

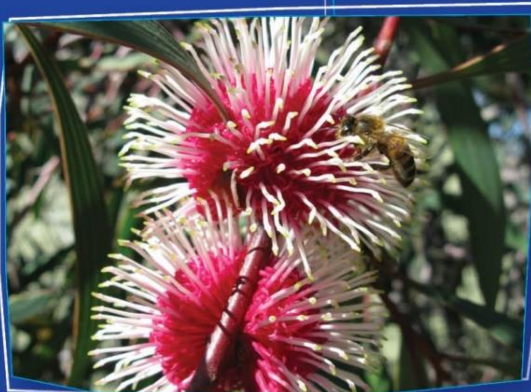
## Vegetation, Flora, Fauna and Environmental Considerations, and Targeted Flora Report

Shire of Esperance Strategic Purpose Permit 2021/22  
Site A – Cascade Road and Gravel Pits



Report compiled by Shire of Esperance Environmental Team:  
Katie White – BSc (Hons), Environmental Officer  
Julie Waters – BEnvSc, Environmental Coordinator  
Katherine Walkerden – BSc, MEnvSc, Environmental Officer  
Sophie Willsher – Environmental Field Assistant  
Danika Penson – Environmental Field Assistant  
Rhaquelle Meiklejohn – Environmental Field Assistant

Reviewed by Parks and Reserves Manager, Dylan Gleave



February 2022

## 1 Executive Summary

This 'Vegetation, Flora, Fauna and Environmental Considerations and Targeted Flora Report' has been undertaken in accordance with the 'Environmental Protection Authority (EPA) Technical Guidance, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (2016)' as part of the application to the Department of Water and Environmental Regulations (DWER) to clear 6.56 ha of native vegetation in a 11.07 ha footprint for the purpose of gravel extraction and road widening. Specifically 1.05ha on the road, 3.57 ha within a 3.80 ha footprint will be cleared at Pit 1 on Rollond Rd and 2.07 ha at Pit 2 on West Point Rd.

## 2 Introduction

The Shire of Esperance endeavors to maintain a high level of road safety, being proactive in identifying high risk road designs and progressively upgrading them. The Shire of Esperance manages the largest road network of any local government in Western Australia, encompassing a total of 4,593 km of road, of which a large amount of area remains unsealed, requiring basic raw materials to maintain. The Shire of Esperance endeavors to maintain a high level of road safety, and therefore requires a continual supply of gravel for routine maintenance to ensure the running surface of unsealed roads are safe. The Shire of Esperance is submitting 'Cascade Road Gravel Pits' project as Site A under the '2021-22 Strategic Purpose Permit' (Figure 1), for the purpose of extracting gravel material for road construction and maintenance along with a section of road widening.

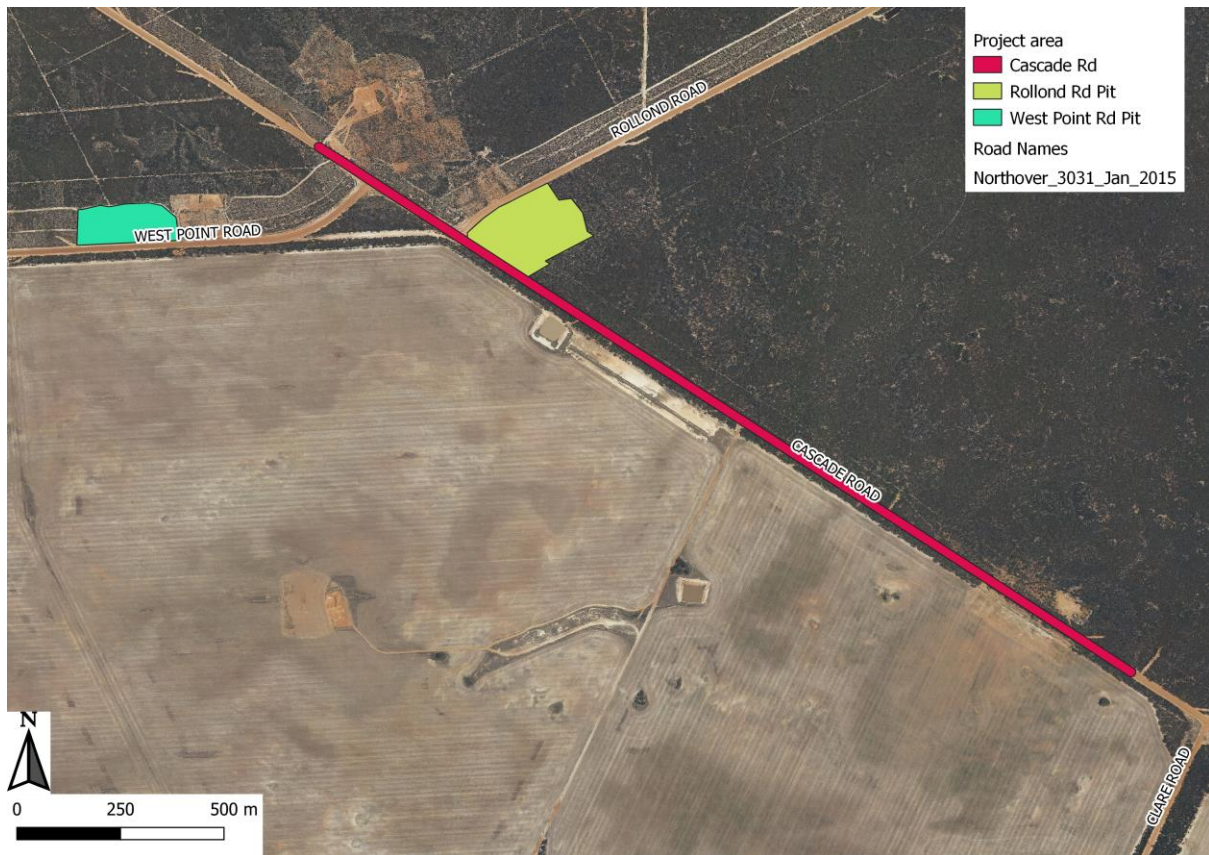
The proposed works are located ~110 km northwest of Esperance and ~22 km northwest of Cascade town-site, within the Shire of Esperance managed road reserve of Cascade Road. The project includes;

- road widening at straight line kilometre (SLK) 73.59 to 75.89
- Gravel pit 1, located at the intersection of Rollond Rd and Cascade Rd, at straight line kilometre (SLK) 83.45 km to 83.21 on Rollond Rd and SLK 75.56 km to 75.37 on Cascade Rd (Main Roads 2020).
- Gravel Pit 2 is located approximately 0.6 km west of Cascade Rd on West Point Rd, specifically at SLK 0.54 km to 0.78 on West Point Rd (Main Roads 2020).

A point within the proposed clearing permit area is -33.3470 S, 120.8750 E (UTM Zone 51 H, GDA94).

This project involves the re sheeting of an unsealed section of Cascade road which is classified as a regional Distributor road giving access to properties north west of Cascade. It has a traffic composition of up to 22% heavy vehicles during peak periods. The current clear width averages approximately 20m. The preferred road profile to be utilised is STD00023 A. To minimise impacts of clearing the width of clearing has been reduced from the 22m desirable clearing envelope to 21m.

In regards to the gravel pits, the Shire of Esperance has identified these gravel pits as last resorts after all private property landowners in the area refused to allow the Shire of Esperance to access gravel on cleared private property, an ongoing issue in the north west (Cascades area) of the Shire. The proposed clearing permit area has already been reduced as the original area identified for Pit 1 by the Shire of Esperance's Road Maintenance Supervisor included some areas with vegetation communities which aren't associated with gravel presence. Additionally, some of the original area of Pit 1 had been recently burnt and was consequently not included in the clearing permit, as it would have been difficult to rehabilitate after clearing due to lack of soil and canopy stored seed.



**Figure 1.** Location of 'Site A – Cascade Road and Gravel Pits' clearing permit application, submitted under the Shire of Esperance's '21/22 Strategic Purpose Permit'.

### 3 Environmental Background

#### 3.1 Scope

The removal of native vegetation to extract gravel has the potential to affect a multiple environmental factors.

Possible impacts include;

- Threatened Flora (TF) and Priority Flora (PF).
- Threatened fauna.
- Threatened Ecological communities (TEC) and Priority Ecological Communities (PEC), specifically the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia' (Kwongkan) TEC.

Assessing these impacts involves two approaches; desktop study and field survey. The desktop study gathered background information on the target area. The field survey allows for detailed understanding of vegetation communities, targeted flora surveys for possible TF or PF, environmental condition, presence of PEC and TEC, and overall potential impact of clearing.

#### 3.2 Catchment

Site A – Cascade Road and Gravel Pits is present within the Lort Young sub catchment within the Stokes inlet catchment catchment area. It is located approximately 56km away from the coast.

### 3.3 Climate

The Esperance climate is described as Mediterranean, characterised by cool wet winters and dry warm summers (BoM 2020). The area receives an average annual rainfall of 618 mm.

### 3.4 Geology

Three geological units were identified within 'Site A – Cascade Road and Gravel Pits', by Schoknecht et al. (2004). They are described as:

- Sand or gravel plains.
- Quartz sand sheets commonly with pebbles or minor clay.
- Local calcrete, laterite, silcrete, silt, clay, alluvium, colluvium and Aeolian sand.

### 3.5 Soils

The soil of 'Site A – Cascade Road and Gravel Pits' is defined as red alkaline gradational soils of the Scaddan 4 Subsystem (Schoknecht et al. 2004).

### 3.6 Topography

During the field survey, topography was observed to be a level plain. Using Schoknecht et al. (2004), the project topography is mapped at a fine scale, traversing a single topographic area. This was Level plain or plateau of low relief and poor drainage. Gilgia microrelief is common.

### 3.7 Vegetation

The site is located within the Eastern Mallee (Mal01) Interim Biogeographic Regionalisation of Australia (Thackway & Cresswell 1995) region. The Mal01 is described as "the south-eastern of Yilgarn Craton is gently undulating, with partially occluded drainage. Mainly Mallee over Myrtaceous-Proteaceous heaths on duplex (sand over clay) soils. Melaleuca shrublands characterize alluvia, and Halosarcia low shrublands occur on saline alluvium. A mosaic of mixed Eucalypt woodlands and Mallee occur on calcareous earth plans, and sandplains overlying the Eocene Limestone strata in the East. Semi-arid (dry) and warm Mediterranean".

Beard (1973) described the area within the 'Site A – Cascade Road and Gravel Pits' area as Vegetation Association (VA) 512. VA 512 (Beard 1973) is described as 'shrublands; mallee scrub, *Eucalyptus eremophila* & Forrest's marlock (*E. forrestianna*)'.

**Table X.** Vegetation associations mapped by Beard (1973) within the 'Site A – Cascade Road and Gravel Pits', and statistics on pre-European remaining areas.

Nt. Acronyms used include Interim Biogeographic Regionalisation of Australia (IBRA), Eastern Mallee (Mal01), local government area (LGA) and International Union of Conservation Nature (IUCN).

Vegetation Association	VA 512
Description	Shrublands; mallee scrub, <i>Eucalyptus eremophila</i> & Forrest's marlock ( <i>E. forrestianna</i> )
Pre-European extent in IBRA region Mal01 (%)	26.41%
Pre-European extent in LGA (%)	20.14%
Current extent conserved in IUCN area (%)	2.38

### 3.8 Land use

The area directly included in the clearing permit application 'Site A – Cascade Road and Gravel Pits' is currently intact and vegetated road reserves, managed by the Shire of Esperance; including the 200 m wide Rollond Rd reserve, 200 m wide West Point Rd reserve and the 100 m wide Cascade Rd reserve. The surrounding land use is dominated by broad acre cropping agriculture, with the small rural satellite town of Cascade nearby. There is also areas of large intact areas of bushland and is relatively close to the Great Western Woodlands crown land, to the north and north-west of the site. The area is within rural zoning.

## 4 Methodology

### 4.1 Desktop study

A desktop study was completed prior to any site visit. Geographical Information System (GIS) review existing

- Existing site digital orthophotos, as sourced from LandGate (Northover, 2015).
- Western Australian Local Government Association's (WALGA) 'Local Government Mapping (LGMap 2020)' program was used to assess spatial information of geology, topography, soil profiles, native and planted vegetation, water bodies and Interim Biogeographical Regionalisation for Australia (IBRA; Thackway & Cresswell 1995) classification system.
- Data provided by Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Herbarium in July/August 2020 was used to assess threatened flora (TF), priority flora (PF), and threatened (TEC) and priority (PEC) ecological communities within 20 km radius of the site. Specifically, spatial data included;
  - WAHerb extract (DBCA 2021f).
  - Threatened and Priority Reporting (TPFL; DBCA 2021d).
  - Esperance District Threatened Flora (DBCA 2021a).
  - TEC and PEC 'Likely to Occur' buffer and boundary areas (DBCA 2021e).
  - Department of Agriculture, Water and the Environment Protected Matters Search Tool
  - Index of Biodiversity Surveys for Assessment (IBSA).
- To assess fauna, the following databases were searched with a 20km buffer from the center of the site (-33.3470 S, 120.8750 E);
  - Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Museum (WAM) NatureMap data portal
  - DBCA Threatened and Priority Fauna database
  - BirdLife Australia's Atlas and Birddata datasets
  - Department of Agriculture, Water and the Environment Protected Matters Search Tool
  - Atlas of Living Australia database
  - Index of Biodiversity Surveys for Assessment (IBSA).

### 4.2 Field investigation: possible ecological impacts

The gravel pit sites were initially inspected on 02/09/2020, by Shire of Esperance Environmental Officers, Katie White and Rhaquelle Meiklejohn, and a follow-up inspection was conducted on 15/09/2020 by Shire of Esperance Environmental Officers, Katie White and Danika Penson. An assessment of possible ecological impacts included historical clearing, artificial water way constructions, impact of fire regimes, regeneration from disturbance, waterlogging, senescence, weeds, erosion, sedimentation, invasive fauna, *Phytophthora cinnamomi* Dieback, and illegal dumping of rubbish. The Cascade road portion of the site was surveyed by Shire of Esperance Environmental Officers, Julie Waters and Katherine Walkerden on 31/8/2021, 1/9/2021 and 28/9/2021 using the road as a transect.

Vegetation community was also assessed during the field survey. Broad vegetation types defined by structure and composition were recorded and described. Condition of vegetation was assessed using Keighery (1994) categories, as 'Excellent', 'Very Good', 'Good', 'Degraded' or 'Completely Degraded'. This illustrates how healthy vegetation is, determined by number of dead or dying plants, weed cover and other forms of degradation. Additionally, possible environmentally sensitive areas, such as wetlands or granite, were noted. Overall, an assessment of environmental impacts to Department of Water and Environmental Regulation's (DWER) biodiversity values were inspected and valued.

Only a very basic fauna survey was conducted as per EPA (2020) guidelines. Observations of fauna presence, such as call sounds, footprints and scats were also noted, and the area assessed for Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) feeding, roosting and nesting habitat and Malleefowl (*Leipoa ocellata*) habitat.

### 4.3 Field investigation: Assessing Threatened and Priority Ecological Communities

The vegetation community of 'Site A – Cascade Road and Gravel Pits' was assessed for the presence a TEC or PEC, specifically the Environmental Protection and Biodiversity Conservation Act 1999 listed 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' TEC. The presence of Kwongkan was identified using diagnostic characteristics defined in the 'Approved Conservation Advice for Kwongkan (Commonwealth of Australia 2014)' as;

2a) Characterised by Proteaceae species having 30% or greater cover of Proteaceae species across all layers where these shrubs occur (crowns measured as if they are opaque).

And/or

2b) Two or more diagnostic Proteaceae species are present that are likely to form a significant vegetative component when regenerated.

PEC's do not have published approved conservation advice. Comparison of the vegetation community occurred using 'Priority Ecological Communities for Western Australia Version 32 (DBCAs 2021)' definitions.

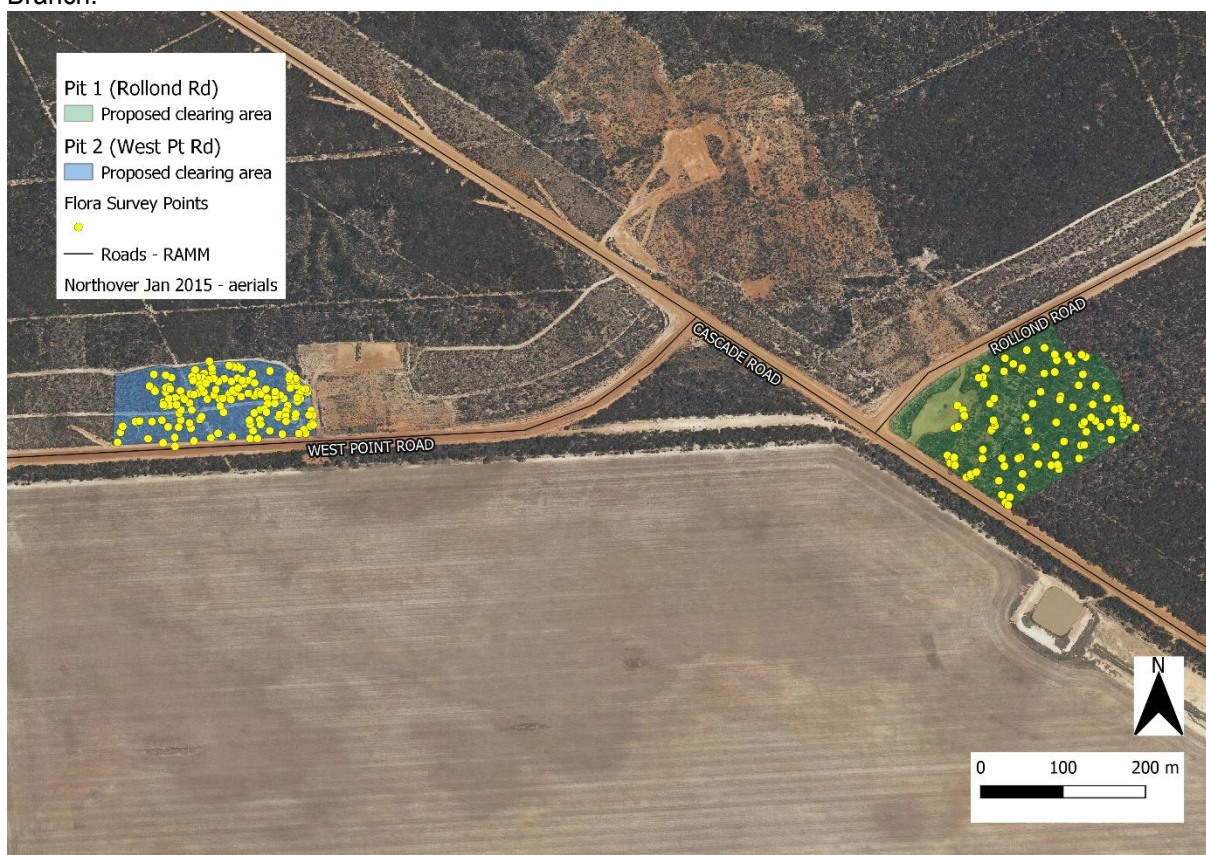
### 4.4 Field Investigation: Targeted flora survey

The targeted flora survey was undertaken following the Environmental Protection Authority's (EPA) 'Technical Guidance, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (2016)'. The entirety of the proposed impact area for the gravel pits was surveyed on foot in mid-spring, on 02/09/2020 and 15/09/2020 by Shire of Esperance Environmental Officers, Katie White, Rhaquelle Meiklejohn, Sophie Willsher and Danika Penson. Due to the spring timing, the majority of species were flowering, decreasing the likelihood of missing species. Vegetation within the mapped area (Figure 1) was assessed to accurately cover the 6.56 ha proposed clearing permit area, using random traverses within the entire area as a quadrant. (Figure 2) Suitable associated habitat for TF or PF identified in the desktop study were particularly focused on, and extensively searched. A follow up survey was conducted on 31/8/2021, 1/9/2021 and 28/9/2021 by Shire of Esperance Environmental Officers, Julie Waters and Katherine Walkerden to specifically target the identification and counting of the priority 2 species *Guichenotia asteriskos* and the priority 1 species *Acacia diminuta* as well as survey the road widening on Cascade Road. An additional survey of *Gyrostemon ditrigynus* was completed on 25/01/2021 by Julie Waters and Katherine Walkerden.

Due to the high diversity and complexity of Esperance's flora, all species were recorded to compile an incidental species list (Appendix 8.1). All species unknown in the field were collected and identified exsitu, using keys, WA Herbarium's Florabase (DBCAs 2021f), manuals and Esperance District Herbarium, to ensure no TF or PF were missed. Material was collected under several Regulation 61,

Biodiversity Conservation Regulations 2018 Licence for Flora Taking: including Katie White's; FT61000029, Sophie Willsher's; FB2000278, Rhaquelle Meiklejohn's; FB26000277, Danika Penson's; FB62000277; Julie Waters' FT61000787, and Katherine Walkerden's FT61000788. Any species that were unable to be identified were submitted to the WA Herbarium for identification.

