

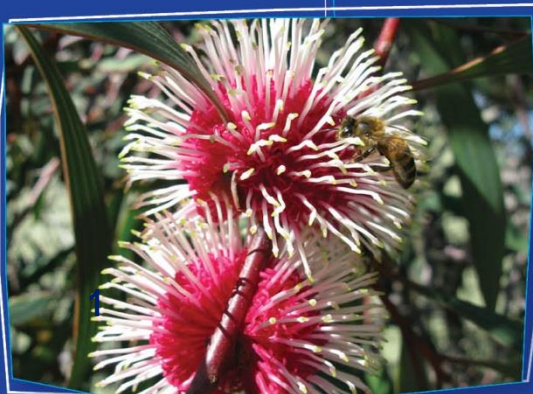
Vegetation, Flora, Fauna and Environmental Considerations Report

Shire of Esperance 2022-23 Strategic Purpose Permit
Site H – Boydell Road, SLK 0 - 11.83



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Acknowledgement of country

The Shire of Esperance acknowledges the Kepa Kurl Wudjari people of the Nyungar nation and Ngadju people who are the traditional custodians of this land and their continuing connection to land, waters and community. We pay our respect to their Elders past, present and emerging and we extend that respect to other Aboriginal Australians today.

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LIST OF ABBREVIATIONS

BAM Act: Biosecurity and Agriculture Management Act 2007 (WA)
BC Act: Biodiversity Conservation Act 2016 (WA)
BOM: Bureau of Meteorology
DBCA: Department of Biodiversity, Conservation and Attractions
EP Act: Environmental Protection Act 1986 (WA)
EPA: Environmental Protection Authority
EPBC Act: Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
IBRA: Interim Biogeographical Regionalisation for Australia
IUCN: International Union of Conservation Nature
LGA: Local Government Area
NVIS: National Vegetation Information System
PEC: Priority Ecological Community
PF: Priority Flora (Under BC Act)
SLK: Straight Line Kilometres (Main Roads WA)
SOE: Shire of Esperance
TEC: Threatened Ecological Community
TF: Threatened Flora (Under BC Act)
TPFL: Threatened and Priority Flora Database (DBCA)
TPRF: Threatened and Priority Flora Report Form
UCL: Unallocated Crown Land
WAH: Western Australian Herbarium (PERTH)
WAOL: Western Australian Organism List

1 Executive Summary

The Shire of Esperance Environmental Team was commissioned by the Shire of Esperance Asset Management department to undertake a review of the flora, vegetation and fauna values on the proposed 'Boydell Road, SLK 0 - 11.83' project in 2022-23 as part of their 2023 Strategic Purpose Permit application.

The Shire of Esperance endeavours 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 4593 km of road. The Shire of Esperance is submitting 'Boydell Road SLK 0.00 to SLK 11.83' project as Site H under the '2023 Strategic Purpose Permit' (Figure 1), for the purpose of road widening during a road reconstruction.

Boydell Road is particularly narrow resulting in safety issues during harvest season. Boydell Road requires widening to maintain the safety of road users during harvest. This road is classified as a rural access road on Shire road network providing vital link to properties and other access roads in north west region of Esperance. Traffic counts showing a major impact of heavy vehicle occupied during harvesting season and it is an approved RAV and Bus route.

To complete these works, native vegetation up to 2m from the current road footprint on both sides of the road is required to be cleared, increasing the active road footprint to 17m. This requires clearing of 1.743 ha of native vegetation. To mitigate impact of clearing vegetation, where feasible clearing will not occur to the full permitted width, conserving vegetation.

The proposed works are located 40 km north west of Esperance, within the Shire of Esperance managed road reserve of Boydell Road. Specifically, it is starting from Coolgardie Esperance Highway at straight line kilometre (SLK) 332 (Main Roads, 2022). A point within the proposed clearing permit area is 6284651.8m N, 3837553.4m E (UTM Zone 51 H, GDA94).

The Shire of Esperance's two Environmental Scientists completed the site assessment on Boydell Road, SLK 0 - 11.83 over two years between the 5th and 7th of October 2020, and 25th of October to 14th of November, 2022.

A total of 366 vascular plant taxa from 197 plant genera and 57 plant families were recorded within the Boydell Road, SLK 0 - 11.83 survey area during the 2020-2022 survey. The majority of taxa was recorded within the Myrtaceae (58 taxa), Fabaceae (57 taxa), Proteaceae (32), Poaceae (24 taxa) and Asteraceae (23 taxa) families (Appendix 1). This total included 318 native species and 51 introduced (weed) species.

Seven priority flora species pursuant to the Biodiversity Conservation Act (2016) and as listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were recorded within the 'Boydell Road, SLK 0 - 11.83' survey area. No plant taxa listed as Threatened pursuant to Schedule 1 of the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 were recorded during the survey within the proposed Boydell Road, SLK 0 - 11.83 survey area.

Table 1. Summary of Priority flora species recorded in Site H – Boydell Road, SLK 0 - 11.83 project area.

Species	Conservation Code	Total Plants	Total taking
<i>Darwinia sp. Gibson</i>	P1	44	4
<i>Austrobaecka uncinella</i>	P3	1	0
<i>Brachyloma mogin</i>	P3	5	0
<i>Daviesia pauciflora</i>	P3	3	0
<i>Kunzea salina</i>	P3	69	0
<i>Persoonia scabra</i>	P3	16	3
<i>Grevillea baxteri</i>	P4	3	1

A total of 0.049 ha of the EBPC listed 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' Threatened Ecological Community (TEC) was present within Site H - Boydell Road, SLK 0 - 11.83. There was also one vegetation unit that was consistent with the State Listed Priority Ecological Community (PEC) "Swamp Yate (*Eucalyptus occidentalis*) woodland in seasonally-inundated basins". No other TECs or PECs were located within 'Site H - Boydell Road, SLK 0 - 11.83'.

The site contains suitable foraging habitat for the EPBC listed Carnaby's cockatoo (*Calyptorhynchus latirostris*). Approximately 0.049 ha of high quality native foraging Habitat. Several other conservation listed species had potentially suitable habitat within the project area.

Should the development of Boydell Road, SLK 0 - 11.83 go ahead, the following recommendations are made as a means of minimizing the impacts of infrastructure activities on the flora, vegetation and fauna values in the area:

- Minimise clearing to minimum amount required
- Avoid larger habitat trees (larger trees and trees with hollows) wherever possible;
- Maintain existing drainage systems, spoon drains and ensuring tracks and other infrastructure areas do not disrupt or divert historic water flow patterns;
- Minimise soil disturbance during clearing and practice standard vehicle hygiene to ensure introduced (exotic) species do not become established within the 'Boydell Road, SLK 0 - 11.83' project area;
- Implement a management plan to prevent the spread of *Acacia pycnantha* a declared pest species; and
- Minimize all threatening processes to native vegetation.

These have been addressed in the attached Weed and Dieback plan and, and provided these measures are implemented, there should be no impediments to the widening of Boydell Road, SLK 0 - 11.83.

1 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. The Shire of Esperance is submitting 'Boydell Road, SLK 0 - 11.83' project as Site H under the '2023 Strategic Purpose Permit' (Figure 1), for the purpose of road widening.

1.1 Location and Scope of Project

The proposed works are located 40 km north west of Esperance, within the Shire of Esperance managed road reserve of Boydell Road. Specifically, it is starting from Coolgardie Esperance Hwy at straight line kilometre (SLK) 332 (Main Roads, 2022). A point within the proposed clearing permit area is 6284651.8m N, 3837553.4m E (UTM Zone 51 H, GDA94).

Boydell Road is particularly narrow resulting in safety issues during harvest season and requires widening to maintain the safety of road users during harvest. To complete these works, native vegetation up to 2 m from the current road footprint on both sides of the road is required to be cleared, increasing the active road footprint to 15 m. To mitigate impact of clearing vegetation, where feasible clearing will not occur to the full permitted width, conserving vegetation.

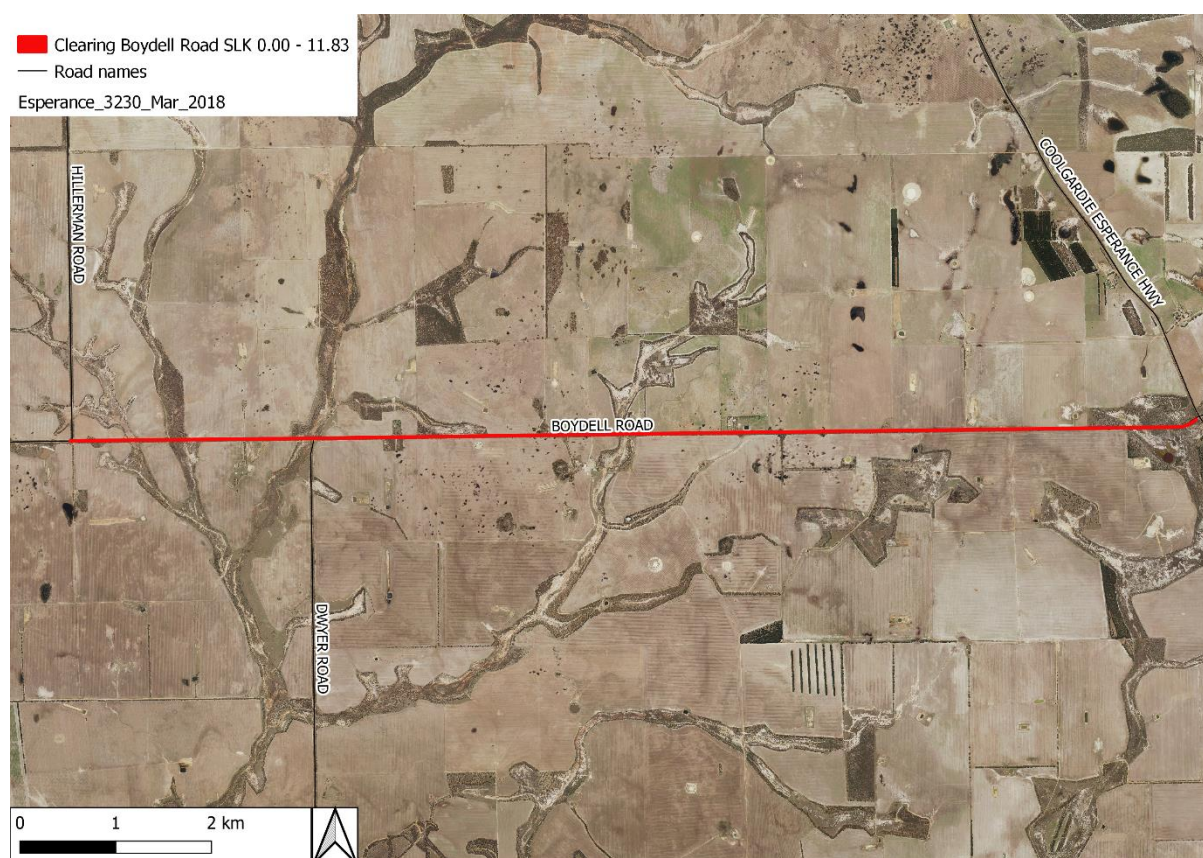


Figure 1. Location of Site H – Boydell Road, SLK 0 - 11.83.

1.2 Environmental Legislation and Guidelines

The Commonwealth (federal) legislation relevant to this survey is the:

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The following Western Australian (state) legislation relevant to this survey include the:

- Biodiversity Conservation Act 2016 (BC Act);
- Biodiversity Conservation Act 2016 Biodiversity Conservation (Listing of Native Species) (Flora) Order 2022
- Biodiversity Conservation Act 2016 Biodiversity Conservation (Listing of Native Species) (Fauna) Order 2022
- Biosecurity and Agriculture Management Act 2007 (BAM Act);
- Environmental Protection Act 1986 (EP Act);

Western Australian guidelines relevant to this survey are the:

- Environmental Factor Guideline: Flora and Vegetation (Environmental Protection Authority [EPA] 2016);
- Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016);
- A guide to the assessment of applications to clear native vegetation, Under Part V Division 2 of the Environmental Protection Act 1986 (DWER, 2014)
- Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020)

International Agreements relevant to this survey are the:

- Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment 1974 (Japan-Australia Migratory Bird Agreement – JAMBA)
- Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment 1986 (China-Australia Migratory Bird Agreement – CAMBA)
- Agreement between the Government of Australia and the Government of the Republic of Korea on the Protection of Migratory Birds 2007 (Republic of Korea-Australia Migratory Bird Agreement – ROKAMBA)
- Convention on Wetlands of International Importance 1971 (Ramsar Convention)

2 OBJECTIVES

The objective of this survey was to undertake a flora, fauna and vegetation assessment of the 'Boydell Road, SLK 0 - 11.83' survey area including:

- Undertake a desktop study of the flora, fauna and vegetation of the 'Boydell Road, SLK 0 - 11.83' survey area, with an emphasis on threatened and priority flora, threatened and priority ecological communities (TECs and PECs) and Threatened and Priority fauna;
- Review the historical literature of the 'Boydell Road, SLK 0 - 11.83' survey area;
- Undertake a detailed survey of the 'Boydell Road, SLK 0 - 11.83' survey area, and collect and

- identify the vascular plant species present;
- Review the conservation status of the vascular plant species recorded by reference to current literature and listings by the Department of Biodiversity, Conservation and Attractions (DBCA) and plant collections held at the Western Australian State Herbarium (WAH), and listed by the Department of Climate Change, Energy, the Environment and Water under the EPBC Act;
- Define and map the vegetation communities in the 'Boydell Road, SLK 0 - 11.83' survey area;
- Define and map the location of any threatened and priority flora located within the 'Boydell Road, SLK 0 - 11.83' survey area;
- Define any management issues related to flora, fauna and vegetation values;
- Provide recommendations on the local and regional significance of the vegetation communities; and
- Prepare a report summarising the findings.

3 METHODS

3.1 Desktop Assessment

A desktop assessment with a 20km buffer zone was conducted using DBCA datasets sourced under agreement for:

- WA Herbarium data (WAH) 2022d
- Threatened and Priority Flora Database (TPFL) 2022c
- DBCA's Esperance District Threatened Flora spatial dataset 2021a
- Threatened and Priority Ecological Communities 2022b
- Threatened, specially protected and priority fauna 2022e
- Black cockatoo roost and breeding sites 2022f

In addition, the EPBC Act Protected Matters Search Tool, was also checked to identify the possible occurrence of threatened and priority flora, fauna and threatened and priority ecological communities within the Boydell Road, SLK 0 - 11.83 area. Search parameters were 'by polygon' and a 20 km buffer was applied to the search area; standard used in this IBRA subregion.

In addition, historical documentation and state datasets including:

- Vegetation mapping of the region, principally that of Beard (1976)
- 2020 Vegetation Extent by Statewide Pre-European mapping statistics
- Soil landscape mapping (DAFWA)
- Dieback Information Data Management System (DIDMS) (Gaia Resources)
- Shire of Esperance Weed Mapping Data
- Existing site digital orthophotos (Esperance 2018)
- Atlas of Living Australia database

- Hydrographic Catchments (DWER)
- Crown Reserves (Landgate)

3.2 Field Survey

Boydell Road SLK 0-6 was initially inspected on the 26th of August 2020 by Julie Waters and Katie White the SOE's Environmental Coordinator and previous Environmental Officer. SLK 6-11.83 was initially inspected on the 25th of October by Julie Waters and Katherine Walkerden the SOE's Environmental Coordinator and Environmental Officer. A general assessment of possible ecological impacts included historical clearing, impact of fire regimes, regeneration from disturbance, waterlogging, senescence, weeds, erosion, sedimentation, invasive fauna, *Phytophthora* Dieback, and illegal dumping of rubbish.

Two detailed field assessments of the flora and vegetation of the Boydell Road, SLK 0 - 11.83 survey area was undertaken by Shire of Esperance botanists:

- Section 1 - SLK 0-6 was conducted between the 5th and 7th of October 2020
- Section 2 -SLK 6-11.83 was conducted over the 25th October to 2nd November 2022

Both surveys were carried out in accordance with methods outlined in Technical Guidance – Flora and vegetation surveys for environmental impact assessment (EPA 2016). All botanists held valid collection licences to collect flora for scientific purposes, issued under the BC Act.

The methodology for assessing threatened and priority flora consisted of traversing by foot the entire 'Boydell Road, SLK 0 - 11.83' survey area. The road was used as a continuous transect. Vegetation up to 5 meters from the edge of the existing road's back-slope was assessed to accurately cover the 2 m width proposed clearing permit area. recording all species, and collecting all but the very common, well known species.

For PF or TF species identified in the desktop survey as possible to occur, scans of pressed specimens from either the WAH or local Esperance District Herbarium were taken into the field. Suitable associated habitat for TF or PF identified in the desktop study were particularly focused on, and extensively searched. If suspected or known conservation significant flora species were encountered, a specimen was collected for subsequent identification with GPS coordinates and plant numbers recorded for the population. During the survey, a field herbarium for 'Boydell Road, SLK 0 - 11.83' was also constructed.

All species unknown in the field were collected, pressed and dressed in accordance with WAH instructions, and later identified by SOE's three Botanists, using keys, WA Herbarium's Florabase, literature and Esperance District Herbarium. Any species that were unable to be identified were submitted to the WAH for identification. Nomenclature of the species recorded is in accordance with the WAH.

A follow up survey was conducted on 14th of November 2022 by Katherine Walkerden and Julie Waters to specifically target the identification and counting of *Kunzea salina*, *Darwinia* sp. Gibson and *Persoonia scabra*.

The vegetation communities of 'Site H – Boydell Road, SLK 0 - 11.83' was assessed for the presence of a TEC or PEC (DBCA 2018, 2021) comparing that to descriptions in approved conservation advice for these communities.

Specifically, the site was assessed for the Environmental Protection and Biodiversity Conservation Act 1999 listed 'Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongan)' TEC. The presence of Kwongan was identified using diagnostic characteristics defined in the 'Approved Conservation Advice for Kwongan (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 33 (DBCA 2022)' definitions.

As 'Site H – Boydell Road, SLK 0 - 11.83' is a long linear site, quadrant-based data was not used to determine if the site meet the Kwongan TEC definitions. This was due to the inability to site an appropriately sized quadrant (As per Table 1, Technical Guidance – Flora and vegetation surveys for Environmental Impact Assessment (EPA 2016) within the narrow road verge area.

To determine if there were any occurrences of the State listed 'Swamp Yate, *Eucalyptus occidentalis*, woodlands in seasonally inundated clay basins in the South Coast of Western Australia' PEC, potential matching vegetation types were assessed against the original vegetation community description used for nominating the 'Swamp Yate, *Eucalyptus occidentalis*, woodlands in seasonally inundated clay basins in the South Coast of Western Australia' PEC (Table 10).

Only a basic fauna survey was conducted as per EPA (2020) guidelines. Observations of fauna presence, such as call sounds, footprints and scats were noted, and the area assessed for suitability of habitat within 'Site H – Boydell Road, SLK 0 - 11.83' for fauna species identified in the desktop survey. Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) feeding, roosting and nesting habitat was also assessed using EPBC Act referral guidelines (2022).

3.3 Survey Timing

According to Table 3 in the Technical Guidance – Flora and vegetation surveys for Environmental Impact Assessment (EPA 2016), the primary survey timing for the South-west and Interzone Botanical Province is Spring (September-November). As all surveys at 'Boydell Road, SLK 0 - 11.83' were conducted in October and November, it falls within this period. The surveys were timed, where possible, to align with peak flowering periods of conservation significant flora with the potential to occur in the 'Boydell Road, SLK 0 - 11.83' survey area.

The 2022 spring rainfall was above average, and hence spring flowering continued for an extended period in 2022.

3.4 Vegetation Descriptions

Vegetation community was assessed during the field survey. Broad vegetation types defined by structure and composition were recorded and described using the National Vegetation Information System (NVIS) (ESCAVI 2003) classification system.

Condition of vegetation was assessed using Table 2 of the Technical Guidance – Flora and vegetation surveys for Environmental Impact Assessment (EPA 2016) categories, as ‘Excellent’, ‘Very Good’, ‘Good’, ‘Degraded’ or ‘Completely Degraded’. This illustrates how healthy vegetation is, determined by vegetation structure, weed cover, presence of dieback, historical clearing, grazing and other signs of disturbance.

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.

3.5 Survey Limitations

A general assessment was made of the survey against a range of factors that may have limited the outcomes and conclusions of this report (Table 2). Based on this assessment, the present survey has not been subject to constraints which would affect the thoroughness of the survey, and the conclusions which have been formed.

Table 2. Potential limitations affecting the conclusions made in this report.

Potential Survey Limitation	Impact on Current Survey
Availability of contextual information at a regional and local scale	Not a limitation: Reference resources such as Beard’s mapping, together with online flora and vegetation information, have provided an appropriate level of information for the current survey. The vegetation of the Esperance shire has previously been mapped by Beard (1976).
Resources (i.e. were there adequate resources to complete the survey to the required standard).	Not a constraint: Adequate resources were made available by Shire of Esperance to complete the surveys.
Competency/experience of team carrying out survey; experience in the bioregion surveyed	Not a limitation: Botanists had extensive experience working within the Shire of Esperance and wider areas. Two of the botanists have consistently worked within this bioregion for more than 15 years. Botanists were familiar with flora in the area. Any unknown or potential threatened or priority flora species were collected and identified, utilising resources available at the Western Australian Herbarium and consultation with expert taxonomists. Part of Section 1 (0-1.19 SLK) was re-surveyed in 2022 as the original survey was done using inexperienced staff (Danika Penson). This was the only part of Section 1 that contained good quality vegetation.
Proportion of flora collected and identification issues	Potential limitation: While many plants were in flower during the survey, a proportion of plants encountered

	during the survey were sterile and may impact the chance of identification of some specimens to species level. Orchid species may not emerge each year if conditions are not favourable. Although these may affect the completeness of the species list, it is not expected to have a significant effect on mapping reliability, nor on the identification of threatened and priority species in the area as the majority were perennial species. Surveys were only undertaken in one year
Effort and extent of survey	Potential limitation: The survey area was thoroughly covered. The threatened and priority flora search undertaken by botanists by means of foot-traverse between vegetation quadrat sites ensured thorough coverage of the survey area. Flora that was unknown or resembled threatened or priority flora were collected, the location and habitat noted, and the number of plants estimated.
Mapping reliability	Not a constraint. Handheld GPS units were used for the survey, which for a majority of field conditions have an accuracy level of ± 5 m.
Survey timing, rainfall, season of survey	Not a limitation: The EPA (2016a) recommends that flora and vegetation surveys in the South – West Botanical Province be conducted in Spring (September-November). All surveys have been conducted in October and November which falls within this period. Rainfall in 2022 was above average, and continued well into December.
Disturbances (fire/flood/clearing)	Not a limitation: The Boydell Road, SLK 0 - 11.83 survey area has not been impacted by any recent fire or flooding events.

4 DESKTOP ASSESSMENT RESULTS

4.1 Climate

The Esperance climate is described as Mediterranean, characterised by cool wet winters and dry warm summers (BoM 2022). The area receives an average annual rainfall of 618 mm. The Shire of Esperance received an unusually high level of rainfall in 2022 resulting in an extended flowering period.

