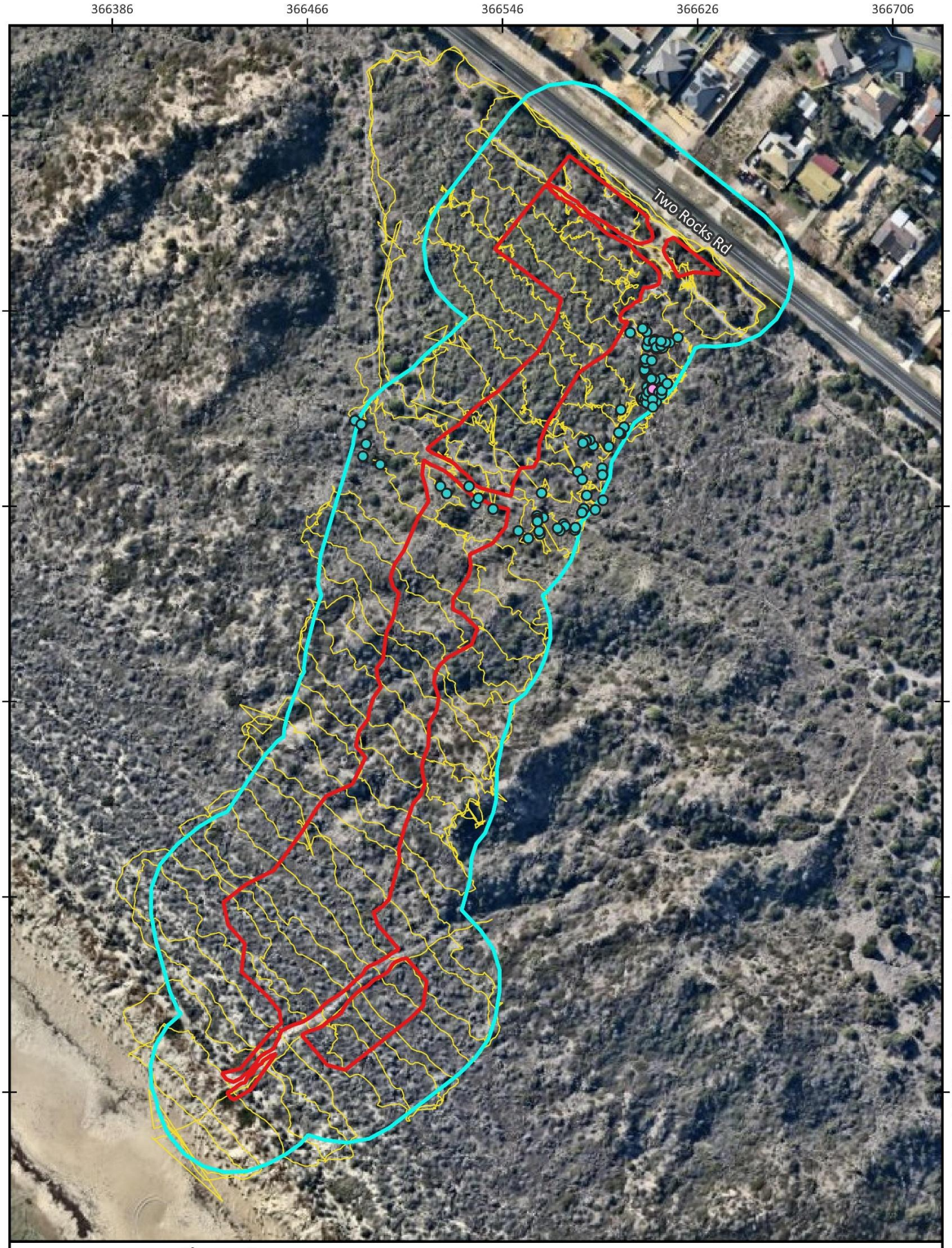

Figure 7:

Conservation Significant Flora

Two Rocks, Western Australia

Legend

- Beyeria cinerea subsp. cinerea (P3)
- Leucopogon maritimus (P1)
- Tracklogs
- 30 m Buffer
- Clearing Boundary CPS 9578/2

