

**Lot 1857 (No. 653)  
Monjebup Road,  
Monjebup**

## Targeted Flora Survey Report



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Bio Diverse Solutions

Final v.1

08/12/2021

## DOCUMENT CONTROL

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Reviewer (s): Kath Kinnear, Bianca Theyer, Katie White

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Client: Peter Ruland & Peter Hassell – D V Faming Co

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## 1. Introduction, Scope and Background Information

Peter Ruland and Peter Hassell of D V Faming Co (“the client”) commissioned Bio Diverse Solutions as Environmental Consultants to undertake a Spring targeted flora survey of Lot 1857 (No. 653) Monjebup Road, Monjebup. This followed the completion of an out-of-season ‘Reconnaissance flora, vegetation and basic fauna survey’ (BDS, 2021a). The reconnaissance survey identified a Priority One (P1) flora species (*Kunzea newbeyi*) within the survey area that required confirmation of the population size and impact and suitable habitat. Two species of Priority flora, *Rinzia longifolia* (P3) and *Thysanotus gageoides* (P3), were also targeted, following being identified in the desktop survey as possible to occur, however identification was difficult during the reconnaissance survey due to the survey being conducted outside of the species’ flowering period. As such, the results from the reconnaissance survey (BDS, 2021a) were the basis of the scope of works required for the targeted flora survey. The purpose of the survey is to provide environmental assessment data for the application of Clearing Permit CPS 9260-1 (Gannaway, 2021). It is accompanied by an Environmental Assessment Report (BDS, 2021b) and a Revegetation Plan for CPS 9260-1 (BDS, 2021c), with the intention by the private property owner to extract basic raw materials post native vegetation clearing (Ruland, 2021). The scope of works for the targeted survey include:

- Targeted flora survey for the detected *Kunzea newbeyi* (P1) to quantify population size and impact within the survey area and across the entire suitable habitat of the breakaway (Gannaway, 2021).
- Targeted flora survey for the two Priority flora species identified in the desktop survey likely to be present, with confirmed suitable habitat present within the survey area. These specifically included *Rinzia longifolia* (P3) and *Thysanotus gageoides* (P3). Identification confirmation by the WA Herbarium of Priority species may be required.
- Identification of additional incidental flora species not captured in the reconnaissance out-of-season survey, including herbarium identification if required;
- GPS and map any populations of any other Threatened or Priority flora species (if applicable);
- Prepare a report on survey outcomes; and
- Provide the client with the IBSA Data package (as required to be submitted by the client).

### 1.1. Site Location and Development Proposal

The “property” is defined as Lot 1857 (No. 653) Monjebup Road, Monjebup and is located approximately 16 km northwest of the Boxwood Hill town centre along Monjebup Road in the municipality of the Shire of Gnowangerup (Figure 1). The property is 1108 hectares in total and is zoned as “General Agriculture” under the Shire of Gnowangerup Local Planning Scheme No. 2 (DPLH, 1990).

The “survey area” is defined as the 4.76 ha area within Lot 1857 of remnant vegetation (see Figure 1 below), is part of a larger remnant area of approximately 18 ha (herein referred to as “the breakaway”). The survey area has been amended by the Commissioner of Soil and Land Conservation to no longer be incorporated into the ‘Agreement to Reserve and Conservation Covenant’ (DAFWA, 2007), with the ~18 ha remaining under this agreement. This targeted flora survey provided additional and supporting data to the already completed reconnaissance survey (BDS, 2021a), to assist in the environmental approvals required for the clearing and development of these areas.

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Overview Map Scale 1:500,000

**Legend**

- Survey Area
- Breakaway
- Property Boundary



Scale  
1:23,000 @ A3  
GDA MGA 94 Zone 50

**Data Sources**  
Aerial Imagery: WA Now, Landgate Subscription Imagery  
Cadastre, Relief Contours and Roads: Landgate 2017  
IRIS Road Network: Main Roads Western Australia 2017  
Overview Map: World Topographic map service, ESRI 2012

**CLIENT**  
Peter Ruland  
Lot 1857 (No. 653) Monjebup Road  
Monjebup, WA 6338

**Figure 1: Survey Area Locality**

	QA Check <b>KW</b>	Drawn by <b>CV</b>
STATUS <b>FINAL</b>	FILE <b>MSC0444-002</b>	DATE <b>06/12/202</b>

## 2. Desktop Assessment

A thorough desktop assessment was completed in the reconnaissance survey report (BDS, 2021a), which also included geology and soils, climate, habitat connectivity, water, environmentally sensitive areas, remnant vegetation and conservation significant fauna. As per the results of the reconnaissance survey report, this targeted flora survey report only covers and discusses the desktop analysis relevant to conservation significant flora (Section 2.1).

### 2.1. Conservation Significant Flora

The desktop inventory of potential conservation significant flora species likely to occur within the survey area was undertaken during the out-of-season reconnaissance survey (July 2021; BDS, 2021a), with the list of species identified during this time period. This was compiled using the following databases:

- Nature Map Database Search (combined data from DBCA, WA Museum and WA Herbarium; DBCA 2007- );
- Protected matters search tool (DAWE, 2021);
- 15 km Flora DBCA database records (DBCA, 2021a); and
- 15 km TEC/PEC DBCA database records (DBCA, 2021b; DBCA, 2021c).

The full species list compiled from all available data (Table A1 Appendix B) is based on observations from a broader area than the survey area and is likely to include species that would not occur in the actual survey area due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct.

The conservation significance of fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Administered by the Australian Government Department of Agriculture, Water and the Environment (DAWE);
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity Conservation and Attractions (DBCA); and
- DBCA Priority Flora list. A non-legislative list maintained by DBCA for management purposes.

As a result of the above-mentioned database searches, a total of 60 threatened and priority species were identified within a 10 to 15 km radius of the survey area. Of these, 27 species were assessed to be 'Likely' or 'Possible' to occur, as determined through evaluation of suitable soil type, associated vegetation and general habitat suitability. Conservation categories for Threatened and Priority flora and ecological communities are presented in Tables A2 to A5 in Appendix C.

### 3. Flora Survey Methodology

A targeted flora survey was undertaken towards the end of wildflower season, on the 11<sup>th</sup> of November 2021. It was conducted by Dr Karlene Bain (Ecologist) and Charlize van der Mescht (Environmental Consultant) of Bio Diverse Solutions. The survey area was surveyed via meandering traverses on foot, within 5 m vicinity of each traverse to target the Priority one *K. newbeyi* and Priority three (P3) species (*R. longifolia* and *T. gageoides*) identified during the reconnaissance survey (BDS, 2021a) as potentially present. Quantification of the population of *K. newbeyi* was undertaken within the survey area and within areas of suitable habit across the entire breakaway. Flora was also incidentally recorded within the survey area, to identify annual and herbaceous species not captured during the reconnaissance survey (BDS, 2021a).

#### 3.1. Survey Limitations and Constraints

An assessment of potential survey limitations is outlined below in Table 1. Limitations were present, primarily relating to the *K. newbeyi* not being in flower.

**Table 1: Assessment of potential survey limitations**

Limitation	Constraint	Comment
Experience of personnel	Nil	<p>Dr. Karlene Bain has over 24 years' experience in biodiversity surveys, biodiversity management and wildlife research in the southwest of WA, within the State Government (DBCA), NGOs (WWF, WNNPA, Biosphere) and private sector (Phyton Ecological Services).</p> <p>Charlize van der Mescht has worked with Bio Diverse Solutions as an environmental consultant and technical assistant for the past 2 years, and is currently undertaking her Masters in Environmental Management.</p> <p>Katie White (Bio Diverse Solutions engaged botanist) has over 4.5 years' experience in botanical surveys, and completed the field survey, report and identifications required for the Reconnaissance Survey (BDS, 2021a). She provided ample taxonomic literature, scanned specimens and photos of the targeted species, and other assistance as required.</p>
Survey timing	Minor	<p>The survey was conducted in the middle of November, towards the end of the wildflower season for the region when peak flowering times are experienced for the majority of species in the area. It was evident onsite that numerous annual and herbaceous species had finished flowering and/or set seed, limiting the ability for detection incidentally of additional species within the site. In particular, it was noted in the reconnaissance survey (BDS, 2021a) that Orchid leaves were extensively present across the site and were unable to be identified outside of their flowering period. However, no Orchids were present at the time of the targeted survey. The biodiversity of the site is therefore likely under-recorded.</p> <p>The targeted flora survey was conducted towards the end of the flowering period of <i>K. newbeyi</i> (Oct-Nov). However, the plant was not flowering at the time of the targeted survey but is distinctive enough to have been identified and accurate numbers obtained. The targeted flora survey was also conducted during the end of the flowering period of <i>R. longifolia</i> (Aug-Nov) and <i>T. gageoides</i> (Oct-Nov) and suitable habitat identified, however no evidence of these species were found during the survey.</p>
Access restrictions	Nil	No access restrictions were encountered during the survey. The survey area was easily traversable by foot and relatively open.
Availability of contextual information	Nil	Publicly available desktop and background information was readily available to give a broad contextual understanding of the site. The previously conducted reconnaissance survey (BDS, 2021a) provides detailed contextual information required for conducting the targeted flora survey.
Survey effort and extent	Nil	The area was sufficiently and lengthily searched. A random meandering traverse ensured that all areas within 5m of each other was conducted. The entire breakaway (which included suitable habitat area outside the survey area) was surveyed for the presence of <i>Kunzea newbeyi</i> .