4.2 Catchment

'Site H – Boydell Road, SLK 0 - 11.83' is present within the Lake Gore catchment area. It is located approximately 32km from the coast.

4.3 Geology, Soils and Topography

Five geological units were identified within 'Site H – Boydell Road, SLK 0 - 11.83', by Schoknecht et al. (2004). They are:

- Tertiary marine sediments of the Pallinup formation
- Tertiary marine sediments of the Pallinup formation over granite and gneiss bedrock
- Tertiary marine sediments with aeolian carbonate rich deposits in places
- Tertiary sediments with colluvium and alluvium deposits. Patches of granitic rock and Aeolia

Within the area, there has been six soil types recorded. These are:

- Complex of yellow, yellow solonetzic and red duplex soils
- salt affected soils with surface salt crusting
- Solonetzic, yellow sodic, alkaline, duplex soil
- Duplex red-brown columnar soil complex
- Red, sodic, alkaline, gradational soil, with crabhole gilgai microrelief
- Red, sodic, alkaline, gradational soil

Within the area, there has been five soil types recorded. These are:

- Gently undulating, 1-3% slope
- Gently undulating plain, 1-3% slope
- Level plain, <1% slope
- Open depressions and ephemeral water courses
- Valley slopes, 2-15% slope

4.4 Regional Vegetation

'Site H – Boydell Road, SLK 0 - 11.83' is located on the boundary between two Interim Biogeographic Regionalisation for Australia (IBRA; Thackway & Cresswell 1995) regions; the Recherche subregion (Esp2) and the Eastern Mallee (Mal01) subregion.

The Esp2 region is described as "Proteaceae Scrub and Mallee heaths on sandplain overlying Eocene sediments, rich in endemics. Herbfields and heaths (rich in endemics) on abrupt granite and quartzite ranges that rise from the plain. Eucalyptus woodlands occur in gullies and alluvial foot-slopes".

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) mapped two vegetation associations (VA) within the 'Site H – Boydell Road, SLK 0 - 11.83' (Table 3). Vegetation association 47 has been highly cleared having 13% of its original extent remaining within the Shire of Esperance, Ridley_516 has had significantly less clearance with 45% of its original extent remaining.

Table 3. Vegetation associations mapped by Beard (1973) within the 'Site H – Boydell Road, SLK 0 - 11.83', and statistics on pre-European remaining areas.

Vegetation Association		
Name	Ridley_516	Esperance_47
Description	Eucalypt shrubland Eucalyptus eremophila, E. redunca, E. spp.	Mixed heath with scattered mallee e.g. tallerack Eucalyptus tetragona
Total remaining	54.80	35.86
Pre-European extent in IBRA sub-region (%)	48.68	15.06
Pre-European extent in LGA (%)	44.92	13.43
Current extent conserved in IUCN area (%)	24.00	17.68

4.5 Surrounding Land Use

The area directly included in the clearing permit application 'Site H – Boydell Road, SLK 0 - 11.83' is currently intact and vegetated 40 m wide road reserve, managed by the Shire of Esperance. The current road footprint occupies 15 m. The surrounding land use is agricultural. The area is within rural zoning.

The site was 5.98km from Speddingup Nature Reserve (Reserve 25958) closest conservation reserve. No other conservation vested reserves were within 10 km of the site.

4.6 Potential Threatened and Priority Flora

5 threatened flora (TF) and 54 priority flora (PF) were recorded within a 20 km radius of the proposed impact site (Appendix 3)). Of these, no TF species and 37 PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of 'Site H – Boydell Road, SLK 0 - 11.83' project.

4.7 Potential 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 'Site H – Boydell Road, SLK 0 - 11.83' project area. No other TEC's or priority ecological communities (PEC) were identified by the desktop study as being within 'Site H – Boydell Road, SLK 0 - 11.83' or within a 20 km buffer of the site.

4.8 Potential Threatened and Priority Fauna

30 conservation listed fauna were recorded within a 20 km radius of the proposed impact site, an additional 6 species were recorded on the EPBC protected matters tool (Appendix 4)).

4.9 *Phytophthora* Dieback

Dieback Information Delivery and Management System (DIDMS; GAIA Resources, SCNRM & State NRM 2022) data shows no *Phytophthora cinnamomi* or other *Phytophthora* sp. Dieback sampling in the immediate area.

5 FIELD SURVEY RESULTS AND DISCUSSION

5.1 Flora

A total of 366 vascular plant taxa from 197 plant genera and 57 plant families were recorded within the 'Boydell Road, SLK 0 - 11.83' survey area during the 2020-2022 survey. The majority of taxa was recorded within the Myrtaceae (58 taxa), Fabaceae (57 taxa), Proteaceae (32), Poaceae (24 taxa) and Asteraceae (23 taxa) families. This total included 318 native species and 51 introduced (weed) species. (see Appendix 1 for the complete incidental species list).

Numerous specimen's unknown to surveyors were collected and verified at the WAH as non-threatened species, such as:

- *Schoenus subflavus* (Accession 8652; KW115, Specimen not retained)
- *Leucopogon assimilis* s. lat (Accession 10048; KSW23122, Specimen retained)
- *Brachyscome iberidifolia* (Accession 10048; KSW23222, Specimen retained)
- *Frankenia sessilis* (Accession 9857; KSW17022, Specimen retained)
- *Hyparrhenia hirta* (Accession 9874; KSW20222, Specimen retained)

A number of plant specimens collected could not be identified accurately to species level due to the absence of sufficient taxonomic characters to enable accurate identification. The principal reasons for not being able to fully identify some of the collected specimens to species level were:

- Plant material was sterile or lacked sufficient taxonomic features to permit accurate identification to species level. In these cases, the species is identified as, for example, *Tecticornia* sp.; and
- The plant material collected could not be determined to a known taxon. For example, *Lepidosperma* sp. (as species are currently undergoing taxonomic revision).

5.2 Threatened and Priority Flora

No TF species, were identified within the clearing footprint. In addition, the targeted flora survey identified 7 PF species, 3, within the proposed clearing permit footprint (Table 4). Queries of spatial datasets were requested specifically for these species, to interrogate impact of proposed works on species sustainability (DBCA 2022c; DBCA 2022d; DBCA 2021a). There are 136 species recorded as priority three or four conservation status within the Shire of Esperance boundaries (DBCA 2022a). It was noted that additional information on *Persoonia scabra* and *Grevillea baxteri* was located on file.

Table 4. Summary of Priority flora species recorded in Site H – Boydell Road, SLK 0 - 11.83 project area.

Species	Conservation Code	Total Plants	Total taking
<i>Darwinia</i> sp. Gibson	P1	44	4
<i>Austrobaecka uncinella</i>	P3	1	0
<i>Brachyloma mogin</i>	P3	5	0
<i>Daviesia pauciflora</i>	P3	3	0
<i>Kunzea salina</i>	P3	69	0
<i>Persoonia scabra</i>	P3	16	3
<i>Grevillea baxteri</i>	P4	3	1

5.2.1 *Darwinia* sp. Gibson, Priority 1

A specimen of *Darwinia* sp. Gibson was sent to the WA Herbarium for identification confirmation (KW091; Accession 8652; PERTH 09375430). It was confirmed as *Darwinia* sp. Gibson by Mike Hislop on the 10th of December 2020. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). If proposed works occur, 4 plants will be impacted upon, from a population total of 44.

Darwinia sp. Gibson has a total of 15 herbarium records and 14 TPFL records, with a total of 17 populations. A majority of records were within road reserves (14), two records were within private property, two records were within Reserve 35302 with its purpose currently being for gravel, this reserve is set to have its purpose changed to conservation. The species currently known to occur within an 89km east to west range and 27km north to south range.

Table 5. Known Herbarium records of Priority 1 species *Darwinia* sp. Gibson, detailing location details, frequency, tenure and collection date (DBCA, 2023).

Sheet number/ TPFL population number	Location	Frequency	Tenure	Record date
1288784	3 miles N of Gibson		Unclear	10/08/1951
6466710 Population 10	W side of rail line, between and adjacent to track, 10.5 km NNW of Gibson by rail		Rail reserve	1/07/2003
6796850 Population 9	22.8 km NW along Scaddan Road from junction of Backman Road, part of Bandy Creek catchment, ca 50 km NW of Condingup	Occasional.	Road reserve	26/05/2005

Population 3	Private Property, Lot 102. 3km W along Griffiths rd from junction of Coolgardie-Esperance rd, Ca. 20km NNW of Gibson. [Ca. 5km SW of Scaddan]. Shire of Esperance.	50 plants	Private property	06/07/2006
Population 7	Private Property, Lot 1809. 5.2km W along Fleming Grove rd from junction of Dempster rd. [Ca. 14km NE of Gibson]. [Ca. 23km SE of Scaddan]. Shire of Esperance.	20 plants	Private property	06/07/2006
Population 5	Yates Road. 2.1km N along Yates rd from junction of Fleming Grove rd. [Ca. 14km NE of Gibson]. [Ca. 20km SE of Scaddan]. Shire of Esperance.		Road reserve	06/07/2006
Population 8	Mount Ridley Nature Reserve (27386), Lot 271. `Norwood Nature Reserve`. 1.8km S along Dempster rd from junction of Norwood rd, 32km NE of Gibson. [Ca. 27km E of Scaddan]. Shire of Esperance.	100 plants	Nature reserve	06/07/2006
7362145 Population 4	15 km SE of Scaddan, 10 km W along Speddingup Road from junction of Dempster Road	occasional, ca 20 plants.	Road reserve	21/06/2006
7362250 Population 6	12 km NE of Gibson, road verge, 1 km N along Yates Road from junction of Fleming Grove Road	locally frequent ca 40 plants.	Road reserve	27/06/2006
7362080 Population 2	20 km SSE of Scaddan, 1.5 km N along Styles Road from junction of Scaddan Road	occasional, ca 30 plants.	Road reserve	6/07/2006
8273928	1 km N along Yates Road from Fleming Grove, E side of road, on shire road verge extending into private property, Esperance	50+ plants.	Road reserve	26/07/2010
8379777 Population 13	Scaddan Road, Scaddan	over 50 plants.	Road reserve	30/06/2012
8796750	100 m NE along Karl Berg Road, around salt lake on N side of the road, from the intersection of Heywood and Karl Berg Roads	21 - 50 plants.	Road reserve	29/05/2013
9375368	On eastern road reserve, c. 51 km N of Esperance townsite, on Styles Road 2.6 km S of Norwood Road	10 plants (3 will be taken with road reconstruction activity).	Road reserve	15/10/2020

9375481 Population 12	5.6 km N of Scaddan Road on Dempster Road, on N side of lake, E side of road	10 plants.	Road reserve	16/10/2020
Population 1	UCL, Lot 1992. 3.5km N along Styles rd from junction with Scaddan rd. [Ca. 19km E of Scaddan]. Shire of Esperance.	1600 plants	Road reserve	06/07/2006
Population 15	Shire Road Reserve, along Styles Rd. Ca 3.4km N along Styles Rd from Scaddan Rd intersection. Along Eastern verge of road	10 plants	Road reserve	15/10/2020
Population 14	Shire Road Reserve, along Styles Rd. Ca 2.6km S along Styles Rd from Norwood Rd intersection. Along Eastern verge of road	10 plants	Road reserve	15/10/2020
9511059	Northern section of Reserve 35302, 550 m N of Fleming Grove Road and 70 m W of freight line	locally common, surrounding each salt lake.	Shire reserve (Land use currently changing from gravel to conservation)	8/06/2022
9511105	Reserve 35302, off access track, 750 m S of Fleming Grove Road, 900 m W of Freight line	locally common on embankment and access track.	Shire reserve (Land use currently changing from gravel to conservation)	22/06/2022
9518193	Karl Berg Road		Road reserve	9/10/2022
9518304	Mount Ridley Nature Reserve		Nature reserve	10/10/2022

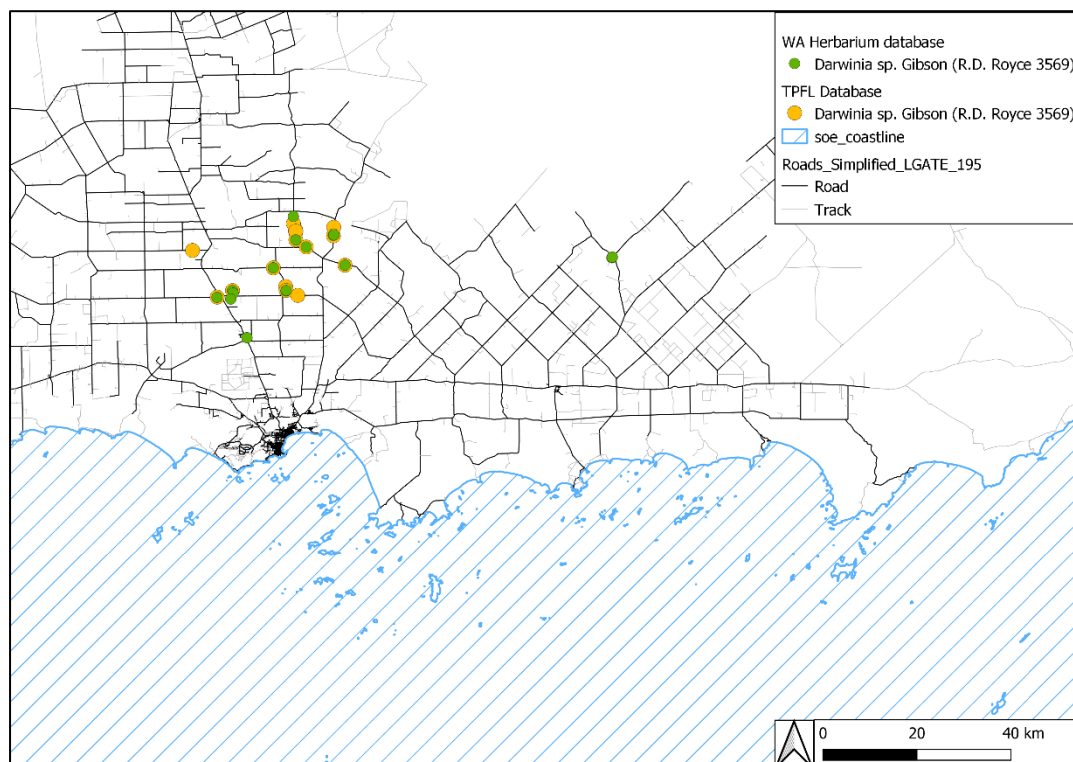


Figure 2. Known records of Priority 1 species *Darwinia* sp. Gibson across an 89 km east to west geographic range (DBCA 2022).



Figure 3. Location of Priority 1 species *Darwinia* sp. Gibson within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

5.2.2 *Austrobaekea uncinella*, Priority 3

A specimen of *Austrobaekea uncinella* was sent to the WA Herbarium for identification confirmation (KSW20622; Accession 9874; PERTH 09375430). It was confirmed as *Austrobaekea uncinella* by Mike Hislop on the 23rd of January 2023. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). If proposed works occur, no plants will be impacted upon.

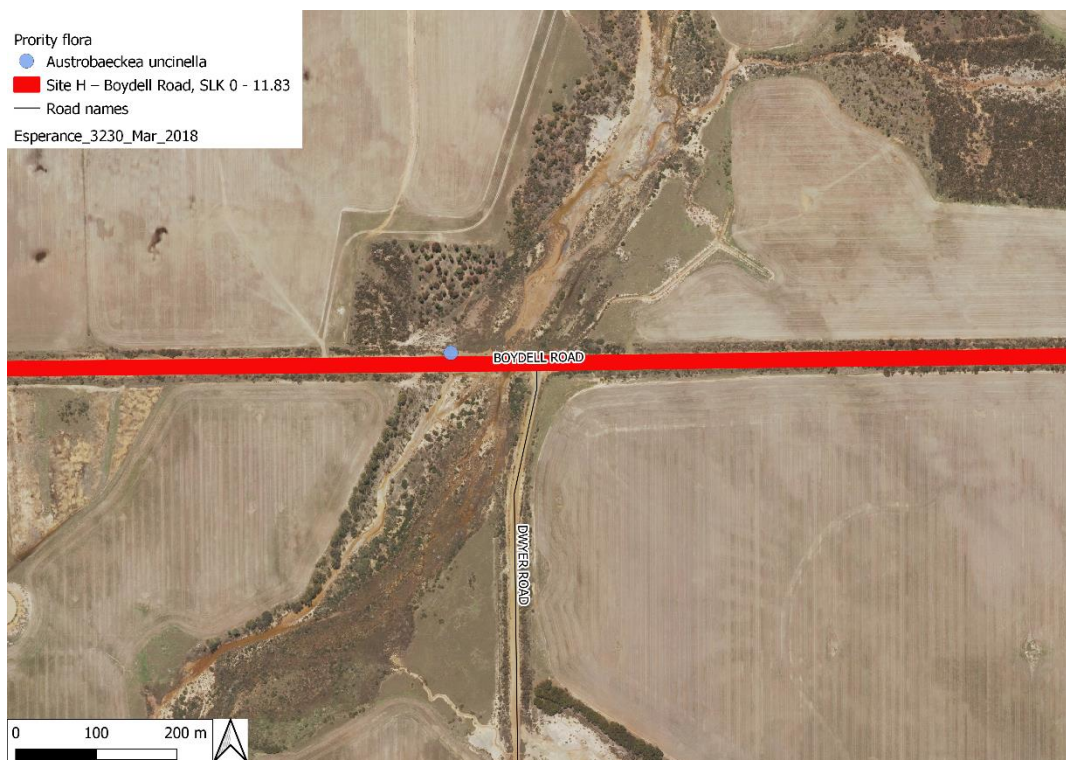


Figure 4. Location of Priority 3 species *Austrobaekea uncinella* within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

5.2.3 *Brachyloma mogin*, Priority 3

A specimen of *Brachyloma mogin* was sent to the WA Herbarium for identification confirmation (KW1121; Accession 9116; specimen not retained). It was confirmed as *Darwinia* sp. Gibson by Mike Hislop on the 23rd of September 2021. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). There was a total of 5 plants found during the survey. No plants will be impacted upon.



Figure 5. Location of Priority 3 species *Brachyloma mogin* within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

5.2.4 *Daviesia pauciflora*, Priority 3

A specimen of *Daviesia pauciflora* was sent to the WA Herbarium for identification confirmation (KSW16922; Accession 9857; specimen retained). It was confirmed as *Daviesia pauciflora* by Mike Hislop on the 10th of January 2023. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). There was a total of 3 plants found during the survey. No plants will be impacted upon.

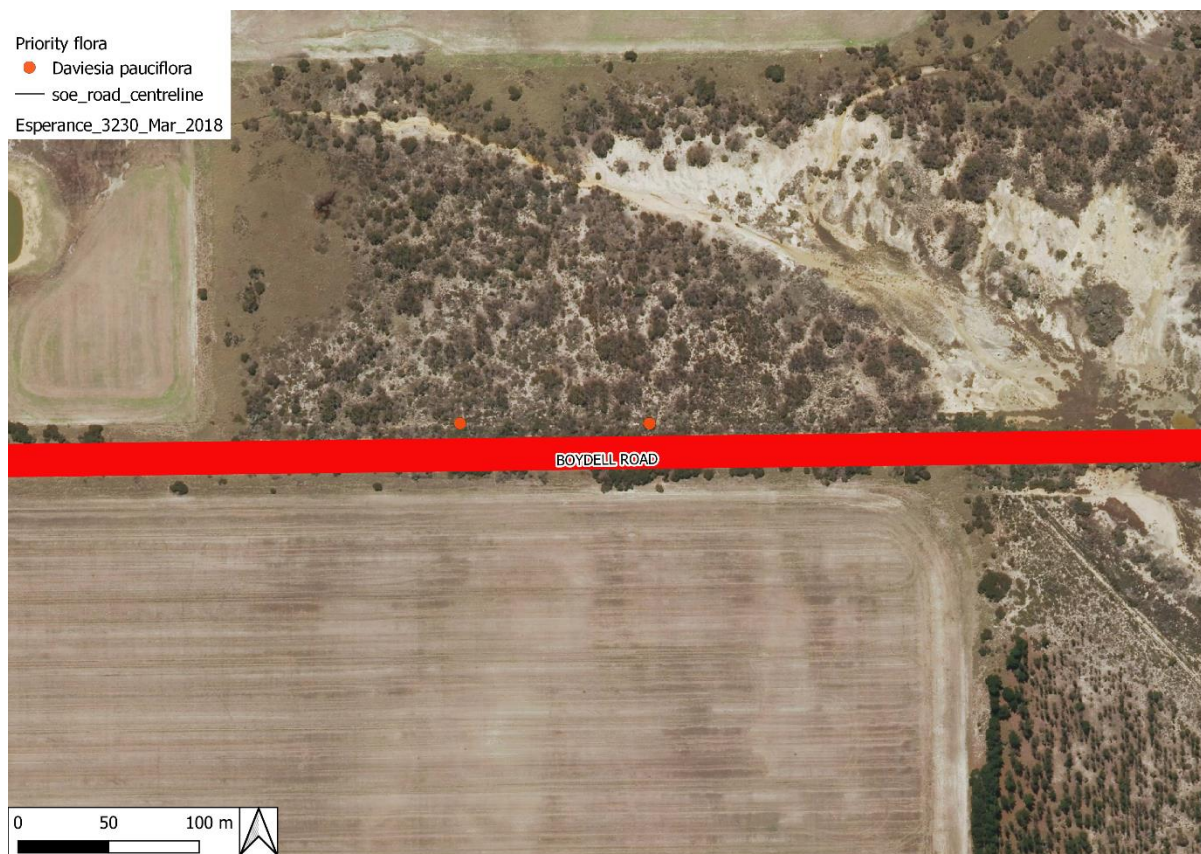


Figure 6. Location of Priority 3 species *Daviesia pauciflora* within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

5.2.5 *Kunzea salina*, Priority 3

A specimen of *Kunzea salina* was sent to the WA Herbarium for identification confirmation (KSW21222; Accession 9874; specimen retained). It was confirmed as *Kunzea salina* by Mike Hislop on the 23rd of January 2023. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). There was a total population of 69 plants. No plants will be taken during the survey.



Figure 7. Location of priority 3 species *Kunzea salina* within the 'Site H - Boydell Road, SLK 0 - 11.83' project.

5.2.6 *Persoonia scabra* Priority 3

Specimens of *Persoonia scabra* were sent to the WA Herbarium for identification confirmation, a specimen was collected for each of the four populations.

- Eastern population (SLK 0-0.24) (KW092; Accession 8652; PERTH 09375449). It was confirmed as *Persoonia scabra* by Michael Hislop on 10/12/2020.
- Eastern Central population (SLK 3.49-3.51) (KW094; Accession 8652 with specimen not retained). It was confirmed as *Persoonia scabra* by Michael Hislop on 10/12/2020.
- Western Central population (SLK 6.29-6.71) (KSW20322; Accession 9874 with specimen not retained). It was confirmed as *Persoonia scabra* by Michael Hislop on 23/01/23.
- Western population (SLK 7.94) (KSW20322; Accession 9874 with specimen retained). It was confirmed as *Persoonia scabra* by Michael Hislop on 23/01/23.