Over the course of the 2020 wildflower season, surveyors re-familiarised themselves with key taxonomic indicators and associated habitat, by visiting verified populations of *Acacia bartleij*, *Bentleya diminuta* and *Stenanthera localis*. For other PF or TF species identified in the desktop survey as possible to occur, scans of pressed specimens from the local Esperance District Herbarium were taken into the field. Any flora thought to be TF or PF was formally collected, counted and mapped using a Panasonic FS-G1 Toughpad with the program ROAM or a GPS Garmin GPS64. Specimens were then lodged with the WA Herbarium for formal verification. When PF were confirmed, TPFL forms were completed and submitted to the DBCA's district Conservation Officer, and Species and Communities Branch.



**Figure 2.** Map of random sampling points traversed during the spring 2019 flora survey of 'Site A – Cascade Road and Gravel Pits'.

## 5 Results and Discussion

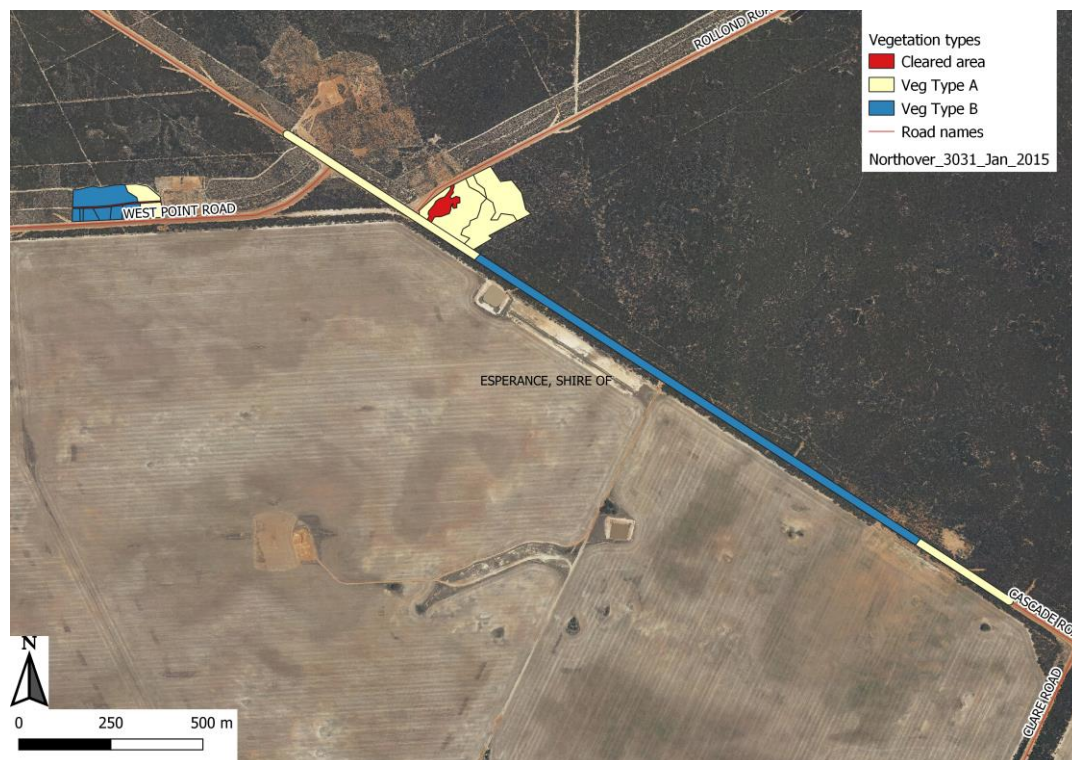
### 5.1 Ecological Impact

#### 5.1.1 Vegetation Communities

Two vegetation communities were identified within the 'Site A – Cascade Road and Gravel Pits', as defined by structure and composition (Table 1; Figure 3). The incidental flora list identified a total of 210 native species across all vegetation communities, an additional 5 non-native species were found. It is believed that the Beard (1973) vegetation associations identified in Section 3.7 are an appropriate match both vegetation types observed.

**Table 1.** Vegetation communities identified within proposed 'Site A – Cascade Road and Gravel Pits' project area.

Type	Description	Figure	Beard Vegetation Association	Area (ha)
A	Open <i>Eucalyptus pleurocarpa</i> and <i>Banksia media</i> dominated mallee woodland with <i>Acacia</i> , <i>Proteaceae</i> and <i>Goodeniaceae</i> understorey	4	512	4.27 ha
B	Mixed Mallee over Mixed <i>Melaleuca</i> shrubland with <i>Acacia</i> and <i>Goodeniaceae</i> understorey	5	512	2.22 ha



**Figure 3.** Vegetation types within the proposed Pit 2 in the 'Site A – Cascade Road and Gravel Pits' project area.





Figure 4. Vegetation type A identified in 'Site A – Cascade Road and Gravel Pits' project, described as 'Open *Eucalyptus pleurocarpa* and *Banksia media* dominated mallee woodland with *Acacia*, *Proteaceae* and *Goodeniaceae* understorey'



Figure 5. Vegetation type B identified in 'Site A – Cascade Road and Gravel Pits' project, described as 'Mixed Mallee over Mixed *Melaleuca* shrubland with *Acacia* and *Goodeniaceae* understorey'

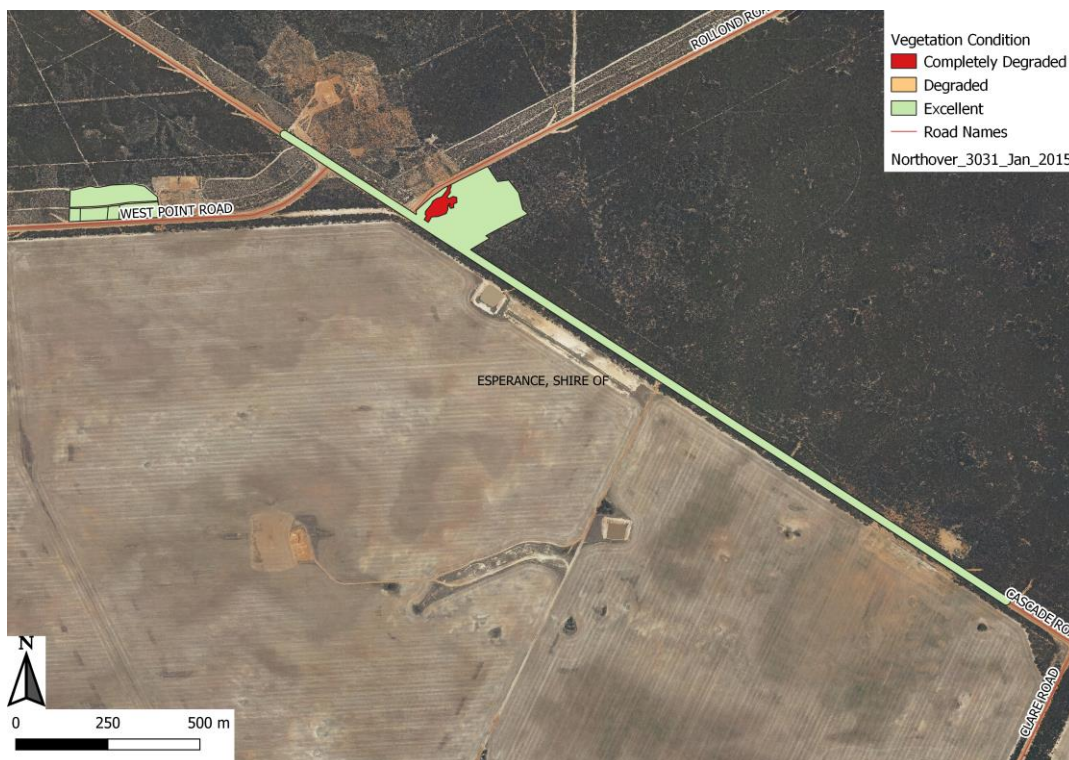
## 5.2 Vegetation Condition

The majority of vegetation at 'Site A – Cascade Road and Gravel Pits' is in very good or excellent condition, however there are relatively small areas of poor and completely degraded vegetation (Figure 6). Previous gravel extraction, a rest area and maintenance tracks account for the relatively restricted areas of degraded vegetation. Some areas of the permit have been recently burnt, however the vegetation remains in very good condition, with virtually no weeds and good vegetation cover. Some scattered rubbish was noted around the rest area near Pit 1.

It is unlikely proposed works will impact natural hydrological regimes of the area. It is also highly unlikely acid sulphate soils are currently present or will develop, being the incorrect soil type present. No evidence of invasive fauna, such as scats or digging, were observed. However, it is highly likely that foxes, rabbits and feral cats are extensive throughout the area due to agricultural operations in the region. Recent fires have occurred within Pit 1 and Pit 2 at 'Site A – Cascade Road and Gravel Pits' which has implications for the rehabilitation of the sites following gravel extraction. This is further outlined in the attached Rehabilitation Plan for 'Site A – Cascade Rd Gravel Pits', detailing the time required for a soil seed bank to develop before clearing can occur. At both Pits 1 and 2, the sites are on the fringe of the fire scar, with areas singed, completely burnt and not burnt at all. Both vegetation types within the road contains area which were completely burned and are currently regrowing, There was also several historical gravel pits along Cascade Rd which were at varying points of regrowth in all of the disturbed areas vegetation structure remains intact with a high diversity of species and very small weed burden, given time these areas would fully regrow without assistance.

Quantifying vegetation condition, there is:

- 6.46 ha of vegetation (98.51%) is in excellent condition,
- 0.05 ha of vegetation (0.68%) is in poor condition, and
- 0.05 ha of vegetation (0.80%) is completely degraded.



**Figure 6.** Vegetation condition across 'Site A – Cascade Road and Gravel Pits' project, ranging in condition from excellent to completely degraded, due to primarily to degradation from the presence of a rest area, previous gravel extraction, degradation from slashing and fire break maintenance.

There was very limited weed invasion across the entirety of the proposed 'Site A – Cascade Road and Gravel Pits' area. A total of five invasive species was identified within the project area including several Asteraceae, Brassicaceae and Fabaceae weeds (Appendix 8.1). It was noted that there was one small area within Pit 1 where Cape weed was present. It is possible that proposed works will increase the distribution of weeds and degrade vegetation along the entire road reserve where works occur, however this is unlikely due to the use of weed free gravel supplies and cleandown prior to works starting at this site.

Within 'Site A – Cascade Road and Gravel Pits', vegetation type A is most susceptible to Dieback due to its relatively high proportion of proteaceous species which are highly vulnerable to the disease. Vegetation type B is also susceptible to Dieback due to still containing several proteaceous species. Dieback Information Delivery and Management System (DIDMS; GAIA Resources, SCNRM & State NRM 2020) data shows no positive or negative *Phytophthora cinnamomi* or other *Phytophthora* sp. Dieback sample results in the immediate area. Concerns about scattered Dieback within Pit 1 at 'Site A – Cascade Road and Gravel Pits' were noted during surveys, with dead *Banksia media* and other Proteaceae species being observed. There were no signs of Dieback observed in Pit 2, which is likely due to the disturbed nature of the site from chaining. Due to the recent fire, in some areas at Pit 1 and 2 it was impossible to detect any signs of *Phytophthora cinnamomi* dieback disease. It is known to take at least five years for visual markers of Dieback to become apparent due to the tolerance of juveniles to the adverse effects of *P. cinnamomi*, A qualified dieback interpreter also cannot determine dieback presence for five years after fire. There was no signs of dieback along Cascade Road, the northern section which contained a high proportion of proteaceous species would be particularly susceptible to the spread of dieback.

Based on Dieback Management Plans prepared for Shire of Esperance road construction and management projects. Proposed works will be conducted using appropriate hygiene measures to limit spreading of Dieback and other plant pathogen diseases, including clearing in dry conditions and clean down of vehicles and machinery before entering the site. However, there is always a possibility that proposed works could spread *P. cinnamomi* dieback along Cascade Rd, Rollond Rd and West Point Rd due to proposed works.



**Figure 7.** Potential signs of dieback, which could just be natural senescence, including dead *Banksia media*, observed in vegetation type A in Pit 1 at 'Site A – Cascade Road and Gravel Pits'.

### 5.3 Threatened and Priority Ecological Communities

The desktop study identified the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed threatened ecological community (TEC) 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' within portions of 'Site A – Cascade Road and Gravel Pits'. No other TEC's or priority ecological communities (PEC) were identified by the desktop study as being within 'Site A – Cascade Road and Gravel Pits' or within a 1000m buffer of the site.

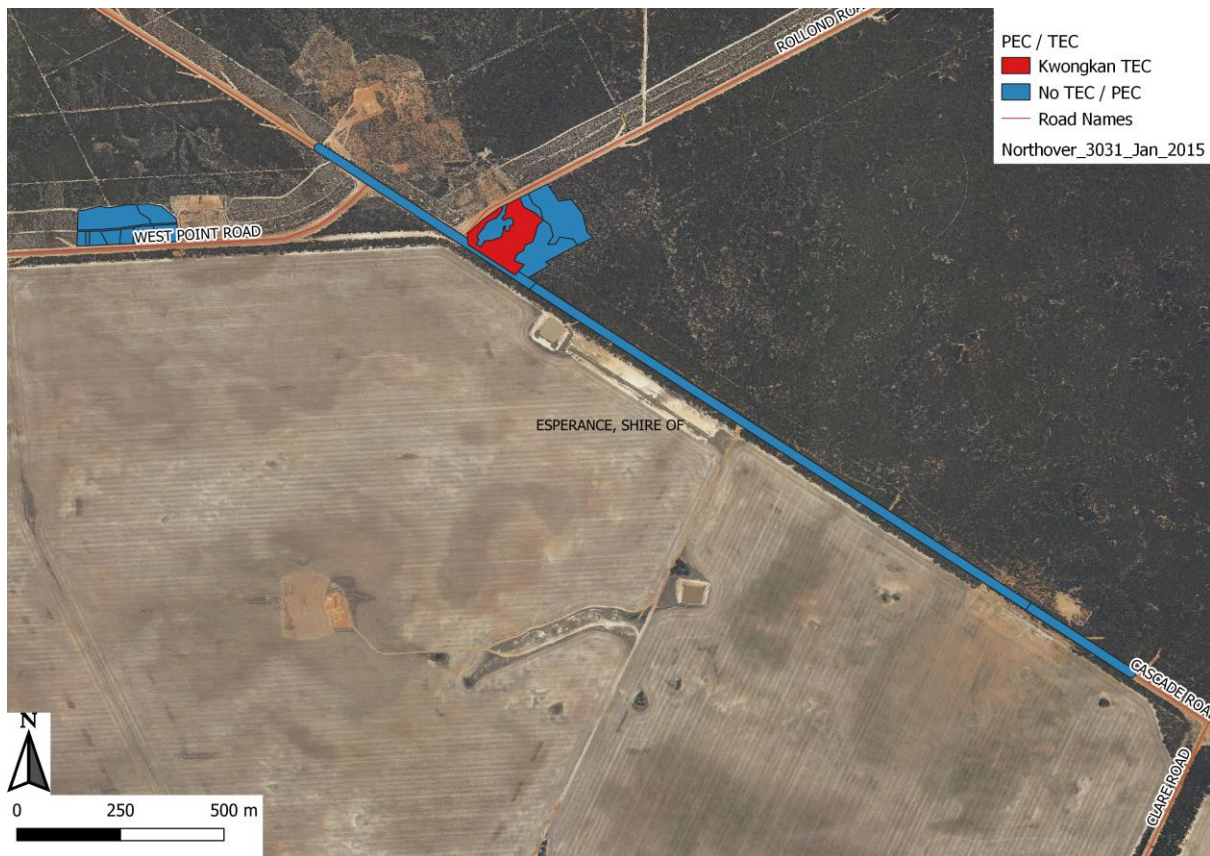
The field survey narrowed the presence of Kwongkan TEC within a local level at the site. Parts of vegetation type A, described as 'Open *Eucalyptus pleurocarpa* and *Banksia media* dominated mallee woodland with Acacia, Proteaceae and Goodeniaceae understorey', parts of this vegetation type met the criteria for the Kwongkan TEC (Figure X.)

In total, 1.32 ha of vegetation was considered as Kwongkan TEC present within 'Site A – Cascade Road Gravel Pit' area, specifically located within Pit 1 and on cascade Rd adjacent to Pit 1. No

vegetation type within Pit 2 was identified as being a PEC or TEC, however it was difficult to interpret as all vegetation types were regenerating from strategic firebreak chaining and fire.

The southern section of Cascade Road failed to meet the >30% proteaceous cover in the unburned sections and lacked the necessary diagnostic species in the burned area, a small section adjacent to Pit 2. The chained area north of pit 2 lacked the necessary >30% proteaceous cover or the necessary diagnostic species.

Due to the site recently being burnt, using the 'Approved Conservation Advice for Kwongkan (Commonwealth of Australia 2014)' for assessing the presence of Kwongkan, assessment relied on determining if two or more Proteaceae species were diagnostic, and will form a significant vegetative component when mature.



**Figure 8.** Sections of vegetation type A in excellent condition met threatened ecological community (TEC) 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' within 'Site A – Cascade Road and Gravel Pits' project.

#### 5.4 Threatened and Priority Flora

Three threatened flora (TF) and 33 priority flora (PF) were recorded within a 20 km radius of the proposed impact site (Table 2; DBCA 2021a, DBCA 2021d, DBCA 2021f). Of these, 2 TF and 21 PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of 'Site A – Cascade Road and Gravel Pits' project.

**Table 2.** Threatened or priority flora identified by the desktop study to be present within a 20 km radius of 'Site A – Cascade Road and Gravel Pits' project area, using Threatened and Priority Flora Reporting

(TPFL; DBCA 2021d), WA Herbarium (DBCA 2021f) and Esperance District Threatened Flora (DBCA 2021a).

Nt. Acronyms used in the table include priority flora (P), threatened flora (TF), Biodiversity Conservation (BC) Act 2018, Environmental Protection and Biodiversity Conservation (EPBC) Act 1999, critically endangered (CN) and endangered (EN).