Table 1 continued.

Limitation	Constraint	Comment
Disturbances that may affect results	Nil	Disturbance was generally highly limited across the survey area, with minor disturbance from previous access tracks or incidental understorey clearing occurring. The pristine nature of the site resulted in high confidence that occurrence of species naturally present at the site were currently present. No fires had previously occurred and the native vegetation showed indications of being long unburnt (density of leaf litter, age and height of obligate seeders, height of mallee re-sprouters). It is possible that fire responding ephemeral species are stored in the soil seed bank that were not captured by this survey.
Identification issues	Minor	<i>Kunzea newbeyi</i> was not flowering at the time of the survey, however, the plant is easily identifiable due to its distinct nature. The vast majority of species present contained sufficient taxonomic information for identification (such as nuts, fruit, leaf structure or flowers). It is estimated that 80-85% of species present were flowering. Plant identification was undertaken through the most relevant, current and available taxonomic literature, keys and herbarium reference specimens available (AVH, n.d.; Brophy <i>et al.</i> 2013; Euclid, n.d.; JSTOR, 2000- ). All resources used were the most current to knowledge. Nomenclature used through this report follows the most recent scientific names through the Western Australian Herbarium.



## 4. Targeted Flora Survey Outcomes

An additional six species were identified during the targeted flora survey incidentally. In summary, across the reconnaissance and targeted flora survey (BDS, 2021a), 70 flora species, consisting of 25 families and 49 genera were found. The most commonly occurring families were Myrtaceae, Proteaceae and Fabaceae. The list includes 67 native species (refer to Table A7 Appendix E), and three introduced / alien species. Relevant vegetation types previously identified in the reconnaissance survey (BDS, 2021a) across the survey area are described in Appendix D.

### 4.1. Invasive Species

Of the additional six flora species recorded within the survey area during the targeted flora survey, three species are introduced. No introduced species were recorded as being present during the reconnaissance survey (BDS, 2021a). The full suite of weed species recorded in reconnaissance and targeted flora survey (BDS, 2021a) is listed below in Table 2, with their corresponding ratings under the WA Weed Strategy (CALM, 1999) and the *BAM Act* (2007). The ratings given under the WA Weed Strategy relate to determining the significance of a weed, based on the criteria of invasiveness, impacts, potential for spread and socioeconomic and environmental values, and can be either 'High', 'Moderate', 'Mild', or 'Low' (CALM, 1999).

All identified species are classed as 'Permitted – s11' under the *Biosecurity and Agriculture Management Act 2007*. Under the Environmental Weeds Strategy for Western Australia (CALM, 1999) all identified species are rated as 'Moderate'.

It is strongly recommended that all machinery entering the survey area (if clearing is approved in the future) has rigorous and thorough biosecurity hygiene applied to limit the introduction of invasive species infestation and the potential to significantly degrade the surrounding reserve in pristine condition.

**Table 2: Weed species recorded from the survey area.**

Family	Species	WA Weed Strategy rating (CALM 1999) / BAM Act (2007)
Aizoaceae	<i>Mesembryanthemum crystallinum</i>	Moderate / Permitted – s11
Orchidaceae	<i>Disa bracteata</i>	Moderate / -
Poaceae	<i>Lolium rigidum</i>	Moderate / Permitted – s11

### 4.2. Threatened Flora: Presence of Conservation Significant Flora and Likelihood of Occurrence (LOO) Assessment

The scope for this survey was to target suitable habitat for two Priority three species (*R. longifolia* and *T. gageoides*) identified as possible to be present in the desktop assessment of the reconnaissance survey (BDS 2021a), but were unable to be effectively surveyed due to the out-of-season nature of the reconnaissance survey (BDS, 2021a). In addition, determination of the extent of the *K. newbeyi* population was undertaken through recording the number of individual plants of the species within the survey area and across the entirety of suitable habitat within the breakaway.

516 individuals of *K. newbeyi* were recorded. Further detail is provided below. Neither of the two potential Priority 3 species likely to be present, *R. longifolia* and *T. gageoides* were detected during the targeted flora survey. The desktop assessment was updated to show the results of the targeted survey (Table A1 Appendix B).

#### **Kunzea newbeyi, P1**

516 individual plants of *K. newbeyi* were present directly in the survey area and to the south on the breakaway as shown in Map 1 Appendix A, consisting of the entire suitable habitat (total of ~18 ha). Specifically, within the ~4.72 ha survey area, 213 plants were detected, which is the number of plants proposed to be impacted by extractive activities. This consists of 41.3% of the entire population within the suitable habitat area. The habitat the plant was detected in is considered to be suitable habitat for *K. newbeyi*, described as 'Vegetation Type B – Mixed Woodland at top of breakaway'. *K. newbeyi* was identified as 'Likely' to occur in the desktop analysis due to previously being detected within 3km of the survey area and suitable "Breakaway" habitat being present. It was detected as a new population in the reconnaissance survey. Due to a new population being recorded, a specimen was previously collected (Figure 2) and submitted to the WA Herbarium in the reconnaissance survey for verification of identification (KW154, Accession 9059, retained by WA Herbarium). An updated Threatened and

Priority Report Form (TPFL) was submitted with updated population numbers to DBCA Species district Flora Conservation Office (Sarah Barrett) and Species and Communities Branch on the 01/12/2021.

The known distribution and records of *K. newbeyi* within the Australasian Virtual Herbarium (AVH n.d.) and Florabase (WAH 1998 -) indicate that the known *K. newbeyi* distribution consists of a total of 7 records, located in 60km radius in the Monjebup and Bremer Bay region. It has been recorded within the Local Government Areas of Gnowangerup and Jerramungup, and IBRA subregions of Fitzgerald and Esperance Plains. See Figure 3.



Figure 2: Photos of *Kunzea newbeyi* taken in the field and scanned specimen of *Kunzea newbeyi* collected within the survey area.

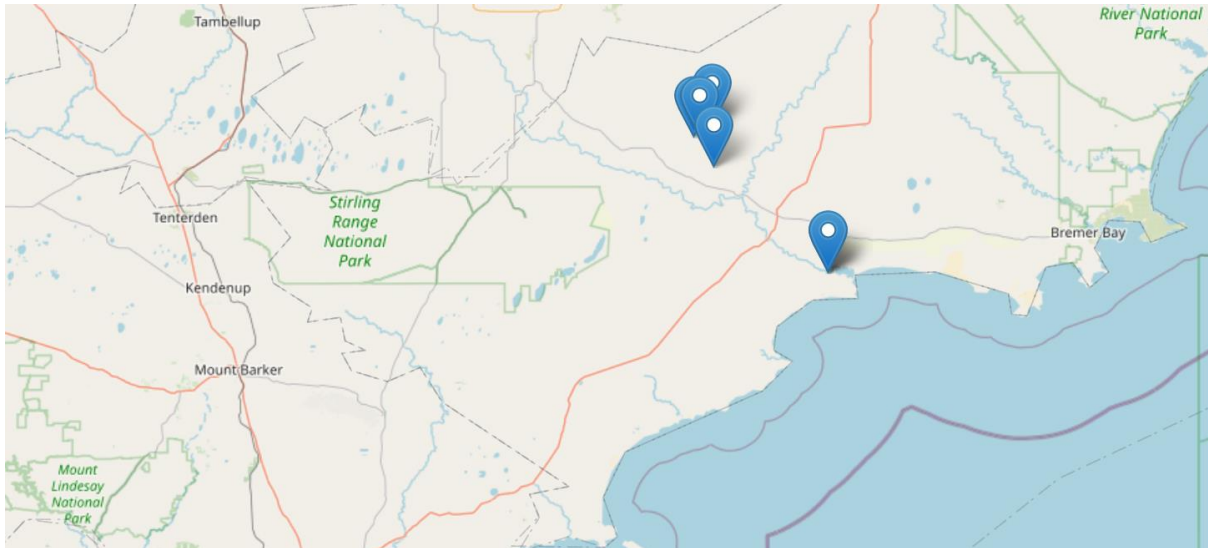


Figure 3: Regional distribution of *Kunzea newbeyi* (WAH, 1998 -).

## 5. Discussion

### 5.1. Targeted Flora Survey

The scope of this targeted flora survey was to ascertain the presence of the Priority 3 species' *R. longifolia* and *T. gageoides* within the survey area as well as to confirm the population size and impact on *K. newbeyi* (P1) within the survey area and the entire suitable habitat present across the breakaway. Suitable habitat within the survey area for *R. longifolia* and *T. gageoides* was identified through the desktop assessment and field survey during the previously undertaken reconnaissance survey (BDS, 2021a). Due to the out of season nature of this reconnaissance survey there were significant limitations in identification. Neither of these species were detected during the targeted survey.

516 individual plants of *K. newbeyi*. (P1) were present directly in the survey area and to the south on the breakaway as shown in Map 1 Appendix A, consisting of the entire suitable habitat (total of ~18 ha). Specifically, within the ~4.72 ha survey area, 213 plants were detected. This consists of 41.3% of the entire population within the suitable habitat area, which is the total proposed impacts through extractive industries of basic raw materials.

As is stated in Section 4.6 of the Revegetation Plan (BDS, 2021c), impact on the *K. newbeyi* population will be mitigated by a thorough and suitable revegetation plan. It has been recommended that seed should be collected from all *K. newbeyi* plants in the survey area by a licenced seed collector, to be used when the revegetation process occurs following the extraction at the site. If these seeds and topsoil stockpiles regenerate, the overall long-term impacts of the clearing are likely to be minimal.