Threatened and Priority Reporting Forms (TPRF) were completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). If proposed works occur, 3 plants will be impacted upon, from a population total of 16.

There was a total of 20 prior Herbarium records for this species, nine of these records were secure in National Parks. *Persoonia scabra* has a wide range spanning over 250km east to west, with populations recorded in the Shire of Esperance and Ravensthorpe. The largest population had a total of 15 plants listed with most populations having between 1-5 plants, similar to that seen within the survey area. Soil in the previous records were frequently sand or sand over gravel with several specimens in rehabilitated gravel pits. Previous records were also frequently for Mixed Mallee shrublands consistent with parts of the site.

An additional 8 populations have been found by shire of Esperance staff throughout 2022, all of these populations were found within shire road reserves.

Table 6. Confirmed records of Priority 3 species, *Persoonia scabra* found by Julie Waters and Katherine Walkerden during 2022.

Herbarium reference	Location	Frequency	Tenure	Record date	Confirmative
KSW039-p ACC 9604	Western side of Salt lake 7.5km north of Dempster Road and Ridley Road intersection.	15 seen scattered throughout reserve. Population likely higher	Road reserve	29/05/2022	Rob Davis
KSW9522 ACC 9690	Loop road at SLK 2.48	single specimen found	Road reserve	22/07/2022	Mike Hislop
KSW132-p ACC 9713	Wittenoom road at SLK 9.03, on both sides of road.	3 plants	Road reserve	5/08/2022	Rob Davis
KSW137-p ACC 9713	Burdett Road SLK 4.27, North side of road.	5 plants seen.	Road reserve	05/08/2021	Rob Davis

KSW16622 ACC 9841	Heywood road at SLK 0.75. Eastern side of road.	2 plants seen, area not searched.	Road reserve	10/10/2022	Mike Hislop
KSW16722 ACC 9841	Heywood road SLK 4.75. Eastern side of road.	1 Plant found during survey.	Road reserve	12/10/2022	Mike Hislop
KSW20322 ACC 9874	Boydell road, Northern side of road, 6.27km West of Boydell road and Coolgardie-Esperance Highway Intersection. 13.4km North West of Gibson Townsite.	5 plants found during survey.	Road reserve	25/10/2022	Mike Hislop
KSW20422 ACC 9874	Boydell road, Northern side of road, 7.92km West of Boydell road and Coolgardie-Esperance Highway Intersection. 14.8km North West of Gibson Townsite.	3 plants in population. 2 plants in close proximity, 3rd plant 400 m West of collected specimen.	Road reserve	25/10/2022	Mike Hislop

Table 7. Known Herbarium records of Priority 3 species *Persoonia scabra*, detailing location details, frequency, tenure and collection date (DBCA, 2023).

Locality	Tenure	Date	Frequency
SW portion of reserve 35302, off access track, S of Fleming Grove Road, W of freight line	Shire reserve (Land use currently changing from gravel to conservation)	08/06/2022	15 plants scattered throughout reserve
86 km E of Esperance, 24 km E of Condingup on Henkes Road, c. 4.3 km E of Howick Road intersection	Shire Road Reserve	8/10/2020	
44-290 m W of Coolgardie-Esperance Highway on Boydell Road, southern road reserve, 35 km N of Esperance	Shire Road Reserve	7/10/2020	5 plants.
On Norwood Road from intersection of Dempster Road to 20 m E, 28 km E of Scaddan, c. 50 km NNE of Esperance townsite	Shire Road Reserve	10/09/2019	> 3 plants.
Cape Le Grand National Park, proposed Lucky Bay redevelopment site	National Park	15/09/2014	
3.4 km NW from the northwestern boundary of Kau Rock Nature Reserve	UCL	3/11/2013	1 plant.
Helms Forestry Reserve 23527, bushland slashed access track travelling SE to S boundary	Timber Reserve	2/01/2012	2-5 plants.
New Island Bay, 2.3 km W of Hellfire Bay carpark, 1.9 km SE of Mt Le Grand summit, 7.1 km WSW of Lucky Bay campsite, Cape Le Grand National Park, 29 km SE of Esperance township, Esperance Plains IBRA bioregion	National Park	26/11/2011	occasional, 1 plant seen.
2.1 km W of Hellfire Bay carpark, 1.9 km SE of Mt Le Grand summit, 7.0 km WSW of Lucky Bay campsite, Cape Le Grand National Park, 29 km SE of Esperance township, Esperance Plains IBRA bioregion	National Park	26/11/2011	occasional, 1 plant seen.

New Island Bay, 2.5 km WSW of Hellfire Bay carpark, 1.8 km SE of Mt Le Grand summit, 7.4 km WSW of Lucky Bay campsite, Cape Le Grand National Park, 28 km SE of Esperance township, Esperance Plains IBRA bioregion	National Park	21/10/2011	occasional, 4 plants and 2 seedlings seen.
86.8 km E of Lake King General Store along Norseman Lake King track. Roe District	National Park	31/12/2001	15 plants noted.
26.5 km N of Condingup. Corner of Coolinup Road and Howick Road, NE of Esperance,	Shire Road reserve	31/12/1995	
W end of Dunns beach	National Park	2/12/1992	
5.5 km SW of Mount Ridley	UCL	7/12/1991	
35.5 km due ENE of Muckinwobert Rock 6.21 km NE of Melaleuca Road on West Point Road	Shire Road Reserve	30/09/1984	
23.5 km due SSE of Kau Rocks, 3.1 km NE of intersection 3 on Condingup Road	Shire Road Reserve	2/09/1984	
12 km SW of Mount Buraminy, ca 40 km WNW of Mount Ragged	UCL	8/11/1980	a single plant.
42 km NE of Swallow Rock, Frank Hann National Park, ca 83 km NE of Lake King	National Park	21/08/1980	
32 km NE of Swallow Rock, Frank Hann National Park, ca 84 km ENE of Lake King	National Park	1/08/1980	
72 km W of Salmon Gums	Uncertain, no accurate geographic details	11/11/1979	
Frank Hann National Park	National Park	4/08/1978	

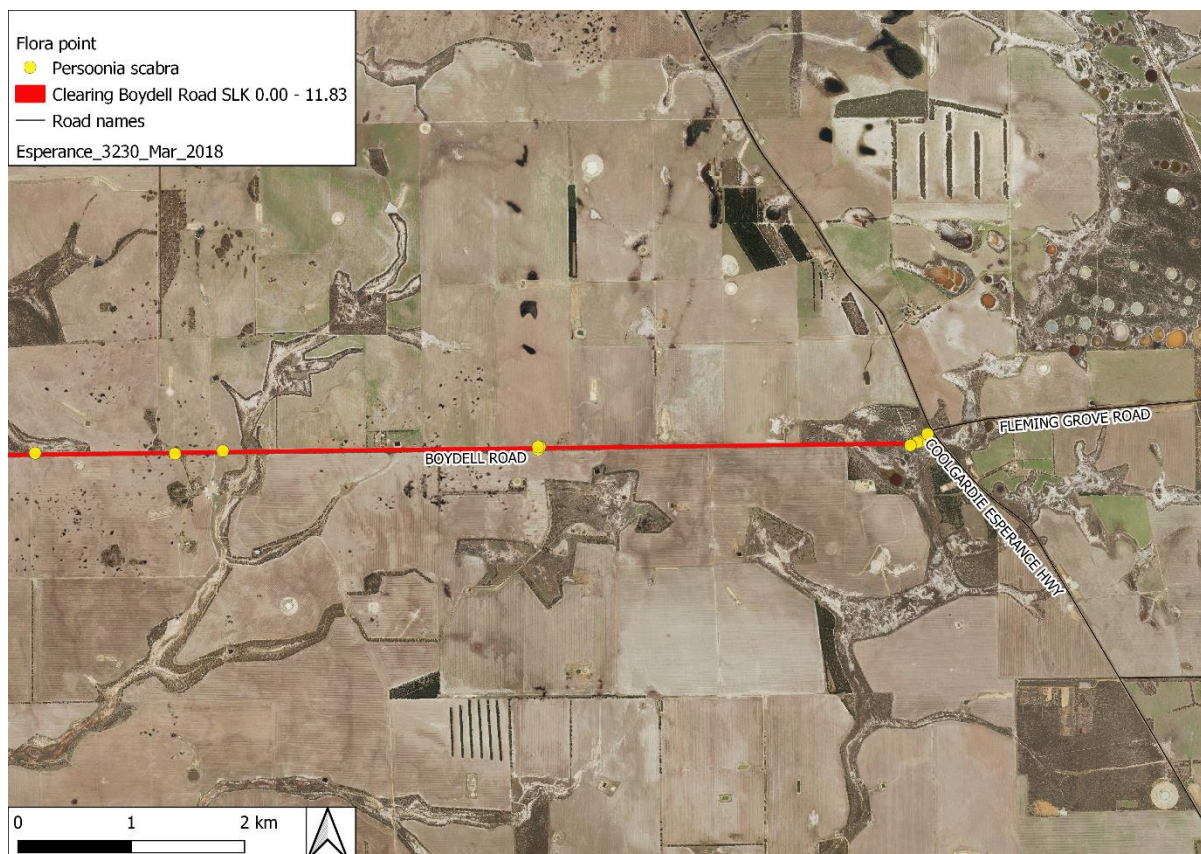


Figure 8. Location of Priority 3 species *Persoonia scabra* within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

5.2.7 *Grevillea baxteri*, Priority 4

A specimen of *Grevillea baxteri* was sent to the WA Herbarium for identification confirmation (KSW1221 Accession 9116). It was confirmed as *Grevillea baxteri* by Mike Hislop on the 23rd of September 2021. A Threatened and Priority Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 29/03/2023 (Appendix 2). If proposed works occur, 1 plant will be impacted upon, from a population total of 3.

Grevillea baxteri is a widespread species with a 219km east to west and an 81km north to south range. The species has numerous known populations with a total of 47 herbarium records, 3 TPFL records. An additional 6 populations have recently been found by Shire of Esperance staff. *Grevillea baxteri* has numerous populations within Cape Arid National Park, Nuytsland Nature Reserve and surrounding unallocated crown land.

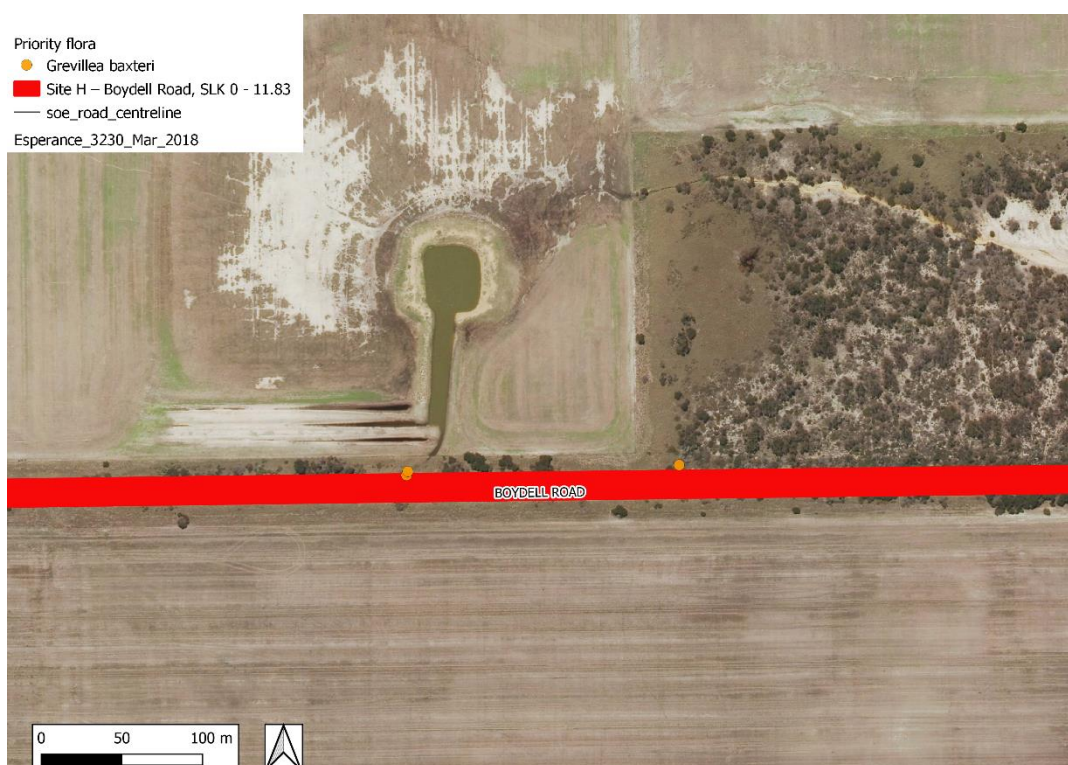


Figure 9. Location of Priority 4 species *Grevillea baxteri* within the 'Site H – Boydell Road, SLK 0 - 11.83' project.

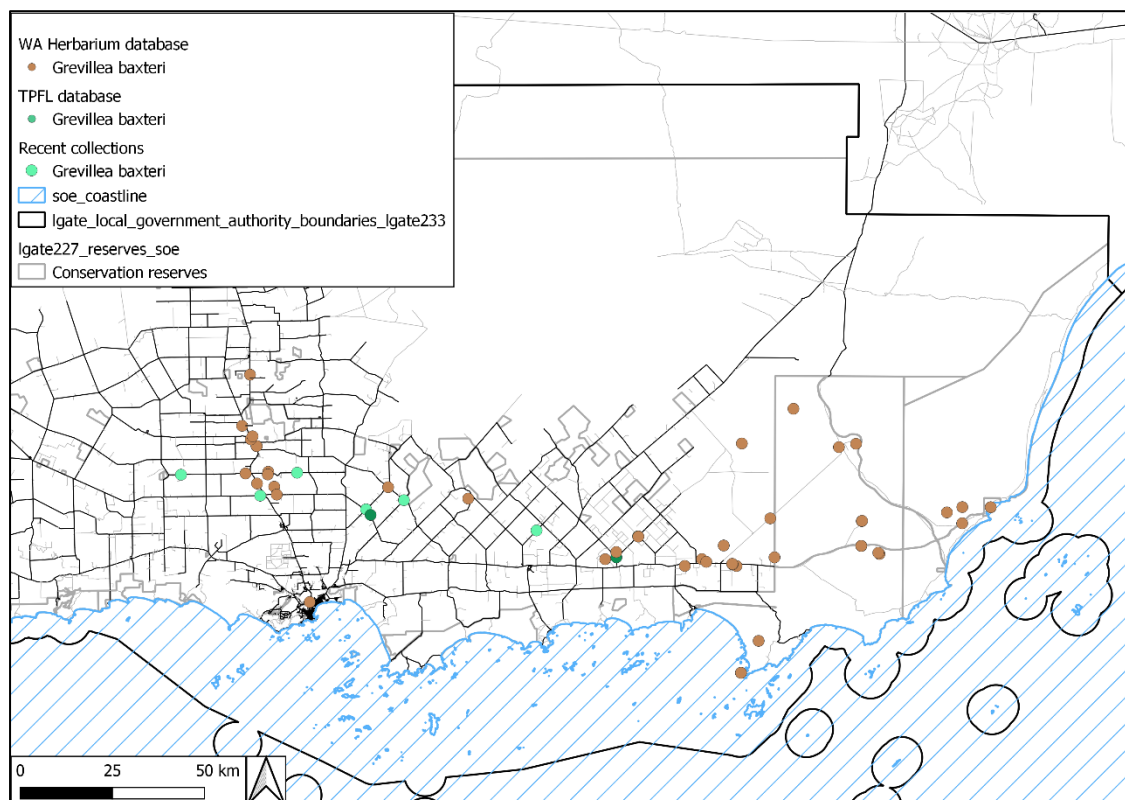


Figure 10. Known records of Priority 4 species *Grevillea baxteri* across a 219km east to west and a 81km north to south geographic range (DBCA 2022) including recently discovered populations by the Shire of Esperance.

5.3 Weeds

There was significant weed invasion across the entirety of the proposed 'Site H – Boydell Road, SLK 0 - 11.83' area. Overall, 51 invasive species were identified within the project area (Appendix 8.1). Of these, the most extensive and of serious concern were *Acacia pycnantha* and *Leptospermum laevigatum*, both weeds are priority environmental weeds in the Shire of Esperance's Environmental Weed Strategy 2009-2018. Ideally, regular wash downs during the course of works to remove weed seeds or follow up herbicide control of invasive species needs to occur.

Weed management strategies are currently being discussed operationally, such as spraying material stockpiles in agricultural private property prior to use and periodic spraying of road verges for a 12-month period after road construction.



Figure 11. *Acacia pycnantha* present in high numbers between SLK 6-11.83 within 'Site H – Boydell Road, SLK 0 - 11.83'.

5.4 Dieback

No signs of dieback presence were obvious within the project area, proteaceous species were present though not in high quantities, the proteaceous plant within the project area were healthy. Proposed works will be conducted using appropriate hygiene measures to limit spreading of the disease, including clearing in dry conditions and clean down of vehicles and machinery before entering the site.

5.7 Vegetation Communities

Seven vegetation communities were identified within the 'Site H – Boydell Road, SLK 0 - 11.83', as defined by structure and composition (Table 8). It is believed that the Beard (1973) vegetation associations identified in Section 4.4 are an appropriate match for 4 vegetation types observed. Vegetation association Ridley_516 and Esperance_47 both matched two of the vegetation types present within the project area, other vegetation types were too fine scale to have been mapped by Beard vegetation associations.

Table 8. Vegetation communities identified within proposed 'Site H – Boydell Road, SLK 0 - 11.83' project area.

Type	Description	Figure	Closest Matching Beard Vegetation Association	Area (ha)
A	<i>Melaleuca cuticularis</i> and <i>M. brevifolia</i> over mixed samphire's, <i>Austrostipa juncifolia</i> , <i>Disphyma crassifolium</i> .	14	-	0.069
B	Mallee woodland with <i>Hakea laurina</i> over mixed <i>Melaleuca</i> shrubland.	15	Ridley_516	1.067
C	<i>Eucalyptus occidentalis</i> woodland in valley floor.	16	-	0.134
D	<i>Eucalyptus occidentalis</i> and <i>Eucalyptus rigens</i> woodland.	17	Ridley_516	0.159
E	Mallee and <i>Eucalyptus pleurocarpa</i> over mixed shrubland with <i>Calothamnus quadrifidus</i> , <i>Melaleuca glaberrima</i> , <i>Allocasuarina</i> spp.	18	Esperance_47	0.092
F	<i>Eucalyptus occidentalis</i> over <i>Melaleuca cuticularis</i> wetland with mixed samphire's.	19	-	0.065
G	<i>Eucalyptus pleurocarpa</i> over mixed heath	20	Esperance_47	0.049

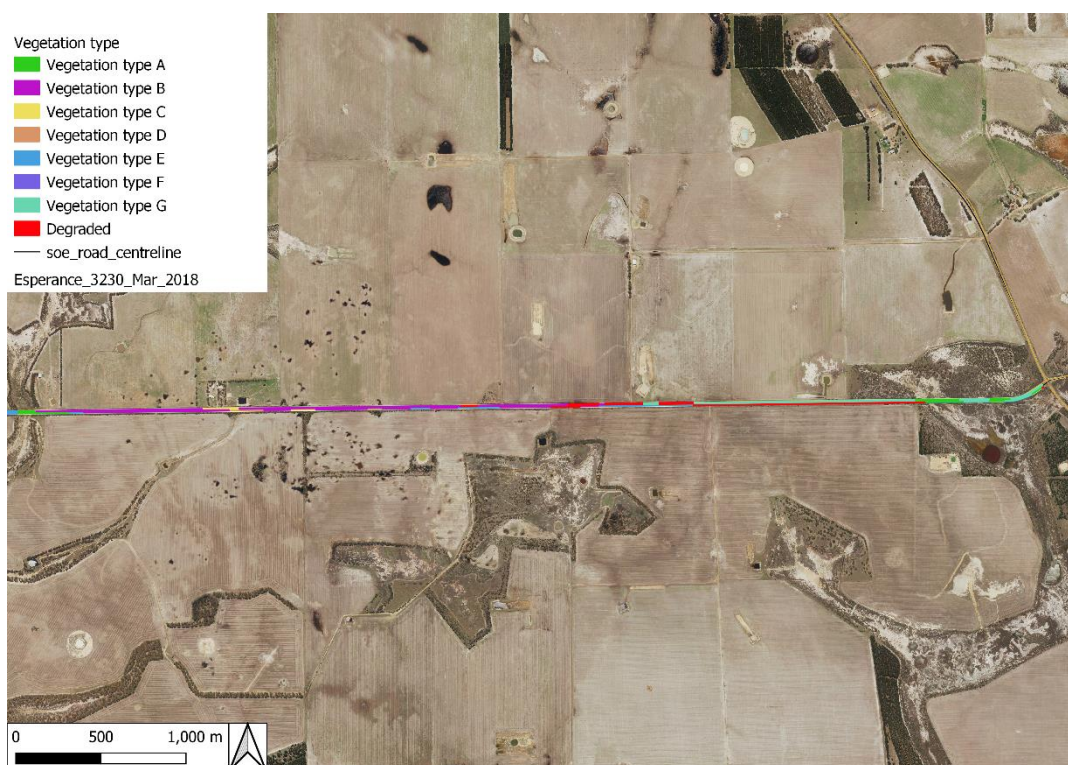


Figure 12. Vegetation types within the 'Site H – Boydell Road, SLK 0 - 11.83' area, from SLK 0 – 6.26.

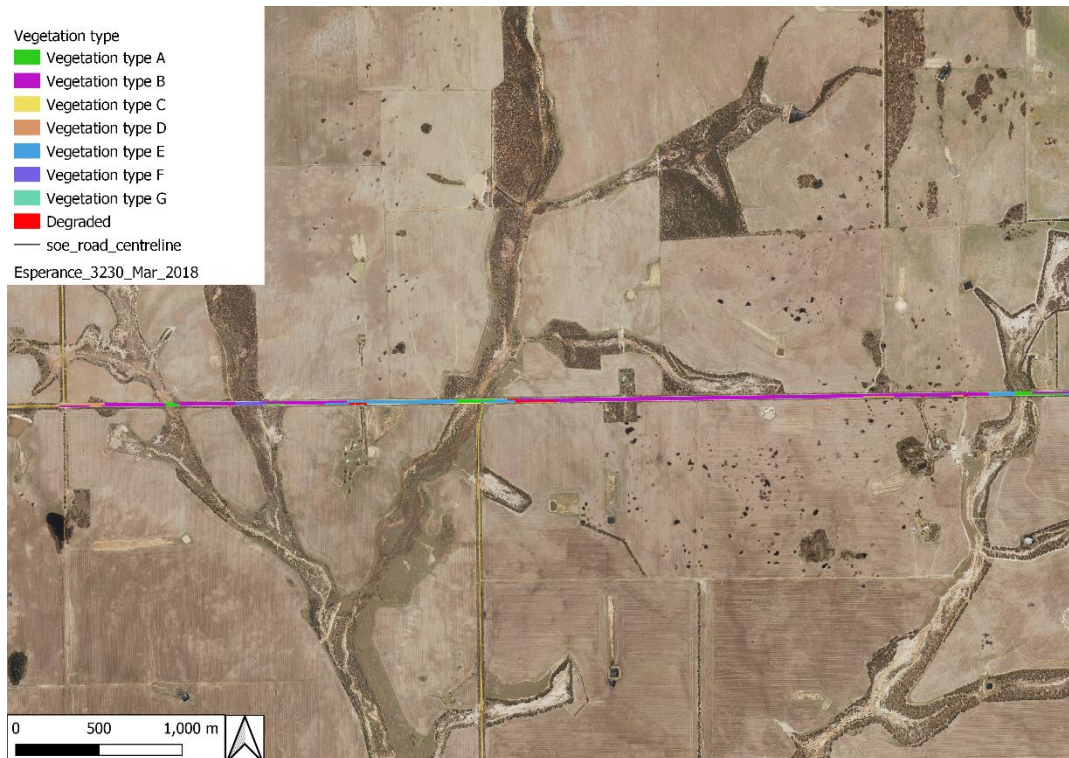


Figure 13. Vegetation types within the 'Site H – Boydell Road, SLK 0 - 11.83' area, from SLK 5.75 to 11.83.