Species	Conservation Status	Associated Habitat	Likely to occur
<i>Acacia amyctica</i>	P2	Salmon Gums area on well-drained loams and sandy clay plains with <i>Eucalyptus flocktoniae</i> low woodland.	Unlikely – incorrect vegetation type association.
<i>Acacia bartlei</i>	P3	Salmon Gums area, waterlogged depressions in brown/grey sandy clay. Tolerates low level salinity.	Possible – indication in burnt area of vegetation type with waterlogged clays.
<i>Acacia diminuta</i>	P1	Sandy loam. Mallee, recently burnt	Possible
<i>Acacia singula</i>	P3	Gravelly sand over laterite, white or yellow sand. Rises abd hilltops. Present in heath, scrub and Mallee shrubland. Occurs from Lake Grace to Hatter Hill.	Possible
<i>Banksia xylothemelia</i>	P3	Sandy loam, usually over laterite. Sandplains. Shrubland with Allocasuarina, Callitris, Melaleuca and Hakea sp..	Yes
<i>Bentleya diminuta</i>	P2	Disturbed gravel areas. Low shrubland with Melaleuca and Mallee woodland. 200 metres from project.	Possible
<i>Brachyloma nguba</i>	P1	Open mallee woodland and mallee scrub flat plains. White to brown sandy clay, shallow sandy loam.	Possible
<i>Comesperma calcicola</i>	P3	Areas around saline water. Calcareous or semi-saline clay loams, limestone.	Unlikely – lack of limestone and saline water source.
<i>Commersonia rotundifolia</i>	P3	Eucalyptus platypus woodland over Acacia shrubland. Clay Loam Soil. Esperance region specimens are geographically inaccurate.	Possible
<i>Conospermum sigmoideum</i>	P2	<i>Eucalyptus pleurocarpa</i> woodlands. Associated with sand. Originally only known in Frank Hann, but recently found in Cascade area. Has been recorded in burnt areas.	Possible

<i>Conostylis lepidospermoides</i>	TF	Highly diverse dense shrubland. Recorded in the direct adjacent area.	Possible
<i>Cryptandra polyclada subsp. polyclada</i>	P3	Associated with sandplains. Mallee with shrubland-heath species. Recorded in disturbed areas.	Possible – <i>Banksia media</i> sandplain area.
<i>Dampiera orchardii</i>	P2	Sand, Nearby salt lakes, embankment of saline playa.	Unlikely
<i>Eremophila chamaephila</i>	P3	Open mallee woodland with limestone.	Unlikely – due to lack of limestone.
<i>Eremophila subteretifolia</i>	T	Sand, loam. Edges of salt lakes, sub-saline flats	Unlikely
<i>Eucalyptus litorea</i> syn. <i>E. famelica</i>	P2	Calcareous sand, sandy clay loam & stones. Leeward of primary dunes, around salt lakes.	Possible
<i>Eucalyptus stoatei</i>	P4	Associated with gravelly sand or clay and sandy loam. Flats and rises.	Possible
<i>Frankenia brachyphylla</i>	P2	Salt lake margins.	No
<i>Frankenia glomerata</i>	P4	White sand	Unlikely
<i>Grevillea aneura</i>	P4	Associated with sand, sandy clay, gravel.	Possible
<i>Gyrostemon ditrigynus</i>	P4	Grows on sand, sandy clay and loam. Plains and low ironstone ridges. Low rain fall zone.	Possible
<i>Goodenia laevis subsp. laevis</i>	P3	Sandy loam or laterite.	Possible
<i>Hibbertia carinata</i>	P1	Well drained gravelly sand, yellow sand with gravel.	Possible
<i>Hydrocotyle decorata</i>	P2	Sandy loam soils surrounding the margins of inland salt lakes, low open shrubland and often in sheltered positions around mature plants of <i>Tecticornia</i> and <i>Frankenia</i> spp.	Unlikely
<i>Hypocalymma</i> sp. <i>Cascade</i>	TF	Associated with sandy loam. Only known populations are around Cascade.	Possible
<i>Isolepis australiensis</i>	P3	Silty sand, sandy clay. Lake margins, pools.	Unlikely
<i>Leucopogon</i> sp. <i>Lake Tay</i>	P1	Deep white sand.	No
<i>Leucopogon</i> sp. <i>Cascades</i>	P1	Previous records on lower slopes in dry, brown, sandy loam. Mallee woodland with associated species including: <i>Eucalyptus pleurocarpa</i> , <i>Taxandria</i>	Possible

		<i>spathulata</i> and <i>Beaufortia schaueri</i> .	
<i>Levenhookia pulcherrima</i>	P3	Associated with sand.	Possible
<i>Melaleuca similis</i>	P1	Grows on margins of saline drainage lines in grey sand.	No
<i>Mirbelia densiflora</i>	P3	Stony loam and loamy sand. Small ridges, breakaways and undulating plains.	Unlikely
<i>Persoonia scabra</i>	P3	Associated with granite, limestone, white sand and sandy loam. Associated species include: <i>Melaleuca striata</i> , <i>Anarthria scabra</i> , <i>Conothamnus aureus</i> and <i>Adenanthos cuneatus</i> .	No
<i>Philotheca gardneri</i> subsp. <i>globosa</i>	P1	Associated with heathland and sandy soils.	Possible
<i>Stenanthera localis</i>	P1	Dense mallee with scattered <i>Banksia media</i> . White clay-loam. Only recorded in the surrounding reserve of Cascade.	Possible – suitable habitat type.
<i>Spyridium mucronatum</i> subsp. <i>recurvum</i>	P3	Mallee heath, sandy clay loam	Possible
<i>Streptoglossa</i> sp. South Coast	P2	Sandy loam, recently burnt	Possible

No TF species, were identified within the clearing footprint. However, the targeted flora survey identified five PF species, *Acacia diminuta* (P1), *Guichenota asteriskos* (P2), *Goodenia laevis* subsp. *laevis* (P3), *Grevillea aneura* (P4) and *Gyrostemon ditrigynus*(P4) within the proposed clearing permit footprint (Section X). A *Banksia* identified by the WA Herbarium as *Banksia cirsioides* – *xylothemelia* was also found, the plant being intermediary of *Banksia cirsioides* (NT) and *Banksia xylothemelia* (P3). Queries of spatial datasets were requested specifically for these species, to interrogate impact of proposed works on species sustainability (DBCA 2021g; DBCA 2022). DBCA do not actively manage or monitor the majority of low priority species, due to their prevalence in the landscape relative to TF. There are 136 species recorded as priority three or four conservation status within the Shire of Esperance boundaries (DBCA 2021f).

Numerous specimen's unknown to surveyors or similar to PF were collected and verified at the WA Herbarium as non-threatened species, such as *Styphelia lissanthoides* at Pit 1 and 2, thought to be either P1 *Leucopogon* sp. Cascade or P3 *Styphelia rotundifolia* (Accession 8652; KW072 and KW079, specimen not retained by WA Herbarium) and *Cyathostemon ambiguus* Pit 1 and 2, a highly variable genus with many undescribed species listed with a conservation status (Accession 8652, KW077, KW078, KW082, with KW082 specimen retained by WA Herbarium). *Eucalyptus forrestiana* Accession 9116, KSW1621).



#### 5.4.1 *Acacia diminuta*, Priority 1

A specimen of *Acacia diminuta* was sent to the WA Herbarium for identification confirmation (KW140; Accession 8867 with specimen retained by Herbarium). It was confirmed by Michael Hislop on 14/04/2021. A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 03/02/22 (Appendix 8.5.1). *Acacia diminuta* was present outside the clearing with 11 specimens recorded. Vegetation area F was initially intended to be part of the clearing area but due to the presence of a P1 species and other practical factors vegetation area F will not be cleared.

If proposed works occur, 0 plants will be impacted upon, from a population total of 3. All specimens will be flagged off to prevent accidental clearing.



**Figure 9.** KW140 *Acacia diminuta* found at Cascade Rd Gravel Pit. Photo taken on the 14/09/2020 by Katie White.

The species had a total of five known prior populations with only two of these populations having population counts, with 8 and 1 plants recorded for these populations. A single population was located in Griffith's nature reserve, all other population were either located in shire road reserves or lacked specific location data, preventing assessment of tenure. The species had a range of 200km East to West and 50 km North to South, with four populations in the Shire of Esperance and one in the Shire of Ravensthorpe. The species was described in previous herbarium specimens as growing in a range of soil types from sandy to Sandy clay, being in line with the soil present at the site. The vegetation in prior populations had been described as mixed Mallee over mixed Melaleuca, matching the vegetation at some parts of the project.

The area in which *Acacia diminuta* was found was originally part of the project area, the project area was scaled back after discovery of the priority 1 species.

**PERTH 09396241**

*Acacia diminuta*

Fabaceae

**Plant Description, Notes:** Very small shrub <20 cm high x <10 cm wide. Densely branched, spiky white branches.

**Vegetation:** Scattered Eucalyptus forrestiana with dense Melaleuca and Beaufortia shrubland. Associated species: Cyathostemon ambiguus, Melaleuca tuberculata, Grevillea huegelii, Grevillea pectinata.

**Site Description:** Gentle slope. White sand over grey sandy loam. Recently burnt within last 6-18 months.

**Frequency:** 3 plants present.

**Nearest Named Place:** Boyatup

**State:** WA

**Collector:** White, K.; John, R. **Miekle Coll No:** KW140

**Collection Date:** 2 September 2020

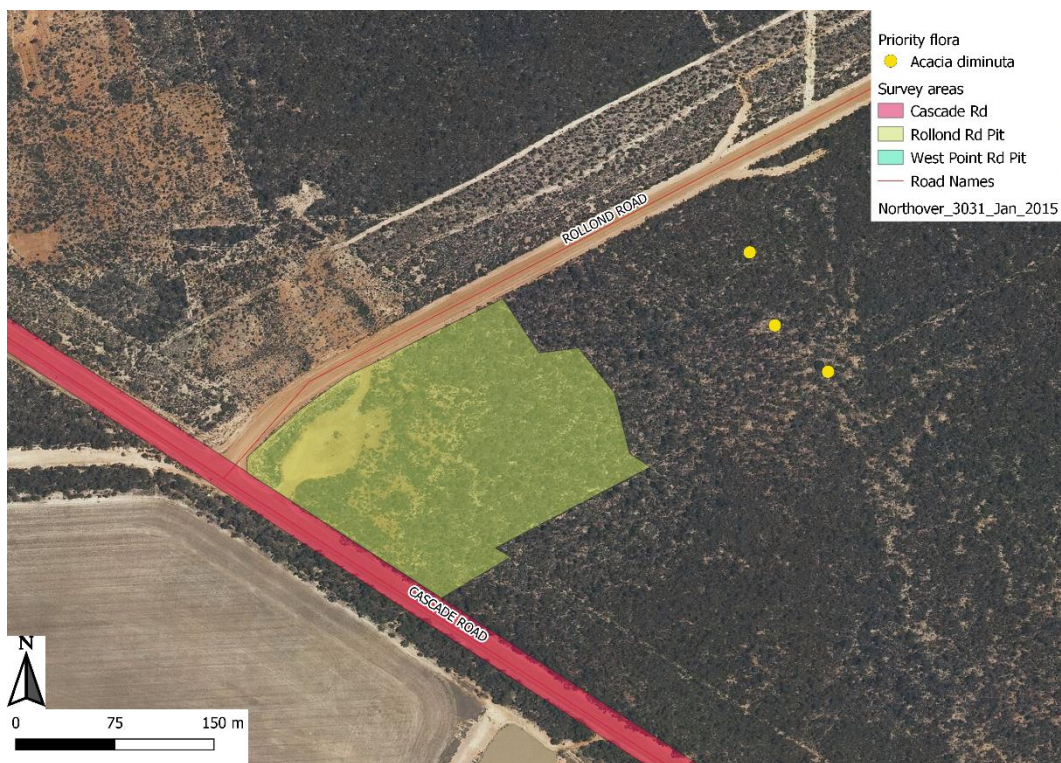
**Conservation Code:** 1

**Confirmavit:** M. Hislop **Date:** 14 April 2021

**Origin:** PERTH

**Record Basis:** PreservedSpecimen

**Figure 10.** Extract from Florabase (DBCA 2021c) of priority 1 species, *Acacia diminuta*, record of Specimen KW140, located directly within the proposed ‘Site A – Cascade Road and Gravel Pits’ area.



**Figure 11.** Location of priority 1 species *Acacia diminuta* outside the “Site A – Cascade Road and Gravel Pits’ project.

**Table 3.** Compiled population data of priority 1 species, *Acacia diminuta* and new populations discovered by the Shire of Esperance in the 2020 spring season (DBCA 2021g).

Site Description	Population Count and date	Sheet no. / Population no.	Year collected	Tenure

45 km NNE of Munglinup on N side of Rollonds Road, 800 m SW of intersection with Edwards Road	rare, 8 plants.	9359125	2019	Shire road reserve
Griffith Road, c. 500 m N of Edwards Road. Plant found within the road reserve adjacent to Griffiths Nature Reserve	one plant.	8656932	2015	Shire road reserve
9.1 km N of Griffiths road on Fields road, 0.8 km N of Fields road, reserve 30583 [c. 46 km due W of Scaddan]		346896/ Population 1	1984	Nature Reserve
Ca 58 km from Esperance toward Norseman		704288	1968	Lacked location data
27 miles W of Ravensthorpe and 18 miles N of Ravensthorpe - Ongerup road [c. 45 km due WNW of Ravensthorpe]		175188 &729604	1965	Lacked location data

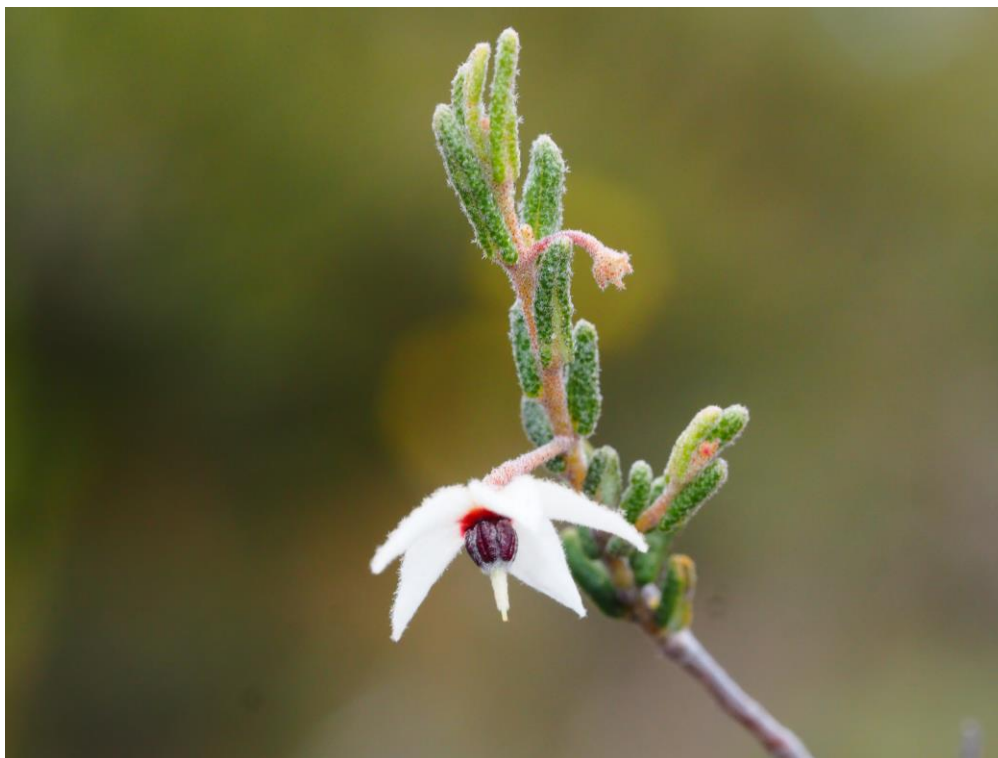
#### 5.4.2 *Guichenotia asteriskos*, Priority 2

A specimen of *Guichenotia asteriskos* was sent to the WA Herbarium for identification confirmation (KW139; Accession 8867 with specimen retained by Herbarium). It was confirmed by Michael Hislop on 14/04/2021. During the survey of Cascade Rd an additional specimen was found and sent to the WA Herbarium for identification confirmation (KSW1721; Accession 9116 with specimen not retained by Herbarium). A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) district Flora Conservation Officer and Species and Communities Branch on 01/02/22 (Appendix 8.5.2). A targeted flora survey was completed on the 28/09/2021 to complete an accurate population count of *Guichenotia asteriskos*, the species was found along Cascade road, the proposed gravel pit along West Point Rd and surrounding a historic gravel pit along Cascade Rd. (Figure 12.) A total of 105 plants were counted, more plants were visible in chained areas outside of the survey area. If proposed works occur, 55 plants will be impacted upon, from a population total of 105. Plants that will be impacted upon are entirely within the West Point Rd gravel pit.

The species has a distribution over 200km East to West and 112km North to South when including this new population. There is total of 21 herbarium records and 4 TPFL, many of these are resamples of the sample populations and in total there is 14 unique records. Several of these records are in disturbed areas, other described the vegetation as shrubland or heath each matching the current location well. There is likely to be significantly more of this species along the chained areas due to the high suitability. 4 of the 14 unique records were within 3 different Nature reserves. The species were described in Wilkins and Chappill (2003).



**Figure 12.** Location of priority 2 *Guichenotia asteriskos* within the 'Site A – Cascade Road and Gravel Pits' project.



**Figure 13.** Flower and leaves of P2, *Guichenotia asteriskos* found within 'Site A – Cascade Road and Gravel Pits', taken by Katherine Walkerden on 28/09/2021.

**Table 4.** Compiled population data of priority 2 *Guichenotia asteriskos* (DBCA 2021f, 2021g).

Site Description	Tenure	Population Count	Date	Sheet no. / Specimen no.
Gravel pit 7 km E from Lake King on the Lake King to Norseman Road	Road reserve	1 plant.	29/08/2016	8934843
Located <1 km (exact distance not recorded) W of Newdegate on the NE and SE corner of crossroads of Lake Grace - Newdegate Road and a gravel road	Road reserve	10-12 plants seen.	2/09/2007	8151849
Pingaring - Varley Road North, just W of intersection with Hollands Track	Road reserve		30/09/2004	6996604
Disused gravel pit off Floater Road 22 km N from Highway 1, Ravensthorpe	Road reserve	occasional.	2/09/2004	7113587
S Buniche Reserve	Nature Reserve		15/10/2003	7701713
W of Lake King, S of the Newdegate - Lake King Road	Road reserve	occasional.	20/09/1999	5593808 / TPFL Pop 3
Dunn Rock Nature Reserve, 26.2 km W along Old Newdegate Road from Ravensthorpe - Newdegate Road	Nature Reserve		26/09/1997	6018750
Dragon Rocks Nature Reserve, 31.5 km E from Pingaring - Pederah Road along Pingaring - Varley Road, S side of road	Nature reserve		20/09/1997	5912423
Hyden to Norseman Road, 7.6 km W of Flying Fox Mine Road	Road reserve		13/09/1997	7897111
SE corner Loc 2621, Bidy Camm Road Reserve	Road reserve	common.	18/09/1996	5362792/ TPFL Pop 4
2 km W of Newdegate	Road reserve	frequent.	19/10/1995	4413970/ TPFL Pop 1
1.7 km W of Newdegate	Road reserve		17/09/1995	6114563
1.7 km W of Newdegate	Road reserve		17/09/1995	6230962
1.7 km W of Newdegate, gravel track crossroad on both sides of the road	Road reserve		9/09/1994	6018696
1.7 km W of Newdegate, gravel track crossroad on both side of the road,	Road reserve		9/09/1994	5912350
1.7 km W of Newdegate - gravel track crossroads	Road reserve		9/09/1994	7972172
Western edge of township of Newdegate	Road reserve		28/09/1993	5912431

Dunn Rock Nature Reserve No. 36445. Internal firebreak No. 5.	Nature Reserve		7/10/1984	1078534/ TPFL Pop 2
At intersection of Lake King and Lake Varley roads, 270 miles from Perth	Road reserve		11/10/1965	2696835
2 miles W of Newdegate	Road reserve		12/10/1963	2696827
2 miles W of Newdegate	Road reserve		12/09/1963	3250253

#### 5.4.3 *Banksia cirsioides / xylothemelia*

A specimen of *Banksia cirsioides / xylothemelia* was sent to the WA Herbarium for identification after the plant could not be identified as either *Banksia cirsioides* or *xylothemelia* (KSW1521; Accession #9116 with specimen retained). It was described as an intermediary of *Banksia Cirsioides* (NT) and *Banksia xylothemelia* (P3). A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) district Flora Conservation Officer and Species and Communities Branch on 28/01/2022 (Appendix 8.5.3). The WA Herbarium requested additional plant material and specimens were collected on the 28.09.2021 (KSW2621, KSW2721 Accession# 9190, KSW2621 retained). Both additional specimens were also identified as *Banksia cirsioides / xylothemelia*. It was unclear from interactions from Michael Hislop what the reasons for the intermediary status of the plant was.

If proposed works occur, 1 plant will be impacted upon, from a population total of 21. However the plant to be impacted upon was graded in-between the 1/09/2021 survey and the targeted survey for *Guichenotia asteriskos* on the 28/09/2021. The impacted plant has begun to resprout.

*Banksia xylothemelia*, P3, is a fairly widespread species with its distribution centered on the shire of Lake Grace (Figure 14.), the species has a West to East range of over 250km and North to South range of 210km. There was a single prior specimen in the Shire of Esperance 8km to the North West of the Shire. There was a total of 51 unique Herbarium and TPFI records. Descriptions of Herbarium records frequently described a Heath/ low shrubland vegetation and regenerating shrubland, matching that seen in the Northern sections of the site which is regularly chained.

#### PERTH 09431063

*Banksia cirsioides / xylothemelia*  
Proteaceae

**Plant Description, Notes:** Prickly 0.8 m tall x 0.4 m shrub. Apparently resprouting from rootstock.

**Vegetation:** Heath with sparse *Eucalyptus pleurocarpa*, open mallee woodland over diverse *Acacia* and *Myrtaceous* understorey.