### 5.2. Reconnaissance and Targeted Flora and Vegetation Survey

In summary, across the reconnaissance and targeted flora survey, the scope was additionally to provide the client with information on any Threatened or Priority flora species and ecological communities that are potentially present within the survey area, and to provide an assessment of vegetation types and their general condition. Two vegetation units were recorded during the survey, including Vegetation Type A (Mallee Forest on slopes at base of breakaway) and Vegetation Type B (Mixed Woodland on top of plateau of breakaway). These vegetation units broadly align with different habitat types, defined by the geological features of the breakaway, with neither meeting criteria for any threatened or priority ecological communities. The condition of the vegetation units ranged from 'Good' through to 'Pristine', the majority of the vegetation types being in 'Excellent' to 'Pristine' condition. A total of 67 native flora species were recorded. A single priority species was identified within the survey area, *Kunzea newbeyi* (P1).

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## **8 Appendices**

Appendix A – Maps

Appendix B – Conservation Significant Values Likelihood of Occurrence Analysis

Appendix C – Conservation Status Definitions and Condition Scale

Appendix D – Vegetation Types defined in the Reconnaissance Flora and Vegetation and Basic Fauna survey (BDS, 2021a)

Appendix E – Species Lists and Releve Data

Appendix F - DBCA Threatened and Priority Reporting (TPFL) Forms

# Appendix A

## Maps

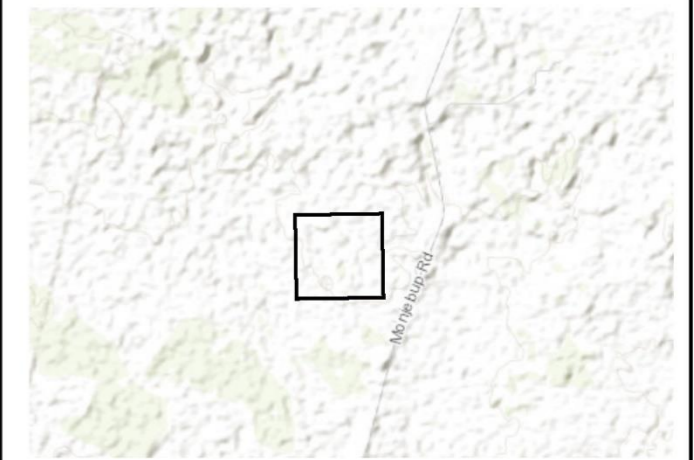




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Overview Map Scale 1:100,000

**Legend**

- Survey Area
- Breakaway
- Cadastre
- *Kunzea newbeyi*



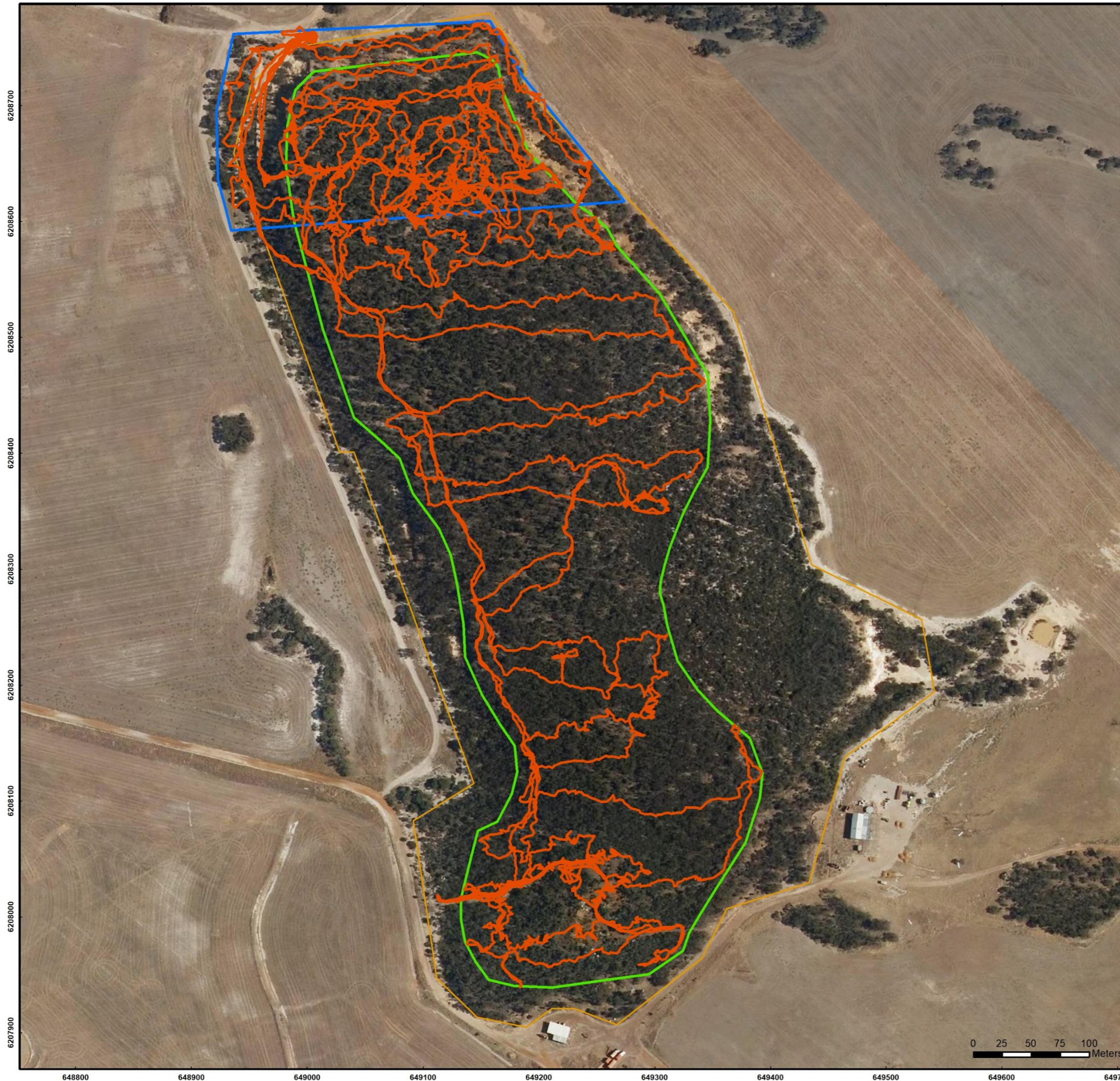
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**Data Sources**  
Aerial Imagery: WA Now, Landgate Subscription Imagery  
Cadastral, Relief Contours and Roads: Landgate 2017  
IRIS Road Network: Main Roads Western Australia 2017  
Overview Map: World Topographic map service, ESRI 2012

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**Map 1 - *Kunzea newbeyi* population**

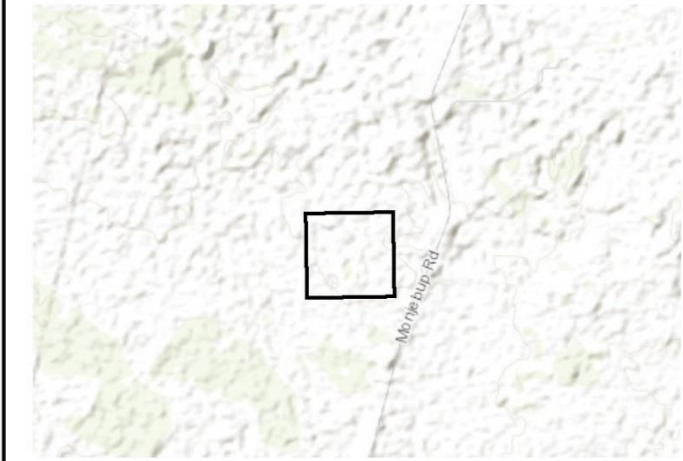
	QA Check <b>KW</b>	Drawn by <b>CV</b>
STATUS <b>FINAL</b>	FILE <b>MSC0444-002</b>	DATE <b>06/12/2021</b>



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Overview Map Scale 1:100,000

**Legend**

- ▭ Survey Area
- ▭ Breakaway
- ▭ Cadastre
- ▬ Survey Track



Scale  
1:3,250 @ A3  
GDA MGA 94 Zone 50

**Data Sources**  
Aerial Imagery: WA Now, Landgate Subscription Imagery  
Cadastre, Relief Contours and Roads: Landgate 2017  
IRIS Road Network: Main Roads Western Australia 2017  
Overview Map: World Topographic map service, ESRI 2012

**CLIENT**  
Peter Ruland  
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**Map 2 - Survey effort**

	QA Check <b>KW</b>	Drawn by <b>CV</b>
STATUS <b>FINAL</b>	FILE <b>MSC0444-002</b>	DATE <b>06/12/2021</b>

## **Appendix B**

### Conservation Significant Values Likelihood of Occurrence Analysis

**Table A1: Potential conservation significant flora located within 10km of the survey area and likelihood of occurrence analysis (post survey).**