Figure 14. Vegetation type A identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as '*Melaleuca cuticularis* and *M. brevifolia* over mixed samphire's, *Austrostipa juncifolia*, *Disphyma crassifolium*'.



Figure 15. Vegetation type B identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as 'Mallee woodland with *Hakea laurina* over mixed *Melaleuca* shrubland'.



Figure 16. Vegetation type C identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as '*Eucalyptus occidentalis* woodland in valley floor.'



Figure 17. Vegetation type D identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as '*Eucalyptus occidentalis* and *Eucalyptus rigens* woodland.'



Figure 18. Vegetation type E identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as 'Mallee and *Eucalyptus pleurocarpa* over mixed shrubland with *Calothamnus quadrifidus*, *Melaleuca glaberrima*, *Allocasuarina* spp.'



Figure 19. Vegetation type F identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as '*Eucalyptus occidentalis* over *Melaleuca cuticularis* wetland with mixed samphire's.'



Figure 20. Vegetation type G identified in 'Site H – Boydell Road, SLK 0 - 11.83' project, described as '*Eucalyptus pleurocarpa* over mixed heath.'

5.8 Vegetation Condition

Vegetation condition varies dramatically within the project area varies dramatically (Table 9). Large sections of the site had seen complete or near complete loss of vegetation structure, due to historical, weed invasion and spray drift. Vegetation condition was best in the area bordering remnant vegetation historical clearing was not evident.

Table 9. Quantifying vegetation to be cleared by vegetation type and condition

Vegetation Type	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
A	0.015	0.051	0.0112	0.017	-	0.093
B	-	0.856	0.211	0.001	-	1.067
C	-	-	0.110	-	-	0.110
D	-	0.086	0.073	-	-	0.159
E	-	0.062	0.030	-	-	0.092
F	-	-	0.066	-	-	0.066
G	0.005	0.028	0.003	0.014	-	0.049
-	-	-	-	0.022	0.084	0.105
Total	0.020	1.082	0.504	0.053	0.084	1.743



Figure 21. Vegetation condition across 'Site H – Boydell Road, SLK 0 - 11.83' project, from SLK 0 to 6.26

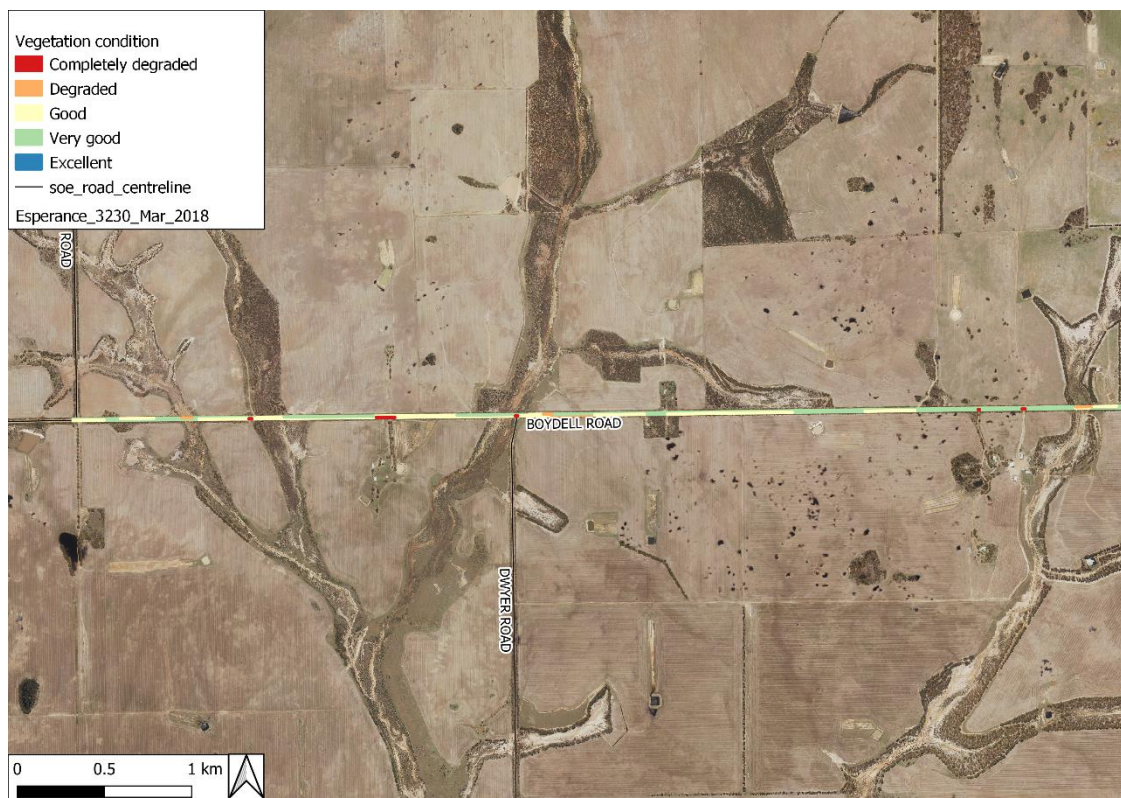


Figure 22. Vegetation condition across 'Site H – Boydell Road, SLK 0 - 11.83' project, from SLK 5.75 to 11.83.

5.9 Threatened Ecological Communities

Vegetation type G described as '*Eucalyptus pleurocarpa* over mixed heath' met criteria to be considered as 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)'. However, only areas within Vegetation type G in good condition or better were considered as Kwongkan TEC (Figure 23). In total, 0.036 ha of vegetation was considered as Kwongkan TEC present within 'Site H – Boydell Road, SLK 0 - 11.83' area.

Three vegetation types dominated by *Eucalyptus occidentalis* were present within Boydell road, these vegetation types were assessed against the original vegetation community description used for nominating the State listed 'Swamp Yate, *Eucalyptus occidentalis*, woodlands in seasonally inundated clay basins in the South Coast of Western Australia' PEC (Table 10). Vegetation type C was consistent with the PEC but one of its occurrences lacked an intact understorey, 0.043 ha of this vegetation type with an intact understorey was being cleared. Vegetation type F was somewhat consistent with the vegetation type differing in that it was surrounding a creek line and lacked a dense sedge layer 0.065 ha of this vegetation type will be cleared.

No other TECs or PECs were relevant to the site.

Table 10. Comparison between potential occurrences of the Swamp Yate PEC and listing documentation criteria “Swamp Yate, *Eucalyptus occidentalis*, woodlands in seasonally inundated clay basins in the South Coast of Western Australia” (Appendix 14).

Occurrence	Criterion 1: Abiotic Factors i) Occurs on valley floor; ii) Basin is more or less circular; iii) Seasonally inundated.	Criterion 2: Centre of basin inhabited by <i>Eucalyptus occidentalis</i> low woodland (often with an understory of <i>Melaleuca cuticularis</i>).	Criterion 3: Fringing the wetland is dense rushes and sedges.	Criterion 4: Peripheral to the central basin is a waterlogged zone of <i>E. occidentalis</i> associated with heath to open scrub and/or small trees. <i>Melaleuca calycina</i> , <i>M. glaberrima</i> , <i>M. incana</i> , <i>M. pulchella</i> , <i>Taxandria callistachys</i> ;	Swamp Yate PEC (Yes / No) Area (ha) within Site
Veg type C- <i>Eucalyptus occidentalis</i> woodland in valley floor. SLK 4.99 - 4.77 (Southern side of road)	i) Not on valley floor ii) Within a roughly circular basin iii) Seasonally waterlogged	Basin was dominated by <i>Eucalyptus occidentalis</i> .	Occurrence had a degraded understory and lacked any sedges.	<i>Melaleuca calycina</i> was the dominant shrub within this vegetation type. No other <i>Melaleucas</i> were present.	No, understory was not intact 0.067ha
Veg type C- <i>Eucalyptus occidentalis</i> woodland in valley floor. SLK 4.47 - 4.32 (Southern side of road)	iv) On Valley floor v) Within a clay basin vi) Seasonally waterlogged	Basin was dominated by <i>Eucalyptus occidentalis</i> .	High number of sedges were present within vegetation type.	<i>Melaleuca calycina</i> was the dominant shrub within the vegetation type. Remaining vegetation was mixture of wetland and non-wetland associated plants.	Consistent 0.043ha
Veg type D - <i>Eucalyptus occidentalis</i> and <i>Eucalyptus rigens</i> woodland.	i) Does not occur on valley floor ii) Does not occur on a basin iii) Is not seasonally inundated	Vegetation type did not occur on basins.	No dense sedge layers.	No wetland associated midstorey species were present	No 0.159ha
Veg type F - <i>Eucalyptus occidentalis</i> over <i>Melaleuca cuticularis</i> wetland with mixed samphire's.	i) Vegetation type occurs on valley floor ii) Vegetation type occurs along saline drainage line iii) Vegetation type is seasonally inundated	Centre of creekline was dominated by <i>Eucalyptus occidentalis</i> and <i>Melaleuca cuticularis</i> .	No dense sedge layer was present, some <i>Ficinia nodosa</i> and <i>Lepidosperma</i> were present.	<i>Melaleuca cuticularis</i> is the dominant midstorey species.	No 0.065ha

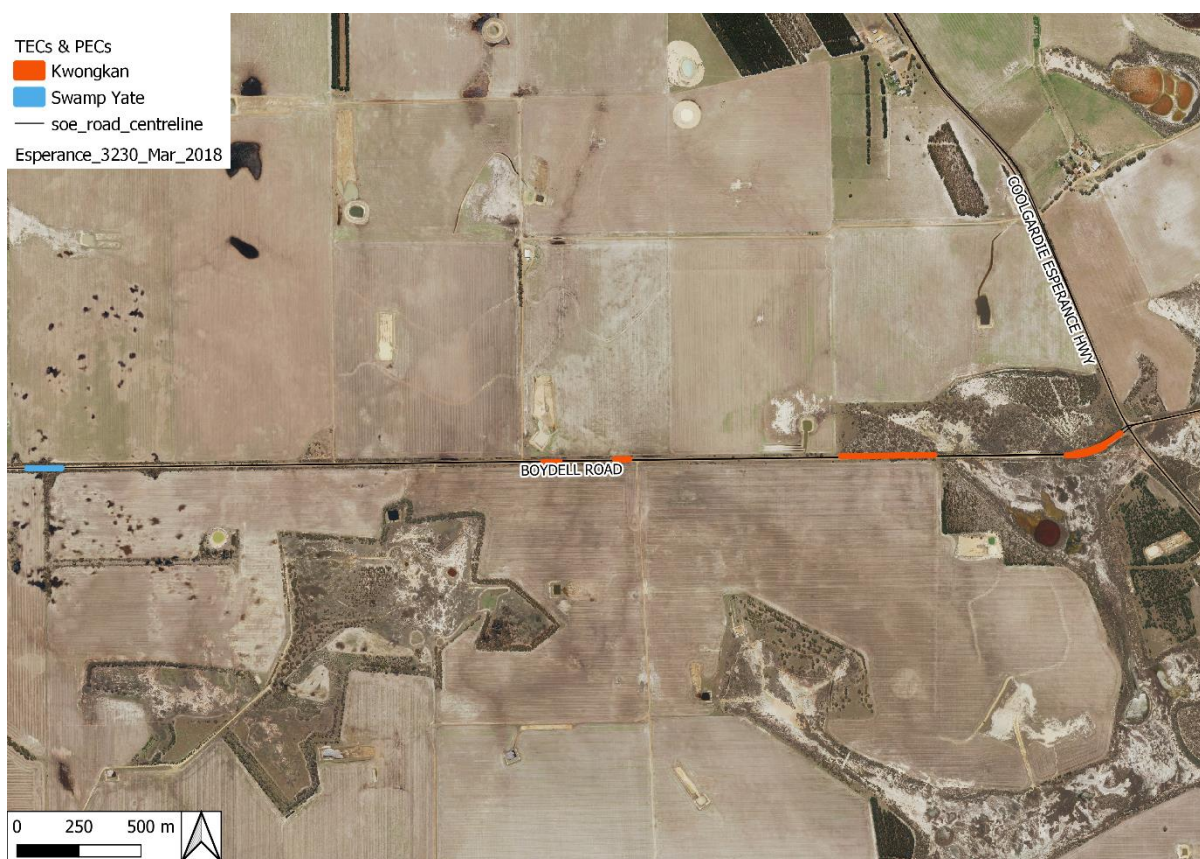


Figure 23. Mapped occurrences of PECs and TECs within 'Site H – Boydell Road, SLK 0 - 11.83'.

5.10 Fauna

Of the species identified within the desktop survey, only seven had potentially suitable habitat within the proposed clearing permit area.

During the field survey the various bird calls were heard. 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.

5.10.1 Sharp-tailed sandpiper, *Calidris acuminata*, Migratory

The closest known record of this species was 14.2km from the project area.

The Sharp-tailed sandpiper habitat is described as the muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, salt pans and hypersaline salt lakes inland.

The salt lake and saline watercourse associated vegetation potentially provides suitable habitat for this species. Clearing for vegetation type A and F which were associated with salt lakes and watercourses totals 0.134ha.

5.10.2 Chuditch, *Dasyurus geoffroii*, Vulnerable

The Chuditch was listed on the EPBC protected matter search tool. There were no known records of this species within 20km of the survey area. The closest record to the project area was 43km from the survey site.

The species habitat is described as scrubby, often swampy, vegetation with dense cover up to 1 m high, often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. Populations inhabiting Jarrah and Wandoo forests are usually associated with watercourses. Quenda will thrive in more open habitat subject to introduced predator control.

All of the good or better-quality vegetation within this project area provides potentially suitable habitat for this species, this includes a total of 1.606 ha of vegetation. In addition, the vegetation within this project likely provides important habitat connectivity to nearby remnant vegetation.

5.10.3 Grey Falcon, *Falco hypoleucos*, Vulnerable

The Grey falcon was listed on the EPBC protected matter search tool. There were no known records of this species within 20km of the survey area. The closest record to the project area was 121km from the project area.

The distribution of this species is restricted largely to areas of the highest annual average temperatures where there is an average annual rainfall of less than 500 mm. It favours lightly timbered and untimbered lowland plains that are crossed by tree-lined watercourses. It uses the abandoned nests of other bird species, particularly corvids.

The site provides potentially suitable nesting habitat in Vegetation types B, C, D, F both of which have Eucalyptus trees suitable for nesting, though no nests were observed within during the survey. Clearing within these vegetation types includes a total of 1.401ha of clearing.

5.10.4 Peregrine falcon, *Falco peregrinus*, Other Specially Protected

The closest known record of this species was 14.2km from the project area.

The Peregrine Falcon is listed as occurring in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water. It is likely that the entire project area has potentially suitable hunting grounds.

The Peregrine Falcon is listed as nesting in recesses of cliff faces, tree hollows or in the large abandoned nests of other birds. The site provides potentially suitable nesting habitat in Vegetation types B, C, D, and F, all of which have Eucalyptus trees suitable for nesting, though no nests were observed within during the survey. Clearing within these vegetation types includes a total of 1.401ha of clearing.

5.10.5 Caspian Tern, *Hydroprogne caspia*, Migratory

The closest known record of this species was 14.2km from the project area.

Sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs

The salt lake and saline watercourse associated vegetation potentially provides suitable habitat for this species. Clearing for vegetation type A and F which were associated with salt lakes and watercourses totals 0.142 ha.

5.10.6 Spectacled hooded snake (Esperance), *Parasuta spectabilis bushi*, P1

Maryan, Brennan, Hutchinson and Geidans (2020) found that the taxon was a synonym of the non-threatened *Suta gouldii*, so this species was not discussed further.

5.10.7 Carnaby's Black Cockatoo, *Calyptrorhynchus latirostris*, Endangered

The Shire of Esperance Black Cockatoo assessment was conducted in accordance with the EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's Cockatoo *Calyptrorhynchus latirostris* (Endangered), Baudin's Cockatoo *Calyptrorhynchus baudinii* (Endangered) and Forest Red-tailed Black Cockatoo *Calyptrorhynchus banksii naso* (Vulnerable) (Department of Agriculture, Water and the Environment, 2022).

Vegetation type G contained potential foraging habitat due to a high proportion of proteaceous species. The foraging quality scoring tool was not undertaken due to the total clearing of 0.049 ha of vegetation within these vegetation types being a fraction of the 1ha threshold used for use of the tool.

Given that the site did not:

- contain any nesting sites or large trees with hollows;
- contain night roosting areas;
- the amount of high-quality foraging habitat was significantly less than 1 ha;
- had low quality (1-4) habitat under 10ha

a referral for assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is unlikely to be required.

6 REVIEW OF 10 CLEARING PRINCIPLES FOR NATIVE VEGETATION

The 'Site H – Boydell Road, SLK 0 - 11.83' 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).

6.1 Principle (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Biodiversity at this site was very high with 318 native species recorded over 7 vegetation communities.

6.2 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.

Vegetation type G contained potential foraging for the Carnaby's Black Cockatoo this includes a total clearing of 0.049ha.

Several other fauna species including the sharp-tailed sandpiper, chuditch, grey falcon, peregrine falcon, caspian tern, spectacled hooded snake had potentially suitable habitat within the project area.

6.3 Principle (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Seven priority species were found during the survey. Of these only *Darwinia sp. Gibson* (P1), *Persoonia scabra* (P3) and *Grevillea baxteri* (P4) will be taken, only a very small number of each of these plants will be taken and there is unlikely to be any significant impact on the Boydell road populations of these species.

Additionally, *Persoonia scabra* (P3) and *Grevillea baxteri* (P4) are both widespread species.

6.4 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.

0.049 hectares of vegetation met the definition of the EPBC listed Kwongkan TEC, other areas within the site failed to meet the definition of Kwongkan TEC.

Vegetation type C was consistent with the 'Swamp Yate, *Eucalyptus occidentalis*, woodlands in seasonally inundated clay basins in the South Coast of Western Australia' PEC but one of its occurrences lacked an intact understorey, 0.043ha of this vegetation type with an intact understorey was being cleared.

6.5 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 immediate surroundings of the site were highly cleared agricultural land, with the intact vegetation within the site likely playing contributing to ecological linkages in the area.

6.6 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.

Vegetation type A (0.069 ha) and Vegetation types F (0.065 ha) were growing in association with salt lakes and winter wet areas, Vegetation type C was a winter wet area.

6.7 Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

The immediate surroundings of the site were highly cleared agricultural land, with Vegetation within this project providing limited function as windbreaks and erosion control for the agricultural areas surrounding it.

6.8 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.

The site was 5.98 km from Speddingup Nature Reserve (Reserve 25958) the closest conservation reserve. Given the relatively low amount of native vegetation cleared there will, be no significant impact to ecological linkages to the reserve.

6.9 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.

Given the relatively low amount of clearing there is unlikely to be any significant impacts on water quality.

6.10 Principle (j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Given the relatively low amount of clearing there is unlikely to be any significant impacts on flood risk.

7 RECOMMENDATIONS

As Shire Environmental Coordinator signs off on project work packs the following recommendation will be included within the internal SOE approval process for the road project

- Minimise clearing to minimum amount required
- Avoid larger habitat trees (larger trees and trees with hollows) wherever possible;
- Maintain existing drainage systems, spoon drains and ensuring tracks and other infrastructure areas do not disrupt or divert historic water flow patterns;
- Minimise soil disturbance during clearing and practice standard vehicle hygiene to ensure introduced (exotic) species do not become established within the 'Boydell Road, SLK 0 - 11.83' project area;
- Implement a management plan to prevent the spread of *Acacia pycnantha* a declared pest species; and
- Minimize all threatening processes to native vegetation.

8 LIST OF PERSONNEL

The following Shire of Esperance Staff were involved in this project.