Client:	City of Wanneroo
Date:	12/12/2025
Created by:	Z. Stoney
Image Source:	Nearmap, 2025
Datum:	GDA2020 / MGA zone 50
Scale:	1: 2000

0 25 50 m

N

5.0 Discussion

A total of 149 *Beyeria cinerea* subsp. *cinerea* and 1 *Leucopogon maritimus* were recorded within 30 m of the proposed clearing area. Four *Beyeria cinerea* subsp. *cinerea* and no *Leucopogon maritimus* were recorded within the proposed clearing activity area. An example of the site with priority flora marked out is displayed in Figure 8.

Figure 8: Landscape photo displaying marked priority flora with flagging tape.

Compared to previous surveys, there appears to be a decrease in the number of individuals recorded across all three species. However, the 2025 targeted flora survey covered a significantly smaller area (4.8 ha) than the 2019 survey conducted by One Tree Botanical, which covered 12 ha. Given the temporal gap (6 years) and spatial differences, variation in population may be expected.

Stylidium maritimum was not recorded during the survey period. The survey was undertaken during the peak flowering period for *this* species; however, it is possible that the higher-than-average rainfall recorded in July and August 2025 (BOM, 2025) may have shifted the phenological timing of native species, impacting their detectability. Additionally, the increased rainfall has presented higher densities of weed species, this higher density may further impact the presence of native flora through competition and habitat alteration.

Condition 10 (a) Flora Management of CPS 9578/2 allows for the clearing of up to four (4) *Beyeria cinerea* subsp. *cinerea* plants only. As additional *Beyeria cinerea* subsp. *cinerea* plants have germinated within the CPS 9578/2 clearing area since the previous Biological Survey and approval of clearing permit CPS 9578/2, the City will need to seek an amendment to Clearing Permit CPS 9578/2 to remove the additional two (2) *Beyeria cinerea* subsp. *cinerea* plants.

All personnel involved in clearing activities should be informed of the presence of priority flora within the site. These personnel should receive adequate training to identify these species and to implement a management action plan in the event that additional priority species are encountered during the clearing activities. All flagging tape is to be removed following the completion of clearing activities.

6.0 References

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Department of Biodiversity, Conservation and Attractions (DBCA). (2025b). Threatened and Priority Flora Database Search for Two Rocks retrieved [9 July, 2025. Prepared by the Species and Communities program for City of Wanneroo and Natural Area for pre-clearance flora survey.

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Appendix 2: Conservation Codes

A2.1 Flora and Fauna

State Flora and Fauna Conservation Codes under the *Biodiversity Conservation Act 2018* (WA)

Conservation Code	Name	Description
Threatened Species		
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
Extinct Species		
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
Specially Protected Species		
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Other Specially Protected Species	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)

State Flora and Fauna Conservation Codes listed by Department of Biodiversity, Conservation and Attractions

Conservation Code	Name	Description
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
P2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
P3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat
P4	Priority Four	Rare or near threatened and other species in need of monitoring. 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 a conservation dependent specially protected species. c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

Source: DBCA, 2023.

Commonwealth Flora and Fauna Conservation Codes under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

Category	Description
Extinct	A native species which at at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Extinct in the wild	A native species which at a particular time if, at that time: a) It is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or b) It has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically endangered	A species considered to be facing an extremely high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Endangered	A species considered to be facing a very high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Vulnerable	A species considered to be facing a high risk of extinction in the wild and is determined that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations.
Conservation dependent	A native species which at a particular time if, at that time: a) is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or b) the following subparagraphs are satisfied: i. the species is a species of fish; ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised; iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory; iv. cessation of the plan of management would adversely affect the conservation status of the species

A2.2 Ecological Communities

State Ecological Community Conservation Codes under the *Biodiversity Conservation Act 2018* (WA)

Conservation Code	Name	Description
PD	Presumed Totally Destroyed	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future
CR	Critically Endangered	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
EN	Endangered	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future
VU	Vulnerable	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