NB - Species are sorted by likelihood of presence

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Myrtaceae	<i>Kunzea newbeyi</i>		P1	X	X		Robust Shrub, 0.6-1.8 (2.3) m high. Flowers pink	Breakaways	Oct to Nov	Likely - Recorded within 3 km of property and suitable soil type within site.	Detected within the survey area – KW154, Accession 9059. Submitted to WA Herbarium for confirmation. See Section 4.2 for further details.
Euphorbiaceae	<i>Ricinocarpus trichophorus</i>	Barrens Wedding Bush	T - En	X	X		Erect, openly branching shrub, 0.3-1 m high. Fl. white,	Sandy clay, loam. Breakaways, among sandstone rocks	May or Aug to Sep	Likely - Recorded within 3 km of property. Suitable soil type and habitat good match.	Not detected - no shrubs present with taxonomic features consistent with <i>Ricinocarpus species</i> . Recorded to flower May through to Spring, so out-of-season survey conducted during flowering time frame.
Cyperaceae	<i>Schoenus</i> sp. Mt Barker		P1		X		Mat forming perennial, grass-like or herb (sedge), clumps to 30 cm diameter.	Sandy clay, loam.		Likely - Recorded within 3 km of property. Suitable soil type present	Not detected - numerous Sedge-like species present but identified as common and non-threatened. Unlikely surveying during spring season will increase probability of detecting, with fruit and flowers retained on Cyperaceae species.
Elaeocarpaceae	<i>Tetraloche pilata</i>		P1		X		Shrub (subshrub), 0.2-0.3 m high with numerous stems.	Granite loam and rocky outcrops		Likely - Recorded within 3 km of property. Rocky outcrops present but lacks underlying granite substrate.	Not detected, unsuitable habitat - no subshrubs present with taxonomic similarity. Additionally, rocky outcrop has no granite substrate and no associated vegetation is present.
Fabaceae	<i>Acacia papulosa</i>		P2		X		Bushy shrub, 0.25-2 m high.	Spongolitic loam	Aug to Sep	Likely - spongolitic loam specific and accurate description of the soil type present at the survey area.	Not detected - Acacia species detected did not have phyllodes consistent with the shape of <i>A. papulosa</i> .
Myrtaceae	<i>Melaleuca ordinifolia</i>		P2		X		Compact, spreading shrub, 0.3-1.5 m high. Fl. white-cream.	Sandy loam or clay. Distribution mostly recorded away from the coast, Mt Barker to Gnowangerup area	Aug-Oct	Likely - Recorded within 3 km of property. Suitable habitat potentially present, recorded across wide range.	Not detected - Melaleuca species identified within the site bore no resemblance to <i>M. ordinifolia</i> .
Fabaceae	<i>Acacia keigheryi</i>	Keighery's Wattle	P3	X	X		Diffuse or low domed shrub, 0.3-0.5 m tall. Yellow flowers	Gentle slopes in often stony, gritty sand, sandy loam, sandy clay or clay over granite or gneiss in open Mallee woodland over heath scrub	Aug to Oct	Likely - Recorded within 3 km of property. Suitable soil type present and associated with wide range of soils and vegetation.	Not detected - Acacia species present were not prostrate or had phyllodes consistent with the shape of <i>A. keigheryi</i> .
Asparagaceae	<i>Thysanotus gageoides</i>		P3	X	X		Perennial, herb (with tuberous roots), to 0.2 m high. Fl. purple,	Sand, clay, granite, sandstone, laterite.	Oct to Nov.	Likely - Recorded within 3 km of property and suitable habitat present	Not detected – Targeted Flora Survey specifically for species, due to significant limitations with the Reconnaissance Survey conducted outside of flowering period for species. No <i>Thysanotus</i> sp. observed within the survey area.
Ericaceae	<i>Acrotriche dura</i>		P4	X	X		Slender, erect shrub to 1 m high. Flowers white	Brown loam, clay loam over granite. Lower valley slopes, road verges.	Aug to Sept	Likely - Recorded within 3 km of property. Associated with a wide range of soil types and situations that may be present at site.	Not detected - All Ericaceae species present are non-threatened, with distinctively different leaf shape and structure. Suitable habitat not complete match.
Fabaceae	<i>Acacia declinata</i>		P4	X	X		Dense, intricately branched prostrate and pungent shrub, 0.2-0.4 m high. Yellow flowers	Loamy or sandy clay.	Aug to Sep	Likely - Recorded within 3 km of property. Suitable soil type with loams and clays present onsite.	Not detected - Acacia species present were not prostrate or had phyllodes consistent with the shape of <i>A. declinata</i> .
Dilleniaceae	<i>Hibbertia priceana</i>		T - Cr En		X	X	Usually compact but sometimes sprawling, dwarf shrub to 0.15 m high. Flowers yellow	Grey sandy clay with laterite gravel. Ridges	Jun to Aug	Possible - suitable habitat present with ridge and clay. Not a complete match, facing gravel or lateritic underlying geology.	Not detected - out-of-season survey conducted during flowering time for <i>H. priceana</i> , resulting in detection being likely. Numerous <i>Hibbertia</i> present, eliminated as <i>H. priceana</i> by leaf shape. <i>H. pulchra</i> similarities but eliminated as <i>H. priceana</i> due to lacking distinct midrib or recurved/incurved edges.
Proteaceae	<i>Grevillea maxwellii</i>	Maxwell's Grevillea	T - En	X	X	X	Prostrate to spreading shrub. 0.2-1.2 m high up to 2 m wide. Flowers red. Toothbrush grevillea flowers, puzzle leaves.	Sandy clay or clay loam over granite. Located on hilltops	May or Aug to Sep	Possible - suitable habitat present with clay loam and hilltops. Partial match as lacks granite.	Not detected -Single prostrate non-threatened <i>Grevillea</i> species present, but eliminated as <i>G. maxwellii</i> due to shape and cluster of flowers and leaves were too small. Out-of-season flora survey conducted when flowering recorded for <i>G. maxwellii</i> , additionally distinct form and nature of <i>Grevillea</i> sp. would have been detected without flowers.

Table A1 continued

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Casuarinaceae	<i>Allocasuarina tortiramula</i>	Twisted Sheoak	T - Vu	X	X		Dioecious shrub. To 1.7 m high.	Loam soil on granite		Possible - Recorded within 3 km of property, somewhat suitable habitat with sloping loam recorded but lacks geological granite present. Identified in DWER Correspondence CPS 9260 (DEWHA, 2008a).	Not detected - No Allocasuarina species detected during the survey and unlikely that surveying during spring season increases probability of detecting due to large, shrub and retention of fruit nature of species.
Scrophulariaceae	<i>Myoporum cordifolium</i>	Jerramungup Myoporum	T - Vu	X	X	X	Spindly, erect shrub, 0.3-0.8 m high. Fl. white/white-pink,	Sandy loam or clay loam. Flat plains	Jul to Nov	Possible - partially suitable habitat with correct soil type present and identified in DWER Correspondence CPS 9260. However, on a breakaway, opposed to flat plain (DEWHA, 2008b).	Not detected - No species with distinctive scale like leaves and form were detected across the site. Out-of-season flora survey conducted during peak flowering season of <i>M. cordifolium</i> . Habitat only partially suitable with clay loam present but topography not fitting.
Casuarinaceae	<i>Allocasuarina anfractuosa</i>	Sinuus Sheoak	P1	X	X		Sinuus branches with 11-15 teeth per whorl. Cones prominent and acuminate.	Known only from Boxwood Hill area. Broad hill crests of upper slopes in brown sandy loam on granite. Sometimes recorded on heathland		Possible - Recorded within 3 km of property, somewhat suitable habitat with sloping loam recorded but lacks geological granite present (Wege & Barrett, 2016).	Not detected - No Allocasuarina species detected during the survey and unlikely that surveying during spring season increases probability of detecting due to large, shrub and retention of fruit nature of species.
Rhamnaceae	<i>Trymalium myrtillus</i> subsp. <i>pungens</i>		P1		X		Erect, spreading, spinescent shrub, 0.5-3 m high. Flowers cream to yellow.	Clay loam and ridge.	Sep to Oct	Possible - suitable soil type present and breakaway could be considered ridge.	Not detected - No species with taxonomic similarities to <i>Trymalium</i> species were present.
Myrtaceae	<i>Chamelaucium</i> sp. <i>Cape Riche</i>		P2		X		Small erect shrub to 50 cm, 20 cm across. Flowers in terminal heads, corolla lobes white, buds with pink sepals, white and cream.	Low heathland surrounding by thick shrubland, such as Sheoak, Calothamnus, Hakea, Leucopogon, Melaleuca, Verticordia. Pale brown sandy loam, grey clay over spongolite, gravel with grey sand/clay	Oct to Nov	Possible – soil type is applicable to site but description of associated vegetation isn't suitable.	Not detected - <i>Chamelaucium</i> sp. present with extremely variable and differing features to common, non-threatened <i>C. ciliatum</i> . Specimen sent to WA Herbarium for confirmation, KW153, Accession 9059.
Fabaceae	<i>Chorizema carinatum</i>		P3		X		Erect or spreading shrub, 0.1-0.6 m high. Fl. yellow,	Sand, sandy clay	Oct-Dec	Possible - associated soil type present	Not detected - Fabaceae flowering Pea plants present were taxonomically different genus's.
Myrtaceae	<i>Eucalyptus arborella</i>	Twertup Yate	P3	X	X		Small tree. Flowers yellow-green.	Stony soils. Rocky slopes and creeklines, breakaways. Restricted to Pallinup River catchment.	Mar to May	Possible - suitable description of associated habitat but outside of recorded distribution on the Pallinup River catchment.	Not detected - non-threatened Eucalyptus species identified buds and fruits were not consistent with <i>E. arborella</i> . Unlikely that spring survey increases probability of detection due to large nature and distinctive taxonomic features of buds and nuts for Eucalyptus.
Fabaceae	<i>Acacia newbeyi</i>		P3		X		Openly branched, pungent shrub, 0.3-1 m high. Yellow flowers	Lateritic gravelly soils	Jul to Aug	Possible - Recorded within 3 km of property but associated soil type inconsistent with present at survey area.	Not detected - Acacia species present did not have phyllodes consistent with the shape of <i>A. newbeyi</i> .
Ericaceae	<i>Leucopogon florulentus</i>		P3		X		Erect, slender shrub, 0.3-0.8 m high. Flowers white.	White/grey or yellow sand, sandy clay, gravelly lateritic soils. Sandplains, gentle slopes	Jun to Nov	Possible - wide range of suitable habitat indicates variability of species, however, not complete or perfect match.	Unsuitable habitat - out-of-season flora survey conducted at time of recorded flowering of <i>L. florulentus</i> , increasing likelihood of detection. Ericaceae non-threatened species identified were not <i>L. florulentus</i> due to shape of leaves and form. Not complete match for suitable habitat.
Myrtaceae	<i>Rinzia longifolia</i>	Creeping Rinzia	P3	X	X		Prostrate shrub, 0.1-0.4 m high. Flowers pink/White	Sandy clay. Low rises.	Aug to Nov	Possible - suitable habitat present with soil type and form.	Not detected - Targeted Flora Survey specifically for species, due to significant limitations with the Reconnaissance Survey conducted outside of flowering period for species. No <i>Thysanotus</i> sp. observed within the survey area.
Ericaceae	<i>Styphelia blepharolepis</i>		P4	X			Erect, spindly shrub to 1 m. Pale leaves (also described yellow-green) and few cream to white flowers.	Lower slopes over very broad, shallow valley and gentle slopes. Coarse grey sand. Associated with Shrublands and sedgeland/open Mallee	Aug to Sept	Possible - Recorded within 3 km of property but sandy and lower slope habitat description not present at site.	Unsuitable habitat - All Ericaceae species present are non-threatened, with distinctively different leaf shape and structure.