**Site Description:** Road reserve.

**Frequency:** 6 plants.

**Nearest Named Place:** North Cascade

**State:** WA

**Collector:** Waters, J.; Walkerden, K. **Coll No:** KSW2621

**Collection Date:** 28 September 2021

**Determinavit:** M. Hislop **Date:** 3 November 2021

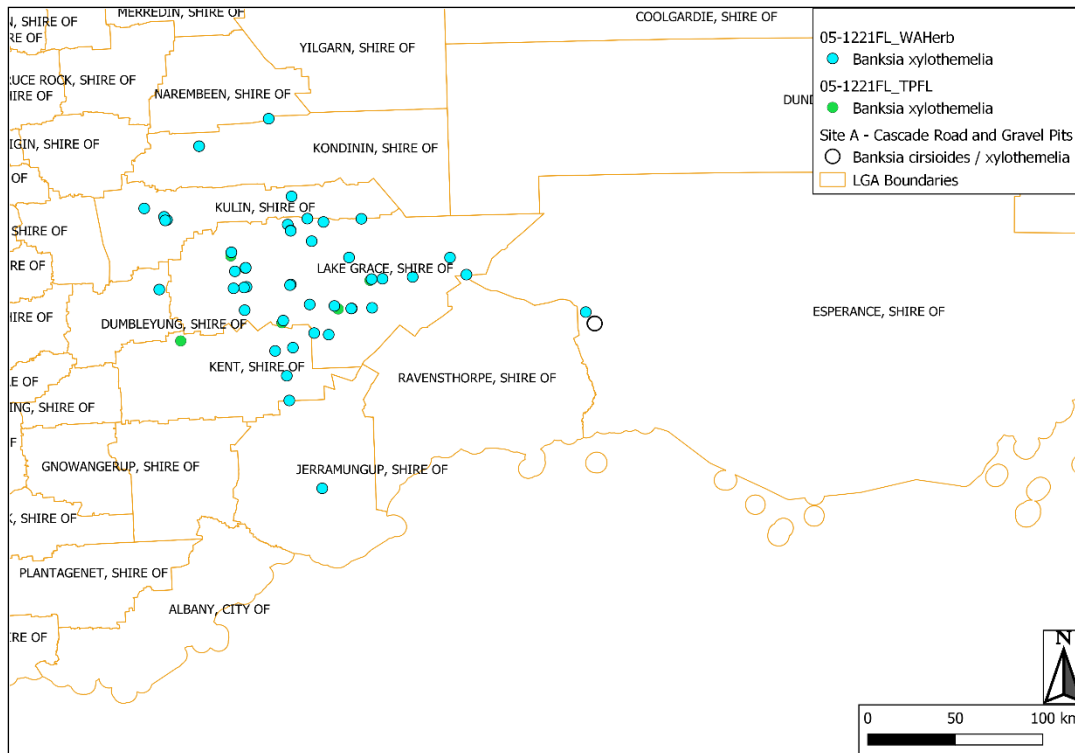
**Origin:** PERTH

**Record Basis:** PreservedSpecimen

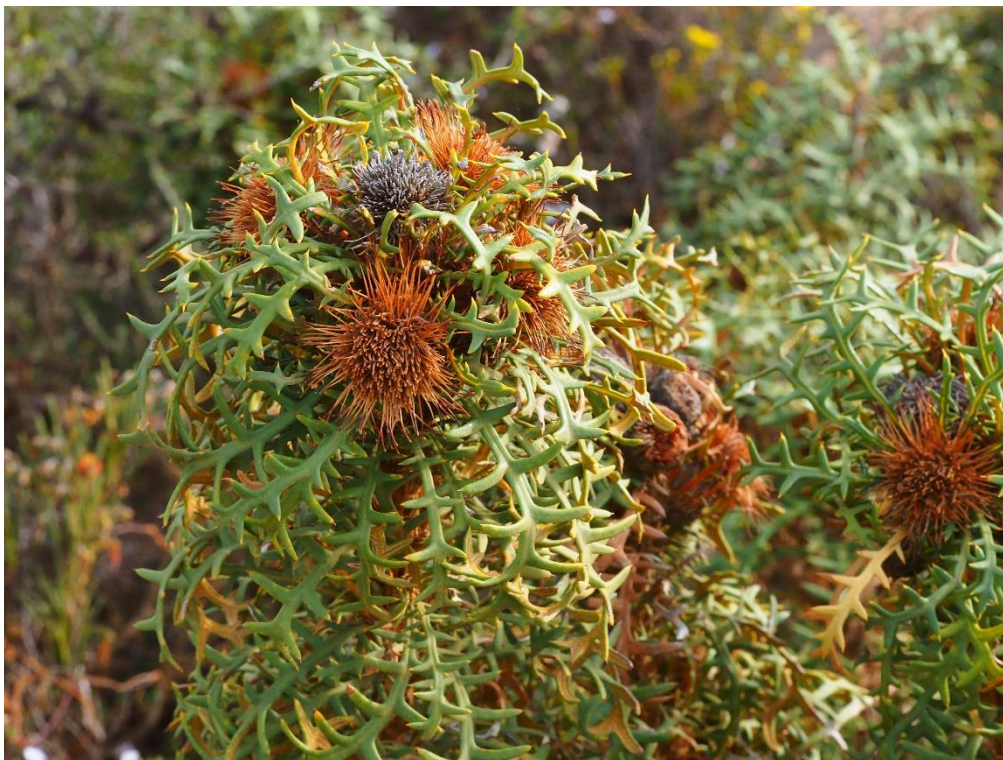
**Figure 14.** Extract from Florabase (DBCA 2021c) of *Banksia cirsioides / xylothemelia*, record of Specimen KSW2621, located directly within the proposed 'Site A – Cascade Road and Gravel Pits' area.



**Figure 15.** Location of *Banksia cirsioides / xylothemelia* within the 'Site A – Cascade Road and Gravel Pits' project.



**Figure 16.** Map of known records of priority 3 *Banksia xylothemelia* across a 250 km geographic range, spanning from 44834M S, 6375062M N in the west, to 297276M S, 6314940M N in the east (DBCA 2021g) including the recently discovered *Banksia cirsioides / xylothemelia*.



**Figure 17.** Photo of *Banksia cirsioides / xylothemelia*, located directly within the proposed 'Site A – Cascade Road and Gravel Pits' area. Photo taken by Katherine Walkerden on 31/08/2021.



#### 5.4.4 *Goodenia laevis* subsp. *laevis*, Priority 3

A specimen of *Goodenia laevis* subsp. *laevis* was sent to the WA Herbarium for identification confirmation (KW081; Accession 8652 with specimen retained by Herbarium). It was confirmed by Michael Hislop on 10/12/20. A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) district Flora Conservation Officer and Species and Communities Branch on 15/12/21 (Appendix 8.5.4). *G. laevis* subsp. *laevis* was only present along the roadside in the active road footprint parallel to the proposed footprint of Pit 2, West Point Rd. If proposed works occur, 172 plants will be impacted upon, from a population total of 174. There are 56 plants present directly within the area and will be cleared, located throughout most of the site, there is another 116 plants located on the road shoulder immediately outside of the West Point Rd Gravel pit which will be impacted.

An extract of data from the WA Herbarium and TPFL spatial datasets was received from DBCA 22/12/2021 (05-1221FL).

The Shire of Esperance has discovered numerous new populations of *Goodenia laevis* subsp. *laevis* in since the 2019 flora surveys. Only one of these had been entered into TPFL on 19/2/2021.

At all sites, the plants were present in the road active footprint that is regularly graded or in dam catchments – all sites with a high level of disturbance. These are specifically outlined below. It can be inferred that the abundance of *Goodenia laevis* at the site is partially due to the disturbance caused by mechanical grading of the road shoulders.

- On the intersection of Norwood and Dempster Rd, located within an old road that was ripped when the intersection was realigned. 100 to 150 plants present. No proposed impacts.
- In the Cascade town-site on Wilhaust St, in the back-slopes of the road that are regularly maintained with heavy machinery. 15+ plants present.
- On Neds Corner Rd, approximately 2.4 to 3.5 km north of Cascade Rd. All plants were present in the back-slopes of the road that are regularly maintained with heavy machinery. 82 plants present.
- Grass Patch Rd, 2.2 km west of Bishops Rd. All plants were present in the back-slopes of the road that are regularly maintained with heavy machinery. 50+ plants present.
- An old government dam on the intersection of Dalyup and Rasyk Rd, which had historically been ripped, hard-standing and cleared to form a catchment for a Dam. 200 to 250 plants were present.
- Grass Patch townsite at R19624 totaling 94 *Goodenia laevis* subsp. *laevis*. R19624 has had historical understory clearance.
- Neds Corner rd SLK 36.85-51. Plants were present in the back-slopes, shoulders, intersections and crossovers of the road which are regularly maintained with heavy machinery. 200+ plants present.
- Holt Rd SLK 4 -11.61. Plants were present in the road shoulders, on the running surface of the road and in intact bushland. 400+ plants
- Cascade historical landfill site (R37505, Lot: 34 on Plan: 184799). Plants were growing in both the landfill capping and the intact vegetation. ~100 plants
- Parmengo rd SLK 21.89-22.7. Plants were locally common with 100+ plants growing in intact vegetation. Mass germination was beginning after recent road grading.

Using the WA Herbarium spatial data, the below inferences can be discussed:

- *G. laevis* subsp. *laevis* is geographically restricted to the Esperance mallee area, extending from

Scaddan to Norseman, and the Cascade region to the edge of Cape Arid. In total this covers 18,000 km<sup>2</sup>.

- Almost all associated vegetation is described as a variation of mixed Melaleuca shrubland with Eucalyptus woodland over-storey. Extensive areas of this vegetation type remain, providing likely habitat, with similar soil type and associated vegetation.
- 20 records of populations are recorded on DBCA databases, with 10 records collected prior to 2000. 9 new populations discovered by Shire of Esperance in recent years have not added to DBCA data.
- Of the 20 recorded specimens, six records are directly described as being within a previously disturbed site, such as old limestone pits or along firebreaks.
- 11 sites are described as along a road and may have been impacted upon during road widening or maintenance. 5 sites are within reserves and likely remain intact. 5 sites cannot be determined tenure status, and is unknown of potential impacts.

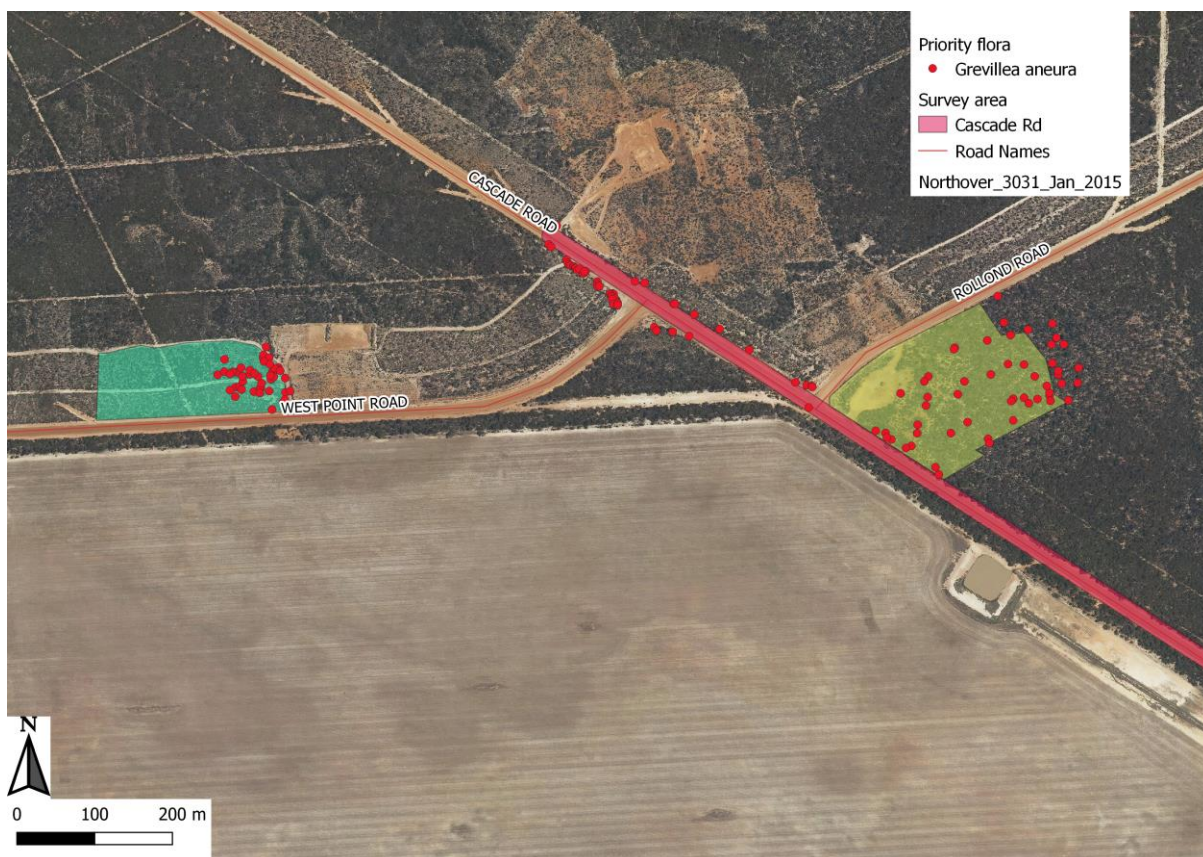
#### 5.4.5 *Grevillea aneura*, Priority 4

A specimen of *Grevillea aneura* was sent to the WA Herbarium for identification confirmation. Two specimens were collected, confirming were present at both Pit 1 (Rollonds Rd) and Pit 2 (West Point Rd). The specimen at Pit 1 was collected as KW073 (specimen retained by the WA Herbarium) and specimen at Pit 2 collected as KW080 (specimen not retained by WA Herbarium), Accession 8652. It was confirmed by Michael Hislop at the WA Herbarium on 10/12/20. A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) district Flora Conservation Officer and Species and Communities Branch on 15/01/21 (Appendix 8.5.5; Appendix 8.5.6). If proposed works occur, 342 plants will be impacted upon (Table 5). The surrounding vegetation and community was not surveyed to determine the extent of the population. Given that the species within the pits and Cascade road, separated by only 400m, it is considered likely the species continues through the immediate area.

*Grevillea aneura* has a range spanning 330km West to East and 84km North to South with known populations in the Shire of Esperance, Lake Grace, Kondinin and Ravensthorpe (Figure x). There was a total of 51 Known records of *grevillea aneura* however DBCA was not actively monitoring this species, with no TPFL forms being entered into the TPFL database.

**Table 5.** Total population count for priority four species, *Grevillea aneura*, per site and vegetation community at 'Site A – Cascade Gravel Pit'.

Site	Vegetation Community	Count
Pit 1 – Rollonds Rd	A	278
Pit 2 – West Point Rd	A	51
	B	9
Cascade rd	A	49
	B	0



**Figure 18.** Location of priority 3 *Grevillea aneura* within the 'Site A – Cascade Road and Gravel Pits' project.

### PERTH O9375406

[Grevillea aneura](#)

Proteaceae

**Plant Description, Notes:** Large shrub <2 m high x <3 m wide with spiky, dense foliage that looks like a puzzle. Flowers large, bright red, flowering profusely.

**Vegetation:** Scattered *Hakea laurina* and mallee woodland with dense *Beyeria sulcata* shrubland and mixed highly diverse shrubland with scattered to no understorey. Associated species: *Hakea laurina*, *Gastrolobium* sp., *Rinzia* sp., *Beyeria sulcata*, *Daviesia teretifolia*.

**Site Description:** Historical gravel pit that had been rehabilitated via seed in soil burden. Flat, brown-red gravel.

**Frequency:** c. 102 plants.

**Nearest Named Place:** North Cascade

**State:** WA

**Collector:** Meiklejohn, R. Coll No: KW 073

**Collection Date:** 2 September 2020

**Conservation Code:** 4

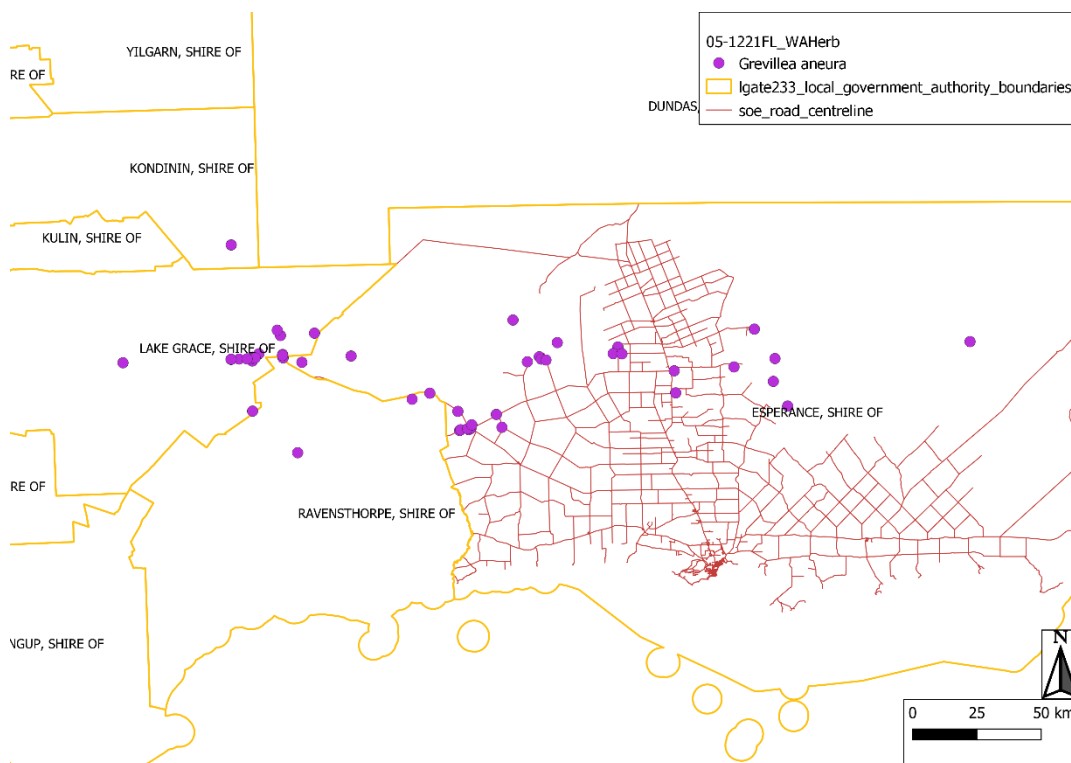
**Origin:** PERTH

**Record Basis:** PreservedSpecimen

**Figure 19.** Extract from Florabase (DBCAs 2021c) of *Grevillea aneura*, record of Specimen KW073, located directly within the proposed 'Site A – Cascade Road and Gravel Pits' area.



**Figure 20.** Priority 3 species, *Grevillea aneura* found within 'Site A – Cascade Road and Gravel Pits', photo taken by Katherine Walkerden on 31/08/2021.



**Figure 21.** Known records of priority 3 species *Grevillea aneura* across a 330 km geographic range, spanning from the Shire of Lake Grace in the west, to the Shire of Esperance in the east (DBCA 2021g).

#### 5.4.6 *Gyrostemon ditrigynus*, Priority 4

A specimen of *Gyrostemon ditrigynus* specimen was collected and photographed during the survey (KSW5921 Accession 9361, with specimen not retained), the specimen was sent to the WA herbarium for identification confirmation. It was confirmed by Michael Hislop at the WA Herbarium on 27/01/22. A Threatened and Priority Reporting Form (TPFL) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) district Flora Conservation Officer and Species and Communities Branch on 28/01/21 (Appendix 8.5.7). A secondary survey was conducted on the 25.01.2022 to accurately count and map the population, only a single specimen was found which matched the plant photographed during the September 2021 survey. The plant was growing in the area burned in 2016, likely the last plant from mass germination event after the fire, with *Gyrostemon ditrigynus* being known for senescing shortly after fire.

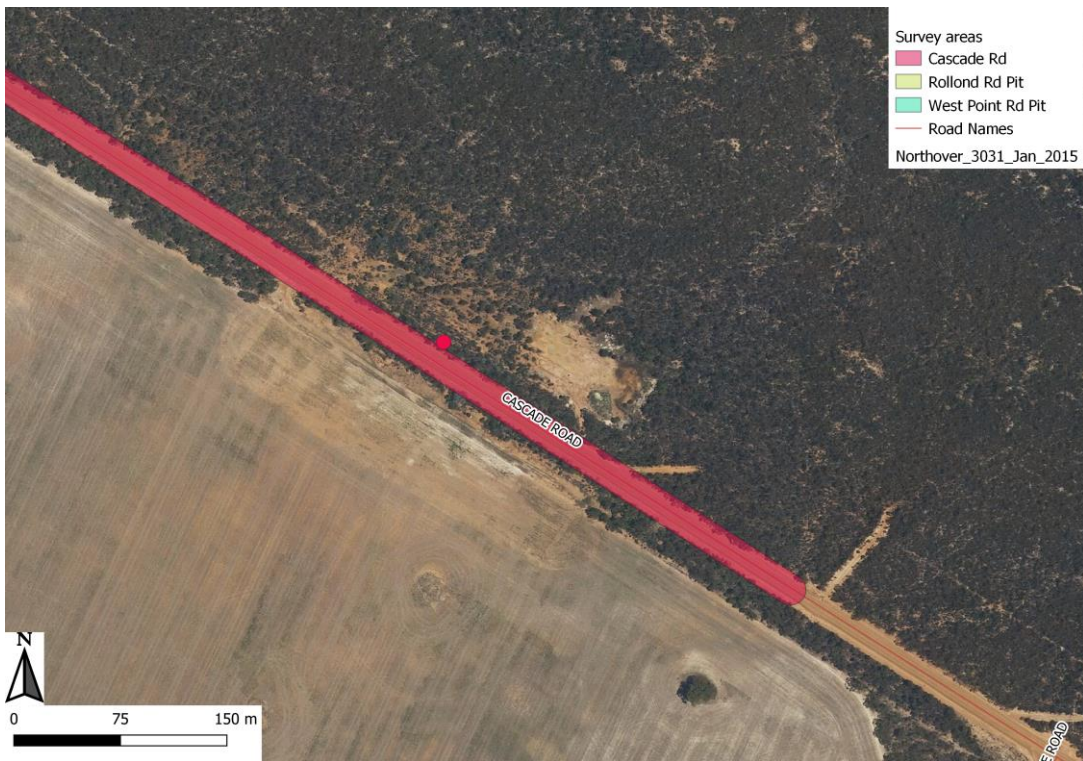
A second population was discovered on the 25.01.2022 (KSW2622 awaiting confirmation) along cascade Road at SLK 147.33, the population extended for the entire length of the 10km long 2020 fire scar with the population having hundreds of plants for every 100 metres of road. The plant having naturally senesced with about half the plants dead. After examining previous records it's clear that the plants are known to mass germinate after fire and naturally senesce after 2-3 years.