State Ecological Community Conservation Codes listed by Department of Biodiversity, Conservation and Attractions

Conservation Code	Name	Description
P1	Priority One	**Poorly known ecological communities - very few occurrences, very restricted distribution** Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100 ha). Occurrences are believed to be under threat either due to limited extent or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range
P2	Priority Two	**Poorly known ecological communities - few occurrences, restricted distribution** Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200 ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
P3	Priority Three	**Poorly known ecological communities - inadequately surveyed or not well defined** Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them. his category includes three sub-categories: i. Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation. ii. Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), iii. Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from

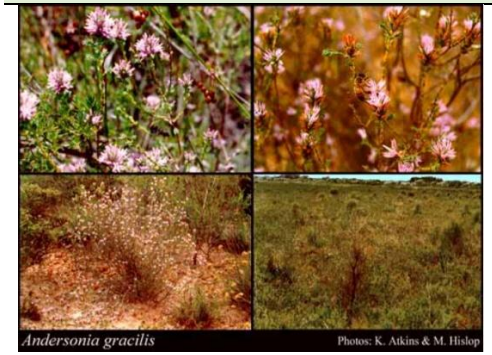
Conservation Code	Name	Description
		processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.
P4	Priority Four	**Adequately known ecological communities - rare, near threatened, or recently removed from the threatened list** Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. i. Rare: Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These communities are usually represented on conservation lands. ii. Near Threatened: Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category. iii. Ecological communities that have been removed from the list of threatened communities during the past five years.
P5	Priority Five	**Conservation dependent ecological communities** Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Source: DBCA, 2023.

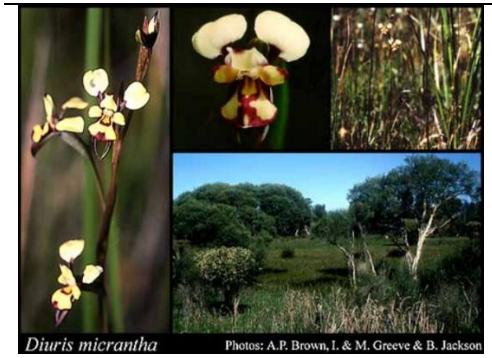
Commonwealth Ecological Community Conservation Codes under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth)

Category	Description
Critically endangered	If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).
Endangered	If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).
Vulnerable	If, at that time, an ecological community is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future (indicative timeframe being the next 50 years).