Table A1 Continued

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Myrtaceae	<i>Eucalyptus arborella</i>	Twertup Yate	P3	X	X		Small tree. Flowers yellow-green.	Stony soils. Rocky slopes and creeklines, breakaways. Restricted to Pallinup River catchment.	Mar to May	Possible - suitable description of associated habitat but outside of recorded distribution on the Pallinup River catchment.	Not detected - non-threatened Eucalyptus species identified buds and fruits were not consistent with <i>E. arborella</i> . Unlikely that spring survey increases probability of detection due to large nature and distinctive taxonomic features of buds and nuts for Eucalyptus.
Fabaceae	<i>Acacia newbeyi</i>		P3		X		Openly branched, pungent shrub, 0.3-1 m high. Yellow flowers	Lateritic gravelly soils	Jul to Aug	Possible - Recorded within 3 km of property but associated soil type inconsistent with present at survey area.	Not detected - Acacia species present did not have phyllodes consistent with the shape of <i>A. newbeyi</i> .
Ericaceae	<i>Leucopogon florulentus</i>		P3		X		Erect, slender shrub, 0.3-0.8 m high. Flowers white.	White/grey or yellow sand, sandy clay, gravelly lateritic soils. Sandplains, gentle slopes	Jun to Nov	Possible - wide range of suitable habitat indicates variability of species, however, not complete or perfect match.	Unsuitable habitat - out-of-season flora survey conducted at time of recorded flowering of <i>L. florulentus</i> , increasing likelihood of detection. Ericaceae non-threatened species identified were not <i>L. florulentus</i> due to shape of leaves and form. Not complete match for suitable habitat.
Myrtaceae	<i>Rinzia longifolia</i>	Creeping Rinzia	P3	X	X		Prostrate shrub, 0.1-0.4 m high. Flowers pink/White	Sandy clay. Low rises.	Aug to Nov	Possible - suitable habitat present with soil type and form.	Not detected - Targeted Flora Survey specifically for species, due to significant limitations with the Reconnaissance Survey conducted outside of flowering period for species. No <i>Thysanotus</i> sp. observed within the survey area.
Ericaceae	<i>Styphelia blepharolepis</i>		P4	X			Erect, spindly shrub to 1 m. Pale leaves (also described yellow-green) and few cream to white flowers.	Lower slopes over very broad, shallow valley and gentle slopes. Coarse grey sand. Associated with Shrublands and sedgelands/open Mallee	Aug to Sept	Possible - Recorded within 3 km of property but sandy and lower slope habitat description not present at site.	Unsuitable habitat - All Ericaceae species present are non-threatened, with distinctively different leaf shape and structure.
Myrtaceae	<i>Eucalyptus melanophitra</i>		P4	X	X		Tree (Mallet), 4-7 m high, bark rough and flaky at base of trunk. White flowers.	Laterite, skeletal soils. Stony breakaways.	Feb	Possible - Recorded within 3 km of property and stony breakaway present, however would not be described as skeletal soil. Partial match of habitat suitability.	Unsuitable habitat - Similarity to non-threatened <i>Eucalyptus redunca</i> but eliminated as <i>E. melanophitra</i> by Mallee form, opposed to Mallet. Unlikely that spring survey will increase probability of detection due to distinctive nature of Eucalyptus trees outside of survey season.
Fabaceae	<i>Acacia trulliformis</i>		P4	X	X		Spreading shrub, 0.9-2.2 m high. Flowers yellow.	Sandy loam	Sep	Possible - Recorded within 3 km of property but soil type not a close match with clay-loams present.	Unsuitable habitat - Acacia species present did not have phyllodes consistent with the shape of <i>A. trulliformis</i> .
Myrtaceae	<i>Eucalyptus vesiculosa</i>	Corackerup Marlock	P4	X	X		Mallee to 3 m, bark smooth over rich coppery red. Flowers pink.	Flat sites, slight rises.	May	Possible - Recorded within 3 km of property. Slope not a match to the site but lack of information on suitable soil type or associated vegetation.	Unsuitable habitat - no Eucalyptus species present matched features of <i>E. vesiculosa</i> . Unlikely spring survey increases probability of detecting Eucalyptus trees. Survey conducted in close proximity of flowering time and likely a few would have remained flowering, if were present.
Proteaceae	<i>Banksia pseudoplumosa</i>	False Plumed Banksia	T - En		X	X	Columnar shrub, with long, toothed leaves. Non-lignotuberous shrub to 1.8 m high.	Gravelly soils.	Nov to Dec	Unlikely - lack of suitable soil type present.	Unsuitable habitat - Single non-threatened Banksia species present, was large shrub and not columnar structure. Out-of-season survey sufficient for detection of species due to distinct form.
Haemodoraceae	<i>Conostylis misera</i>	Grass Conostylis	T - En			X	Rhizomatous, tufted perennial, grass-like or herb, 0.05-0.18 m high. Fl. yellow,	White or grey sand, sandy loam. Winter-wet flats.	Oct to Nov.	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - taxonomic limitations with cryptic nature of identification without flowering. No similar tufted, rhizomatous perennial herbs observed.
Fabaceae	<i>Gastrolobium humile</i>		T - En	X	X		Low Shrub. Long stipules. Many flowered racemes. Leaves opposite.	Only known from Pallinup River area. Shallow brown sandy-loam soil over granite/gneiss in open sheoak ( <i>Allocasuarina huegeliana</i> ) woodland over low heath. Emergent woodlands.	Sept to Oct	Unlikely - Despite being recorded within 3 km of property, associated vegetation type and underlying geology is highly different to survey area.	Unsuitable habitat - Non-threatened <i>Gastrolobium</i> species identified within survey area, excluded as <i>G. humile</i> but leaves not being hairy and incorrect shape (long and thin), opposed to obovate.