The single specimen present will not be impacted by the project, but will likely senesce within 1-2 years as is typical of the species.

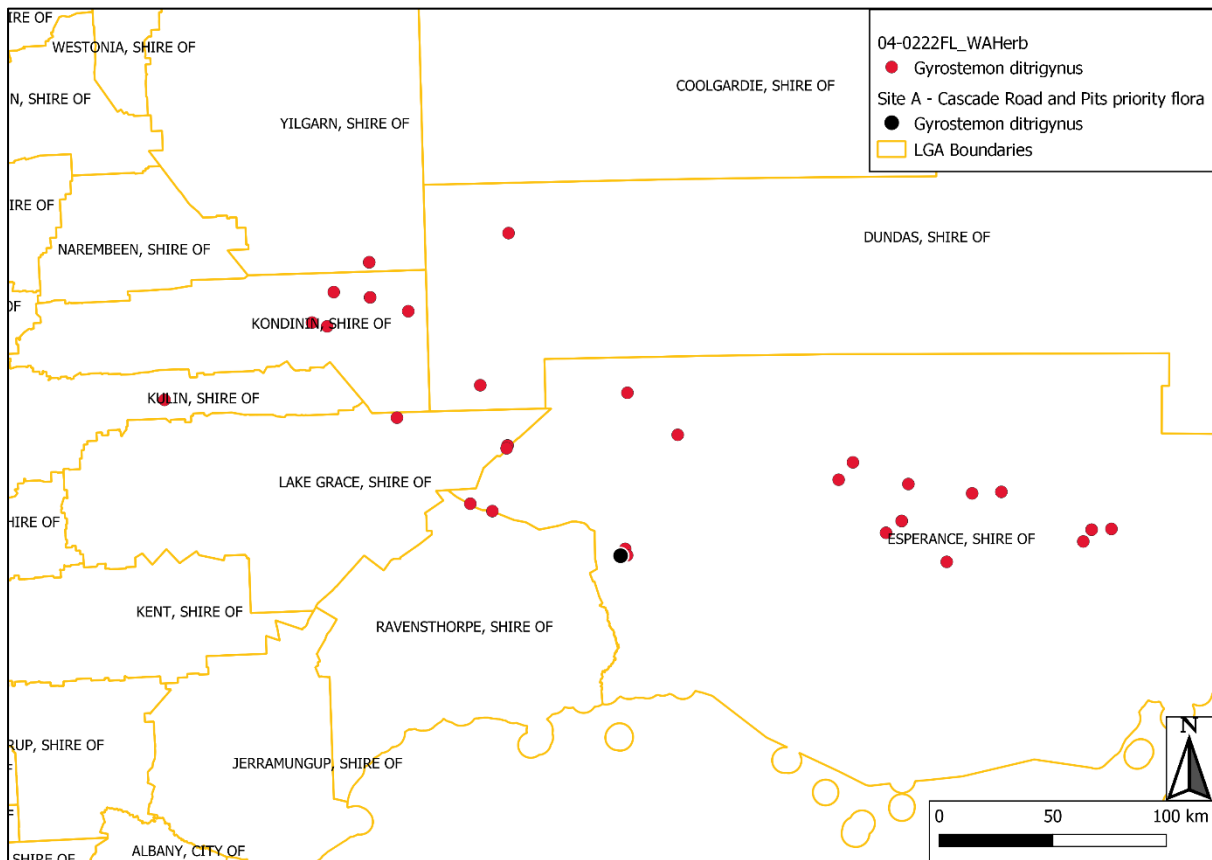
After examining Herbarium and TPFI records it's clear that the species is associated with fire. The plant is known to persist in the environment for only a few years after fire before naturally senescing after reproduction. The plant grows along a 420km area South to East within the Shire of Esperance, Lake Grace, Dundas, Kondinin, Yilgarn, Kulin.



**Figure 22.** Priority 4 species, *Gyrostemon ditrigynus* found within 'Site A – Cascade Road and Gravel Pits', photo taken by Katherine Walkerden on 31/08/2021.



**Figure 23.** Location of priority 4 species *Gyrostemon ditrigynus* within the 'Site A – Cascade Road and Gravel Pits' project.



**Figure 24.** Known records of priority 4 species *Gyrostemon ditrigynus* across a 423 km geographic range, spanning from the Shire of Kulin in the west, to the Shire of Esperance in the east (DBCA 2022).

## 5.5 Fauna

Within a 20 km radius of the 'Site A – Cascade Road Gravel Pit, corner of Cascade Rd and Rollonds Rd', 85 fauna have previously been recorded. Of these, only two species that are threatened fauna, priority fauna and fauna protected under international agreement have been recorded. Both of these threatened fauna, Carnaby's Black Cockatoo, *Calyptorhynchus latirostris*, and Malleefowl, *Leipoa ocellata*, have suitable habitat within the proposed clearing permit area.

### 5.5.1 Malleefowl, *Leipoa ocellata*, threatened fauna

Malleefowls are predominantly found within shrublands and low woodlands dominated by mallee and are associated with Broombush, *Melaleuca uncinata*. Every vegetation type at 'Site A – Cascade Road and Gravel Pits' can be broadly defined as 'mallee shrubland', and *Melaleuca uncinata* was collected in vegetation types B, C and D. All of the proposed clearing permit area is considered suitable habitat for Malleefowls, with Pit 1 being particularly suitable Malleefowl nesting habitat due to its sandy substrate and high leaf litter levels. However, Malleefowls are particularly susceptible to fires, and some areas within and much of the area adjacent to 'Site A - Cascade Road Gravel Pits' has been recently burnt. No Malleefowls or evidence of Malleefowl activity was encountered during the flora survey or field work.

### 5.5.2 Carnaby's Black Cockatoo, *Calyptorhynchus latirostris*, threatened fauna

Carnaby's Black Cockatoo's are unlikely to nest within the 'Site A – Cascade Road and Gravel Pits' project area, as no large trees are present with hollows. There was also a lack of large Eucalypts that could be used as roosts in the 'Site A – Cascade Road and Gravel Pits' proposed clearing permit area. Carnaby's Black Cockatoos forage on Proteaceae species nuts, such as Hakea or Banksia species. Vegetation type A and B, broadly described as 'Scattered/open *Hakea laurina* and mallee woodland' and 'Semi-open Mallee with scattered *Banksia media* open shrubland' would likely provide foraging grounds but are anticipated to not be directly linked to nesting or foraging habitat. These foraging vegetation types account for majority of the area of Pit 1 within the 'Site A – Cascade Road and Gravel Pits' proposed clearing permit area.

## 6 Conclusion; assessment of Department of Water and Environmental Regulations clearing principles

The 'Site A – Cascade Road and Gravel Pits' project may be at variance to some of the clearing principles that the Department of Water and Environmental Regulations (DWER) assess applications, as listed under Schedule 5 of the Environmental Protection Act 1986 (DWER 2019).

**Table 6.** Shire of Esperance Assessment against Clearing Principles of the proposed 'Site A – Cascade road and Gravel Pits'

Assessment against Clearing Principles	Conclusion
Principle (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	Biodiversity at this site is high with 210 native species recorded. The high diversity is a direct result of the numerous varied disturbance regimes present within the site.
Principle (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	The Malleefowl was the only conservation listed species with occurrences within 20km of the site. The undisturbed parts of this site including cascade Road and the Rollond's Road gravel pit would provide suitable nesting habitat for the Malleefowl. No Malleefowls or evidence of

	Malleefowl activity was encountered during the flora survey or field work.
Principle (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	5 priority listed species and 1 plant described as an intermediary of a priority and non-priority species. <i>Gyrostemon ditrigynus</i> (P4), <i>Grevillea aneura</i> (P3) and <i>Goodenia laevis subsp. laevis</i> were all relatively common throughout the region and were not particularly rare, and the project will not pose any significant risk to these populations. <i>Guichenotia asteriskos</i> (P2) was much rarer but had an extensive population outside of the clearing area and seems to have benefitted from previous gravel extraction activities. <i>Acacia diminuta</i> was extremely rare but the 3 plants will not be impacted and the gravel extraction activities could potentially benefit the population through the disturbance.
Principle (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.	A total of 1.32ha of Kwongkan TEC was present within the site. However the area will be revegetated following gravel extraction.
Principle (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The area is on the edge of very large areas of pristine vegetation completely lacking any clearing.
Principle (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	No riparian vegetation was recorded from the application area. The closest recorded watercourse was 1.3km from the project site.
Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The area is not susceptible to acid sulphate soils and there will be significant areas of vegetation surrounding the gravel pits which will reduce risk of erosion.
Principle (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	Clearing of the vegetation is unlikely to have an impact on the environmental values of any nearby conservation reserves as the closest nearby conservation area is the Griffiths nature reserve 4.3km from the project.
Principle (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	There is unlikely to be any impacts to surface or groundwater due to groundwater depths in the area and flat terrain and due to the closest recorded watercourse being 1.3km from the project.
Principle (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	There is unlikely to be any flooding in this area.



## 7 References

Adams E. (2012), *Shire of Esperance Threatened and Priority Flora: Field guide*, unpublished for the Department of Environment and Conservation

Beard J.S. (1973), *The vegetation of the Esperance and Malcom areas, Western Australia, 1:250 000 series*, Vegmap Publications Perth

Bureau of Meteorology (2020), *Esperance climate*, Commonwealth of Australia, <<http://www.bom.gov.au/>>

Commonwealth of Australia (2014), *Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia*, Department of Agriculture, Water and the Environment, <<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf>>

Commonwealth of Australia, *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), <<https://www.legislation.gov.au/Details/C2019C00275>>

Department of Agriculture and Food of Western Australia (2002), *Beaumont-Condongup Area: Catchment Appraisal 2002 Resource Management Technical Report 238*, Department of Agriculture and Food of Western Australia

Department of Biodiversity, Conservation and Attractions (2021a), *Esperance District Threatened and Priority Flora spatial dataset*, Government of Western Australia [10/9/2021]

Department of Biodiversity, Conservation and Attractions (2021b), *Priority Ecological Communities for Western Australia Version 32*, Government of Western Australia

Department of Biodiversity, Conservation and Attractions (2021c) *Florabase, The Flora of Western Australia Online* (and collections housed at the WA Herbarium). <<https://florabase.dpaw.wa.gov.au/search/advanced.>>

Department of Biodiversity, Conservation and Attractions (2021d), *Threatened and Priority Flora Database (TPFL) spatial dataset, 0-0921FL*, Government of Western Australia. [8/9/2021]

Department of Biodiversity, Conservation and Attractions (2021e), *Threatened Ecological Communities and Priority Ecological Communities Search Results, for Boundaries and Buffers, 15\_1121EC*, Government of Western Australia. [11/11/2021].

Department of Biodiversity, Conservation and Attractions (2021f), *Western Australia Herbarium spatial dataset, 0-0921FL*, Government of Western Australia. [8/9/2021].

Department of Biodiversity, Conservation and Attractions (2021g), *Banksia xylothemelia, Goodenia laevis subsp. laevis, Grevillea aneura, Guichenotia asteriskos, Western Australian Herbarium and Threatened and Priority Reporting (TPFL) spatial extracts, 05-1221FL*, Government of Western Australia. [22/12/2021]

Department of Biodiversity, Conservation and Attractions (2022), *Acacia diminuta*, *Gyrostemon ditrigynus*, *Western Australian Herbarium and Threatened and Priority Reporting (TPFL) spatial extracts*, 04-0222FL, Government of Western Australia. [02/02/2022]

Department of Biodiversity, Conservation and Attractions and Western Australian Museum (2020), *NatureMap*, Government of Western Australia. <<https://naturemap.dbca.wa.gov.au/>>

Department of Environment and Energy (2014), *Draft National Recovery Plan for the Australasian Bittern*, *Botaurus poiciloptilus*, Commonwealth Government of Australia  
<<https://www.environment.gov.au/system/files/consultations/9a03b781-7f67-4874-a919-cf53cd1eee60/files/draft-recovery-plan-australasian-bittern.pdf>>

Department of the Environment (2014a), *Approved Conservation Advice for Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia*, Department of the Environment. <<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/126-conservation-advice.pdf>>

Department of Parks and Wildlife (2017), *2016 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis – Full Report)*, Government of Western Australia

Department of Water and Environmental Regulations (2019), *Procedure: Native vegetation clearing permits, Application, assessment, and management requirements under Part V Division 2 of the Environmental Protection Act 1986*, Government of Western Australia. [October 2019]. <[https://dwer.wa.gov.au/sites/default/files/Procedure\\_Native\\_vegetation\\_clearing\\_permits\\_v1.PDF](https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF)>

Environmental Protection Authority (EPA) (2016), *Technical Guidance, Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia*, Government of Western Australia. <<http://www.epa.wa.gov.au/policies-guidance/technical-guidance-flora-and-vegetation-surveys-environmental-impact-assessment>>

Environmental Protection Authority 2020, *Technical Guidance – Terrestrial vertebrate fauna surveys for Environmental Impact Assessment*, EPA, Western Australia.  
<[https://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA-Technical-Guidance-Vertebrate-Fauna-Surveys.pdf](https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA-Technical-Guidance-Vertebrate-Fauna-Surveys.pdf)>

GAIA Resources, State NRM and South Coast Natural Resource Management (2020), *Dieback Information Delivery and Management Service, DIDMS*. <<https://didms.gaiaresources.com.au/>>

Keighery, B.J. (1994). *Bushland plant survey. A guide to plant community survey for the community*.

Main Roads of Western Australia (2020), *Standard Line Kilometres online application*, Government of Western Australia. <<https://mrapps.mainroads.wa.gov.au/gpsslk>>

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil Landscape Mapping in south-western Australia*, Resource management Technical report 20, Department of Agriculture WA.

Thackway R, Cresswell ID, Shorthouse D, Ferrier S, Hagar T, Pressey T, Wilson P, Fleming M, Howe D, Morgon G, Young P, Copley P, Peters D, Wells P, Miles I, Parkes D, McKenzie N, Thackway R, Kitchin M & Bullen F (1995), *Interim Biogeographic Regionalisation for Australia: A framework for setting priorities in the National*

Reserves System Cooperative Program, Australia Nature Conservation Agency. <  
<https://www.environment.gov.au/system/files/resources/4263c26f-f2a7-4a07-9a29-b1a81ac85acc/files/ibra-framework-setting-priorities-nrs-cooperative-program.pdf>>

Western Australian Government, *Biodiversity Conservation Act 2018*. <  
[https://www.legislation.wa.gov.au/legislation/statutes.nsf/law\\_s50938.html](https://www.legislation.wa.gov.au/legislation/statutes.nsf/law_s50938.html)>

Western Australian Government, *Landgate*, <  
<https://www0.landgate.wa.gov.au/>>

Western Australia Local Government Association (WALGA), *Local Government Mapping* spatial database.

Wildflower Society of WA (Inc.). Nedlands, Western Australia. Overhue, T.D., Snell, L.J., Johnston, D.A.W. (1993), *Esperance land resource survey, Western Australia*, Department of Agriculture

Wilkins, C. F., & Chappill, J. A. (2003). Taxonomic revision of *Guichenotia* (Lasiopetaleae: Malvaceae s/ or Sterculiaceae). *Australian Systematic Botany*, 16(3), 323-360.

Maslin, B. R. (1999). *Acacia miscellany 16. The taxonomy of fifty-five species of Acacia, primarily Western Australian, in section Phyllodineae (Leguminosae: Mimosoideae)*. *Nuytsia*, 12(3), 311-411.

## 8 Appendix

### 8.1 Incidental species list

Family	Genus	Species	Common Name	Weed	Cons Stat	Area		
						Rollong Rd Pit	West Point Rd Pit	Cascade Rd
Aizoaceae	Carpobrotus	modestus	Inland Pigface			X		x
Amaranthaceae	Ptilotus	polystachyus	Price-of-Wales Feather				x	x
Apiaceae	Platysace	effusa	Youlk			X	x	x
Asparagaceae	Laxmannia	paleacea						x
Asparagaceae	Laxmannia	squarrosa				X	x	
Asparagaceae	Lomandra	micrantha ssp. teretifolia				X	x	x
Asparagaceae	Lomandra	mucronata				X	x	x
Asparagaceae	Thysanotus	patersonii	Twining fringe lilly			X	x	
Asteraceae	Arctotheca	calendula	Cape Weed	X			x	
Asteraceae	Brachyscome	ciliaris	Variable daisy					x
Asteraceae	Olearia	muricata	Rough leaved daisy				x	
Asteraceae	Vittadinia	gracilis						x
Boraginaceae	Halgania	andromedifolia						x

Casuarinaceae	Allocasuarina	acutivalvis ssp. Acutivalis					x	
Casuarinaceae	Casuarina	glauca						x
Celastraceae	Tripterococcus	brunonis	Winged Stackhousia			X	x	
Celastraceae	Stackhousia	scoparia						x
Chenopodiaceae	Atriplex	semibaccata						x
Chenopodiaceae	Enchylaena	tomentosa				x		x
Convolvulaceae	Wilsonia	humilis	Silky Wilsonia				x	x
Cupressaceae	Callitris	roei				X		x
Cyperaceae	Gahnia	ancistrophylla						x
Cyperaceae	Gahnia	aristata						x
Cyperaceae	Gahnia	drummondii				X	x	
Cyperaceae	Gahnia	sp.						x
Cyperaceae	Lepidosperma	carphoides						x
Cyperaceae	Lepidosperma	pruinatum						x
Cyperaceae	Lepidosperma	sp.				X	x	
Cyperaceae	Lepidosperma	squamatum				X		
Cyperaceae	Schoenus	breviculmis					x	
Cyperaceae	Schoenus	brevisetis S. Lat					x	
Cyperaceae	Schoenus	laevigatus				X		
Cyperaceae	Schoenus	racemosus						x
Cyperaceae	Schoenus	sp. A1 Boorabin						x
Cyperaceae	Schoenus	sublaxus						x
Dilleniaceae	Hibbertia	exasperata				X	x	
Dilleniaceae	Hibbertia	gracilipes	Australian Butter Cup			X	x	x
Dilleniaceae	Hibbertia	psilocarpa					x	x
Dilleniaceae	Hibbertia	pungens						x
Droseraceae	Drosera	sp. Branched Styles						x
Ericaceae	Leucopogon	obtusatus					x	
Ericaceae	Lissanthe	rubicunda				X		x
Ericaceae	Lysinema	ciliatum	Curry Flower			X		
Ericaceae	Lysinema	pentapetalum	Lysinema					x
Ericaceae	Styphelia	exserta				X	x	
Ericaceae	Styphelia	intertexta						
Ericaceae	Styphelia	lissanthoides				X	x	
Euphorbiaceae	Beyeria	sulcata	Turpentine Bush			X	x	x
Euphorbiaceae	Stachystemon	brachyphyllus or polyandrus				X		
Fabaceae	Acacia	chrysocephala						x
Fabaceae	Acacia	crassuloides						x

Fabaceae	Acacia	dermatophylla						x
Fabaceae	Acacia	evenulosa						x
Fabaceae	Acacia	fragilis						x
Fabaceae	Acacia	gonophylla				X	x	x
Fabaceae	Acacia	myrtifolia						x
Fabaceae	Acacia	octonervia				X	x	x
Fabaceae	Acacia	pycnantha		x				x
Fabaceae	Acacia	saligna						x
Fabaceae	Chorizema	aciculare	Needle-leaf Chorizema			X	x	x
Fabaceae	Daviesia	aphylla						x
Fabaceae	Daviesia	benthamii					x	
Fabaceae	Daviesia	campephylla					x	
Fabaceae	Daviesia	lancifolia				X	x	x
Fabaceae	Daviesia	scoparia					x	x
Fabaceae	Daviesia	teretifolia				X		x
Fabaceae	Dillwynia	sp. Mallee	Parrot Pea				x	x
Fabaceae	Gastrolobium	nutans	Box Poison			X	x	x
Fabaceae	Gompholobium	baxteri						x
Fabaceae	Gompholobium	marginatum						x
Fabaceae	Gompholobium	viscidulum				X	x	
Fabaceae	Isotropis	drummondii	Lambs Tail Poison			X	x	x
Fabaceae	Kennedia	sp. South Coast						x
Fabaceae	Pultenaea	indira subsp. indira				X	x	
Fabaceae	Templetonia	sulcata	Centerpede bush				x	x
Fabaceae	Trifolium	subterraneum		x				x
Goodeniaceae	Coopernookia	polygalacea					x	
Goodeniaceae	Coopernookia	strophiolata				X	x	
Goodeniaceae	Dampiera	angulata						x
Goodeniaceae	Dampiera	lavandulacea				X	x	x
Goodeniaceae	Dampiera	parvifolia					x	
Goodeniaceae	Goodenia	concinna	Slender Goodenia				x	
Goodeniaceae	Goodenia	laevis subsp. laevis			P3		x	
Goodeniaceae	Goodenia	scapigera						x
Goodeniaceae	Leschenaultia	formosa	Coastal Wreath				x	
Gyrostemonaceae	Gyrostemon	ditrigynus			P4			x
Haemodoraceae	Conostylis	seorsifolia				X		
Haloragaceae	Glischrocaryon	angustifolia				X		x