Name	Julie Waters
Position	Environmental Coordinator
Project Involvement	Desktop and Field Survey, Specimen Identification, GIS Mapping Data Interpretation and Report writing
Qualifications	BEnvSc (Hons)
Experience	20 years working in environmental field including Flora Conservation Officer for previous DBCA, and 15 years' experience as a botanist in the region
Scientific Licence	FT61000787

Name	Katherine Walkerden
Position	Environmental Officer
Project Involvement	Desktop and Field Survey, Specimen Identification, GIS Mapping, Data Interpretation and Report writing
Qualifications	BSc, MEnvSc
Experience	Two years' experience as a Botanist in the region (as of April 2023)
Scientific Licence	FT61000788

Name	Rosamund Mary Hoggart
Position	Environmental Assistant
Project Involvement	Specimen Identification
Qualifications and Experience	BSc (Hons)Ag
	15 years' experience as a botanist in the region and is highly regarded by Esperance Wildflower Society and her peers in Esperance as one of the best botanists in Esperance.
Scientific Licence	N/A

Name	Katie White
Position	Environmental Officer (former)
Project Involvement	Desktop Survey, GIS Mapping
Qualifications and Experience	BSc (Hons)
	2 years' experience (at time of involvement)
Scientific Licence	FT61000029

Name	Danika Penson
Position	Environmental Assistant (former)
Project Involvement	Field Survey
Qualifications and Experience	BSc
Scientific Licence	FB62000276

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10 APPENDICES

Appendix 1: Incidental species list

Family	Genus	Species	Weed	WA Conservation Status	Herbarium Reference
Aizoaceae	<i>Disphyma</i>	<i>crassifolium</i>			
Apiaceae	<i>Platysace</i>	<i>effusa</i>			
Apiaceae	<i>Trachymene</i>	<i>pilosa</i>			
Asparagaceae	<i>Asparagus</i>	<i>asparagoides</i>	x		
Asparagaceae	<i>Laxmannia</i>	<i>minor</i>			
Asparagaceae	<i>Laxmannia</i>	<i>omnifertilis</i>			
Asparagaceae	<i>Lomandra</i>	<i>micrantha</i> ss <i>teretifolia</i>			
Asparagaceae	<i>Lomandra</i>	<i>mucronata</i>			
Asparagaceae	<i>Thysanotus</i>	<i>patersonii</i>			
Asphodelaceae	<i>Asphodelus</i>	<i>fistulosus</i>	x		
Asteraceae	<i>Arctotheca</i>	<i>calendula</i>	x		
Asteraceae	<i>Argentipallium</i>	<i>niveum</i>			
Asteraceae	<i>Argentipallium</i>	<i>tephrodes</i>			
Asteraceae	<i>Blennospora</i>	<i>drummondii</i>			
Asteraceae	<i>Brachyscome</i>	<i>iberidifolia</i>			KSW23222 Acc 10048
Asteraceae	<i>Brachyscome</i>	<i>pusilla</i>			
Asteraceae	<i>Brachyscome</i>	<i>eyrensis</i>			
Asteraceae	<i>Centaurea</i>	<i>melitensis</i>	x		
Asteraceae	<i>Cirsium</i>	<i>vulgare</i>	x		
Asteraceae	<i>Cotula</i>	<i>coronopifolia</i>	x		
Asteraceae	<i>Erigeron</i>	<i>bonariensis</i>	x		
Asteraceae	<i>Gazania</i>	<i>linearis</i>			
Asteraceae	<i>Gnephosis</i>	<i>drummondii</i>			
Asteraceae	<i>Hypochaeris</i>	<i>radicata</i>	x		
Asteraceae	<i>Osteospermum</i>	<i>ecklonis</i>	x		
Asteraceae	<i>Podolepis</i>	<i>capillaris</i>			
Asteraceae	<i>Pogonolepis</i>	<i>muelleriana</i>			
Asteraceae	<i>Pseudognaphalium</i>	<i>luteoalbum</i>	x		
Asteraceae	<i>Pterochaeta</i>	<i>paniculata</i>			
Asteraceae	<i>Sonchus</i>	<i>oleraceus</i>	x		
Asteraceae	<i>Ursinia</i>	<i>anthemoides</i>	x		
Asteraceae	<i>Vittadinia</i>	<i>gracilis</i>			
Asteraceae	<i>Waitzia</i>	<i>suaveolens</i> var <i>flava</i>			

Boraginaceae	<i>Halgania</i>	<i>anagalloides</i> var <i>Southern</i>			
Brassicaceae	<i>Lepidium</i>	<i>africanum</i>	x		
Brassicaceae	<i>Raphanus</i>	<i>raphanistrum</i>	x		
Brassicaceae	<i>Rapistrum</i>	<i>rugosum</i>	x		
Campanulaceae	<i>Monopsis</i>	<i>debilis</i> var <i>depressa</i>	x		
Campanulaceae	<i>Wahlenbergia</i>	<i>capensis</i>	x		
Casuarinaceae	<i>Allocasuarina</i>	<i>humilis</i>			
Casuarinaceae	<i>Allocasuarina</i>	<i>lehmanniana</i> ssp <i>ecarinata</i>			
Casuarinaceae	<i>Allocasuarina</i>	<i>thuyoides</i>			
Casuarinaceae	<i>Casuarina</i>	<i>obesa</i>	x		
Celastraceae	<i>Stackhousia</i>	<i>monogyna</i>			
Centrolepidaceae	<i>Centrolepis</i>	<i>polygyna</i>			
Chenopodiaceae	<i>Atriplex</i>	<i>semibaccata</i>			
Chenopodiaceae	<i>Atriplex</i>	<i>sp.</i>			
Chenopodiaceae	<i>Enchylaena</i>	<i>tomentosa</i>			
Chenopodiaceae	<i>Maireana</i>	<i>oppositifolia</i>			
Chenopodiaceae	<i>Rhagodia</i>	<i>baccata</i>			
Chenopodiaceae	<i>Salicornia</i>	<i>quinqueflora</i> ssp <i>quinqueflora</i>			
Chenopodiaceae	<i>Suaeda</i>	<i>australis</i>			
Chenopodiaceae	<i>Tecticornia</i>	<i>halocnemoides</i> ssp <i>caudata</i>			
Chenopodiaceae	<i>Tecticornia</i>	<i>lylei</i>			
Chenopodiaceae	<i>Tecticornia</i>	<i>pergranulata</i> ssp <i>pergranulata</i>			
Chenopodiaceae	<i>Tecticornia</i>	<i>sp.</i>			
Chenopodiaceae	<i>Tecticornia</i>	<i>indica</i> ssp <i>bidens</i>			
Convolvulaceae	<i>Wilsonia</i>	<i>humilis</i>			
Convolvulaceae	<i>Convolvulus</i>	<i>remotus</i>			
Cupressaceae	<i>Callitris</i>	<i>roei</i>			
Cyperaceae	<i>Caustis</i>	<i>dioica</i>			
Cyperaceae	<i>Ficinia</i>	<i>nodosa</i>			
Cyperaceae	<i>Gahnia</i>	<i>aristata</i>			
Cyperaceae	<i>Gahnia</i>	<i>sp. South West</i>			
Cyperaceae	<i>Gahnia</i>	<i>ancistrophylla</i>			
Cyperaceae	<i>Lepidosperma</i>	<i>carphoides</i>			
Cyperaceae	<i>Lepidosperma</i>	<i>leptostachyum</i>			
Cyperaceae	<i>Lepidosperma</i>	<i>sp.</i>			
Cyperaceae	<i>Lepidosperma</i>	<i>sp.</i>			
Cyperaceae	<i>Lepidosperma</i>	<i>squamatum</i>			
Cyperaceae	<i>Mesomelaena</i>	<i>stygia</i> ss <i>stygia</i>			

Cyperaceae	<i>Netrostylis</i>	<i>sp. Mt Madden</i>			
Cyperaceae	<i>Schoenus</i>	<i>breviculmis</i>			
Cyperaceae	<i>Schoenus</i>	<i>laevigatus</i>			
Cyperaceae	<i>Schoenus</i>	<i>subflavus</i>			
Dilleniaceae	<i>Hibbertia</i>	<i>exasperata</i>			
Dilleniaceae	<i>Hibbertia</i>	<i>gracilipes</i>			
Dilleniaceae	<i>Hibbertia</i>	<i>inclusa</i>			
Dilleniaceae	<i>Hibbertia</i>	<i>racemosa</i>			
Droseraceae	<i>Drosera</i>	<i>drummondii</i>			
Droseraceae	<i>Drosera</i>	<i>glanduligera</i>			
Droseraceae	<i>Drosera</i>	<i>moorei</i>			
Droseraceae	<i>Drosera</i>	<i>neesii</i>			
Droseraceae	<i>Drosera</i>	<i>ramellosa</i>			
Droseraceae	<i>Drosera</i>	<i>sp Branched styles</i>			
Ericaceae	<i>Andersonia</i>	<i>parvifolia</i>			
Ericaceae	<i>Acrotriche</i>	<i>cordata</i>			
Ericaceae	<i>Brachyloma</i>	<i>mogin</i>		P3	KSW1121 Acc 9116
Ericaceae	<i>Conostephium</i>	<i>drummondii</i>			
Ericaceae	<i>Dielsiodoxa</i>	<i>oligarhenoides</i>			
Ericaceae	<i>Leucopogon</i>	<i>assimilis s. lat</i>			KSW23122 Acc 10048
Ericaceae	<i>Leucopogon</i>	<i>fimbriatus</i>			
Ericaceae	<i>Leucopogon</i>	<i>sp. Mount Heywood</i>			
Ericaceae	<i>Leucopogon</i>	<i>sp. Newdegate</i>			
Ericaceae	<i>Lysinema</i>	<i>ciliatum</i>			
Ericaceae	<i>Styphelia</i>	<i>intertexta</i>			
Ericaceae	<i>Styphelia</i>	<i>sp. Cascades</i>			
Ericaceae	<i>Styphelia</i>	<i>sp. Coujinup</i>			
Ericaceae	<i>Styphelia</i>	<i>sp. Newdegate</i>			
Euphorbiaceae	<i>Stachystemon</i>	<i>virgatus</i>			
Euphorbiaceae	<i>Euphorbia</i>	<i>terracina</i>			
Fabaceae	<i>Acacia</i>	<i>biflora</i>			
Fabaceae	<i>Acacia</i>	<i>brachyclada</i>			
Fabaceae	<i>Acacia</i>	<i>chrysocephala</i>			
Fabaceae	<i>Acacia</i>	<i>crassuloides</i>			
Fabaceae	<i>Acacia</i>	<i>crispula</i>			
Fabaceae	<i>Acacia</i>	<i>cupularis</i>			
Fabaceae	<i>Acacia</i>	<i>curvata</i>			
Fabaceae	<i>Acacia</i>	<i>cyclops</i>			
Fabaceae	<i>Acacia</i>	<i>fragilis</i>			
Fabaceae	<i>Acacia</i>	<i>glaucoptera</i>			

Fabaceae	<i>Acacia</i>	<i>gonophylla</i>			
Fabaceae	<i>Acacia</i>	<i>lasiocalyx</i>			
Fabaceae	<i>Acacia</i>	<i>lasiocarpa</i> var <i>bracteolata</i>			
Fabaceae	<i>Acacia</i>	<i>latipes</i> subsp. <i>Latipes</i>			
Fabaceae	<i>Acacia</i>	<i>maxwellii</i>			
Fabaceae	<i>Acacia</i>	<i>mutabilis</i> subsp. <i>mutabilis</i>			
Fabaceae	<i>Acacia</i>	<i>myrtifolia</i>			
Fabaceae	<i>Acacia</i>	<i>patagiata</i>			
Fabaceae	<i>Acacia</i>	<i>pritzeliana</i>			
Fabaceae	<i>Acacia</i>	<i>pycnantha</i>	x		
Fabaceae	<i>Acacia</i>	<i>saligna</i>			
Fabaceae	<i>Acacia</i>	<i>sulcata</i> var <i>planoconvexa</i>			
Fabaceae	<i>Chamaecytisus</i>	<i>palmensis</i>	x		
Fabaceae	<i>Chorizema</i>	<i>aciculare</i>			
Fabaceae	<i>Chorizema</i>	<i>nervosum</i>			
Fabaceae	<i>Daviesia</i>	<i>lancifolia</i>			
Fabaceae	<i>Daviesia</i>	<i>teretifolia</i>			
Fabaceae	<i>Daviesia</i>	<i>aphylla</i>			
Fabaceae	<i>Daviesia</i>	<i>pauciflora</i>		P3	KSW16922 Acc 9857
Fabaceae	<i>Eutaxia</i>	<i>inuncta</i>			
Fabaceae	<i>Eutaxia</i>	<i>parvifolia</i>			
Fabaceae	<i>Gastrolobium</i>	<i>discolor</i>			
Fabaceae	<i>Gastrolobium</i>	<i>musaceum</i>			
Fabaceae	<i>Gastrolobium</i>	<i>spinosum</i>			
Fabaceae	<i>Gompholobium</i>	<i>marginatum</i>			
Fabaceae	<i>Gompholobium</i>	<i>tomentosum</i>			
Fabaceae	<i>Gompholobium</i>	<i>viscidulum</i>			
Fabaceae	<i>Hovea</i>	<i>pungens</i>			
Fabaceae	<i>Isotropis</i>	<i>cuneifolia</i>			
Fabaceae	<i>Jacksonia</i>	<i>alata</i>			
Fabaceae	<i>Jacksonia</i>	<i>condensata</i>			
Fabaceae	<i>Jacksonia</i>	<i>venosa</i>			
Fabaceae	<i>Kennedia</i>	<i>sp. South Coast</i>			
Fabaceae	<i>Medicago</i>	<i>polymorpha</i>	x		
Fabaceae	<i>Ornithopus</i>	<i>compressus</i>	x		
Fabaceae	<i>Ornithopus</i>	<i>sativus</i>	x		
Fabaceae	<i>Pultenaea</i>	<i>indira</i> ss <i>indira</i>			
Fabaceae	<i>Pultenaea</i>	<i>spinulosa</i>			
Fabaceae	<i>Senna</i>	<i>sp Pallinup River</i>			

Fabaceae	<i>Templetonia</i>	<i>retusa</i>			
Fabaceae	<i>Templetonia</i>	<i>sulcata</i>			
Fabaceae	<i>Trifolium</i>	<i>arvense</i>	x		
Fabaceae	<i>Trifolium</i>	<i>campestre</i>			
Fabaceae	<i>Trifolium</i>	<i>hirtum</i>	x		
Fabaceae	<i>Trifolium</i>	<i>repens</i>	x		
Fabaceae	<i>Vicia</i>	<i>benghalensis</i>	x		
Fabaceae	<i>Eutaxia</i>	<i>parvifolia</i>			
Frankeniaceae	<i>Frankenia</i>	<i>sessilis</i> var. <i>sessilis</i>			KSW17022 Acc 9857
Frankeniaceae	<i>Frankenia</i>	<i>tetrapetala</i>			
Geraniaceae	<i>Erodium</i>	<i>cicutarium</i>	x		
Geraniaceae	<i>Pelargonium</i>	<i>capitatum</i>	x		
Goodeniaceae	<i>Anthotium</i>	<i>humilis</i>			
Goodeniaceae	<i>Cooperhooia</i>	<i>polygalaceae</i>			
Goodeniaceae	<i>Cooperhooia</i>	<i>strophiolata</i>			
Goodeniaceae	<i>Dampiera</i>	<i>angulata</i> subsp. <i>angulata</i>			
Goodeniaceae	<i>Dampiera</i>	<i>fasciculata</i>			
Goodeniaceae	<i>Dampiera</i>	<i>lavandulacea</i>			
Goodeniaceae	<i>Dampiera</i>	<i>sacculata</i>			
Goodeniaceae	<i>Goodenia</i>	<i>concinna</i>			
Goodeniaceae	<i>Goodenia</i>	<i>incana</i>			
Goodeniaceae	<i>Goodenia</i>	<i>pterigosperma</i>			
Goodeniaceae	<i>Goodenia</i>	<i>scapigera</i>			
Goodeniaceae	<i>Goodenia</i>	<i>trinervis</i>			
Goodeniaceae	<i>Lechenaultia</i>	<i>formosa</i>			
Goodeniaceae	<i>Scaevola</i>	<i>thesioides</i> subsp. <i>Filifolia</i>			
Haemodoraceae	<i>Conostylis</i>	<i>bealiana</i>			
Haemodoraceae	<i>Conostylis</i>	<i>seorsiflora</i> subsp. <i>Seorsifolia</i>			
Haemodoraceae	<i>Haemodorum</i>	<i>discolor</i>			
Haloragaceae	<i>Glischrocaryon</i>	<i>angustifolium</i>			
Haloragaceae	<i>Glischrocaryon</i>	<i>roei</i>			
Hemerocallidaceae	<i>Chamaescilla</i>	<i>corymbosa</i>			
Hemerocallidaceae	<i>Cheiranthra</i>	<i>filifolia</i>			
Hemerocallidaceae	<i>Dianella</i>	<i>brevicaulis</i>			
Hemerocallidaceae	<i>Dianella</i>	<i>revoluta</i> var. <i>revoluta</i>			
Hemerocallidaceae	<i>Tricoryne</i>	<i>elator</i>			
Iridaceae	<i>Freesia</i>	<i>x alba</i>	x		
Iridaceae	<i>Patersonia</i>	<i>junceae</i>			
Iridaceae	<i>Patersonia</i>	<i>lantana</i>			

Iridaceae	<i>Patersonia</i>	<i>occidentalis</i>			
Iridaceae	<i>Romulea</i>	<i>rosea</i>	x		
Juncaceae	<i>Juncus</i>	<i>kraussii</i> ssp <i>australiensis</i>			
Juncaceae	<i>Juncus</i>	<i>sp.</i>			
Lamiaceae	<i>Hemigenia</i>	<i>teretiuscula</i>			
Lamiaceae	<i>Microcorys</i>	<i>glabra</i>			
Lauraceae	<i>Cassytha</i>	<i>glabella</i>			
Lauraceae	<i>Cassytha</i>	<i>melantha</i>			
Lauraceae	<i>Cassytha</i>	<i>racemosa</i>			
Loganiaceae	<i>Logania</i>	<i>buxifolia</i>			
Malvaceae	<i>Alyogyne</i>	<i>sp. Hutt River</i>			
Malvaceae	<i>Lasiopetalum</i>	<i>rosmarinifolium</i>			
Malvaceae	<i>Thomasia</i>	<i>angustifolia</i>			
Myrtaceae	<i>Astus</i>	<i>tetragonus</i>			
Myrtaceae	<i>Austrobaecka</i>	<i>latens</i>			
Myrtaceae	<i>Austrobaecka</i>	<i>uncinella</i>		P3	KSW20622 Acc 9874
Myrtaceae	<i>Beaufortia</i>	<i>micrantha</i>			
Myrtaceae	<i>Beaufortia</i>	<i>schaueri</i>			
Myrtaceae	<i>Calothamnus</i>	<i>gracilis</i>			
Myrtaceae	<i>Calothamnus</i>	<i>quadridus</i>			
Myrtaceae	<i>Calytrix</i>	<i>leschenaultii</i>			
Myrtaceae	<i>Chamelaucium</i>	<i>ciliatum</i>			
Myrtaceae	<i>Conothamnus</i>	<i>aureus</i>			
Myrtaceae	<i>Cyathostemon</i>	<i>ambiguus</i>			
Myrtaceae	<i>Darwinia</i>	<i>diosmoides</i>			
Myrtaceae	<i>Darwinia</i>	<i>sp. Gibson</i>		P1	PERTH 09375368
Myrtaceae	<i>Darwinia</i>	<i>vestita</i>			
Myrtaceae	<i>Ericomyrtus</i>	<i>drummondii</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>calycogona</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>camaldulensis</i>	x		
Myrtaceae	<i>Eucalyptus</i>	<i>conglobata</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>conglobata</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>ecostata</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>eremophila</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>flocktoniae</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>kessellii</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>leptocalyx</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>micranthera</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>occidentalis</i>			

Myrtaceae	<i>Eucalyptus</i>	<i>pleurocarpa</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>suggrandis</i> ss <i>suggrandis</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>tumida</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>uncinata</i>			
Myrtaceae	<i>Eucalyptus</i>	<i>valens</i>			
Myrtaceae	<i>Kunzea</i>	<i>preissiana</i>			
Myrtaceae	<i>Kunzea</i>	<i>salina</i>		P3	KSW21222 Acc 9874
Myrtaceae	<i>Leptospermum</i>	<i>laevigatum</i>	x		
Myrtaceae	<i>Leptospermum</i>	<i>maxwellii</i>			
Myrtaceae	<i>Melaleuca</i>	<i>armillaris</i>	x		
Myrtaceae	<i>Melaleuca</i>	<i>brevifolia</i>			
Myrtaceae	<i>Melaleuca</i>	<i>bromelioides</i>			
Myrtaceae	<i>Melaleuca</i>	<i>calycina</i>			
Myrtaceae	<i>Melaleuca</i>	<i>cuticularis</i>			
Myrtaceae	<i>Melaleuca</i>	<i>glaberrima</i>			
Myrtaceae	<i>Melaleuca</i>	<i>hamata</i>			
Myrtaceae	<i>Melaleuca</i>	<i>incana</i> subsp. <i>tenella</i>			
Myrtaceae	<i>Melaleuca</i>	<i>linguiformis</i>			
Myrtaceae	<i>Melaleuca</i>	<i>plumea</i>			
Myrtaceae	<i>Melaleuca</i>	<i>pulchella</i>			
Myrtaceae	<i>Melaleuca</i>	<i>rigidifolia</i>			
Myrtaceae	<i>Melaleuca</i>	<i>scabra</i>			
Myrtaceae	<i>Melaleuca</i>	<i>societatis</i>			
Myrtaceae	<i>Melaleuca</i>	<i>thyoides</i>			
Myrtaceae	<i>Melaleuca</i>	<i>undulata</i>			
Myrtaceae	<i>Micromyrtus</i>	<i>elobata</i>			
Myrtaceae	<i>Micromyrtus</i>	<i>imbricata</i>			
Myrtaceae	<i>Oxymyrrhine</i>	<i>gracilis</i>			
Myrtaceae	<i>Phymatocarpus</i>	<i>maxwellii</i>			
Myrtaceae	<i>Verticordia</i>	<i>eriocephala</i>			
Myrtaceae	<i>Verticordia</i>	<i>plumosa</i> var <i>grandiflora</i>			
Myrtaceae	<i>Verticordia</i>	<i>roei</i>			
Olacaceae	<i>Olax</i>	<i>benthamiana</i>			
Onagraceae	<i>Oenothera</i>	<i>stricta</i>	x		
Orchidaceae	<i>Caladenia</i>	<i>decora</i>			
Orchidaceae	<i>Caladenia</i>	<i>flava</i>			
Orchidaceae	<i>Disa</i>	<i>bracteata</i>	x		
Orchidaceae	<i>Diuris</i>	<i>laxiflora</i>			
Orchidaceae	<i>Microtis</i>	<i>media</i>			


Orchidaceae	<i>Pyrorchis</i>	<i>nigricans</i>			
Orchidaceae	<i>Thelymitra</i>	<i>graminea</i>			
Orobanchaceae	<i>Orobanche</i>	<i>minor</i>	x		
Phyllanthaceae	<i>Lysiandra</i>	<i>calycina</i>			
Pittosporaceae	<i>Billardiera</i>	<i>fusiformis</i>			
Pittosporaceae	<i>Cheiranthra</i>	<i>filifolia</i>			
Poaceae	<i>Austrostipa</i>	<i>elegantissima</i>			
Poaceae	<i>Austrostipa</i>	<i>hemipogon</i>			
Poaceae	<i>Austrostipa</i>	<i>mollis</i>			
Poaceae	<i>Austrostipa</i>	<i>scabra</i>			
Poaceae	<i>Avena</i>	<i>barbata</i>	x		
Poaceae	<i>Avena</i>	<i>sativa</i>	x		
Poaceae	<i>Briza</i>	<i>maxima</i>	x		
Poaceae	<i>Bromus</i>	<i>catharticus</i>			
Poaceae	<i>Bromus</i>	<i>diandrus</i>	x		
Poaceae	<i>Bromus</i>	<i>hordeaceus</i>	x		
Poaceae	<i>Cynodon</i>	<i>dactylon</i>			
Poaceae	<i>Ehrharta</i>	<i>calycina</i>	x		
Poaceae	<i>Ehrharta</i>	<i>longifolia</i>	x		
Poaceae	<i>Eragrostis</i>	<i>curvula</i>	x		
Poaceae	<i>Holcus</i>	<i>sp.</i>			
Poaceae	<i>Hordeum</i>	<i>sp.</i>	x		
Poaceae	<i>Hyparrhenia</i>	<i>hirta</i>			KSW20222 Acc 9874
Poaceae	<i>Lolium</i>	<i>sp.</i>			
Poaceae	<i>Neurachne</i>	<i>alopeкуроidea</i>			
Poaceae	<i>Parapholis</i>	<i>incurva</i>			
Poaceae	<i>Rytidosperma</i>	<i>caespitosa</i>			
Poaceae	<i>Rytidosperma</i>	<i>setaceum</i>			
Poaceae	<i>Triticum</i>	<i>aestivum</i>			
Poaceae	<i>Vulpia</i>	<i>sp.</i>	x		
Polygalaceae	<i>Comesperma</i>	<i>ciliatum</i>			
Polygalaceae	<i>Comesperma</i>	<i>integerrimum</i>			
Polygalaceae	<i>Comesperma</i>	<i>polygaloides</i>			
Polygalaceae	<i>Comesperma</i>	<i>volubile</i>			
Polygonaceae	<i>Muehlenbeckia</i>	<i>adpressa</i>			
Polygonaceae	<i>Rumex</i>	<i>acetosella</i>	x		
Primulaceae	<i>Lysimachia</i>	<i>arvensis</i>	x		
Proteaceae	<i>Adenanthos</i>	<i>cuneatus</i>			
Proteaceae	<i>Banksia</i>	<i>armata</i>			
Proteaceae	<i>Banksia</i>	<i>media</i>			
Proteaceae	<i>Banksia</i>	<i>obtusata</i>			