Table A1 continued

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Brassicaceae	<i>Lepidium aschersonii</i>	Spiny Pepperpress	T – Vu	X	X	X	Erect perennial, herb, 0.04-0.3 m high	Periodically wet sites, such as gilgai depressions, margins of freshwater, saline marshes and shallow soils on heavy clay soils. Requires degrees of water logging or seasonal flooding.		Unlikely - lack of suitable soil type	Unsuitable habitat - confirmed lack of suitable soil type.
Orchidaceae	<i>Thelymitra psammophila</i>	Sandplain Sun Orchid	T - Vu	X	X		Tuberous, perennial, herb, 0.15-0.25 m high. Fl. yellow,	Sandy clay, loam, gravel road reserves. Associated vegetation on very open heath and sedges, such as <i>Agonis</i> sp., <i>Allocasuarina</i> sp., <i>Eucalyptus</i> sp., <i>Kunzea</i> sp., <i>Banksia</i> sp.	Sept-Oct	Unlikely - lack of suitable gravel soil type and associated vegetation.	Unsuitable habitat - taxonomic limitations with out-of-season survey and annual nature of Orchids meaning species would not have been detectable. However, associated habitat varies significantly to survey area and unlikely to be present.
Fabaceae	<i>Acacia microneura</i>		P1		X		Slender Shrub (with resinous, angled young branches) to 1.5 m high. Phyllodes flat, long, needle-like, 4-11 cm long. Inflorescence globular to broadly ellipsoid. Flowers yellow.	Sand to loam over granite. Heathlands. Disturbed roadside verges	Aug to Oct	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - <i>Acacia</i> species present did not have phyllodes consistent with the shape of <i>A. microneura</i> . Unlikely that spring survey will increase probability of detecting shrub <i>Acacia</i> due to large, shrubby nature.
Proteaceae	<i>Conospermum coeruleescens</i> subsp. <i>coeruleescens</i>		P1	X	X		Erect, non-lignotuberous shrub. 0.3-1 m high. Flowers blue	Mallee heathland with mixed Kwongan Shrubland. Flat, coarse sand, laterite/spongelite. Brown lateritic sand.	Oct to Sept	Unlikely - lack of suitable soil type present.	Unsuitable habitat - No shrubs with taxonomic similarities detected at the site. Out-of-season survey sufficient for detection of <i>Conospermum</i> sp. Due to distinct form.
Myrtaceae	<i>Eucalyptus sinuosa</i>	Octopus Mallee	P2	X	X		Smooth barked Mallee. Glossy, green, narrow leaves. Free opercula up to 9.5 cm long, curved to sinuous in upper third and slightly dilated and warty at ends.	Granitic sands in mallee heath on gentle slopes. Endemic to sub-coastal sandplains, from Ongerup to Jerramungup and Fitzgerald National Park.	Nov to Dec	Unlikely - Recorded within 3 km of property but unsuitable habitat present with granite sands or associated vegetation.	Unsuitable habitat - <i>Eucalyptus</i> species all contained operculum taxonomic features that were distinctively different to <i>E. sinuosa</i> . Unlikely spring survey increases probability of detecting <i>Eucalyptus</i> trees.
Ericaceae	<i>Leucopogon bracteolaris</i>		P2		X		Shrub, 0.25-1 m high. Fl. white,	Stony sand, gravelly loam.	Feb or May or Jul or Oct.	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - sporadic flowering required that likely responsive to rainfall. Ericaceae non-threatened species identified were not <i>L. bracteolaris</i> due to shape of leaves and form.
Ericaceae	<i>Leucopogon corymbiformis</i>		P2	X			Open or erect low shrub with white flowers. <0.5 m high.	Associated with <i>Banksia speciosa</i> woodland and deep white sands.	Aug to Sept	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - Ericaceae non-threatened species identified were not <i>L. corymbiformis</i> due to shape of leaves and form.
Fabaceae	<i>Acacia arcuatilis</i>		P2		X		Rounded, spreading shrub, 0.4-1.5 m high to 2 m wide. Yellow flowers	Sand or sandy loam, sometimes with lateritic gravel. Undulating plains and rises.	Jun to Aug	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - <i>Acacia</i> species present did not have phyllodes consistent with the shape of <i>A. arcuatilis</i> . Out-of-season survey occurred during time when <i>A. arcuatilis</i> recorded flowering.
Asparagaceae	<i>Laxmannia grandiflora</i> subsp. <i>stirlingensis</i>		P3	X	X		Tall, slender, rambling, stilt-rooted perennial. Herb to 0.22 m high. Flowers white.	White sand, sandy clay. Winter wet locations. <i>Eucalyptus</i> mallee woodland.	Sept to Nov	Unlikely - lack of suitable habitat present.	Unsuitable habitat - Survey limitations with cryptic nature of lack of flowering and herbaceous nature of species. However, suitable associated soil type is not present within the site.
Anarthriaceae	<i>Hopkinsia adscendens</i>		P3		X		Rhizomatous, perennial, herb to 0.4 m high.	Sand. Dry or seasonally damp habitats along streams	Oct	Unlikely - lack of suitable habitat present.	Unsuitable habitat - Survey limitations with cryptic nature of lack of flowering and herbaceous nature of species. However, suitable associated soil type is not present within the site.
Araliaceae	<i>Trachymene croniniana</i>		P3		X		Annual, herb 0.09-0.2 m high. White flowers	Lateritic or loamy sand. Creek Beds	No	Unlikely - lack of suitable habitat present.	Unsuitable habitat - Survey limitations with cryptic nature of lack of flowering and herbaceous nature of species. However, suitable associated soil type is not present within the site.

Table A1 continued

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Ericaceae	<i>Brachyloma mogin</i>		P3		X		Compact shrub, 0.4 m high. Flowers red/pink/white.	Grey clayey sand. Swamp flat. Salt lakes.	Jun	Unlikely - lack of suitable habitat present with no swamp flats or salt lakes present.	Unsuitable habitat - all Ericaceae species with very different leaf shape and structure.
Fabaceae	<i>Acacia errabunda</i>		P3		X		Dense, bushy, spreading shrub, 1.2-5 m high. Yellow flowers.	Clay, loam, gravelly loam, sand. Undulating plains and clay flats.		Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - Acacia species present did not have phyllodes consistent with the shape of <i>A. errabunda</i> .
Fabaceae	<i>Pultenaea calycina</i> subsp. <i>calycina</i>		P3		X		Erect, spindly shrub. Leaves simple, 3-12.5 mm long and 0.7-1.7 mm wide and hairy. Corolla multicoloured, mostly yellow and orange.	Mixed Eucalyptus mallee woodland over shrubs. Dry, brown sandy clay with ironstone gravel. Hillsides. Gravel	Oct	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - Fabaceae flowering Pea plants present were taxonomically different genus to <i>Pultenaea</i> .
Iridaceae	<i>Orthrosanthus muelleri</i>		P4		X		Rhizomatous, tufted perennial herb, 0.2-0.3 m high. Flowers blue	Sand.	Sep to Oct	Unlikely - lack of suitable habitat and soil type present.	Unsuitable habitat - taxonomic limitations with cryptic nature of identification without flowering. No similar tufted, rhizomatous perennial herbs observed.
Myrtaceae	<i>Verticordia brevifolia</i> subsp. <i>brevifolia</i>		P3		X		Shrub, 0.2-0.4 m high. Flowers yellow/orange-red.	Gravelly loam and clay. Road verges.	Oct to Nov	Unlikely - lack of suitable soil types at site.	Unsuitable habitat - Taxonomic limitations with cryptic nature of flowering Myrtaceae shrubs identification without flowering during out-of-season survey. No observed flowering.
Restionaceae	<i>Desmocladus biformis</i>		P3		X		Rhizomatous, densely tufted perennial, herb (sedge-like), 0.1-0.2 m high.	Sand, sandy clay, lateritic soils. Dry sites	Sept to Oct	Unlikely - lack of suitable soil type present.	Unsuitable habitat - No Restionaceae species present, with all sedges lacking reticulated joints. Out-of-season survey considered sufficient for detection of species, due to retention of flowers and fruit on herb.
Stylidiaceae	<i>Stylidium pseudohirsutum</i>		P3		X		Rosetted perennial herb, 0.09-0.42 m high. Leaves tufted, linear, 2-16 cm long, 0.6-1.3 mm wide. Flowers white-cream	Sandy clay, lower hillslopes and depressions. Mallee, Acacia and Myrtaceous shrublands	Nov to Dec	Unlikely - Lack of suitable soil type and associated vegetation	Unsuitable habitat - Single <i>Stylidium</i> species present, but was eliminated as <i>S. pseudohirsutum</i> by leaves of species over 25 cm long and are 4-5 mm wide. Limitations of out-of-season nature through herbaceous and cryptic identification of species without flowering.
Orchidaceae	<i>Thelymitra</i> sp. Ongerup	Orange Sun Orchid	P3		X		Tuberous, perennial herb. Bright orange and yellow flowers. Long leaves	Open heathland with gravel and sands. Hillside with dry, brown clay. Rocky clay soil. Low shrubland with <i>Verticordia</i> , <i>Melaleuca</i> and Sheoak.	Nov	Unlikely - lack of suitable soil types at site and associated vegetation	Unsuitable habitat - taxonomic limitations with out-of-season survey and annual nature of Orchids meaning species would not have been detectable. However, associated habitat varies significantly to survey area and unlikely to be present.
Proteaceae	<i>Banksia parva</i>		P4		X		Columnar Shrub 0.7-1.5 m high. Leaves petiolate, hairy, pinnately divided with teeth distinctly pointing to apex. Flowers yellow, soft, shiny and appressed hair.	Gravelly clay loam, sandy loam, white sand	Jun to Aug	Unlikely - lack of suitable soil type present.	Unsuitable habitat - Single non-threatened <i>Banksia</i> species present, was large shrub and not columnar structure. Out-of-season survey sufficient for detection of species due to distinct form.
Restionaceae	<i>Loxocarya magna</i>		P3		X		Rhizomatous, perennial herb (sedge-like), 0.5-1.5 m high.	Sand, loam, clay, ironstone. Seasonally inundated or damp habitats.	Sep or Nov	Highly Unlikely - vast majority of records in the Warren and Jarrah Forest area, with single record in surrounds.	
Rubiaceae	<i>Opercularia nubicola</i>	Stirling Range Stinkweed	P2		X		Fruiting plant, erect subshrub growth habitat. Coriaceous, sessile leaves. Globular, flowering, compound capitula.	Stirling range peak bedrock		Highly Unlikely - recorded entirely in the Stirling Range peaks. No peaks present within survey area	
Orchidaceae	<i>Caladenia bryceana</i> subsp. <i>bryceana</i>	Dwarf Spider Orchid	T - En	X	X	X	Tuberous, perennial herb. 0.05-0.1 m high. Green-yellow flowers.	Sand, loam. Adjacent to watercourses and winter-wet sites.	Aug to Oct	Highly Unlikely - no water courses or winter wet sites present within survey area	
Myrtaceae	<i>Kunzea eriocalyx</i>		P2	X			Shrub, 0.5-1 m high. Flowers pink	Loamy soils, sandy clay over laterite, clay. Rocky quartzite outcrops	Aug to Oct	Highly Unlikely - mostly recorded in the Fitzgerald National Park, not west of Trigalow Beach area.	