Hemerocallidaceae	Dianella	revoluta					X	X
Lamiaceae	Hemigenia	teretiuscula				X		X
Lauraceae	Cassytha	aurea var. hirta						X
Lauraceae	Cassytha	melantha						X
Lauraceae	Cassytha	sp.				X		
Loganiaceae	Logania	buxifolia						X
Loganiaceae	Logania	micrantha				X	X	
Loganiaceae	Logania	stenophylla					X	X
Loganiaceae	Orianthera	tortuosa						X
Malvaceae	Alyogyne	hakeifolia						X
Malvaceae	Androcalva	crispa						X
Malvaceae	Guichenotia	asteriskos			P2		X	X
Malvaceae	Lasiopetalum	compactum					X	X
Malvaceae	Lasiopetalum	indutum					X	
Malvaceae	Lasiopetalum	rosmarinifolium				X	X	X
Malvaceae	Thomasia	microphylla					X	X
Myrtaceae	Beaufortia	empetrifolia				X		
Myrtaceae	Beaufortia	micrantha					X	X
Myrtaceae	Beaufortia	schaueri	South Coast Beaufortia			X		X
Myrtaceae	Calothamnus	gibbosus	One-sided bottle brush			X	X	X
Myrtaceae	Calytrix	leschenaultii	Star Flower			X	X	X
Myrtaceae	Cyathostemon	Aff. ambiguus				X	X	
Myrtaceae	Eucalyptus	densa				X	X	
Myrtaceae	Eucalyptus	eremophila	Tall Sand Mallee			X		X
Myrtaceae	Eucalyptus	flocktoniae subsp. hebes						X
Myrtaceae	Eucalyptus	forrestiana	Fuschia Gum				X	X
Myrtaceae	Eucalyptus	grossa						X
Myrtaceae	Eucalyptus	incrassata						X
Myrtaceae	Eucalyptus	kessellii subsp. eugnosta				X	X	X
Myrtaceae	Eucalyptus	pleurocarpa	Tallerack			X		X
Myrtaceae	Eucalyptus	tumida						X
Myrtaceae	Eucalyptus	uncinata	Hook-leaved Mallee			X	X	
Myrtaceae	Leptospermum	spinescens						X
Myrtaceae	Leptospermum	erubescens				X	X	X
Myrtaceae	Leptospermum	maxwellii						X
Myrtaceae	Leptospermum	spinescens				X		
Myrtaceae	Melaleuca	brophyi						X
Myrtaceae	Melaleuca	cucullata						X
Myrtaceae	Melaleuca	lateriflora					X	

Myrtaceae	Melaleuca	plumea						x
Myrtaceae	Melaleuca	podocarpa						x
Myrtaceae	Melaleuca	rigidifolia	Soccer ball Melaleuca			X	x	
Myrtaceae	Melaleuca	sapientes						x
Myrtaceae	Melaleuca	scabra						x
Myrtaceae	Melaleuca	societatis	Soccer ball Melaleuca				x	
Myrtaceae	Melaleuca	subfalcata					x	x
Myrtaceae	Melaleuca	torquata						x
Myrtaceae	Melaleuca	tuberculata ssp. macrophylla				X	x	
Myrtaceae	Melaleuca	uncinata				X	x	x
Myrtaceae	Micromyrtus	imbricata	Rock Thryptomene			X	x	x
Myrtaceae	Rinzia	communis				X	x	x
Myrtaceae	Tetrapora	preissiana					x	
Myrtaceae	Verticordia	acerosa var. preissii				X		
Myrtaceae	Verticordia	chrysanthella						x
Myrtaceae	Verticordia	mitchelliana						x
Olacaceae	Olax	benthamiana				X		
Orchidaceae	Caladenia	attingens ssp. gracillima						x
Orchidaceae	Cyanicula	aperta						x
Orchidaceae	Ericksonella	saccharata	Sugar Orchid					x
Orchidaceae	Micromyrtus	imbricata					x	
Orchidaceae	Pterostylis	falcata	Jug Orchid			X		x
Orchidaceae	Pterostylis	recurva						x
Orchidaceae	Thelymitra	campanulata						x
Pittosporaceae	Billardiera	coriacea						x
Pittosporaceae	Marianthus	bicolor	Painted Lady			X	x	
Poaceae	Eragrostis	curvula	African Lovegrass	x				x
Poaceae	Neurachne	alopecuroidea	Foxtail Mulga Grass			X	x	x
Poaceae	Rytidosperma	caespitosum						x
Poaceae	Sporobolus	virginicus						x
Polygalaceae	Comesperma	drummondii						x
Polygalaceae	Comesperma	polygaloides	Small Milkwort				x	
Polygalaceae	Comesperma	spinosum	Spiny Milkwort				x	
Proteaceae	Banksia	cirsioides - xylothemelia						x
Proteaceae	Banksia	media	Sandplain Banksia			X	x	x
Proteaceae	Grevillea	anethifolia				X		

Proteaceae	Grevillea	aneura			P4	X	x	x
Proteaceae	Grevillea	disjuncta						x
Proteaceae	Grevillea	huegelii					x	x
Proteaceae	Grevillea	nudiflora				X	x	x
Proteaceae	Grevillea	oligantha						x
Proteaceae	Grevillea	pauciflora					x	
Proteaceae	Grevillea	pectinata					x	x
Proteaceae	Grevillea	plurijuga						x
Proteaceae	Grevillea	teretifolia						x
Proteaceae	Hakea	cinerea	Ashy Hakea			X		
Proteaceae	Hakea	commutata						x
Proteaceae	Hakea	corymbosa						x
Proteaceae	Hakea	cygnus subsp. cygnus						x
Proteaceae	Hakea	ilicifolia						x
Proteaceae	Hakea	laurina	Pin Cushion Hakea			X	x	x
Proteaceae	Hakea	multilineata				X		x
Proteaceae	Hakea	obliqua	Needles and Cork Hakea			X		
Proteaceae	Hakea	varia				X		
Proteaceae	Isopogon	sp. Fitzgerald River				X	x	x
Proteaceae	Persoonia	helix				X	x	x
Proteaceae	Persoonia	teretifolia	Wild Pear			X		
Proteaceae	Synaphea	favosa						x
Restionaceae	Desmocladius	flexuosus						x
Restionaceae	Desmocladius	myriocladus				X	x	x
Rhamnaceae	Cryptandra	apetala var anomala						x
Rhamnaceae	Cryptandra	nutans					x	
Rhamnaceae	Cryptandra	recurva				X	x	x
Rhamnaceae	Phebalium	lepidotum				X	x	
Rhamnaceae	Pomaderris	brevifolia						x
Rhamnaceae	Spyridium	microcephalum					x	
Rhamnaceae	Spyridium	minutum					x	
Rutaceae	Boronia	baeckeacea subsp. baeckeacea				X	x	
Rutaceae	Boronia	crassifolia				X	x	x
Rutaceae	Boronia	inornata	Desert Boronia				x	x
Rutaceae	Boronia	ramosa subsp. anethifolia				X		
Rutaceae	Cyanothamnus	baeckeaceus						x



Rutaceae	Microcybe	pauciflora subsp. pauciflora					X	
Rutaceae	Phebalium	lepidotum						x
Santalaceae	Exocarpos	sparteus	Native Cherry				X	x
Santalaceae	Leptomeria	pachyclada	Native Currant Bush			X		
Santalaceae	Santalum	murrayanum	Bitter Quandong					x
Sapindaceae	Dodonaea	concinna						x
Sapindaceae	Dodonaea	divaricata					X	x
Scrophulariaceae	Eremophila	dichroantha						x
Solanaceae	Cyphanthera	microphylla						x
Solanaceae	Solanum	nigrum	Black-berry Nightshade	x				x
Solanaceae	Solanum	symonii						x
Stylidiaceae	Stylidium	brevicapum	Boomerang triggerplant			X		x
Stylidiaceae	Stylidium	repens					X	
Stylidiaceae	Stylidium	turleyae						x
Thymelaeaceae	Pimelea	brevifolia				X		x
Thymelaeaceae	Pimelea	sulphurea	Yellow Banjine			X		x

## 8.2 *Banksia xylothemelia* records

Compiled population data of priority 3 species *Banksia xylothemelia* (DBCA 2021g).

Site Description	Population count	Date	Sheet no. / Pop number
Track to Lillian Stokes Rock, N of the Lake King-Norseman Road	1 plant.	26/07/2017	8985367
Humps Road, 4.8 km N of Billericap Road	6-20 plants.	19/08/2016	9279644
Dragon Rocks Nature Reserve, Mouritz Road 4.1 km W of Allen Rocks Road	6-20 plants.	25/08/2015	9281010
SWATT Sandplain Survey, Dragon Rocks Nature Reserve, survey site SWA0301D, ca. 54.63 km SE (149.95 degrees) of Hyden and ca. 27.35 km NNW (27.39 degrees) of Newdegate	isolated plants (<1%).	8/10/2013	8997586
Old Newdegate Road on the edge of Lake King Reserve, Newdegate	Common.	6/09/2010	8296693
Site 3, Water Reserve 20274, Dam 438, adjacent to Magenta - Giles Road, S of Newdegate		3/11/2006	8328005
Water Reserve 18961, Dam 393, Site 3. Adjacent to Magenta Road, SE of Newdegate		23/10/2006	8322813

Lake Bryde Recovery Catchment, Roe Loc. 3053, Harns property, ca 40 km S of Newdegate, Site 7, Remnant 61	frequent.	21/06/2003	7214790 / TPFL pop 11
Burngup Water Reserve, corner of Solomoko / Biddy-Camm Roads	occasional.	9/10/2002	6789323 / TPFL pop 4
Adjacent to the Lake King air strip	21-50 plants.	16/09/2002	6844022 / TPFL pop 10
UCL 3030, Plot FR0206, 200 m E of Tarco Rd on Old Newdegate Rd, N of road	occasional in area, approx. 20 adults in area.	28/08/2002	6481124
UCL 3030, 570 m E of Tarco Rd	occasional.	3/07/2002	6481132 / TPFL pop 2
Rasmussen Rd, 0.2km E of Kuringup Rd North, N verge		23/05/2001	TPFL pop 1
Newdegate Townsite, near Tennis Club	occasional.	24/09/2001	6812295
Lake King - Cascades Road,	sparse.	13/08/2000	5712165
Cugley property, Roe Loc. 2548, LFW Site 3,	occasional.	16/11/1999	6029280 / TPFL Pop 3
On the southern boundary of the reserve, 12 km E of SW corner, Lake Magenta Nature Reserve, c. 48 km SE of Pingrup [Plot-PI13]		16/10/1999	7059906 / TPFL Pop 8
Lake Magenta NR No. 25112, W side of Grant-Williams Rd, 100 m S of the northern boundary of the reserve [Plot-PI06].			TPFL Pop 9
On N side of Cargannocking-Pingaring Road, 1.3 km E of Colbourne Road, Hopkins Nature Reserve, c. 25 km S of Kondinin [Plot-KN03]		9/09/1999	7059922
On E side of internal fire break, 2.1 km S of Pingaring - Varley North Road, track leaves road 8.8 km E of Mount - Vernon Road, Mount Vernon Nature Reserve, c. 51 km ESE of Hyden. [Plot - HY07]		7/09/1999	6692133/ TPFL Pop 7
On W side of Fourteen - Mile Road, 1.5 km S of Pelham Road, Lakeland Nature Reserve, c. 31 km SW of Newdegate. [Plot - PI21]		17/05/1999	6776396/ TPFL Pop 6
On W side of Grant-Williams Road, 100 m S of the northern boundary of the reserve, Lake Magenta Nature Reserve, c. 40 km SSW of Newdegate [Plot-PI06]		16/05/1999	7059914
Dragon Rocks Nature Reserve,		19/06/1998	5401070/ TPFL Pop 17
SW corner of South Bumiche Nature Reserve No 26763,		2/02/1998	5048540/ TPFL Pop 5

On N side of Cargannocking-Pingaring Road, 1.3 km E of Colbourne Road Hopkins Nature Reserve, c. 25 km S of Kondinin [Plot-KN03]		23/09/1997	7057148
On N side of Bendering-Reserve Road, 3.45 km E of Greay Road, North Karlgarin Nature Reserve, c. 10 km ENE of Kondinin [Plot-KN11]		22/09/1997	7056982
On N side of Bendering - Reserve Road, 3.45 km E of Greay Road, North Karlgarin Nature Reserve, c. 10 km ENE of Kondinin. [Plot - KN11]		22/09/1997	6692052
Lake Magenta Nature Reserve No. 25113, Survey Site L		6/08/1996	4566211
Newdegate - Lake King road, 11.4 km E of Holt Rock South road turnoff,		11/10/1994	4632796/ TPFL Pop 16
14 km N of Newdegate - Lake King road on Holt Rock South road,		11/10/1994	4228731/ TPFL Pop 14
Dragon Rocks Nature Reserve		9/12/1993	4570782
Dragon Rocks Nature Reserve		9/12/1993	4570790
Hopkins Reserve, SE of Kulin		17/09/1993	4533763
ca 19 km E along road to Lake King. N side of road. Lake Grace		28/09/1992	6394388
Dragon Rocks Nature Reserve No. 36128. Central fire break 1.2 kms west of Dragon Rocks Road.	frequent.	8/06/1991	8331081
Corner of Lake Magenta N Road, Shire of Lake Grace		31/10/1988	4139801
1.6 km NNE of Dragon Rocks in Dragon Rocks Nature Reserve		28/08/1986	4068017
Biddy-Camm Road, 1.1 km W of junction with Burngup Road South,		1/08/1986	5078601, 5078628, TPFL Pop 15
Hopkins Reserve, SE of Kulin,		1/08/1986	5078555
Burngup Road North, 1.5 km S of junction with Fisher Road, NE of Lake Grace,		1/08/1986	5078571, 5078598/ TPFL Pop 12
3.5 km E along Creek Road from Old Ravensthorpe Road,		31/07/1986	4632613/ TPFL Pop 15
27.5 km E of Lake Grace - South Buniche Nature Reserve,		30/07/1986	4632605
Newdegate Road, ca 15 km W of Lake King		19/11/1985	1799010
Frank Hann National Park		7/08/1978	1796666
ca 14 km SE of Kulin		10/07/1977	5441374

ca 14 km SE of Kulin		10/07/1977	1796623
18 km SE of Holt Rock		17/09/1976	1807153
Gairdner River - Bremer Bay Road		27/09/1972	1796658
16 km W of Lake King township		11/10/1966	1796682
W from Tarin Rock, N side of road		26/10/1964	1796631
Newdegate		7/11/1931	1796674

### 8.3 *Grevillea aneura* records

Compiled population data of priority 4 species *Grevillea aneura* (DBCA 2021g).

Site Description	Population count	Date	Sheet no. / Pop number
C. 108 km NW of Esperance townsite, c. 23 km N of Cascade townsite on SE corner of intersection of Rollond Road and Cascade Road	c. 102 plants.	2020	9375406
Track to Lillian Stokes Rock, N of the Lake King-Norseman Road	common.	2017	8985294
C. 39 km E of Salmon Gums on agricultural boundary firebreak	20+ plants.	2013	9062254
C. 1.3 km W along West Point Road from Cascades Road intersection, 23 km NE of Cascade Locality	50+ plants.	2013	9062246
UCL, 26 km E of Lake King	common on this soil type, not present on adjacent clay - based soil.	2011	8422443
North west extension Melaleuca Road, W of West Point Road	frequent.	2009	8458561
Private property: Lot 267 Townsend Rd Grasspatch	50 Mature plants, 10 seedlings, 5 dead plants		
North Ravensthorpe along Beatty Road	2-5 plants.	2008	8089264
Corner of Moolyall Road and Woodenup Road		2007	8075018
At junction of Edwards and Rollands Roads	50+ plants.	2004	7232063
Entrance track to Lillian Stoke Rock, E of Lake King	6-20 plants.	2002	6844057
On W side of West-Point Road, 250 m W of Cascades Road. Unvested Crown Land, c. 25 km NW of Cascade, c. 13 km SSW of Pyramid Lake. [Plot - GP01]		2000	6885519
On E side of Fields Road, 12.4 km N of Rollond Road. Unvested Crown Land, c. 52 km W of Grass Patch. [Plot - GP06]		2000	6692400
Lake King - Cascades Road,		2000	5739144
On Lake King - Cascades Road, 22.1 km NW of junction with West Point Road,	frequent.	1998	5146461
NW of Grass Patch, Fitzgerald Loc. 646 and 277, roadside Poverty Lane, W of Norseman Highway,		1997	4925394

Poverty Lane, E of Norseman Highway, NW of Grass Patch		1997	5062527/ Turley & Bruhn 13/497
27.1 km E of Lake King on to Norseman Road	21 Mature (TPFL form)	1997	4869133
NW of Grass Patch (ca 105 km NW of Esperance), Loc. 646, Fitzgerald,		1997	4925386
75 km W of 90 Mile Tank, Lake King, Roe Botanical District		1993	4277392
Lake Halbert,	very common.	1993	4951247
3-3.7 km N Logans Road on Dingo Rock - Mount Ridley track, c. 7 km S of Dingo Rock		1993	3211835
1.4 km E of Stennets Lake Rd on Norseman Rd (approx 24.4 km E of Lake King).		1992	3026930
13.5 km N of Rolland Road on Fields Road		1992	3243613
5.4 km S of Rollands road on Edwards road (200 m N of Griffiths road). Gravel pit. Nature Reserve No 30583		1992	3243605
17.6 km NE of Melaleuca road on West Point road (1.3 km SW of Cascades road)		1992	3243702
14.5 - 14.9 km NE of Melaleuca road on West Point road (4-4.4 km SW of Cascades road)	100-120 Mature plants (TPFL form)	1992	3243699/ GFC 2058
Dog Rock, Peak Charles National Park	very rare, solitary plant.	1991	9193308
Gravel Reserve, 18 km W of Salt Lake, Lake King - Norseman road		1988	2837765
17 km S of Peak Charles, 13.6 km N of Rollands Road on Fields Road		1983	1645544
14 km along Fields road from Rolland road, c. 53 km WNW of Grass Patch		1983	1640054
10 km W of Sheoak Hill		1983	1645528
42.7 km ENE of Muckinwobert Rock		1983	1645536
28.5 km due N of Clyde Hill		1983	1640046
18 km W of Norseman to Esperance Road, on Ravenswood Road, Ravenswood road is 14 km S of Salmon Gums		1981	1434934
21 km NW of Roberts Swamp, c. 51 km WNW of Grass Patch		1980	1430157
22 km SE of Salmon Gums		1980	1429698
12 km SE of Mount Gibbs, Frank Hann National Park	a single plant.	1979	1417789

21 km E of the crossroads which is just E of Lake King		1976	1645943
6 miles E of Vermin Fence, Lake King - Daniel		1974	2282372
W of Salmon Gums, Frank Hann National Park		1971	2795310
17 miles E of Lake King		1970	1645501
16 miles E of Red Lake,		1967	3086747
40 km E of Lake King on road to Daniell		1966	1645951
14 miles E of Lake King crossroads		1965	1640089
14 to 15.5 miles E of Lake King crossroads		1965	2679027
16.2 miles from Lake King on Norseman road (near Rabbit Proof Fence)		1965	1640070
10-15 m E of Lake King		1964	2678993
10-15 m E of Lake King		1964	1640062
c. 65 km E of Lake King, South West		1964	2679019
Grass Patch		1962	2679000
C. 108 km NW of Esperance townsite, c. 23 km N of Cascade townsite on SE corner of intersection of Rollond Road and Cascade Road	c. 102 plants.	2020	9375406

## 8.4 *Gyrostemon ditrigynus* records

Compiled population data of priority 4 species *Gyrostemon Ditrigynus* (DBCA 2022).