Proteaceae	<i>Banksia</i>	<i>pulchella</i>			
Proteaceae	<i>Banksia</i>	<i>repens</i>			
Proteaceae	<i>Conospermum</i>	<i>leianthum</i>			
Proteaceae	<i>Grevillea</i>	<i>baxteri</i>		P4	KSW1221 Acc 9116
Proteaceae	<i>Grevillea</i>	<i>nudiflora</i>			
Proteaceae	<i>Grevillea</i>	<i>oligantha</i>			
Proteaceae	<i>Grevillea</i>	<i>pectinata</i>			
Proteaceae	<i>Grevillea</i>	<i>plurijuga</i>			
Proteaceae	<i>Grevillea</i>	<i>teretifolia</i>			
Proteaceae	<i>Hakea</i>	<i>cinerea</i>			
Proteaceae	<i>Hakea</i>	<i>corymbosa</i>			
Proteaceae	<i>Hakea</i>	<i>denticulata</i>			
Proteaceae	<i>Hakea</i>	<i>laurina</i>			
Proteaceae	<i>Hakea</i>	<i>lissocarpa</i>			
Proteaceae	<i>Hakea</i>	<i>marginata</i>			
Proteaceae	<i>Hakea</i>	<i>nitida</i>			
Proteaceae	<i>Hakea</i>	<i>pandanicarpa</i>			
Proteaceae	<i>Hakea</i>	<i>prostrata</i>			
Proteaceae	<i>Hakea</i>	<i>trifurcata</i>			
Proteaceae	<i>Hakea</i>	<i>varia</i>			
Proteaceae	<i>Hakea</i>	<i>obliqua</i>			
Proteaceae	<i>Isopogon</i>	<i>polycephalus</i>			
Proteaceae	<i>Persoonia</i>	<i>scabra</i>		P3	KW092 & KW094 Acc 8652, KSW20322 & KSW20422 Acc 9874
Proteaceae	<i>Persoonia</i>	<i>teretifolia</i>			KW094 Acc 8652
Proteaceae	<i>Petrophile</i>	<i>fastigiata</i>			
Proteaceae	<i>Petrophile</i>	<i>squamata</i> subsp. <i>northern</i>			
Proteaceae	<i>Synaphea</i>	<i>media</i>			
Proteaceae	<i>Synaphea</i>	<i>petiolaris</i>			
Restionaceae	<i>Hypolaena</i>	<i>humilis</i>			
Restionaceae	<i>Lepidobolus</i>	<i>chaetocephalus</i>			
Rhamnaceae	<i>Cryptandra</i>	<i>myriantha</i>			
Rhamnaceae	<i>Cryptandra</i>	<i>pungens</i>			
Rhamnaceae	<i>Pomaderris</i>	<i>brevifolia</i>			
Rhamnaceae	<i>Spyridium</i>	<i>mucronatum</i>			
Rhamnaceae	<i>Stenanthemum</i>	<i>notiale</i>			

Rubiaceae	<i>Opercularia</i>	<i>vaginata</i>			
Rutaceae	<i>Boronia</i>	<i>inornata</i>			
Rutaceae	<i>Cyanothamnus</i>	<i>inconspicuus</i>			
Rutaceae	<i>Cyanothamnus</i>	<i>ramosus</i>			
Rutaceae	<i>Nematolepis</i>	<i>phebaloides</i>			
Santalaceae	<i>Leptomeria</i>	<i>pachyclada</i>			
Santalaceae	<i>Leptomeria</i>	<i>pauciflora</i>			
Santalaceae	<i>Santalum</i>	<i>acuminatum</i>			
Sapindaceae	<i>Dodonaea</i>	<i>caespitosa</i>			
Sapindaceae	<i>Dodonaea</i>	<i>concinna</i>			
Sapindaceae	<i>Dodonaea</i>	<i>stenozyga</i>			
Scrophulariaceae	<i>Eremophila</i>	<i>dichroantha</i>			
Solanaceae	<i>Solanum</i>	<i>hoplopetalum</i>	x		
Solanaceae	<i>Solanum</i>	<i>nigricans</i>	x		
Stylidiaceae	<i>Stylidium</i>	<i>repens</i>			
Stylidiaceae	<i>Stylidium</i>	<i>rupestre</i>			
Thymelaeaceae	<i>Pimelea</i>	<i>argentea</i>			
Thymelaeaceae	<i>Pimelea</i>	<i>brachyphylla</i>			
Thymelaeaceae	<i>Pimelea</i>	<i>brevifolia</i> ssp. <i>brevifolia</i>			
Thymelaeaceae	<i>Pimelea</i>	<i>imbricata</i> var <i>piliger</i>			
Thymelaeaceae	<i>Pimelea</i>	<i>argentea</i>			
Violaceae	<i>Hybanthus</i>	<i>epacroides</i>			

Appendix 2: Threatened and Priority Flora Report Forms

Darwinia sp. Gibson – Priority One

 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>Darwinia sp. Gibson</u>		TPFL Pop. No: <u>11</u>	
OBSERVATION DATE: <u>14/11/22</u>		CONSERVATION STATUS: <u>P1</u> <input checked="" type="checkbox"/> New population	
OBSERVER/S: <u>Katherine Walkerden, Julie Waters</u>		PHONE: <u>9083 1518</u>	
ROLE: <u>Environmental Officer, Environmental coordinator</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): ~38 km north-west of Esperance townsite. On Boydells Rd, ~500 m west of Coolgardie-Esperance Hwy. Plants on southern road reserve only

Reserve No: _____

DBC 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:	
<input checked="" type="checkbox"/> GDA94 / MGA94	<input type="checkbox"/> DecDegrees	<input type="checkbox"/> DegMinSec	<input checked="" type="checkbox"/> UTM	<input type="checkbox"/> GPS	<input type="checkbox"/> Differential GPS
<input type="checkbox"/> AGD84 / AMG84	Lat / Northing: <u>6284842.1</u>			No. satellites: _____	Map used: _____
<input type="checkbox"/> WGS84	Long / Easting: <u>384250.7</u>			Boundary polygon captured: <input type="checkbox"/>	Map scale: _____
<input type="checkbox"/> Unknown	ZONE: <u>51</u>				

LAND TENURE:

<input checked="" 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	<input type="checkbox"/> SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: <input type="checkbox"/> Edge survey	<input checked="" type="checkbox"/> Partial survey	<input type="checkbox"/> Full survey	Area observed (m²): _____
EFFORT: Time spent surveying (minutes): _____		No. of minutes spent / 100 m²: _____	
POP'N COUNT ACCURACY: <input checked="" type="checkbox"/> Actual		<input type="checkbox"/> Extrapolation	<input type="checkbox"/> Estimate
		Count method: _____ (Refer to field manual for list)	

WHAT COUNTED:	<input checked="" type="checkbox"/> Plants	<input type="checkbox"/> Clumps	<input type="checkbox"/> Clonal stems	
TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:
Alive	<u>44</u>			
Dead				
				Area of pop (m²): _____
				<small>Note: Pls record count as numbers (not percentages) for database.</small>

QUADRAT \$ PRESENT:	No. _____	Size _____	Data attached <input type="checkbox"/>	Total area of quadrats (m²): _____
Summary Quad. Totals: Alive				

REPRODUCTIVE STATE:	<input type="checkbox"/> Clonal	<input type="checkbox"/> Vegetative	<input type="checkbox"/> Flowerbud	<input checked="" type="checkbox"/> Flower
	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> Fruit	<input type="checkbox"/> Dehiscent fruit	Percentage in flower: <u>40%</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)
<small>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+)</small>			
• <u>Road widening - no longer scheduled for road widening due to environmental values.</u>		<u>L</u>	<u>S-M</u>
<u>Will work in current road footprint. Unknown previously how many plants would be cleared as was not counted.</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

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

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



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.3 August 2017

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 checked="" type="checkbox"/>	Brown <input checked="" type="checkbox"/>	Seasonally inundated <input checked="" 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 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 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: <input type="text"/>		Specify other: <input type="text"/>	Specify other: <input type="text"/>	
Drainage line <input type="checkbox"/>					
Closed depression <input checked="" type="checkbox"/>					
Wetland <input type="checkbox"/>	Specific Landform Element: <input type="text"/>				
	(Refer to field manual for additional values)				
CONDITION OF SOIL:	Dry <input type="checkbox"/>	Moist <input checked="" type="checkbox"/>	Waterlogged <input type="checkbox"/>	Inundated <input type="checkbox"/>	

VEGETATION

CLASSIFICATION*

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

1. Open Mallee over mixed shrubland of Hakea sp. and Sedges
2. Melaleuca cuticularis and M. brevifolia over mixed samphire's, Austrostipa juncifolia, Disphyma crassifolium.
3.
4.

ASSOCIATED SPECIES:

Hakea corymbosa, Verticordia sp., Hakea trifurcata, Eucalyptus 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 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 MARKER: 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.)

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: Katherine Walkerdon Role: Environmental Officer Signed: Date: 28/03/2023

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 ☐

Austrobaekea uncinella – Priority Three



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Austrobaekea uncinella 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

TAXON: <u>Austrobaekea uncinella</u>	TPFL Pop. No: <u> </u>
OBSERVATION DATE: <u>26/10/2022</u>	CONSERVATION STATUS: <u>P3</u> New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>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):

Boydell road, Northern side of road, 100m West of Boydell and Dwyer road intersection, 9.3km West of Boydell and Coolgardie-Esperance Highway intersection, 16km West North West of Gibson Townsite.

Boydell road SLK 9.37

DBCA DISTRICT: <u>Esperance</u>	LGA: <u>Esperance</u>	Reserve No: <u> </u>
DATE: <u> </u> COORDINATE S: (If UTM coords provided, Zone is also required) <u> </u>		Land manager present: <input checked="" type="checkbox"/>
METHOD USED: <u> </u>		
GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>		
GDA94 / MGA94 <input checked="" type="checkbox"/> Lat / Northing: <u>6284554.9</u>		No. satellites: <u> </u> Map used: <u> </u>
AGD84 / AMG84 <input type="checkbox"/> Long / Easting: <u>375049.2</u>		Boundary polygon captured: <input type="checkbox"/> Map scale: <u> </u>
WGS84 <input type="checkbox"/> ZONE: <u>51</u>		
Unknown <input type="checkbox"/>		
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 <u> </u> to <u> </u>
		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: <u> </u>

AREA ASSESSMENT: <input checked="" type="checkbox"/> Edge survey <input type="checkbox"/> Partial survey <input type="checkbox"/> Full survey <input type="checkbox"/>	Area observed (m²): <u> </u>
EFFORT: Time spent surveying (minutes): <u> </u>	No. of minutes spent / 100 m²: <u> </u>
POP'N COUNT ACCURACY: <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Extrapolation <input type="checkbox"/> Estimate <input type="checkbox"/>	Count method: <u> </u>
(Refer to field manual for list)	
WHAT COUNTED: <input type="checkbox"/> Plants <input type="checkbox"/> Clumps <input type="checkbox"/> Clonal stems <input type="checkbox"/>	
TOTAL POP'N STRUCTURE:	
Alive	Mature: <u>1</u> Juveniles: <u> </u> Seedlings: <u> </u> Totals: <u> </u>
Dead	<u> </u> <u> </u> <u> </u> <u> </u>
QUADRAT \$ PRESENT:	No. <u> </u> Size <u> </u> Data attached <input type="checkbox"/> Total area of quadrats (m²): <u> </u>
Summary Quad. Totals: Alive	<u> </u> <u> </u> <u> </u> <u> </u>
REPRODUCTIVE STATE:	Clonal <input type="checkbox"/> Vegetative <input type="checkbox"/> Flowerbud <input type="checkbox"/> Flower <input type="checkbox"/>
Immature fruit <input type="checkbox"/> Fruit <input type="checkbox"/> Dehiscent fruit <input type="checkbox"/>	Percentage in flower: <u>100%</u>

CONDITION OF PLANTS: ☒ Healthy ☐ Moderate ☐ Poor ☐ Senescent ☐

COMMENT: Only the road reserve was searched

THREAT \$ - 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+)			
• <u> </u>			
• <u> </u>			
• <u> </u>			
• <u> </u>			

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 type="checkbox"/>	Seasonally inundated <input type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>		Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	0-10% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input type="checkbox"/>	Quartz <input type="checkbox"/>	30-50% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____	50-100% <input type="checkbox"/>	Specify other: _____	Specify other: _____	
Drainage line <input checked="" type="checkbox"/>					
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>	Specific Landform Element: _____				
	(Refer to field manual for additional values)				

CONDITION OF SOIL:

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. Melaleuca brevifolia over mixed samphires with Disphyma crassifolium and Frankenia tetrapetala.

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 MARKER 8: 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 AUTHORIZATION / LICENCE NO: FT61000788-1a 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: _____

LODGE: WA Herb ☐ KSW20622
Lodgement No: ACC9874

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☒ Other: _____

Submitter of Record: Katherine Walkerdén Role: Environmental officer Signed: _____ Date: 27/03/2023


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 ☐

Brachyloma mogin – Priority Three



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/biodiversity-and-animals/threatened-species-and-communities/threatened-plants

TAXON: <u>Brachyloma mogin</u>		TPFL Pop. No.: _____	
OBSERVATION DATE: <u>14/11/2022</u>		CONSERVATION STATUS: <u>P3</u> New population <input checked="" type="checkbox"/>	
OBSERVER/S: <u>Katherine Walkerden, Julie Waters</u>		PHONE <u>0418558774</u>	
ROLE: <u>Environmental officer, Environmental coordinator</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): _____
Boydell Road Reserve. Boydell road at SLK 0.48.

Reserve No.: _____

DBCA DISTRICT: <u>Esperance</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 type="checkbox"/>		GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>	
AGD84 / AMG84 <input type="checkbox"/>		Lat / Northing: <u>383078.5</u>		No. satellites: _____ Map used: _____	
WGS84 <input type="checkbox"/>		Long / Easting: <u>6284831.9</u>		Boundary polygon captured: <input type="checkbox"/> Map scale: _____	
Unknown <input type="checkbox"/>		ZONE: <u>51</u>			

LAND TENURE:

<input type="checkbox"/> 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 type="checkbox"/> SLK/Pole _____ to _____	<input type="checkbox"/> Specify other: _____

AREA ASSESSMENT: ☐ Edge survey ☒ Partial survey ☐ Full survey ☐ **Area observed (m²):** _____

EFFORT: **Time spent surveying (minutes):** _____ **No. of minutes spent / 100 m²:** _____

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

WHAT COUNTED:	<input type="checkbox"/> Plants	<input type="checkbox"/> Clumps	<input type="checkbox"/> Clonal stems	Area of pop (m²): _____
	TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	
Alive	<u>5</u>	_____	_____	Total area of quadrats (m²): _____
Dead	_____	_____	_____	

QUADRATS PRESENT: **No.** _____ **Size** _____ **Data attached** ☐ **Total area of quadrats (m²):** _____

Summary Quad. Totals: **Alive** _____

REPRODUCTIVE STATE:

<input type="checkbox"/> Clonal	<input type="checkbox"/> Vegetative	<input type="checkbox"/> Flowerbud	<input type="checkbox"/> Flower
<input type="checkbox"/> Immature fruit	<input type="checkbox"/> Fruit	<input type="checkbox"/> Dehiscent 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 & 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+)</small>	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• _____	_____	_____	_____
• _____	_____	_____	_____
• _____	_____	_____	_____

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 type="checkbox"/>	Seasonally inundated <input checked="" type="checkbox"/>
Ridge <input type="checkbox"/>	Laterite <input type="checkbox"/>		Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	0-10% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input type="checkbox"/>	Limestone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input type="checkbox"/>	Quartz <input type="checkbox"/>	30-50% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____	50-100% <input type="checkbox"/>	Specify other: _____	Specify other: _____	
Drainage line <input type="checkbox"/>					
Closed depression <input type="checkbox"/>					
Wetland <input checked="" type="checkbox"/>	Specific Landform Element: _____				
	(Refer to field manual for additional values)				
CONDITION OF SOIL:	Dry <input type="checkbox"/>	Moist <input checked="" 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
(M. tetragona)

1. Melaleuca cuticularis and M. brevifolia over mixed samphire's, *Austrostipa juncifolia*, *Disphyma crassifolium*.

2. Eucalyptus pleurocarpa over mixed heath

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 MARKER 8: 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: FT61000787 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: _____

LODGE: WA Herb ☒ KSW1121
Lodgement No: ACC9116

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: _____ Date: 28/03/2023


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 ☐

Daviesia pauciflora – Priority Three

 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

TAXON: <u>Daviesia pauciflora</u>		TPFL Pop. No.: <u> </u>
OBSERVATION DATE: <u>14/11/2022</u>	CONSERVATION STATUS: <u>P3</u>	New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>Katherine Walkerden, Julie Waters</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):
Boydell road at slk 0.98. North side of road.

Reserve No:

DBC DISTRICT: <u>Esperance</u>	LGA: <u>Esperance</u>	Land manager present: <input checked="" type="checkbox"/>
DATUM: <u>GDA94 / MGA94</u> <input checked="" type="checkbox"/> <u>AGD84 / AMG84</u> <input type="checkbox"/> <u>WGS84</u> <input type="checkbox"/> <u>Unknown</u> <input type="checkbox"/> COORDINATES: (If UTM coords provided, Zone is also required) DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input type="checkbox"/> Lat / Northing: <u>6284667.29</u> Long / Easting: <u>383471.96</u> ZONE: <u>51</u>		
METHOD USED: GPS <input type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/> No. satellites: <u> </u> Map used: <u> </u> Boundary polygon captured: <input type="checkbox"/> Map scale: <u> </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 <u> </u> to <u> </u> Specify other: <u> </u>		

AREA ASSESSMENT: <u>Edge survey</u> <input checked="" type="checkbox"/> <u>Partial survey</u> <input type="checkbox"/> <u>Full survey</u> <input type="checkbox"/> Area observed (m ²): <u> </u>																	
EFFORT: Time spent surveying (minutes): <u> </u> No. of minutes spent / 100 m ² : <u> </u>																	
POP'N COUNT ACCURACY: <u>Actual</u> <input type="checkbox"/> <u>Extrapolation</u> <input type="checkbox"/> <u>Estimate</u> <input type="checkbox"/> Count method: <u> </u> (Refer to field manual for list)																	
WHAT COUNTED: <u>Plants</u> <input type="checkbox"/> <u>Clumps</u> <input type="checkbox"/> <u>Clonal stems</u> <input type="checkbox"/>																	
<table border="1"> <tr> <th>TOTAL POP'N STRUCTURE:</th> <th>Mature:</th> <th>Juveniles:</th> <th>Seedlings:</th> <th>Totals:</th> <th>Area of pop (m²): <u> </u></th> </tr> <tr> <td>Alive</td> <td><u>3</u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td rowspan="2">Note: Pls record count as numbers (not percentages) for database.</td> </tr> <tr> <td>Dead</td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> <td><u> </u></td> </tr> </table>	TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:	Area of pop (m ²): <u> </u>	Alive	<u>3</u>	<u> </u>	<u> </u>	<u> </u>	Note: Pls record count as numbers (not percentages) for database.	Dead	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTAL POP'N STRUCTURE:	Mature:	Juveniles:	Seedlings:	Totals:	Area of pop (m ²): <u> </u>												
Alive	<u>3</u>	<u> </u>	<u> </u>	<u> </u>	Note: Pls record count as numbers (not percentages) for database.												
Dead	<u> </u>	<u> </u>	<u> </u>	<u> </u>													
QUADRAT \$ PRESENT: No. <u> </u> Size <u> </u> Data attached <input type="checkbox"/> Total area of quadrats (m ²): <u> </u> Summary Quad. Totals: Alive <u> </u> Dead <u> </u>																	
REPRODUCTIVE STATE: <u>Clonal</u> <input type="checkbox"/> <u>Vegetative</u> <input type="checkbox"/> <u>Flowerbud</u> <input type="checkbox"/> <u>Flower</u> <input type="checkbox"/> <u>Immature fruit</u> <input type="checkbox"/> <u>Fruit</u> <input type="checkbox"/> <u>Dehiscent fruit</u> <input type="checkbox"/> Percentage in flower: <u> </u> %																	
CONDITION OF PLANTS: <u>Healthy</u> <input checked="" type="checkbox"/> <u>Moderate</u> <input type="checkbox"/> <u>Poor</u> <input type="checkbox"/> <u>Senescent</u> <input type="checkbox"/> COMMENT: <u> </u>																	

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+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• <u> </u>	<u> </u>	<u> </u>	<u> </u>
• <u> </u>	<u> </u>	<u> </u>	<u> </u>
• <u> </u>	<u> </u>	<u> </u>	<u> </u>

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 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 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"/>	Specific Landform Element: _____				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				
CONDITION OF SOIL:	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 (Mitretrix sp.)

1. Eucalyptus pleurocarpa over mixed heath. Associated species include: Melaleuca pulchella, Isopogon polycephalus, Calothamnus gracilis, Lomandra mucronata, Hibbertia gracilipes, Goodenia scapigera, Acacia cyclops.

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 MARKER: 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: FT61000787, FT61000788 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: _____
KSW16922 ACC 9857

LODGE: WA Herb Lodgement No: _____
KSW16922 ACC 9857

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☒ Other: _____

Submitter of Record: Katherine walkerdon Role: Environmental officer Signed: _____ Date: 28/03/2023

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 ☐

Kunzea salina – Priority Three

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

TAXON: Kunzea salina		TPFL Pop. No: []	
OBSERVATION DATE: 14/11/2023		CONSERVATION STATUS: P3	
OBSERVER/S: []		PHONE 0416558774	
ROLE: Environmental officer, Environmental coordinator		ORGANISATION: Shire of Esperance	
EMAIL: Katherine.Walkerden@esperance.wa.gov.au			

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place): []
Boydell road, Southern side of road. 130m South West of Boydell road and Coolgardie-Esperance Highway intersection. 8.8km North West of Gibson Townsite.