Table A1 continued

Family	Species	Common Name	Status (WA)	NatureMap	DBCA	PMST	Description - Species	Description - Habitat	Peak Flowering period	Likelihood of occurrence - Pre field survey and suitability of habitat	Survey outcomes
Proteaceae	<i>Banksia anatona</i>	Cactus Dryandra	T - Cr En			X	Upright, non-lignotuberous shrub, to 5 m high. Flower Yellow.	Grey sand over gravelly shale, rocky silty clay loam. Lower slopes of ranges. Almost entirely restricted to Stirling Ranges.	Jan-Mar	Highly Unlikely - incorrect habitat of Stirling Ranges present	
Droseraceae	<i>Drosera paleacea</i>	Dwarf Sundew	P1	X			Fibrous-rooted, rosetted perennial, herb, to 0.03 m high, to 0.015 m wide. Fl. white-cream,	White sand, sandy clay. Recorded primarily around Torndirrup Peninsula in Albany area, distribution not consistent with survey area.	Sep to Dec or Jan.	Highly Unlikely - distribution not consistent with survey area.	
Chenopodiaceae	<i>Roycea pycnophylloides</i>	Saltmat	T - En			X	Perennial herb, forming densely branched silvery mats to 1 m wide.	Sandy soils, clay. Saline Flats	Sept	Highly unlikely - Distribution outside area of Survey site, most northern record in Katanning. No saline lakes present within survey site.	
Elaeocarpaceae	<i>Tetratheca pilifera</i>		P3	X			Spreading shrub, 0.1-0.3 m high. Purple Flowers	Gravelly soils; Quindalup South shallow sand flat Phase, Undulating landscapes with shallow calcareous sands over limestone and much rock outcrop; Quindalup South unstable sand Phase. Presently unstable sand.	Aug to Oct	Highly unlikely - distribution on the Swan Coastal Plain and Darlington Range.	
Parmeliaceae	<i>Xanthoparmelia scabrosina</i>		P1	X			fungi			Outside of expertise of surveyor	
Parmeliaceae	<i>Xanthoparmelia subbarbatica</i>		P1	X			fungi			Outside of expertise of surveyor	
Pleurophascaceae	<i>Pleurophascum occidentale</i>		P4	X	X		This distinctive moss forms a loose mat with vertical stems, 1 to 3 cm high, growing off a rhizomatous base. It is generally glossy yellowish-green above and bronze-brown below. The soft leaves are spirally arranged, and overlap.	Grows with other mosses under the cover of myrtaceous and other shrubs. Known to occur in a wide range of habitat including shallow soils on the edge of granite, deep white sand on laterite, sandy clay loam on sandstone, pink sand on sandstone as well as sandy soils some distance from granite outcrops		Outside of expertise of surveyor	

## **Appendix C**

### Conservation Status Definitions and Condition Scale

**Table A2: Conservation code definitions for flora and fauna as listed as threatened or specially protected.**

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Threat Category	Definition
Threatened - Critically endangered species (CR)	Facing an extremely high risk of extinction in the wild in the immediate future
Threatened - Endangered species (EN)	Facing a very high risk of extinction in the wild in the near future
Threatened - Vulnerable species (VU)	Facing a high risk of extinction in the wild in the medium-term future
Threatened - Extinct (EX)	There is no reasonable doubt that the last member of the species has died
Threatened – Extinct in the wild (EW)	Species is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form
Specially protected species - Migratory species (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
Specially protected species – Conservation Dependent (CD)	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened,
Specially protected species – Other specially protected species (OS)	Fauna otherwise in need of special protection to ensure their conservation

**Table A3: Conservation code definitions for flora and fauna as listed as Priority.**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3.

Threat Category	Definition
Priority 1: Poorly-known species	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.
Priority 2: Poorly-known species	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.
Priority 3: Poorly-known species	Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.
Priority 4: Rare, Near Threatened and other species in need of monitoring	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

**Table A4: Conservation code definitions for ecological communities listed as threatened (TEC).**

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

**Table A5: Conservation code definitions for ecological communities listed as priority (PEC).**

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3.

Threat Category	Definition
Priority One (P1)	Ecological communities that are known from very few occurrences with a very restricted distribution (generally $\leq 5$ occurrences or a total area of $\leq 100$ ha), and appear to be under immediate threat.
Priority Two (P2)	Communities that are known from few occurrences with a restricted distribution (generally $\leq 10$ occurrences or a total area of $\leq 200$ ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation.
Priority Three (P3)	(i)Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: (ii)communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or; (iii)communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.
Priority Four (P4)	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.
Priority Five (P5)	Conservation Dependent ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

**Table A6: Condition Rating Scale (adapted from Keighery 1994) outlined in EPA (2016a).**

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

## **Appendix D**

Vegetation Types defined in the Reconnaissance Flora and Vegetation and Basic Fauna survey (BDS, 2021a)

**Vegetation Type A: Mallee Forest on slope at base of Breakaway**

Vegetation Description (NVIS): U+ ^*Eucalyptus platypus*, +/- *Eucalyptus sporadica*\Mallee\6\c; M ^*Cyathostemon ambiguus*, +/-*Melaleuca bracteosa*, *Melaleuca torquata*\Shrub\^2,3\c; G +/-*Hibbertia pulchra*, *Grevillea huegelii*\Shrub\1\c.

Vegetation Description (Muir): *Eucalyptus platypus* and *Eucalyptus sporadica* Open Mallee Forest, over *Cyathostemon ambiguus*, *Melaleuca bracteosa* and *Melaleuca torquata* shrubland, over *Hibbertia pulchra* and *Grevillea huegelii* sparse heathland.

Area: 1.84ha

Site description: Steep slope at end of breakaway, with seasonally wet, dark brown clay-sand, and underlying lateritic/spongelite geology.

Condition: Very Good – Excellent.

Represented in R2 (refer to Appendix B).



Figure 4: Vegetation Type A, Mallee Forest on slope at base of Breakaway, present within the survey area

**1. Vegetation type B: Mixed Paperbark, Melaleuca, Callitris and Mallee Woodland on top of plateau of Breakaway**

Vegetation Description (NVIS): U +/-*Eucalyptus phenax* subsp. *phenax*, *Eucalyptus sporadica*, *Eucalyptus redunca* Mallee\7i; M+ ^^*Melaleuca carrii*, *Callitris preissii*, +/- *Kunzea newbeyi*, 1\shrub\^4,3\c; G+ ^^ *Lepidosperma squamatum*, *Lepidosperma pubisquameum*, *Drosera glanduligera*, *Drosera macrantha*, Orchid sp.\^^sedge, forb\1i.

Vegetation Description (Muir): *Eucalyptus phenax* subsp. *phenax*, *Eucalyptus sporadica*, *Eucalyptus redunca* Mallee Woodland, over *Melaleuca carrii*, *Callitris preissii* and *Kunzea newbeyi* shrubland, over *Lepidosperma squamatum*, *Lepidosperma pubisquameum* open sedgeland, over *Drosera glanduligera*, *Drosera macrantha* and Orchid open forbland.

Area: 2.72ha

Site description: Flat plateau on top of lateritic breakaway, with orange/brown, seasonally wet clay sand.

Condition: Pristine.

Represented in R1 (refer to Appendix B).



**Figure 5: Vegetation Type B, Mixed Paperbark, Melaleuca, Callitris and Mallee woodland on top of plateau of Breakaway present within the survey area.**



## **Appendix E**

### Species Lists and Relevé Data

**Table A7: Flora Species List recorded within survey area.**

Nt. Bolded species were newly identified through the Targeted Flora Survey.

Family	Species	Common Name	Invasive	Cons Status	Veg A - bottom of breakaway	Veg B - top of breakaway
Aizoaceae	<i>Carpobrotus modestus</i>	Inland Pigface			X	
<b>Aizoaceae</b>	<b><i>Mesembryanthemum crystallinum</i></b>	<b>Iceplant</b>	X			<b>X</b>
Apiaceae	<i>Daucus glochidiatus</i>	Australian Carrot			X	X
Apiaceae	<i>Xanthosia huegelii</i>					X
Araliaceae	<i>Hydrocotyle intertexta</i>	Pennywort				X
Asteraceae	<i>Asteridea nivea</i>					X
<b>Asteraceae</b>	<b><i>Waitzia acuminata</i></b>	<b>Orange Immortelle</b>				<b>X</b>
Chenopodiaceae	<i>Enchylaena tomentosa</i>	Barrier Salt Bush			X	
Chenopodiaceae	<i>Maireana brevifolia</i>				X	
Chenopodiaceae	<i>Rhagodia baccata</i>	Ruby Salt Bush			X	
Cupressaceae	<i>Callitris preissii</i>	Rottnest Island Pine			X	X
Cyperaceae	<i>Lepidosperma pubisquameum</i>	Sedge			X	
Dilleniaceae	<i>Hibbertia pulchra</i>				X	X
Dilleniaceae	<i>Hibbertia verrucosa</i>	Spiky Australian Butter Cup			X	
Droseraceae	<i>Drosera glanduligera</i>	Pimpernel Sundew				X
Droseraceae	<i>Drosera macrantha</i>	Bold Sundew				X
Ericaceae	<i>Styphelia epacridis</i>				X	X
Ericaceae	<i>Styphelia lissanthoides</i>					X
Fabaceae	<i>Acacia assimilis</i> var. <i>atroviridis</i>				X	
Fabaceae	<i>Acacia chrysella</i>				X	
Fabaceae	<i>Acacia glaucoptera</i>	Clay Wattle; Flat Wattle			X	
Fabaceae	<i>Acacia mutabilis</i> subsp. <i>mutabilis</i>					X
Fabaceae	<i>Daviesia aphylla</i>				X	
Fabaceae	<i>Daviesia argillacea</i>				X	
Fabaceae	<i>Gastrolobium musaceum</i>	Box Poison				X
Fabaceae	<i>Jacksonia ramosa</i>				X	
Goodeniaceae	<i>Cooperookia polygalacea</i>				X	
Goodeniaceae	<i>Dampiera sacculata</i>	Pouched Dampiera				X
<b>Haloragaceae</b>	<b><i>Glischrocaryon flavescens</i></b>	Pop Flower				<b>X</b>
Hemerocallidaceae	<i>Dianella brevicaulis</i>	Australian Blueberry; Flax Lilly			X	
Lauraceae	<i>Cassytha</i> sp.	Dodder Laurel			X	
Malvaceae	<i>Lasiopetalum compactum</i>				X	X
Myrtaceae	<i>Chamelaucium ciliatum</i>					X