Site Description	Population count	Date	Sheet no. / Collectors no.
NE slopes of Mt Holland	scattered after a very hot summer fire.	2018	9203397
NE slopes of Mt Holland	scattered after a very hot summer fire.	2018	9203400
Mount Holland, 100km SSE of Southern Cross, Western Australia	27 plants		DA3990
1.2 km N along a firebreak from Circle Valley Road, c. 32 km E of Salmon Gums	50+ plants.	2013	9062270
1 km S along Davies Road from Carranya Road intersection, 29 km ESE of Salmon Gums	100+ plants.	2013	9062289
49.7km E on Cascades Road; Lake King		2005	7112009
Adjacent to cleared gridline, 2.8 km N of Jackson Rock, 7.4 km SE of Digger Rocks and 32.4 km E of Varley	c. 5 plants adjacent to 10 m of gridline.	2004	9061010
36 km E of Lake King along Norseman Lake King track	>150 plants in population.	2004	7312040
36 km E of Lake King along Norseman Lake King track	>150 plants in population.	2004	7312032
Cascade - Lake King Road, Ravensthorpe; 63.8 km WNW of West Point Road, Cascade	ca 50000+ plants over many square kms.	2004	6608647
Mt Ney Road, SW of Mt Ney (at end of gravel road) - SW corner of Mt. Ney Nature Reserve	100+ plants.	2004	7222661
Parmango Road, 4.8 km W of Private Road M69/1, 79 km E of Condingup, Eyre district	common.	2003	6842623
Parmango Road, 2.4 km W of Private Road M69/1, 79 km E of Condingup, Eyre district	common.	2003	6842615
Lake King - Norseman Road, 41.5 km W of Ninety Mile tank	abundant over large areas ca 12-18 months post fire.	2002	6505260
22 km W of Cascade on Cascade Road,	occasional.	1999	5527597
18.2 km E of Forrestania crossroads		1997	4903919



6.1 km E of Forresteria Pub		1997	4904591
12.3 km N of Forresteria crossroads towards Southern Cross		1995	4273621
12.3 km N of Forresteria crossroads towards Southern Cross		1995	4272897
Ca 21 km NE on Mount Holland Track from Hyden - Norseman Road	common.	1995	4272773
c. 2 km NE on Mount Holland track from Hyden-Norseman Road	uncommon.	1995	4322681
Oldfield 1343, 17 km NE of Ravensthorpe [This location is 28 km NW of Cascade as advised by collector 23/8/2001]		1994	4222466
16.5 km NE of Clyde Rd on Parmango Rd; ca. 80 km NE of Condingup.		1993	3551385
9.9 km NE of Clyde Rd on Parmango Rd (=28.6 km NE of Shearer Rd); ca. 74 km NE of Condingup.		1993	3551377
23.2 - 23.7 km E of Ninety Mile Tank along Lake King - Norseman Rd.		1993	3551660
9.0 km NW of Mt Ney Rd, along track which intersects Mt Ney Rd 6.5 km SW of Clyde Rd (ca. 38 km NW of Clyde Hill).		1993	3218449
Roe Botanical District, 22 km NE of Mount Heywood		1991	3371530
1 km E of summit and top of gravel foot-slope overlooking plain to E and SE, Peak Charles National Park	scarce.	1991	9193359
37.5 [km?] NNW of Mount Ney		1983	1111124
3 km NE of Mount Ridley, c 68 km NE of Esperance		1981	1623664
47 km E of Grass Patch		1980	1623656
47 km E of Grass Patch		1980	4150104
23 feet N of 90 mile tank [Ninety Mile Tank] (Daniels - Lake King)		1974	1111132
23 miles W of 90 mile tank		1974	6831095
56.5 [km?] E of Kulin on road to Holt Rock		1972	1111116

## 8.5 TPFL Forms

### 8.5.1 Acacia diminuta



Department of Biodiversity,  
Conservation and Attractions

## Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at [www.dbca.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants](http://www.dbca.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants)

TAXON: <u>Acacia diminuta</u>		TPFL Pop. No: <input type="text"/>
OBSERVATION DATE: <u>02/09/2020</u>	CONSERVATION STATUS: <u>P1</u>	New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>Katie White, Rhaquelle Miekele-John</u>		PHONE: <input type="text"/>
ROLE: <u>Environmental Officer and Environmental field assistant</u>	ORGANISATION: <u>Shire of Esperance</u>	
EMAIL: <u>katie@biodiversesolutions.com.au</u>		

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place): 400 Metres East of Rollonds rd – Cascade rd Intersection in Rollonds rd intersection, 60 metres off of road

DBC DISTRICT: <u>Esperance</u>	LGA: <u>Esperance</u>	Land manager present: <input type="checkbox"/>	Reserve No: <input type="text"/>
DATUM: <input type="checkbox"/> GDA94 / MGA94 <input checked="" type="checkbox"/> AGD84 / AMG84 <input type="checkbox"/> WGS84 <input type="checkbox"/> Unknown <input type="checkbox"/>		COORDINATE S: (If UTM coords provided, Zone is also required) DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input type="checkbox"/>	
Lat / Northing: <u>6308333</u>		METHOD USED: <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>	
Long / Easting: <u>302972</u>		No. satellites: <input type="text"/> Map used: <input type="text"/>	
ZONE: <u>51</u>		Boundary polygon captured: <input type="checkbox"/> Map scale: <input type="text"/>	

**LAND TENURE:**

<input type="checkbox"/> Nature reserve	<input type="checkbox"/> Timber reserve	<input type="checkbox"/> Private property	<input type="checkbox"/> Rail reserve	<input checked="" type="checkbox"/> Shire road reserve
<input type="checkbox"/> National park	<input type="checkbox"/> State forest	<input type="checkbox"/> Pastoral lease	<input type="checkbox"/> MRWA road reserve	<input type="checkbox"/> Other Crown reserve
<input type="checkbox"/> Conservation park	<input type="checkbox"/> Water reserve	<input type="checkbox"/> UCL	SLK/Pole <input type="text"/> to <input type="text"/>	Specify other: <input type="text"/>

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>):

**EFFORT:** Time spent surveying (minutes):  No. of minutes spent / 100 m<sup>2</sup>:

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate  Count method:   
(Refer to field manual for list)

WHAT COUNTED:	Plants <input checked="" type="checkbox"/>	Clumps <input type="checkbox"/>	Clonal stems <input type="checkbox"/>	
	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>
TOTAL POP'N STRUCTURE:	3	<input type="text"/>	<input type="text"/>	<input type="text"/>
Alive	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dead	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Area of pop (m<sup>2</sup>):   
Note: Pls record count as numbers (not percentages) for database.

**QUADRATS PRESENT:** No.  Size  Data attached  Total area of quadrats (m<sup>2</sup>):

Summary Quad. Totals: Alive

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
Immature fruit  Fruit  Dehisced fruit  Percentage in flower: %

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

COMMENT:

THREATS - type, agent and supporting information:	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)			
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please return completed form to Species And Communities Program DBCA,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbca.wa.gov.au](mailto:flora.data@dbca.wa.gov.au)  
RECORDS: Please forward to Flora Administrative Officer, Species and Communities Program.  
Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database



## Threatened and Priority Flora Report Form

Version 1.4 March 2021

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input checked="" type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input checked="" type="checkbox"/>	Brown <input type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input checked="" type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input checked="" type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input checked="" type="checkbox"/>	
Flat <input type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____		Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>	_____		_____	_____	
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>	Specific Landform Element: _____ (Refer to field manual for additional values)				
<b>CONDITION OF SOIL:</b>	Dry <input type="checkbox"/>	Moist <input type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

### VEGETATION

#### CLASSIFICATION:

Eg: 1. Banksia woodland (B. attenuata, B. ilicifolia);  
2. Open shrubland (Hibbertia sp., Acacia spp.);  
3. Isolated clumps of sedges (Mitragnona)

1. Eucalyptus forrestiana with Dense Melaleuca and Beyeria undersotery

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

#### ASSOCIATED SPECIES:

Other (non-dominant) spp \_\_\_\_\_

Cyathostemon ambiguus, Melaleuca tuberculata, Grevillea Huegellii, Grevillea pectinata

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:** \_\_\_\_\_

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROAD SIDE MARKER S:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**FLORA AUTHORISATION / LICENCE No:** FT61000029 Note if only observing plants (i.e. no specimens or plant material is taken) then no authorisation/licence is required. For further information on authorisation and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: \_\_\_\_\_ WA Herb.  Regional Herb.  District Herb.  Other: \_\_\_\_\_  
KW140 ACC8867

**LODGE MENT:** WA Herb Lodgement No: \_\_\_\_\_


**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other: \_\_\_\_\_

**COPY SENT TO:** Regional Office  District Office  Other: \_\_\_\_\_

Submitter of Record: Katherine Walkerden Role: Environmental Officer Signed: KSW Date: 03/02/2022

Please return completed form to Species And Communities Program DBCA,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au  
RECORDS: Please forward to Flora Administrative Officer, Species and Communities Program.  
Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database

8.5.2 Guichenotia asteriskos



Department of Biodiversity,  
Conservation and Attractions

## Threatened and Priority Flora Report Form

Version 1.4 March 2021

*Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at [www.dbca.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants](http://www.dbca.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants)*

TAXON: <u>Guichenotia asteriskos</u>		TPFL Pop. No: _____	
OBSERVATION DATE: <u>28/09/2021</u>	CONSERVATION STATUS: <u>P2</u>	New population <input checked="" type="checkbox"/>	
OBSERVER/S: <u>Julie Waters, Katherine Walkerden</u>		PHONE <u>0416558774</u>	
ROLE: <u>Environmental officer</u>	ORGANISATION: <u>Shire of Esperance</u>		
EMAIL: <u>Katherine.Walkerden@esperance.wa.gov.au</u>			

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):  
 Cascade and West Point road reserve and neighbouring UCL (Parcel 215271 Lot 1366), small number present in road shoulder (5 plants) large number in chained firebreak(55) & surrounding historical gravel pit (44 plants also within chainbreak)

DBCA DISTRICT: <u>Esperance</u>		LGA: <u>Esperance</u>	Land manager present: <input type="checkbox"/>
<p><b>DATUM:</b> <input checked="" type="checkbox"/> GDA94 / MGA94 <input type="checkbox"/> AGD84 / AMG84 <input type="checkbox"/> WGS84 <input type="checkbox"/> Unknown</p> <p><b>COORDINATES:</b> (if UTM coords provided, Zone is also required)          DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input type="checkbox"/>          Lat / Northing: <u>8308414</u>          Long / Easting: <u>302260</u>          ZONE: <u>51</u></p> <p><b>METHOD USED:</b>          GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>          No. satellites: _____ Map used: _____          Boundary polygon captured: <input type="checkbox"/> Map scale: _____</p>			
<p><b>LAND TENURE:</b></p> <p>Nature reserve <input type="checkbox"/> Timber reserve <input type="checkbox"/> Private property <input type="checkbox"/> Rail reserve <input type="checkbox"/> Shire road reserve <input type="checkbox"/>          National park <input type="checkbox"/> State forest <input type="checkbox"/> Pastoral lease <input type="checkbox"/> MRWA road reserve <input type="checkbox"/> Other Crown reserve <input type="checkbox"/>          Conservation park <input type="checkbox"/> Water reserve <input type="checkbox"/> UCL <input checked="" type="checkbox"/> SLK/Pole _____ to _____ Specify other: _____</p>			

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

**EFFORT:** Time spent surveying (minutes): \_\_\_\_\_ No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate  Count method: \_\_\_\_\_  
(Refer to field manual for list)

**WHAT COUNTED:** Plants  Clumps  Clonal stems

TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:	Area of pop (m <sup>2</sup> ): _____
	Alive	105			
Dead					Note: Pls record count as numbers (not percentages) for database.

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

Summary Quad. Totals: Alive \_\_\_\_\_

**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
 Immature fruit  Fruit  Dehisced fruit  Percentage in flower: 90%

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:** Population extends further into UCL, which was not counted

THREATS - type, agent and supporting information: <small>Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential impact (L-E)	Potential Threat Onset (S-L)
• Shire gravel pit extraction (55 Plants)	N	E	8-18 months
• Shire road widening activities (5 Plants)	N	M	8-18 months

Please return completed form to **Species And Communities Program DBCA**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbca.wa.gov.au](mailto:flora.data@dbca.wa.gov.au)  
**RECORDS:** Please forward to **Flora Administrative Officer**, Species and Communities Program.  
 Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database



## Threatened and Priority Flora Report Form

Version 1.4 March 2021

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input checked="" type="checkbox"/>	Brown <input checked="" type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input checked="" type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input checked="" type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____		Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>					
Closed depression <input type="checkbox"/>	<b>Specific Landform Element:</b>				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				
<b>CONDITION OF SOIL:</b>	Dry <input type="checkbox"/>	Molst <input type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

### VEGETATION CLASSIFICATION\*:

1. Open Eucalyptus pleurocarpa and Banksia media dominated mallee woodland with Acacia, Proteaceae and Goodeniaceae understorey resulting from Chained firebreak

Eg. 1. Banksia woodland (B. attenuata, B. ilicifolia);  
2. Open shrubland (Hibbertia sp., Acacia spp.);  
3. Isolated clumps of sedges (M. tetragona)

2.

3.

4.

### ASSOCIATED SPECIES:

Grevillea aneura, Calothamnus gibbosus, Melaleuca uncinata, Beaufortia micrantha, Beaufortia schaueri

Other (non-dominant) spp

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

### COMMENT:

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Site was on the edge of the fire scar, wasn't burned

**FLORA AUTHORISATION / LICENCE No:** FT1000788, FT1000787 Note if only observing plants (i.e. no specimens or plant material is taken) then no authorisation/licence is required. For further information on authorisation and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No:

KSW1721; Accession 9116 not retained

WA Herb.  Regional Herb.  District Herb.  Other: \_\_\_\_\_

KW139; Accession 8867 retained

**LODGE:** WA Herb  
Lodgement No: \_\_\_\_\_

**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other: \_\_\_\_\_

**COPY SENT TO:** Regional Office  District Office  Other: \_\_\_\_\_

Submitter of Record: Katherine walkerden Role: Shire of Esperance Signed: \_\_\_\_\_ Date: 01 / 02 / 2022


Please return completed form to Species And Communities Program DBCA,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to Flora Administrative Officer, Species and Communities Program.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database

8.5.3 Banksia cirsioides/ xylothemelia



Department of Biodiversity,  
Conservation and Attractions

### Threatened and Priority Flora Report Form

Version 1.3 August 2017

*Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at <http://dpcaw.wa.gov.au> under Standard Report Forms*

TAXON: <u>Banksia cirsioides/xylothemelia</u>		TPFL Pop. No: _____
OBSERVATION DATE: <u>25/10/22</u>	CONSERVATION STATUS: _____	New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>Julie waters Katherine Walkerton</u>	PHONE: _____	
ROLE: <u>Environmental officer</u>	ORGANISATION: <u>Shire of Esperance</u>	

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place):  
Cascade rd near intersections of west point rd

Reserve No: \_\_\_\_\_

DBC DISTRICT: _____	LGA: <u>Esperance</u>	Land manager present: <input type="checkbox"/>
DATUM: _____	COORDINATES: (If UTM coords provided, Zone is also required)	METHOD USED:
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input type="checkbox"/>	GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	Lat / Northing: <u>302390</u>	No. satellites: _____ Map used: _____
WGS84 <input type="checkbox"/>	Long / Easting: <u>6308306</u>	Boundary polygon captured: <input type="checkbox"/> Map scale: _____
Unknown <input type="checkbox"/>	ZONE: <u>51</u>	

LAND TENURE:

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input checked="" type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): \_\_\_\_\_

EFFORT: Time spent surveying (minutes): 20 No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

POP'N COUNT ACCURACY: Actual  Extrapolation  Estimate  Count method: \_\_\_\_\_  
(Refer to field manual for list)

WHAT COUNTED: Plants  Clumps  Clonal stems

TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:	Area of pop (m <sup>2</sup> ): _____ <small>Note: Pls record count as numbers (not percentages) for database.</small>
Alive	<u>4</u>	<u>17</u>			
Dead					

QUADRATS PRESENT: No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

Summary Quad. Totals: Alive \_\_\_\_\_

REPRODUCTIVE STATE: Clonal  Vegetative  Flowerbud  Flower  all mature  
Immature fruit  Fruit  Dehiscent fruit  Percentage in flower: \_\_\_\_\_ %

CONDITION OF PLANTS: Healthy  Moderate  Poor  Senescent

COMMENT: 2 dead seedlings

THREATS - type, agent and supporting information: <small>Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential impact (L-E)	Potential Threat Onset (S-L)
• <u>road widening</u>	<u>N</u>	<u>M</u>	<u>M</u>
• _____	_____	_____	_____
• _____	_____	_____	_____

Please return completed form to **Species And Communities Branch DBCA**,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbca.wa.gov.au](mailto:flora.data@dbca.wa.gov.au)

RECORDS: Please forward to **Flora Administrative Officer**, Species and Communities Branch,  
Record entered by: \_\_\_\_\_ Sheet No: \_\_\_\_\_ Record Entered in Database



# Threatened and Priority Flora Report Form

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input type="checkbox"/>	Brown <input type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input checked="" type="checkbox"/>	Clay loam <input checked="" type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input checked="" type="checkbox"/>	
Flat <input checked="" type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____		Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>					
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>					
	<b>Specific Landform Element:</b>				
	(Refer to field manual for additional values)				
<b>CONDITION OF SOIL:</b>	Dry <input type="checkbox"/>	Moist <input type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

**VEGETATION CLASSIFICATION\*:**

Eg: 1. Banksia woodland (B. attenuata, B. ilicifolia);  
 2. Open shrubland (Hibbertia sp., Acacia spp.);  
 3. Isolated clumps of sedges (Mesomelaena tetragona)

1. *Open tallgrass + mixed mallee woodland with She-oak + begrassia sulcata*

2. *chained heath with tallgrass, mallee regrowth*

3. \_\_\_\_\_

**ASSOCIATED SPECIES:**

Other (non-dominant) spp \_\_\_\_\_

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines - refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:** \_\_\_\_\_

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: \_\_\_\_\_ Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

*Plant is capable of surviving road grading, mature plant re-sprouting after recent grading*

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DRF PERMIT/ LICENCE No:** \_\_\_\_\_ Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: *RSW104* WA Herb.  Regional Herb.  District Herb.  Other: \_\_\_\_\_

**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other: \_\_\_\_\_

**COPY SENT TO:** Regional Office  District Office  Other: \_\_\_\_\_

Submitter of Record: \_\_\_\_\_ Role: \_\_\_\_\_ Signed: \_\_\_\_\_ Date: / /

Please return completed form to **Species And Communities Branch DBCA**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au

**RECORDS:** Please forward to Flora Administrative Officer, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No: \_\_\_\_\_ Record Entered in Database

## 8.5.4 Goodenia laevis subsp. laevis



Department of Biodiversity,  
Conservation and Attractions

### Threatened and Priority Flora Report Form

Version 1.3 August 2017

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at <http://dbca.wa.gov.au> under Standard Report Forms

TAXON: <u>Goodenia laevis ssp laevis</u>		TPFL Pop. No: <input type="text"/>
OBSERVATION DATE: <u>17/09/20</u>	CONSERVATION STATUS: <u>P4</u>	New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>Katie White and Danika Penson</u>		PHONE: <u>9083 1518</u>
ROLE: <u>Environmental Officer</u>	ORGANISATION: <u>Shire of Esperance</u>	

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place): <input type="text"/>	
<u>110 km north-west of Esperance townsite. In West Point Rd road reserve. ~550 m west of cascade Rd intersection</u>	
Only surveyed on northern road reserve. Plants present in strategic fire break and historical gravel pit.	
Reserve No: <input type="text"/>	

DBCA DISTRICT: <u>South coast</u>	LGA: <u>Esperance</u>	Land manager present: <input type="checkbox"/>
DATUM: COORDINATES: (If UTM coords provided, Zone is also required)		METHOD USED:
GDA84 / MGA84 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/>	GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	Lat / Northing: <u>299620 E</u>	No. satellites: <input type="text"/>
WGS84 <input type="checkbox"/>	Long / Easting: <u>8308115N</u>	Boundary polygon captured: <input type="checkbox"/>
Unknown <input type="checkbox"/>	ZONE: <u>51 H</u>	Map scale: <input type="text"/>
LAND TENURE:		
Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input type="checkbox"/>
		SLK/Pole <input type="text"/> to <input type="text"/>
		Rail reserve <input type="checkbox"/>
		MRWA road reserve <input type="checkbox"/>
		Shire road reserve <input checked="" type="checkbox"/>
		Other Crown reserve <input type="checkbox"/>
		Specify other: <input type="text"/>

AREA ASSESSMENT: Edge survey <input type="checkbox"/> Partial survey <input checked="" type="checkbox"/> Full survey <input type="checkbox"/>	Area observed (m <sup>2</sup> ): <input type="text"/>
EFFORT: Time spent surveying (minutes): <u>3 hr</u>	No. of minutes spent / 100 m <sup>2</sup> : <input type="text"/>
POP'N COUNT ACCURACY: Actual <input checked="" type="checkbox"/> Extrapolation <input type="checkbox"/> Estimate <input type="checkbox"/>	Count method: <input type="text"/>
(Refer to field manual for list)	
WHAT COUNTED: Plants <input checked="" type="checkbox"/> Clumps <input type="checkbox"/> Clonal stems <input type="checkbox"/>	
TOTAL POP'N STRUCTURE:	
Alive	Mature: <u>25</u> Juveniles: <input type="text"/> Seedlings: <input type="text"/> Totals: <input type="text"/>
Dead	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Area of pop (m <sup>2</sup> ): <input type="text"/>	Note: Pls record count as numbers (not percentages) for database.
QUADRATS PRESENT: No. <input type="text"/> Size <input type="text"/> Data attached <input type="checkbox"/>	Total area of quadrats (m <sup>2</sup> ): <input type="text"/>
Summary Quad. Totals: Alive	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
REPRODUCTIVE STATE:	
Clonal <input type="checkbox"/> Vegetative <input type="checkbox"/> Flowerbud <input type="checkbox"/> Flower <input checked="" type="checkbox"/>	Percentage in flower: <u>100%</u>
Immature fruit <input type="checkbox"/> Fruit <input type="checkbox"/> Dehisced fruit <input type="checkbox"/>	
CONDITION OF PLANTS: Healthy <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Poor <input type="checkbox"/> Senescent <input type="checkbox"/>	
COMMENT: <input type="text"/>	

THREATS - type, agent and supporting information:			
Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. Specify agent where relevant.			
Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme			
Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)			
• Gravel pits in the road reserve - identified in the Shires three year plan	L	M-H	S
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please return completed form to Species And Communities Branch DBCA,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbca.wa.gov.au](mailto:flora.data@dbca.wa.gov.au)

RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database



## Threatened and Priority Flora Report Form

Version 1.3 August 2017

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input checked="" type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input type="checkbox"/>	Brown <input type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input checked="" type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input checked="" type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input checked="" type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other:		Specify other:	Specify other:	
Drainage line <input type="checkbox"/>	Gravel				
Closed depression <input type="checkbox"/>	Specific Landform Element:				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				
<b>CONDITION OF SOIL:</b>	Dry <input checked="" type="checkbox"/>	Moist <input type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

### VEGETATION CLASSIFICATION\*:

Eg: 1. Banksia woodland (B.  
attenuata, B. ilicifolia);  
2. Open shrubland  
(Hibbertia sp., Acacia spp.);  
3. Isolated clumps of sedges  
(Mesomelaena tetragona)

1. Regenerating/re-sprouting Mallee with mixed dense burnt and unburnt Melaleuca species

2.