Reserve No: []

DBCA DISTRICT: Esperance 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: 6284670.5 No. satellites: [] Map used: []

AGD84 / AMG84 ☐ Long / Easting: 384299.9 Boundary polygon captured: ☐ Map scale: []

WGS84 ☐ Zone: 51

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 (m²): []

EFFORT: Time spent surveying (minutes): [] No. of minutes spent / 100 m²: []

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:
Alive	69	[]	[]	[]
Dead	[]	[]	[]	[]

Area of pop (m²): []

QUADRAT \$ PRESENT: No. [] Size [] Data attached ☐ Total area of quadrats (m²): []

Summary Quad. Totals: Alive []

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒

Immature fruit ☐ Fruit ☐ Dehiscent fruit ☐ Percentage in flower: 90%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT: Only Northern bank of salt lake was earched, population likely significantly larger

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+)			
[]			
[]			

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 type="checkbox"/>
Hill <input type="checkbox"/>	Dolerite <input type="checkbox"/>		Sandy loam <input type="checkbox"/>	Brown <input type="checkbox"/>	Seasonally inundated <input checked="" 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 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"/>					
Closed depression <input type="checkbox"/>					
Wetland <input checked="" type="checkbox"/>	Specific Landform Element: _____				
	(Refer to field manual for additional values)				
CONDITION OF SOIL:	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
(M. tetragona)

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.)

FLORA AUTHORISATION / LICENCE NO: FT61000787, FT61000788-1a 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: _____

KSW21222_
LODGE: WA Herb
Lodgement No: ACC9874

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: _____ Date: 28/03/2023

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 ☐

Persoonia scabra – Priority Three - Eastern population (SLK 0-0.24)



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

TAXON: <u>Persoonia scabra</u>		TPFL Pop. No: <u>1</u>	
OBSERVATION DATE: <u>14/11/2022</u>		CONSERVATION STATUS: <u>P3</u> New population <input type="checkbox"/>	
OBSERVER/S: <u>Katherine Walkerden, Julie Waters</u>		PHONE: <u></u>	
ROLE: <u>Environmental officer, Environmental coordinator</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): <u></u>			
<u>LGA Road Reserve, along Boydells Rd. Ca 44m W of Coolgardie-Esperance Hwy intersection.</u>			
<u>SLK 0.23-0.05</u>			
DBCA DISTRICT: <u>Esperance</u>		Reserve No: <u></u>	
LGA: <u>Esperance</u>		Land manager present: <input checked="" type="checkbox"/>	
DATUM: COORDINATES: (If UTM coords provided, Zone is also required) METHOD USED:			
DecDegrees <input type="checkbox"/> DegMinSec <input type="checkbox"/> UTM <input checked="" type="checkbox"/>		GPS <input checked="" type="checkbox"/> Differential GPS <input type="checkbox"/> Map <input type="checkbox"/>	
GDA94 / MGA94 <input checked="" type="checkbox"/> Lat / Northing: <u>6284844.3</u>		No. satellites: <u></u> Map used: <u></u>	
AGD84 / AMG84 <input type="checkbox"/> Long / Easting: <u>384207.7</u>		Boundary polygon captured: <input type="checkbox"/> Map scale: <u></u>	
WGS84 <input type="checkbox"/>		Zone: <u>51</u>	
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 <u></u> to <u></u> Specify other: <u></u>		AREA ASSESSMENT: Edge survey <input checked="" type="checkbox"/> Partial survey <input type="checkbox"/> Full survey <input type="checkbox"/> Area observed (m²): <u></u>	
EFFORT: Time spent surveying (minutes): <u></u> No. of minutes spent / 100 m²: <u></u>		POP'N COUNT ACCURACY: Actual <input checked="" type="checkbox"/> Extrapolation <input type="checkbox"/> Estimate <input type="checkbox"/> Count method: <u></u>	
WHAT COUNTED: Plants <input type="checkbox"/> Clumps <input type="checkbox"/> Clonal stems <input type="checkbox"/>		(Refer to field manual for list)	
TOTAL POP'N STRUCTURE:		Area of pop (m²): <u></u>	
Alive: <u>5</u>		Note: Pls record count as numbers (not percentages) for database.	
Dead: <u></u>		QUADRATS PRESENT: No. <u></u> Size <u></u> Data attached <input type="checkbox"/> Total area of quadrats (m²): <u></u>	
Summary Quad. Totals: Alive <u></u>		REPRODUCTIVE STATE: Clonal <input type="checkbox"/> Vegetative <input type="checkbox"/> Flowerbud <input type="checkbox"/> Flower <input type="checkbox"/>	
Immature fruit <input type="checkbox"/> Fruit <input type="checkbox"/> Dehiscent fruit <input type="checkbox"/> Percentage in flower: <u></u> %		CONDITION OF PLANTS: Healthy <input type="checkbox"/> Moderate <input type="checkbox"/> Poor <input type="checkbox"/> Senescent <input type="checkbox"/>	
COMMENT: <u></u>			

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+)			
• <u></u>			
• <u></u>			
• <u></u>			

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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"/>		Loam <input type="checkbox"/>	Yellow <input type="checkbox"/>	Permanently inundated <input type="checkbox"/>
Outcrop <input type="checkbox"/>	Ironstone <input type="checkbox"/>	0-10% <input type="checkbox"/>	Clay loam <input type="checkbox"/>	White <input type="checkbox"/>	Tidal <input type="checkbox"/>
Slope <input checked="" type="checkbox"/>	Limestone <input type="checkbox"/>	10-30% <input type="checkbox"/>	Light clay <input type="checkbox"/>	Grey <input type="checkbox"/>	
Flat <input type="checkbox"/>	Quartz <input type="checkbox"/>	30-50% <input type="checkbox"/>	Peat <input type="checkbox"/>	Black <input type="checkbox"/>	
Open depression <input type="checkbox"/>	Specify other: _____	50-100% <input type="checkbox"/>	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)				
CONDITION OF SOIL:	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 (Mitretrigonella)

1. Eucalyptus pleurocarpa over mixed heath

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 MARKER: 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: _____ 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: _____

LODGE: WA Herb _____ **PERTH**
Lodgement No: 09375449

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☒ Other: _____

Submitter of Record: Katherine Walkerdon Role: Environmental Officer Signed: _____ Date: 29/03/2022

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 ☐

Persoonia scabra – Priority Three – Central Eastern population (SLK 3.49-3.51)

Department of Biodiversity, Conservation & Attractions - Threatened and Priority Flora System

RFR Summary

Report Created Date: 25/JAN/2022

Search Criteria: Taxon:2275; Fire Reports excluded

Records: 3

Taxon: 2275	Persoonia scabra	Sheet: 155214	Observation Date: 07/10/2020
--------------------	-------------------------	----------------------	-------------------------------------

Pop: 2	SubPop:	Consrv Code: 3	Rank:	Fire Rep: N	NewPop: Y
---------------	----------------	-----------------------	--------------	--------------------	------------------

Lat:	GDA94Lat: -33.5716	Observer: Julie Waters and Danika Penson
Long:	GDA94Long: 121.718	Role: Conservation employee
Vesting: Shire/LGA		Purpose: Road Reserve
Region: SOUTH COAST		District: ESPERANCE
Location: LGA Road Reserve, along Boydells Rd. Ca 3.4km W of Coolgardie-Esperance Hwy intersection. Plants on southern road reserve only		

Count Method: Actual count - individuals	Organisation:
Plant Type: Plants	Land Mgr Present:
Number of Plants	Area Assessment: Partial survey
Mature: 5	No. of Quadrants:
Juveniles:	Area Occupied m²:
Seedlings:	In Flower: Y
OR Simple Count:	
Simple Dead Count:	
Dead Calc Total:	

Population Condition: Healthy

Population Notes:

Habitat Condition:

Habitat notes: Open mallee over open mixed shrubland with Hakea sp. and sedges

Soil Type: Sandy loam

Rock Type:

Landform: Depression - closed

Drainage: Seasonally inundated

Associated Species: Hakea corymbosa, Verticordia sp., Hakea trifurcata, Eucalyptus sp.

Fire Season:

Fire Year:

Fire Intensity:

Fencing Status:

Roadside Marker:

Other Comments: Note was not counted extensively in survey - 15 GPS points recorded, so minimum amount is 15 plants present.

Confirmation by specimen KW094, Accession 8652, Confirmed by Michael Hislop 10/12/20.

Specimen KW094 not retained by WA Herbarium.

Collector no: KW 094

Voucher Location:

Barcode:

Attached Doc1:

Permit/Licence No.:

Attached Doc2:

Veg Class:	Veg Structure	Dominant 1	Dominant 2
	open mallee woodland <10m, 0.25-20% shrubland 1-2m, 50-80% sedge		

Threat	Agent	Current	Potential	Comments
Track/firebreak maintenance	Road manager		Medium	Road widening - no longer scheduled for road widening due to environmental values. Will work in current road footprng. Unknown previously how many plants would be cleared as was not counted.

Persoonia scabra – Priority Three – Central Western population (SLK 6.29-6.71)



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-claims

TAXON:	Persoonia scabra	TPFL Pop. No:	
OBSERVATION DATE:	25/10/2022	CONSERVATION STATUS:	P3 New population <input checked="" type="checkbox"/>
OBSERVER/S:	Julie Waters, Katherine Walkerden	PHONE	
ROLE:	Environmental Coordinator, Environmental Officer	ORGANISATION:	Shire of Esperance
EMAIL:	Katherine.Walkerden@esperance.wa.gov.au		

DESCRIPTION OF LOCATION (Provide at least nearest town/village locality, and the distance and direction to that place):

Boydell road at SLK 6.29-6.71, 6.28km West of Boydell road and Coolgardie Esperance Highway Intersection.

DBCA DISTRICT:	Esperance	LGA:	Esperance	Reserve No:	
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"/>	UTMs <input checked="" type="checkbox"/>	GPS <input type="checkbox"/>	Differential GPS <input type="checkbox"/>
AGD84 / AMG84 <input type="checkbox"/>	Lat / Northing:	6284561		No. satellites:	Map used:
WGS84 <input type="checkbox"/>	Long / Easting:	377717		Boundary polygon captured:	Map scale:
Unknown <input type="checkbox"/>	ZONE:	51			
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 <input type="checkbox"/>	Specify other:	

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

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+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
•			
•			
•			

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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 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 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"/>	Specific Landform Element: _____				
Wetland <input type="checkbox"/>	(Refer to field manual for additional values)				
CONDITION OF SOIL:	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. illidifolia);
2. Open shrubland (Hibbertia sp., Acacia spp.);
3. Isolated clumps of sedges (Mitretragona)

1. Mixed Mallees and Hakea laurina over Acacia dominated shrubland with Santalum acuminatum.

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.)

FLORA AUTHORISATION / LICENCE NO: FT61000787_FT61000788-1a 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: _____

KSW20322

LODGE: WA Herb Lodgement No: ACC 9874

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____


COPY SENT TO: Regional Office ☐ District Office ☒ Other: _____

Submitter of Record: Katherine Walkerdon Role: Environmental Officer Signed: _____ Date: 29/03/2023

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 ☐

Persoonia scabra – Priority Three –Western population (SLK 7.94)

 Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

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TAXON: <u>Persoonia scabra</u>		TPFL Pop. No: <u> </u>
OBSERVATION DATE: <u>25/10/2022</u>	CONSERVATION STATUS: <u>P3</u>	New population <input checked="" type="checkbox"/>
OBSERVER/S: <u>Julie Waters, Katherine Walkerden</u>		PHONE <u> </u>
ROLE: <u>Environmental Coordinator, 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):

Boydell road, Northern side of road, 7.92km West of Boydell road and Coolgardie-Esperance Highway Intersection. 14.8km North West of Gibson Townsite.

SLK 7.94 Reserve No:

DBCA DISTRICT: <u>Esperance</u>	LGA: <u>Esperance</u>	Land manager present: <input checked="" 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>6284584</u>	No. satellites: <u> </u> Map used: <u> </u>
WGS84 <input type="checkbox"/>	Long / Easting: <u>376488</u>	Boundary polygon captured: <input type="checkbox"/> Map scale: <u> </u>
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 <u> </u> to <u> </u>	Specify other: <u> </u>

AREA ASSESSMENT: Edge survey ☐ Partial survey ☐ Full survey ☐ Area observed (m²):

EFFORT: Time spent surveying (minutes): No. of minutes spent / 100 m²:

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 (m²): <u> </u> Note: Pls record count as numbers (not percentages) for database.
Alive	<u>3</u>	<u> </u>	<u> </u>	<u> </u>	
Dead	<u> </u>	<u> </u>	<u> </u>	<u> </u>	

QUADRATS PRESENT: No. Size Data attached ☐ Total area of quadrats (m²):

Summary Quad. Totals: Alive

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☒ Dehiscent fruit ☐ Percentage in flower: %

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

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+)	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• <u> </u>	<u> </u>	<u> </u>	<u> </u>
• <u> </u>	<u> </u>	<u> </u>	<u> </u>
• <u> </u>	<u> </u>	<u> </u>	<u> </u>

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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 ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK:	SOIL TYPE:	SOIL COLOUR:	DRAINAGE:
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 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 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: <input type="text"/>		Specify other: <input type="text"/>	Specify other: <input type="text"/>	
Drainage line <input type="checkbox"/>					
Closed depression <input type="checkbox"/>					
Wetland <input type="checkbox"/>	Specific Landform Element: (Refer to field manual for additional values)				
CONDITION OF SOIL:	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
(Miscanthus)

1. Mixed Mallees and Hakea laurina over Acacia dominated shrubland with Santalum acuminatum.

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.)

FLORA AUTHORISATION / LICENCE NO: FT61000787, FT61000788-1a 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:

KSW20422

LODGE: WA Herb Lodgement No: ACC 9874

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other:

COPY SENT TO: Regional Office ☐ District Office ☒ Other:

Submitter of Record: Katherine Walkerdon Role: Environmental Officer Signed: Date: 29/03/2023


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 ☐

Grevillea baxteri – Priority Four



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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

TAXON: <u>Grevillea baxteri</u>		TPFL Pop. No.: <u> </u>	
OBSERVATION DATE: <u>14/11/2023</u>		CONSERVATION STATUS: <u>P4</u> New population <input checked="" type="checkbox"/>	
OBSERVER/S: <u>Katherine Walkerden, Julie Waters</u>		PHONE: <u> </u>	
ROLE: <u>Environmental officer, Environmental coordinator</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):
On Boydell Road SLK 1.18 on north side of road.

Reserve No.:
DBC DISTRICT: Esperance **LGA:** Esperance **Land manager present:** ☒

DATUM: GDA94 / MGA94 ☒ AGD84 / AMG84 ☐ WGS84 ☐ Unknown ☐
COORDINATES: (If UTM coords provided, Zone is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒ GPS ☐ Differential GPS ☐ Map ☐
Lat / Northing: 6284648 **No. satellites:** **Map used:**
Long / Easting: 383251 **Boundary polygon captured:** ☐ **Map scale:**
ZONE: 51

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	<input type="checkbox"/> SLK/Pole <u> </u> to <u> </u>	<input type="checkbox"/> Specify other: <u> </u>

AREA ASSESSMENT: Edge survey ☒ Partial survey ☐ Full survey ☐ **Area observed (m²):**
EFFORT: **Time spent surveying (minutes):** **No. of minutes spent / 100 m²:**
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 (m²): <u> </u> <small>Note: Pls record count as numbers (not percentages) for database.</small>
Alive	<u>3</u>	<u> </u>	<u> </u>	<u> </u>	
Dead	<u> </u>	<u> </u>	<u> </u>	<u> </u>	

QUADRAT \$ PRESENT: **No.** **Size** **Data attached** ☐ **Total area of quadrats (m²):**
Summary Quad. Totals: **Alive**
REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☐ Dehiscent fruit ☐ **Percentage in flower:** 100%

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 & 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+)</small>	Current Impact (N-E)	Potential Impact (L-E)	Potential Threat Onset (S-L)
• <u> </u>	<u> </u>	<u> </u>	<u> </u>
• <u> </u>	<u> </u>	<u> </u>	<u> </u>

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Record entered by: Sheet No.: Record Entered in Database ☐



Department of Biodiversity,
Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

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

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

VEGETATION CLASSIFICATION*:

1. Eucalyptus pleurocarpa over mixed heath

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: _____

ROAD SIDE MARKER 8: 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: FT61000787 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: _____

KSW1221

LODGE: WA Herb Lodgement No: 9116

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☒ Other: _____

Submitter of Record: Katherine Walkerdien Role: Environmental officer Signed: _____ Date: 28/03/2023

Please return completed form to Species And Communities Program DBCA,
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RECORDS: Please forward to Flora Administrative Officer, Species and Communities Program.

Record entered by: _____ Sheet No.: _____ Record Entered in Database ☐

Appendix 3: Description of Threatened and Priority Flora Species with the Potential to occur within the Boydell Road, SLK 0 - 11.83 Survey Area

Threatened or priority flora identified by the desktop study to be present within a 20 km radius of 'Site H – Boydell Road, SLK 0 - 11.83' project area, using Threatened and Priority Flora Reporting (TPFL; DBCA 2022c), WA Herbarium (DBCA 2022d) 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	Distance from site (km)
<i>Beyeria physaphylla</i>	P1	Mallee woodlands – only known to Scaddan	Yes	11.74
<i>Darwinia</i> sp. Gibson (R.D. Royce 3569)	P1	Margins of salt lakes and road verges on grey-brown sandy loam and white sand	Collected in 2020 survey	0.01
<i>Eucalyptus misella</i>	P1	Restricted to field road after end of farmland. Potentially inaccurate TPFL records.	No	12.92
<i>Goodenia turleyae</i>	P1	White or grey-brown sand over clay, yellow-brown gravelly clay and granite. Moist sheltered areas, near salt lakes.	Yes	3.29
<i>Leucopogon remotus</i>	P1	Banksia media woodland and near salt lakes	No	15.31
<i>Leucopogon</i> sp. Lake Magenta (K.R. Newbey 3387)	P1	Undulating plains and slopes. Sand and loamy sand, sometimes over laterite.	Yes	19.33
<i>Pimelea pelinos</i>	P1	Grey sandy clay. Shrubland, flat ground above/beside salt lakes.	Yes	13.00
<i>Schoenus</i> sp. Grey Rhizome (K.L. Wilson 2922)	P1	Sandy clay, sand	Yes	17.78
<i>Acacia diminuta</i>	P1	Scattered populations from Jerramungup to Scaddan. Grows in sandy clay. Mallee shrubland.	Yes	19.00
<i>Comesperma griffinii</i>	P2	Yellow or grey sand on plains. Scattered across WA.	Yes	18.95

<i>Darwinia</i> sp. Mt Ragged (S. Barrett 663)	P2	Open shrub or mallee on sandy loams. Disjunct populations, one group at Cape arid National Park and another along Spedingup Road West	Yes	15.84
<i>Fabronia hampeana</i>	P2	Moss, only grows on trunks of large Macrozamia. Four populations throughout Southwest Australia	No	7.16
<i>Goodenia exigua</i>	P2	Variety of habitats, Plains, valleys & salt lakes.	Yes	16.60
<i>Hibbertia turleyana</i>	P2	Sandy soil maybe seasonally inundated in banksia heathland or mallee shrubland (recorded at Helms Arboretum and Gibson, Speddingup East Rd)	Yes	10.03
<i>Hydrocotyle tuberculata</i>	P2	Damp sandy loam soils associated with winter-moist creeklines and drainage areas associated with inland saline lake.	Yes	12.81
<i>Leucopogon corymbiformis</i>	P2	Scattered Nuytsia floribunda and Banksia speciosa over mixed Myrtaceous & Proteaceous heath. Sandy soil.	No	8.13
<i>Melaleuca viminea</i> subsp. <i>appressa</i>	P2	Shallow sand over clay. Near creeks or wet depressions.	No	18.42
<i>Patersonia inaequalis</i>	P2	Sandy clay, lateritic or granitic sand	No	10.03
<i>Spyridium mucronatum</i> subsp. <i>multiflorum</i>	P2	Gravelly loam or clay. Found in Mallee Woodland.	Yes	1.46
<i>Tecticornia indefessa</i>	P2	White to brown-grey sand. Edge of salt lakes.		19.12
<i>Thysanotus brachiatus</i>	P2	Mallee sandplain shrublands	Yes	16.11

<i>Stenanthera lacsalaria</i>	P2	Grey-white fine sand over clay on the margins of salt lakes, associated with Myrtaceous shrubs and halophytes.	Yes	11.11
<i>Paracaleana parvula</i>	P2	Deep white sands in mallee heath with <i>Banksia media</i>	Yes	9.45
<i>Acacia bartlei</i>	P3	Grows in sandy or clay loam, associated with <i>Eucalyptus occidentalis</i> (flat topped yate) and salt depressions between Salmon Gums and Scaddan areas.	Yes	11.49
<i>Acacia euthyphylla</i>	P3	Grey/white clay loam, in seasonal swamps or periphery of salt lakes and marshes, in tall myrtaceous shrubland and mallee woodland.	Yes	13.46
<i>Austrobaeckea uncinella</i>	P3	Yellow or white sand, clay loam. Edges of salt lakes, salt creeks, sandplains.	Yes	13.15
<i>Bossiaea flexuosa</i>	P3	Grows on sand and sandy loam, often near salt lakes. Associated with low open scrub, with emergent <i>Eucalypts</i> .	Yes	14.07
<i>Brachyloma mogin</i>	P3	Various soil types including brown sandy loam, grey clayey sand and swamp flats. Mostly recorded outside of Esperance Area.	Collected in 2020 survey	0.50
<i>Comesperma calcicola</i>	P3	Calcareous or semi-saline clay loams, limestone. Areas around saline water.	No	8.33

<i>Commersonia rotundifolia</i>	P3	Eucalyptus platypus woodland over Acacia shrubland. Clay Loam Soil. Esperance region specimens are geographically inaccurate.	No	10.03
<i>Dampiera sericantha</i>	P3	Sand sometimes with gravel. Associated with plains.	Yes	6.13
<i>Dampiera triloba</i>	P3	Esperance records are likely misidentified <i>D. fasciculata</i>	No	16.96
<i>Daviesia pauciflora</i>	P3	White or grey sand over laterite or limestone. Flats.	Yes	6.13
<i>Eucalyptus foliosa</i>	P3	Sandplain, above saline depressions	Yes	5.93
<i>Gonocarpus pycnostachyus</i>	P3	Associated with seasonal wet depressions and pools on granite rocks.	No	16.62
<i>Goodenia laevis subsp. laevis</i>	P3	Woodland with Melaleuca shrubland. Prefers limestone or white clay loam. Associated with disturbance	Yes	15.29
<i>Isopogon alpicornis</i>	P3	Various habitats - sandy soils, skeletal loam on granite, sandhill's, flat lakes and sandplains.	Yes	0.07
<i>Kunzea salina</i>	P3	White sand over clay at the margins of salt playa lakes, restricted to marginal sand dunes	Collected in 2020 survey	0.03
<i>Melaleuca dempta</i>	P3	Associated with Mallee shrubland. Grows near salt lakes and winter wet depressions. Soil types recorded on are clay over laterite and loam.	Yes	0.09
<i>Persoonia cymbifolia</i>	P3	Sandy soils. On flats or in rock crevices. Wide distribution, across the Mallee woodland area.	Yes	12.93