Table A7 Continued

Family	Species	Common Name	Invasive	Cons Status	Veg A - bottom of breakaway	Veg B - top of breakaway
Myrtaceae	<i>Cyathostemon blackettii</i>				X	
Myrtaceae	<i>Cyathostemon tenuifolius</i>				X	X
Myrtaceae	<i>Eucalyptus phenax</i> subsp. <i>phenax</i>	Green Dumosa Mallee			X	X
Myrtaceae	<i>Eucalyptus platypus</i>	Moort			X	X
Myrtaceae	<i>Eucalyptus redunca</i>	Black Marlock				X
Myrtaceae	<i>Eucalyptus sporadica</i>	Burngup Mallee			X	X
Myrtaceae	<i>Hypocalymma angustifolium</i>	White Myrtle				X
Myrtaceae	<i>Kunzea newbeyi</i>			P1 – KW154		X
Myrtaceae	<i>Melaleuca acuminata</i>				X	
Myrtaceae	<i>Melaleuca bracteosa</i>				X	
Myrtaceae	<i>Melaleuca carrii</i>	Soccer Ball Melaleuca			X	X
Myrtaceae	<i>Melaleuca hamata</i>	Broom Bush			X	X
Myrtaceae	<i>Melaleuca torquata</i>				X	
Myrtaceae	<i>Tetrapora verrucosa</i>					X
<b>Orchidaceae</b>	<b><i>Disa bracteata</i></b>	<b>South African Orchid</b>	<b>X</b>		<b>X</b>	
Orchidaceae	<i>Pterostylis sanguinea</i>	Dark Banded Green Hood				X
Orchidaceae	<i>Pterostylis vittata</i>	Banded Green Hood				X
Poaceae	<i>Austrostipa flavescens</i>	Native Feather Grass				X
<b>Poaceae</b>	<b><i>Lolium rigidum</i></b>	<b>Rye Grass</b>	<b>X</b>		<b>X</b>	
Proteaceae	<i>Banksia media</i>	Southern Plains Banksia				X
Proteaceae	<i>Grevillea huegelii</i>				X	
Proteaceae	<i>Hakea commutata</i>				X	
Proteaceae	<i>Hakea laurina</i>	Pin Cushion Hakea			X	X
Proteaceae	<i>Persoonia teretifolia</i>	Wild Pear			X	
Rutaceae	<i>Cyanothamnus crassifolia</i>				X	
Rutaceae	<i>Cyanothamnus</i> subsp. <i>anethifolius</i>				X	X
Rutaceae	<i>Phebalium microphyllum</i>					X
Rutaceae	<i>Phebalium tuberculatum</i>					X
Rutaceae	<i>Rhadinothamnus rudis</i> subsp. <i>rudis</i>				X	X
Santalaceae	<i>Choretrum glomeratum</i>	Common Sour Bush				X
Santalaceae	<i>Leptomeria pachyclada</i>	Currant Bush			X	
Sapindaceae	<i>Dodonaea viscosa</i>	Sticky Hopbush			X	
Stylidiaceae	<i>Stylidium hirsutum</i>	Hairy Trigger Plant				X

Table A7 Continued

Family	Species	Common Name	Invasive	Cons Status	Veg A - bottom of breakaway	Veg B - top of breakaway
Stylidiaceae	<i>Stylidium albomontis</i>				X	
Thymelaeaceae	<i>Pimelea cracens</i>	Yellow Banje				X
Unknown	Herb sp.					X
Unknown	Herb sp.					X

## **Appendix F**

### DBCA Threatened and Priority Reporting (TPFL) Forms



# 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.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants](http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants)

<b>TAXON:</b> <u>Kunzea newbeyi</u>		<b>TPFL Pop. No.:</b> _____
<b>OBSERVATION DATE:</b> <u>11/11/2021</u>	<b>CONSERVATION STATUS:</b> <u>P1</u>	<b>New population</b> <input checked="" type="checkbox"/>
<b>OBSERVER/S:</b> <u>Dr Karlene Bain and Charlize van der Mescht</u>		<b>PHONE</b> <u>0428 323 760 or 0419 867 137</u>
<b>ROLE:</b> <u>Ecologist – Environmental Consultants</u>	<b>ORGANISATION:</b> <u>Bio Diverse Solutions</u>	
<b>EMAIL:</b> <u>katie@biodiversesolutions.com.au; enquiry@biodiversesolutions.com.au</u>		

**DESCRIPTION OF LOCATION** (Provide at least nearest town/named locality, and the distance and direction to that place):  
~16km south-west of Boxwood Hill townsite, in Monjebup locality. On private property, approxaimtely 7.7 km north of Borden-Bremer Rd, on Monjebup Rd. On the eastern side of the Rd in breakaway

<b>DBC DISTRICT:</b> <u>South-coast</u>	<b>LGA:</b> <u>Gnowangerup</u>	<b>Reserve No.:</b> _____	Land manager present: <input type="checkbox"/>
<b>DATUM:</b>	<b>COORDINATES:</b> (If UTM coords provided, <b>Zone</b> is also required)	<b>METHOD USED:</b>	
GDA94 / MGA94 <input checked="" type="checkbox"/>	DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input type="checkbox"/>	GPS <input checked="" type="checkbox"/>	Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	<b>Lat / Northing:</b> <u>34°15'10"</u>	No. satellites: _____	Map used: <u>Google Earth</u>
WGS84 <input type="checkbox"/>	<b>Long / Easting:</b> <u>118°37'09"</u>	Boundary polygon captured: <input type="checkbox"/>	Map scale: _____
Unknown <input type="checkbox"/>	<b>ZONE:</b> _____		
<b>LAND TENURE:</b>			
Nature reserve <input type="checkbox"/>	Timber reserve <input type="checkbox"/>	Private property <input checked="" 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 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): 6 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> ): _____ <small>Note: Pls record count as numbers (not percentages) for database.</small>
Alive	516				
Dead					

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

**Summary Quad. Totals: Alive**

REPRODUCTIVE STATE:	Clonal <input type="checkbox"/>	Vegetative <input checked="" type="checkbox"/>	Flowerbud <input type="checkbox"/>	Flower <input type="checkbox"/>
	Immature fruit <input type="checkbox"/>	Fruit <input type="checkbox"/>	Dehisced fruit <input type="checkbox"/>	Percentage in flower: <u>0%</u>

**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+)			
• Mining – private land holder proposed to clear and extract basic raw materials where some of the population is growing. Current Clearing Permit with DWER.	<u>N</u>	<u>M</u>	<u>S</u>
•	_____	_____	_____



# 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 type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input type="checkbox"/>	Brown <input checked="" type="checkbox"/>	Seasonally inundated <input checked="" type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input checked="" type="checkbox"/>	0-10% <input type="checkbox"/>	Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input checked="" type="checkbox"/>	Ironstone <input type="checkbox"/>	10-30% <input 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 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"/>			Spongelite? _____	Orange- brown _____	
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>					

Specific **Landform Element:** \_\_\_\_\_  
(Refer to field manual for additional values)

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

**VEGETATION CLASSIFICATION\*:**

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

1. Eucalyptus phenax subsp. phenax, Eucalyptus sporadica, Eucalyptus redunca Mallee Woodland, over Melaleuca carrii, Callitris preissii and Kunzea newbeyi shrubland, over Lepidosperma squamatum, Lepidosperma pubisquamum open sedgeland, over Drosera glanduligera, Drosera macrantha and Orchid open forbland.

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

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

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

**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.)

Targeted flora survey conducted in November. K. newbeyi was not flowering, however was distinctive which allowed for the quantification of the population size, number and impact.

Report to be submitted to clients in future – Targeted flora survey – Lot 1857 (No. 653) Monjebup Rd, Monjebup

Targeted flora survey conducted following confirmed of specimen submitted to WA Herbarium, KW148, Accession 9059 under Katie White's Licence FTB62000327. Specimen confirmed 31/08/2021 by Mike Hislop. TPFL previously submitted to Species and Communities Branch (flora.data) and Sarah Barrett (district flora conservation officer) on the 24/09/2021

**FLORA AUTHORISATION / LICENCE No:** \_\_\_\_\_ 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 licencing 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: \_\_\_\_\_

**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: Charlize van der Mescht Role: Environmental Consultant Signed: CvdM Date: 01/12/2021