3.

4.

### ASSOCIATED SPECIES:

Acacia gonophylla, Cooperookia polygalacea, Grevillea nudiflora, Logania stenophylla

Other (non-dominant) spp

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

### COMMENT:

**FIRE HISTORY:** Last Fire: Season/Month: Recent - last 18 mths Fire Intensity: High  Medium  Low  No signs of fire   
Year:

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd:

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd:

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Only surveyed within proposed clearing area, likely to be significantly more plants along adjoining road reserve

Most plants present in roads active footprint

Collector # KW081, confirmed by Michael Hislop at WA herbarium 10/12/20. Accession 8652. Specimen retained by WA herbarium.

**DRF PERMIT/ LICENCE No:** FT61000029 Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: WA Herb.  Regional Herb.  District Herb.  Other:

**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other:

**COPY SENT TO:** Regional Office  District Office  Other:

Submitter of Record: Katie White Role: Environmental Officer Signed: KW Date: 15/12/20

Please return completed form to Species And Communities Branch DBCA,

Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.

Record entered by: Sheet No.: Record Entered In Database

8.5.5 Grevillea aneura – Rollonds Rd



**Threatened and Priority  
Flora Report Form**

Version 1.3 August 2017

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at <http://dbcwa.gov.au> under Standard Report Forms

**TAXON:** Grevillea aneura **TPFL Pop. No.:** WAherb  
**OBSERVATION DATE:** 02/09/20 **CONSERVATION STATUS:** P4 **New population:**   
**OBSERVER/S:** Katie White and Rhaquelle Miele-John **PHONE:** 9083 1518  
**ROLE:** Environmental Officer **ORGANISATION:** Shire of Esperance

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):  
110 km north-west of Esperance townsite. In Rollonds Rd road reserve, from intersection of Cascade Rd to 210 m east.  
 Only surveyed on southern road reserve

**DBC DISTRICT:** South coast **LGA:** Esperance **Land manager present:**   
**DATUM:** **COORDINATES:** (If UTM coords provided, Zone is also required) **METHOD USED:**  
 DecDegrees  DegMinSec  UTM  GPS  Differential GPS  Map   
 GDA94 / MGA94  Lat / Northing: 302883 m E No. satellites:  Map used:   
 AGD84 / AMG84  Long / Easting: 6308273 m N Boundary polygon captured:  Map scale:   
 WGS84  **ZONE:** 51 H  
 Unknown   
**LAND TENURE:**  
 Nature reserve  Timber reserve  Private property  Rail reserve  Shire road reserve   
 National park  State forest  Pastoral lease  MRWA road reserve  Other Crown reserve   
 Conservation park  Water reserve  UCL  SLK/Pole  to  Specify other:

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  **Area observed (m<sup>2</sup>):**   
**EFFORT:** Time spent surveying (minutes): 3 hr **No. of minutes spent / 100 m<sup>2</sup>:**   
**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate  **Count method:**   
 (Refer to field manual for list)  
**WHAT COUNTED:** Plants  Clumps  Clonal stems   
**TOTAL POP'N STRUCTURE:**  

	Mature:	Juveniles:	Seedlings:	Totals:	Area of pop (m <sup>2</sup> ): <input type="checkbox"/>	
Alive	<u>278</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Note: Pls record count as numbers (not percentages) for database.
Dead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

**QUADRATS PRESENT:** No.  Size  Data attached  **Total area of quadrats (m<sup>2</sup>):**   
 Summary Quad. Totals: Alive      
**REPRODUCTIVE STATE:** Clonal  Vegetative  Flowerbud  Flower   
 Immature fruit  Fruit  Dehiscent fruit  **Percentage in flower:** 100%

**CONDITION OF PLANT S:** Healthy  Moderate  Poor  Senescent   
**COMMENT:**

THREATS - type, agent and supporting information: <small>Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• Gravel pits in the road reserve - identified in the Shires three year plan	L	M-H	S
• <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please return completed form to **Species And Communities Branch DBCA**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbcwa.gov.au](mailto:flora.data@dbcwa.gov.au)  
 RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.  
 Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered In Database



## Threatened and Priority Flora Report Form

Version 1.3 August 2017

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input checked="" type="checkbox"/>	Brown <input checked="" type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input checked="" type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other:		Specify other:	Specify other:	
Drainage line <input type="checkbox"/>	Gravel				
Closed depression <input type="checkbox"/>	Specific Landform Element:				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				
<b>CONDITION OF SOIL:</b>	Dry <input checked="" type="checkbox"/>	Moist <input type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

### VEGETATION CLASSIFICATION\*:

Eg: 1. Banksia woodland (B. attenuata, B. icifolia);  
2. Open shrubland (Hibbertia sp., Acacia spp.);  
3. Isolated clumps of sedges (Mesomelaena tetragona)

1. Scattered *Hakea laurina* with Mallee woodland and dense *Beyeria sulcata* shrubland, mixed and diverse shrubland and scattered to no understorey

2.

3.

4.

### ASSOCIATED SPECIES:

*Gastrolobium* sp., *Hakea laurina*, *Beyeria sulcata*, *Rinzia* sp., *Daviesia teretifolia*

Other (non-dominant) spp

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2006 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:**

**FIRE HISTORY:** Last Fire: Season/Month:  Year:  Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd:

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd:

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Previous population record on WAHerb extract - PERTH 06885519. Within 550 m of site

Only surveyed within proposed clearing area, likely to be significantly more.

Old gravel pit within site, many plants observed respouting here.

Collector # KW073, confirmed by Michael Hislop at WA herbarium 10/12/20. Accession 8652. Specimen retained by WA herbarium.

**DRF PERMIT/ LICENCE No:** FT61000029 Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No:  WA Herb.  Regional Herb.  District Herb.  Other:

**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other:

**COPY SENT TO:** Regional Office  District Office  Other:

Submitter of Record:  Katie White Role:  Environmental Officer Signed:  KW Date:  15/12/20

Please return completed form to Species And Communities Branch DBCA,

8.5.6 *Grevillea aneura* – West Point Rd



Department of Biodiversity,  
Conservation and Attractions

**Threatened and Priority  
Flora Report Form**

Version 1.3 August 2017

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at <http://dbca.wa.gov.au> under Standard Report Forms

TAXON: <u>Grevillea aneura</u>	TPFL Pop. No: <u>WAherb</u>
OBSERVATION DATE: <u>15/09/20</u>	CONSERVATION STATUS: <u>P4</u>
OBSERVER/S: <u>Katie White and Danika Penson</u>	PHONE: <u>9083 1518</u>
ROLE: <u>Environmental Officer</u>	ORGANISATION: <u>Shire of Esperance</u>

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place):  
110 km north-west of Esperance townsite. In West Point Rd road reserve, ~550 m west of cascade Rd intersection  
Only surveyed on northern road reserve. Plants present in strategic fire break and historical gravel pit.

DBCA DISTRICT: <u>South coast</u>	LGA: <u>Esperance</u>	Land manager present: <input type="checkbox"/>
DATUM:	COORDINATES: (If UTM coords provided, Zone is also required)	METHOD USED:
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/>	GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	Lat / Northing: <u>302252 m E</u>	No. satellites: <input type="checkbox"/> Map used: <input type="checkbox"/>
WGS84 <input type="checkbox"/>	Long / Easting: <u>8308308 m N</u>	Boundary polygon captured: <input type="checkbox"/> Map scale: <input type="checkbox"/>
Unknown <input type="checkbox"/>	ZONE: <u>51 H</u>	
LAND TENURE:		
Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input type="checkbox"/> SLK/Pole <input type="checkbox"/> to <input type="checkbox"/>
		Rail reserve <input type="checkbox"/> Shire road reserve <input checked="" type="checkbox"/>
		MRWA road reserve <input type="checkbox"/> Other Crown reserve <input type="checkbox"/>
		Specify other: <input type="text"/>

AREA ASSESSMENT: Edge survey <input type="checkbox"/> Partial survey <input checked="" type="checkbox"/> Full survey <input type="checkbox"/>	Area observed (m <sup>2</sup> ): <input type="text"/>
EFFORT: Time spent surveying (minutes): <u>3 hr</u>	No. of minutes spent / 100 m <sup>2</sup> : <input type="text"/>
POP'N COUNT ACCURACY: Actual <input checked="" type="checkbox"/> Extrapolation <input type="checkbox"/> Estimate <input type="checkbox"/>	Count method: <input type="text"/>
(Refer to field manual for list)	
WHAT COUNTED: Plants <input checked="" type="checkbox"/> Clumps <input type="checkbox"/> Clonal stems <input type="checkbox"/>	
TOTAL POP'N STRUCTURE:	Area of pop (m <sup>2</sup> ): <input type="text"/>
Alive	Mature: <u>80</u> Juveniles: <input type="text"/> Seedlings: <input type="text"/> Totals: <input type="text"/>
Dead	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
QUADRATS PRESENT: No. <input type="text"/> Size <input type="text"/>	Data attached <input type="checkbox"/> Total area of quadrats (m <sup>2</sup> ): <input type="text"/>
Summary Quad. Totals: Alive	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
REPRODUCTIVE STATE: Clonal <input type="checkbox"/> Vegetative <input type="checkbox"/> Flowerbud <input type="checkbox"/> Flower <input checked="" type="checkbox"/>	Percentage in flower: <u>100%</u>
Immature fruit <input type="checkbox"/> Fruit <input type="checkbox"/> Dehiscent fruit <input type="checkbox"/>	

CONDITION OF PLANTS: Healthy  Moderate  Poor  Senescent

COMMENT:

THREATS - type, agent and supporting information:	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. <b>Specify agent</b> where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)			
• <u>Gravel pits in the road reserve - identified in the Shires three year plan</u>	<u>L</u>	<u>M-H</u>	<u>S</u>
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
• <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Please return completed form to Species And Communities Branch DBCA,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: [flora.data@dbca.wa.gov.au](mailto:flora.data@dbca.wa.gov.au)  
 RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.  
 Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered in Database



## Threatened and Priority Flora Report Form

Version 1.3 August 2017

### HABITAT INFORMATION:

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input checked="" type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input type="checkbox"/>	Brown <input type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input checked="" type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input checked="" type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input checked="" type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____		Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>	Gravel <input type="checkbox"/>				
Closed depression <input type="checkbox"/>	Specific Landform Element: _____				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				

**CONDITION OF SOIL:** Dry  Moist  Waterlogged  Inundated

**VEGETATION CLASSIFICATION\*:**

1. Regenerating/re-sprouting Mallee with mixed Eucalyptus pleurocarpa and diverse under and mid story

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

Eg. 1. Banksia woodland (B. attenuata, B. iccifolia);  
2. Open shrubland (Hibbertia sp., Acacia spp.);  
3. Isolated clumps of sedges (Mesomelaena tetragona)

**ASSOCIATED SPECIES:** Eucalyptus pleurocarpa, Gastrolobium sp., Acacia gonophylla, Grevillea pectinata, Leschenaultia sp.

Other (non-dominant) spp \_\_\_\_\_

Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:** \_\_\_\_\_

**FIRE HISTORY:** Last Fire: Season/Month: Recent - last 18 mths Fire Intensity: High  Medium  Low  No signs of fire   
Year: \_\_\_\_\_

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROAD SIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.) \_\_\_\_\_

Previous population record on WAHerb extract - PERTH 06885519. Within 250 m of site

Only surveyed within proposed clearing area, likely to be significantly more plants in surrounding area.

Old gravel pit within site, many plants observed resprouting here.

Collector # KW080, confirmed by Michael Hislop at WA herbarium 10/12/20. Accession 8852. Specimen not retained by WA herbarium.

**DRF PERMIT/ LICENCE No:** FT61000029 Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS section.

**SPECIMEN:** Collectors No: \_\_\_\_\_ WA Herb.  Regional Herb.  District Herb.  Other: \_\_\_\_\_


**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other: \_\_\_\_\_

**COPY SENT TO:** Regional Office  District Office  Other: \_\_\_\_\_

Submitter of Record: Katie White Role: Environmental Officer Signed: KW Date: 15/12/20

Please return completed form to Species And Communities Branch DBCA,  
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au  
RECORDS: Please forward to Flora Administrative Officer, Species and Communities Branch.  
Record entered by: \_\_\_\_\_ Sheet No.: \_\_\_\_\_ Record Entered in Database

8.5.7 Gyrostemon ditrygnus



Department of Biodiversity,  
Conservation and Attractions

## Threatened and Priority Flora Report Form

Version 1.3 August 2017

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at <http://dpc.wa.gov.au/> under Standard Report Forms

<b>TAXON:</b> <u>Gyrostemon ditrygnus</u>	<b>TPFL Pop. No.:</b> _____
<b>OBSERVATION DATE:</b> <u>25/1/22</u>	<b>CONSERVATION STATUS:</b> New population <input checked="" type="checkbox"/>
<b>OBSERVER/S:</b> <u>J. Waters + K. Walkerden</u>	<b>PHONE:</b> <u>90831519</u>
<b>ROLE:</b> <u>Env. Officers</u>	<b>ORGANISATION:</b> <u>Shire Esperance</u>

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):  
Cascade Rd 1.5 km south of Rollands Rd intersection

<b>DBC DISTRICT:</b> <u>Esperance</u>	<b>LGA:</b> <u>Esperance</u>	<b>Reserve No.:</b> _____
<b>DATUM:</b>		<b>Land manager present:</b> <input checked="" type="checkbox"/>
<b>COORDINATES:</b> (If UTM coords provided, Zone is also required)		
DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/>		<b>METHOD USED:</b>
GDA94 / MGA84 <input type="checkbox"/>	Lat / Northing: <u>0303935</u>	GPS <input checked="" type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	Long / Easting: <u>6307343</u>	No. satellites: _____ Map used: _____
WGS84 <input type="checkbox"/>	<b>ZONE:</b> <u>51 H</u>	Boundary polygon captured: <input type="checkbox"/> Map scale: _____
Unknown <input type="checkbox"/>		

**LAND TENURE:**

Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input type="checkbox"/>	Rail reserve <input type="checkbox"/>	Shire road reserve <input checked="" type="checkbox"/>
National park <input type="checkbox"/>	State forest <input type="checkbox"/>	Pastoral lease <input type="checkbox"/>	MRWA road reserve <input type="checkbox"/>	Other Crown reserve <input type="checkbox"/>
Conservation park <input type="checkbox"/>	Water reserve <input type="checkbox"/>	UCL <input type="checkbox"/>	SLK/Pole _____ to _____	Specify other: _____

**AREA ASSESSMENT:** Edge survey  Partial survey  Full survey  Area observed (m<sup>2</sup>): 2.3 km x both sides of road

**EFFORT:** Time spent surveying (minutes): 100 No. of minutes spent / 100 m<sup>2</sup>: \_\_\_\_\_

**POP'N COUNT ACCURACY:** Actual  Extrapolation  Estimate  Count method: \_\_\_\_\_ (Refer to field manual for list)

<b>WHAT COUNTED:</b>				
Plants <input checked="" type="checkbox"/>	Clumps <input type="checkbox"/>	Clonal stems <input type="checkbox"/>		
<b>TOTAL POP'N STRUCTURE:</b>				
	<b>Mature:</b>	<b>Juveniles:</b>	<b>Seedlings:</b>	<b>Totals:</b>
Alive	1			
Dead				

Area of pop (m<sup>2</sup>): \_\_\_\_\_  
Note: Pls record count as numbers (not percentages) for database.

**QUADRATS PRESENT:** No. \_\_\_\_\_ Size \_\_\_\_\_ Data attached  Total area of quadrats (m<sup>2</sup>): \_\_\_\_\_

Summary Quad. Totals: Alive \_\_\_\_\_

<b>REPRODUCTIVE STATE:</b>				
Clonal <input type="checkbox"/>	Vegetative <input type="checkbox"/>	Flowerbud <input type="checkbox"/>	Flower <input type="checkbox"/>	
Immature fruit <input type="checkbox"/>	Fruit <input checked="" type="checkbox"/>	Dehisced fruit <input type="checkbox"/>	Percentage in flower: _____ %	

**CONDITION OF PLANTS:** Healthy  Moderate  Poor  Senescent

**COMMENT:** \_\_\_\_\_

THREATS - type, agent and supporting information: <small>Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats &amp; agents. Specify agent where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (&lt;12mths), M=Medium (&lt;5yrs), L=Long (5yrs+)</small>	Current impact (N-E)	Potential impact (L-E)	Potential Threat Onset (S-L)
• <u>Road widening</u>	---	---	---
• _____	---	---	---
• _____	---	---	---

**HABITAT INFORMATION:**

<b>LANDFORM:</b>	<b>ROCK TYPE:</b>	<b>LOOSE ROCK:</b>	<b>SOIL TYPE:</b>	<b>SOIL COLOUR:</b>	<b>DRAINAGE:</b>
Crest <input type="checkbox"/>	Granite <input type="checkbox"/>	(on soil surface; eg gravel, quartz fields)	Sand <input type="checkbox"/>	Red <input type="checkbox"/>	Well drained <input checked="" type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input checked="" type="checkbox"/>	Brown <input checked="" type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>	0-10% <input checked="" type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input checked="" type="checkbox"/>	10-30% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	30-50% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input checked="" type="checkbox"/>	Quartz <input type="checkbox"/>	50-100% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____		Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>					
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>					

**CONDITION OF SOIL:** Dry  Moist  Waterlogged  Inundated

**VEGETATION CLASSIFICATION\*:**

1. <sup>Tall</sup> Mallee Shrubland

2. Hakea multilinearis Medium Shrubland

3. Mixed acacia, & Beyeria <sup>low</sup> Shrubland

4. Lepidosperma

**ASSOCIATED SPECIES:**

Hakea multilinearis, Platysarce

Lepidosperma sp, Beyeria sulcata.

\* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 Australian Soil and Land Survey Field Handbook guidelines – refer to field manual for further information and structural formation table.

**CONDITION OF HABITAT:** Pristine  Excellent  Very good  Good  Degraded  Completely degraded

**COMMENT:** \_\_\_\_\_

**FIRE HISTORY:** Last Fire: Season/Month: \_\_\_\_\_ Year: ~5yrs ago. Fire Intensity: High  Medium  Low  No signs of fire

**FENCING:** Not required  Present  Replace / repair  Required  Length req'd: \_\_\_\_\_

**ROADSIDE MARKERS:** Not required  Present  Replace / reposition  Required  Quantity req'd: \_\_\_\_\_

**OTHER COMMENTS:** (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

Previously collected specimen from site  
 Survey to quantify size of population  
 only surveyed 5-10 m into road reserve near  
 plant, however rest of survey was only 1-2m  
 off side of road.

**DRF PERMIT/ LICENCE No:** \_\_\_\_\_ Note if only observing plants (i.e. no specimens or plant material is taken) then no permit/licence is required. For further information on permit and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under licence/permit should be recorded above in the OTHER COMMENTS-section.

**SPECIMEN:** Collectors No: \_\_\_\_\_ WA Herb.  Regional Herb.  District Herb.  Other: \_\_\_\_\_

**ATTACHED:** Map  Mudmap  Photo  GIS data  Field notes  Other: \_\_\_\_\_

**COPY SENT TO:** Regional Office  District Office  Other: \_\_\_\_\_

Submitter of Record: J. Waters Role: Environmental Coordinator Signed: [Signature] Date: 25/1/22

Please return completed form to **Species And Communities Branch DBCA**,  
 Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 OR email to: flora.data@dbca.wa.gov.au

**RECORDS:** Please forward to Flora Administrative Officer, Species and Communities Branch.

Record entered by: \_\_\_\_\_ Sheet No: \_\_\_\_\_ Record Entered in Database