Appendix 3: Significant Species

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Acacia benthamii*	Bentham's Wattle	Shrub, ca 1 m high. Fl. yellow,	Aug to Sep.	Sand. Typically on limestone breakaways.	P2	Y	Habitat suitable
 *Andersonia gracilis*		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.	VU	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Banksia mimica*	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.	EN	N	Habitat unsuitable
 *Beyeria cinerea* subsp. *cinerea*		Open, erect shrub, 0.3-0.9 m high, 0.4-0.8 m wide. Fl. green-yellow.	Aug to Nov.	Sand over limestone. Road verges, gullies.	P3	Y	Habitat suitable
Calandrinia oraria		Medium to large ercet plant with thickened stem at the nase, occuring in the immediate coastal zone	Aug to Oct		P3	N	Habitat unsuitable
Conostylis bracteata		Rhizomatous, tufted or shortly proliferous perennial, grass-like or herb, 0.2-0.45 m high. Fl. yellow,	Aug to Sep.	Sand, limestone. Consolidated sand dunes.	P3	Y	Habitat suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
Conostylis pauciflora subsp. *euryrhipis*		Rhizomatous, stoloniferous perennial, grass-like or herb, 0.06-0.18 m high. Fl. yellow	Aug- Oct	White, Grey or Yellow Sand. Consolidated dunes	P4	N	Habitat unsuitable
 *Diuris micrantha*	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 unsuitable
 *Diuris purdiei*	Purdie's Donkey Orchid	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. Yellow.	Sep to Oct.	Grey-black sand, moist. Winter-wet swamps.	EN	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Drakaea elastica*	Glossy-leaved 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.	CR	N	Habitat unsuitable
 *Eleocharis keigheryi*		Rhizomatous, clumped perennial, grass-like or herb (sedge), to 0.4 m high. Fl. Green.	Aug to Nov.	Clay, sandy loam. Emergent in freshwater: creeks, claypans.	VU	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Eucalyptus argutifolia*	Wabling Hill Mallee	(Mallee), 1.5-4 m high, bark smooth. Fl. white	Mar to Apr.	Shallow soils over limestone. Slopes or gullies of limestone ridges, outcrops.	T	Y	Habitat suitable
Eucalyptus foecunda subsp. *foecunda*	Fremantle Mallee	Dense emergent mallee. Bark +/- smooth; buds golden.		Sand over limestone.	P4	N	Habitat unsuitable
Hibbertia leptotheca					P3	N	Habitat unsuitable
Lasiopetalum membranaceum		Multi-stemmed shrub, 0.2-1 m high. Fl. pink-blue-purple.	Sep to Dec.	Sand over limestone.	P3	Y	Habitat suitable
Lecania sylvestris					P2	N	Habitat unsuitable
Lecania turicensis var. *turicensis*					P2	N	Habitat unsuitable
Lepidium pseudotasmanicum		Erect annual or biennial, herb, 0.2-0.4(-1) m high. Fl. white-green	Feb or Dec.	Loam, sand.	P4	N	Habitat unsuitable
Leucopogon maritimus		Low spreading shrubs 40 cm high and 60 cm wide, often multi-stemmed close to the base but single stemmed at ground level with a fire-sensitive root stock. Leaves spirally arranged, antrose, usually steeply so , narrowly eliptic, 3.9-8.6 mm long, 1.2 -	Apr to Jun	Near-coastal Quindalup Dunes. Occurs in deep, calcereous sands, on the mid to upper slopes of dunes or in shallow sand over limestone but avoiding thicker vegetation of the swales.	P1	Y	Habitat suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
		2.6mm wide, apex acute to subacute without a sedderentiated callus point. Flower cream or yellowish.					
 *Macarthuria keigheryi*		Erect or spreading perennial, herb or shrub, 0.2-0.4 m high, 0.3-0.6 m wide.	Sep to Dec or Feb to Mar.	White or grey sand.	EN	N	Habitat unsuitable
Melaleuca sp. Wanneroo (G.J. Keighery 16705)					T	N	Habitat unsuitable
 *Paracaleana dixonii*	Sandplain Duck Orchid	Tuberous, perennial, herb, 0.09-0.2 m high. Fl. yellow-brown,	Oct to Dec or Jan.	Grey sand over granite.	T	N	Habitat unsuitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
 *Pimelea calcicola*	Coastal Banjine	Erect to spreading shrub, 0.2-1 m high. Fl. Pink.	Sep to Nov.	Sand. Coastal limestone ridges.	P3	Y	Habitat suitable
Placynthium nigrum					P3	N	Habitat unsuitable
Rinodina bischoffii					P3		
 *Sphaerolobium calcicola*		Slender, multi-stemmed, scandent or erect shrub, to 1.5 m high. Fl. orange-red	Jun or Sep to Nov.	White-grey-brown sand, sandy clay over limestone, black peaty sandy clay. Tall dunes, winter-wet flats, interdunal swamps, low-lying areas.	P3	N	Habitat unsuitable
	Coastal Triggerplant	Caespitose perennial, herb, 0.3-0.7 m high, Leaves tufted, linear to narrowly oblanceolate, 10-40 cm long, 1-5.5 mm wide, apex acute to mucronate, margin involute, glabrous. Membraneous scale leaves present at base of mature leaves. Scape glandular throughout.	Sep to Nov.	Sand over limestone. Dune slopes and flats. Coastal heath and shrubland, open Banksia woodland.	P3	Y	Habitat suitable

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons code	Likelihood (Y/N)	Comment
Stylidium maritimum		Inflorescence paniculate. Fl. white/purple.					
Styphelia filifolia					P3	N	Habitat unsuitable
Styphelia porcata					P3	N	Habitat unsuitable