<i>Persoonia scabra</i>	P3	White sand or sandy loam. Widespread from coastal to inland Mallee. Sandy heathland environment over gravel, granite or limestone.	Collected in 2020 survey	0.00
<i>Pityrodia chrysocalyx</i>	P3	Salmon Gums & Grass Patch area. Sandplains with yellow sands. Associated with Eucalyptus Mallee woodlands with Banksia media and Hakea sp.	No	19.62
<i>Pterostylis faceta</i>	P3	Melaleuca Mallee scrubland, Granite, sandy loam	Yes	13.74
<i>Styphelia rotundifolia</i>	P3	Eucalyptus mallee with mixed Myrtaceous and Fabaceae shrubland. Wide variety of habitats. Often associated with gravel.	Yes. Recent collection made 500m from project area.	16.23
<i>Conostephium marchantiorum</i>	P3	White/grey sand. Plains, creeklines, edges of salt lakes.	Yes.	3.15
<i>Eremophila chamaephila</i>	P3	Open mallee woodland with limestone.	No	13.46
<i>Eucalyptus famelica</i>	P3	Coastal dunes on low ground, saline waterlogged soils. open Mallee community.	No	17.48
<i>Trachymene anisocarpa</i> var. <i>trichocarpa</i>	P3	Sandy soils. Recently disturbed or burnt sites, woodlands, plains. Often near granite outcrops.	No	19.56
<i>Eucalyptus dolichorhyncha</i>	P4	Small areas south of Salmon gums flats or slightly rising ground with whitish to yellowish sandy clay soil	No	10.52
<i>Eucalyptus preissiana</i> subsp. <i>lobata</i>	P4	Coastal limestone rises and sand dunes	No	16.26
<i>Caladenia arrecta</i>	P4	Grows on loam, gravel, and laterite. Associated with moist conditions.	Yes	10.52

<i>Darwinia polycephala</i>	P4	Sand & clay on flats near salt lakes	Yes	13.46
<i>Grevillea baxteri</i>	P4	Prefers shrubby heathland with an acid sandy soil usually overlaying heavier soils. Associated with highly diverse Proteaceous shrublands.	Yes	3.30
<i>Melaleuca fissurata</i>	P4	Mallee shrubland or woodland on sand or sandy loam usually over clay or clay loam.	Yes	11.61
<i>Eremophila glabra</i> subsp. <i>Scaddan</i>	T	Open Mallee woodland on grey brown clayey sand.	Yes	0.12
<i>Anigozanthos bicolor</i> subsp. <i>minor</i>	T	Granite ephemeral damp areas with Drosera and moss	No	16.23
<i>Eucalyptus merrickiae</i>	T	Sandy, loamy depressions around salt lakes and saline flats – open mallee shrubland with dense scrub underneath	Yes	6.33
<i>Conostylis lepidospermoides</i>	T	Grey or yellow-brown sand over laterite in heath.	Yes	17.97
<i>Lambertia echinata</i> subsp. <i>echinata</i>	T	Restricted to Cape Le Grand National Park. Nearby record was from translocation experiment	No	16.45

Appendix 4: Description of Threatened and Priority Fauna Species with the Potential to occur within the Boydell Road, SLK 0 - 11.83 Survey Area

Scientific Name	Common Name	WA Cons Status	EPBC Status	Distance from site (km)	EPBC protected matters tool	Habitat	Likely to occur
<i>Actitis hypoleucos</i>	Common Sandpiper	MI	MI	14.20		Utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats	No
<i>Ardenna carneipes</i>	Flesh-footed Shearwater	VU	MI	14.20		Headlands and islands covered with tussocks and succulent vegetation.	No
<i>Arenaria interpres</i>	Ruddy turnstone	MI	MI	14.20		It is found in most coastal regions, with occasional records of inland populations. It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern		EN		X	The Australasian bittern inhabits shallow (less than 30cm deep), permanent freshwater and brackish swamps or lagoons that are densely vegetated (e.g. tall reeds, sedges, lignum). They also inhabit bore drains with tussocky vegetation and occasionally saltmarsh. They use temporary pools when population densities are high and deep swamps when breeding	No
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	MI	14.20		Muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, salt pans and hypersaline salt lakes inland.	Yes

<i>Calidris alba</i>	Sanderling	MI	MI	14.20		Almost always found on the coast, mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed	No
<i>Calidris canutus</i>	Red Knot, Knot		EN		X	intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. They are occasionally seen on terrestrial saline wetlands near the coast, such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks, but rarely use freshwater swamps. They rarely use inland lakes or swamps.	No
<i>Calidris ferruginea</i>	Curlew sandpiper	CR	MI	14.20	X	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters.	No
<i>Calidris ruficollis</i>	Red-necked stint	MI	MI	14.20		Coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have been recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals. They also occur in saltworks and sewage farms; saltmarsh; ephemeral or permanent shallow wetlands near the coast or inland, including lagoons, lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in saltflats. They sometimes use flooded paddocks or damp grasslands. They have occasionally been recorded on dry gibber plains, with little or no perennial vegetation.	No

<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	EN	EN	8.98	X	Uncleared and remnant areas of woodland, shrubland and kwongan heath dominated by proteaceous species. They breed in the semiarid and subhumid interior eucalypt woodlands, principally dominated by Salmon Gum <i>Eucalyptus salmonophloia</i> or Wandoo <i>Eucalyptus wandoo</i>	Yes
<i>Cereopsis novaehollandiae grisea</i>	Recherche Cape Barren goose	VU	VU	14.20	X	During breeding season (May-June), found in grassy areas, tussock grass of bushes. During rest of year, found on beaches, coastal pastures and on the shores of brackish lakes.	No
<i>Charadrius bicinctus</i>	Double-banded Plover	MI	MI	14.20		They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons, and inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs. They are occasionally recorded on near-coastal saltworks and saltlakes, including marginal saltmarsh, and on brackish swamps.	No
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll		Vulnerable		X	Jarrah <i>Eucalyptus marginata</i> forests and woodlands, Mallee shrublands and heathlands	Yes
<i>Diomedea exulans</i>	Wandering albatross	VU	VU	14.20		Marine	No
<i>Falco hypoleucos</i>	Grey Falcon		Vulnerable		X	The distribution of this species is restricted largely to areas of the highest annual average temperatures where there is an average annual rainfall of less than 500 mm. It favours lightly timbered and untimbered lowland plains that are crossed by tree-lined watercourses. It uses the abandoned nests of other bird species, particularly corvids.	Yes
<i>Falco peregrinus</i>	Peregrine falcon	OS		14.20		Most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas	Yes

<i>Hydroprogne caspia</i>	Caspian Tern	MI	MI	14.20		Sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They also use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs	Yes
<i>Leipoa ocellata</i>	Malleefowl	VU	VU	4.11	x	Shrublands and low woodlands dominated by mallee and are associated with Broombush, <i>Melaleuca uncinata</i>	No
<i>Limosa lapponica</i>	Bar-tailed godwit	MI	MI	14.20		Coastal areas	No
<i>Limosa limosa</i>	Black-tailed godwit	MI	MI	14.20		Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps.	No
<i>Numenius madagascariensis</i>	Eastern Curlew		Critical ly Endangered		X	Intertidal mudflats	No
<i>Oxyura australis</i>	Blue-billed duck	P4		14.20		Fresh to saline, deep permanent open wetlands and deep, densely vegetated lakes.	No
<i>Pandion haliaetus</i>	Osprey	MI	MI	14.20		Occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers. They require extensive areas of open fresh, brackish or saline water for foraging. They may occur over atypical habitats such as heath, woodland or forest when travelling to and from foraging sites.	No

<i>Parasuta spectabilis bushi</i>	Spectacled hooded snake (Esperance)	P1		13.46		Scaddan area.	Yes
<i>Pezoporus flaviventris</i>	Western ground parrot	CR	CR	7.93		low, dry or swampy near-coastal heathland. It usually occurs in habitat that has remained unburnt for long periods of time.	No
<i>Pluvialis squatarola</i>	Grey plover	MI	MI	14.20		Coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes	No
<i>Stercorarius antarcticus lonnbergi</i>	Brown Skua, Subantarctic skua	P4		14.20		Marine	No
<i>Sterna hirundo</i>	Common tern	MI	MI	14.20		Marine	No
<i>Sternula nereis nereis</i>	Australian Fairy Tern		Vulnerable		X	Marine	No
<i>Thalassarche cauta cauta</i>	Shy albatross	VU	MI	14.20		Marine	No
<i>Thalassarche chlororhynchos</i>	Atlantic yellow-nosed albatross	VU	MI	14.20		Marine	No
<i>Thalassarche melanophris</i>	Black-browed albatross	EN	MI	14.20		Marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics	No
<i>Thalasseus bergii</i>	Crested tern	MI	MI	14.20		Coastal areas throughout Australia. They are seldom seen on inland waterways, preferring islands, beaches, lakes and inlets	No

<i>Thinornis rubricollis</i>	Hooded plover	P4		14.20		Predominantly on ocean beaches; at times on adjacent reef platforms, coastal inlets and lakes	No
<i>Tringa glareola</i>	Wood sandpiper	MI	MI	14.20		Well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes.	No
<i>Tringa nebularia</i>	Common greenshank	MI	MI	3.72		Coastal and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.	Yes

Appendix 5: State Threatened and Priority Flora and Fauna Definitions

Category	Definition
T – Threatened	<p>Taxa that have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedules 1 to 4 of the Wildlife Conservation (Rare Flora) Notice under the WC Act). Threatened flora are further ranked by the DBCA to align with IUCN Red List categories and criteria:</p> <p>CR: Critically Endangered – considered to be facing an extremely high risk of extinction in the wild (Schedule 1);</p> <p>EN: Endangered – considered to be facing a very high risk of extinction in the wild (Schedule 2); or</p> <p>VU: Vulnerable – considered to be facing a high risk of extinction in the wild (Schedule 3).</p> <p>EX: Presumed Extinct – taxa that have been adequately searched for and there is no reasonable doubt that the last individual has died (Schedule 4)</p>
P1 – Priority 1 (Poorly known taxa)	<p>Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation.</p> <p>Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.</p>
P2 – Priority 2 (Poorly known taxa)	<p>Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc.</p> <p>Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.</p>
P3 – Priority 3 (Poorly known taxa)	<p>Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.</p> <p>Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.</p>
P4 – Priority 4 (Rare, Near Threatened and other taxa in need of monitoring)	<p>1. Rare - Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>2. Near Threatened - Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>3. Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy</p>

Appendix 6: Commonwealth Definition of Threatened Flora and Fauna Species (Environment Protection and Biodiversity Conservation, EPBC Act 1999)

Category Code	Category
Ex	Extinct Taxa which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
ExW	Extinct in the Wild Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	Critically Endangered Taxa which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	Endangered Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
V	Vulnerable Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	Conservation Dependent Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

Appendix 7: State Definition of Threatened Ecological Communities

Category Code	Category
PTD	<p>Presumed Totally Destroyed</p> <p>An ecological community will be listed as Presumed Totally Destroyed if there are no recent records of the community being extant and either of the following applies:</p> <ul style="list-style-type: none"> (i) records within the last 50 years have not been confirmed despite thorough searches or known likely habitats or; (ii) all occurrences recorded within the last 50 years have since been destroyed.
CE	<p>Critically Endangered</p> <p>An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; (ii) The current distribution is limited ie. highly restricted, having very few small or isolated occurrences, or covering a small area; (iii) The ecological community is highly modified with potential of being rehabilitated in the immediate future.
E	<p>Endangered</p> <p>An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. The ecological community must meet any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; (ii) The current distribution is limited ie. highly restricted, having very few small or isolated occurrences, or covering a small area; (iii) The ecological community is highly modified with potential of being rehabilitated in the short term future.
V	<p>Vulnerable</p> <p>An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one of the following criteria:</p> <ul style="list-style-type: none"> (i) The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; (ii) The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; (iii) The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.

Appendix 8: State Definition of Priority Ecological Communities

Category Code	Category
P1	Poorly-known ecological communities Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.
P2	Poorly-known ecological communities Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.
P3	Poorly known ecological communities (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 within Significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; (iii) Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
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.
P5	Conservation Dependent ecological communities Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Appendix 9: Commonwealth Definition of Threatened Ecological Communities

Three categories exist for listing threatened ecological communities under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

Listing Category Code	Explanation of Category
Critically endangered	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
Vulnerable	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium term future.

Appendix 10: Categories and Control of Declared (Plant) Pests in Western Australia

Control Category	Control Measures
<p>C1 (Exclusion) ‘(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented’ Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.</p>	<p>In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p>C2 (Eradication) ‘(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible’. Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.</p>	<p>In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.</p>
<p>C3 (Management) ‘(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to — (i) alleviate the harmful impact of the declared pest in the area; or (ii) reduce the number or distribution of the declared pest in the area; or (iii) prevent or contain the spread of the declared pest in the area.’ Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.</p>	<p>In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to — (a) alleviate the harmful impact of the declared pest in the area for which it is declared; or (b) reduce the number or distribution of the declared pest in the area for which it is declared; or (c) prevent or contain the spread of the declared pest in the area for which it is declared.</p>

Appendix 11: Definition of Vegetation Condition Scale

For the south west and interzone botanical provinces

Condition Rating	Description
Pristine (1)	Pristine or nearly so, no obvious signs of disturbance
Excellent (2)	Vegetation structure intact; disturbance affecting individual species; weeds are non-aggressive species.
Very Good (3)	Vegetation structure altered; obvious signs of disturbance For example, disturbance to vegetation structure caused by repeated fires; the presence of some more aggressive weeds; dieback; logging; & grazing.
Good (4)	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires; the presence of some very aggressive weeds at high density; partial clearing; dieback; & grazing
Degraded (5)	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires; the presence of very aggressive weeds; partial clearing; dieback; & grazing.
Completely Degraded (6)	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 or shrubs.

Appendix 12: Carnaby's Cockatoo foraging habitat scoring template

Adapted from Tables A1 and A2 of Department of Agriculture, Water and the Environment (2022)

Starting score	Carnaby's Cockatoo	
10	<p>Start at a score of 10 if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as <i>Banksia</i> spp. (including <i>Dryandra</i> spp.), <i>Hakea</i> spp. and <i>Grevillea</i> spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation.</p> <p>*This tool only applies to sites equal to or larger than 1 hectare in size.</p>	
Attribute	Subtractions	Context adjustor (attributes reducing functionality of foraging habitat)
Foraging potential	-2	Subtract 2 from your score if there is no evidence of feeding debris on your site.
Connectivity	-2	Subtract 2 from your score if you have evidence to conclude that there is no other foraging habitat within 1km of your site.
Proximity to breeding	-2	Subtract 2 if you have evidence to conclude that your site is more than 12km from breeding habitat.
Proximity to roosting	-1	Subtract 1 if you have evidence to conclude that your site is more than 20km from a known night roosting habitat.
Impact from significant plant disease	-1	Subtract 1 if your site has disease present (e.g. <i>Phytophthora</i> spp. or Marri canker) and the disease is preferred food plants present.
Total score	Enter score	
Other considerations for assessment of foraging habitat	<ul style="list-style-type: none"> - The presence, extent and density (including foliage cover and flowering density) of all plant species that provide foraging, including non-native food sources used - The distribution and size of foraging habitat in proximity (e.g. up to 12 km) to the impact site. - Site degradation (such as cleared, disturbed or degraded areas). - The fire history of the impact site. - Landscape characteristics around the impact site, including details of roosting and breeding habitat in proximity (e.g. up to 20km for roosting and 12km for breeding); and - The location and details of watering points that could support the use of the foraging habitat. 	
Appraisal	<p>To support your habitat score, you should provide an overall appraisal of the habitat on the impact site and within 20km of the impact area to clearly explain and justify the score. It should include discussion on the foraging habitat's proximity to other resources (e.g. exact distance to proximate resources), frequency of use of proximate sites, the degree of evidence and description of vegetation type and condition.</p>	

Appendix 13: EPBC Act Protected Matters Report

Listed Threatened Ecological Communities

Community Name	Threatened Category	Rank	Presence	
			Text	Buffer Status
Proteaceae Dominated Kwongan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	Likely	Community likely to occur within area	In feature area

Listed Threatened Species

Scientific Name	Common Name	Simple Presence	Threatened Category	Buffer Status
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	May	Critically Endangered	In feature area
<i>Calidris ferruginea</i>	Curlew Sandpiper	Known	Critically Endangered	In feature area
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Likely	Endangered	In feature area
<i>Ricinocarpus trichophorus</i>	Barrens Wedding Bush	May	Endangered	In feature area
<i>Calidris canutus</i>	Red Knot, Knot	Likely	Endangered	In buffer area only
<i>Zanda latirostris</i>	Carnaby's Black Cockatoo, Short-billed Black-cockatoo	Known	Endangered (listed as <i>Calyptorhynchus latirostris</i>)	In feature area
<i>Leipoa ocellata</i>	Malleefowl	Likely	Vulnerable	In feature area
<i>Cereopsis novaehollandiae grisea</i>	Cape Barren Goose (south-western), Recherche Cape Barren Goose	Likely	Vulnerable	In feature area
<i>Falco hypoleucos</i>	Grey Falcon	Likely	Vulnerable	In feature area
<i>Eucalyptus merrickiae</i>	Goblet Mallee	Known	Vulnerable	In feature area
<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	May	Vulnerable	In feature area
<i>Sternula nereis nereis</i>	Australian Fairy Tern	May	Vulnerable	In buffer area only

Appendix 14: Swamp Yate (*Eucalyptus occidentalis*) woodland in seasonally-inundated basins - Community Description

Description obtained from: Ecologia for Grange Resources Limited (2008) Southdown Magnetite Proposal. Regional Flora and vegetation assessment. Unpublished Report

Swamp Yate (*Eucalyptus occidentalis*) woodland in seasonally-inundated basins

Community Description

The centre of these sumplands was usually inhabited by Swamp Yate (*Eucalyptus occidentalis*) low woodland often with an understorey of the Saltwater Paperbark (*Melaleuca cuticularis*). Peripheral to the central seasonally-inundated basin of these wetlands there was often a waterlogged zone of *E. occidentalis* associated with *Kunzea recurva* heath to open scrub and/or the small trees *Melaleuca preissiana* and *Banksia littoralis* and a number of mallees (primarily *Eucalyptus decipiens* subsp. *adesmophloia*). Fringing the wetland there was usually an *Anarthria laevis* sedgeland. However in the wetlands where there was shallow laterite, the sedgeland was usually replaced with a *Pericalymma ellipticum* heath.

The understorey shrubs of this vegetation were typically very open. *Melaleuca cuticularis*, *Kunzea recurva* and *Hakea nitida* generally formed an open tall shrub layer. *Hakea denticulata*, *Hakea laurina*, *Hakea varia*, *Exocarpos sparteus*, *Agonis theiformis*, *Lambertia inermis* and *Nuytsia floribunda* were also sometimes present in the seasonally waterlogged areas fringing the sumplands. Other common shrub taxa, recorded at low density across the sampled sites were *Isopogon trilobus*, *Acacia pulchella* var. *glaberrima*, *Taxandria spathulata*, *Astartea glomerosa*, *Astartea aspera*, *Beaufortia empetrifolia*, *Melaleuca concinna* and *Conothamnus aureus*. Other mid and low shrub species recorded at lower abundance included *Acacia biflora*, *Acacia luteola*, *A. subcaerulea*, *Adenanthos cuneatus*, *Banksia baueri*, *Banksia dryandroides*, *Bossiaea praetermissa*, *Daviesia inflata*, *Dryandra falcata*, *Dryandra mucronulata* subsp. *mucronulata*, *Dryandra tenuifolia* var. *tenuifolia*, *Gompholobium confertum*, *Hibbertia lineata*, *Leucopogon conostephioides*, *Melaleuca subtrigona*, *Petrophile squamata* subsp. *squamata*, *Petrophile media*, *Spyridium majoranifolium*, *Stirlingia anethifolia* and *Thomasia stelligera*. The perennial herbs *Villarsia parnassifolia*, *Anthotium humile*, *Stylidium corymbosum*, *Goodenia filiformis* and *Velleia trinervis* were abundant in the wetlands in good condition. These herbs inhabited the shallowly-inundated zone of the wetland and were most apparent when the water receded and the herbs were in flower in late summer. A dense ground layer was generally present in the seasonally waterlogged fringe of the sumplands and this was dominated by rushes and sedges including *Anarthria laevis*, *Baumea juncea*, *Gahnia ancistrophylla*, *Lepidosperma striatum*, *Schoenus laevigatus*, *Schoenus subfascicularis* and *Tricostularia compressa*. A suite of native grasses was also recorded including *Amphipogon amphipogonoides*, *Austrostipa hemipogon*, *Cyperochloa hirsuta*, *Deyeuxia quadriseta* and *Neurachne alopecuroides*. Naturalised alien grasses and herbs were prevalent in the more disturbed wetlands and these included **Aira caryophyllea*, **Cirsium vulgare*, **Conyza parva*, **Conyza sumatrensis*, **Hordeum leporinum*, **Hypochaeris glabra*, *Juncus pallidus*, **Lagurus ovatus*, **Pennisetum clandestinum*, **Pseudognaphalium luteoalbum*, **Rumex crispus*, **Solanum nigrum* and **Vulpia myuros* var. *megalaria*.

Appendix 15: Traffic Data – Boydell Road

MetroCount Traffic Executive Daily Classes

DailyClass-185 -- English (ENA)

Datasets:

Site: [604_000017_022000] Boydell Road West of Dalyup Road
Attribute: RURAL
Direction: 8 - East bound A>B, West bound B>A. **Lane:** 0
Survey Duration: 0:00 Tuesday, 31 October 2017 => 10:45 Thursday, 23 November 2017,
Zone:
File: 604_000017_022000 0 2017-11-23 1046.EC0 (Plus)
Identifier: HJ27RVC7 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 0:00 Tuesday, 31 October 2017 => 10:45 Thursday, 23 November 2017
(23.4485)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = East, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 592 / 601 (98.50%)

Daily Classes

DailyClass-185

Site: 604_000017_022000.0.1EW
Description: Boydell Road West of Dalyup Road
Filter time: 0:00 Tuesday, 31 October 2017 => 10:45 Thursday, 23 November 2017
Scheme: Vehicle classification (AustRoads94)
Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Monday, 13 November 2017

	1	2	3	4	5	6	7	8	9	10	11	12
Total												
Mon 15	7	4	0	0	0	0	1	0	0	0	3	0
(%)	46.7	26.7	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	20.0	0.0
Tue 17	11	4	2	0	0	0	0	0	0	0	0	0
(%)	64.7	23.5	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wed 22	16	1	1	2	0	0	0	0	0	0	2	0
(%)	72.7	4.5	4.5	9.1	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0
Thu 48	31	7	1	0	0	1	1	0	2	0	5	0
(%)	64.6	14.6	2.1	0.0	0.0	2.1	2.1	0.0	4.2	0.0	10.4	0.0
Fri 51	34	9	2	0	0	0	1	0	2	1	2	0
(%)	66.7	17.6	3.9	0.0	0.0	0.0	2.0	0.0	3.9	2.0	3.9	0.0
Sat 27	16	3	1	0	0	1	0	0	6	0	0	0
(%)	59.3	11.1	3.7	0.0	0.0	3.7	0.0	0.0	22.2	0.0	0.0	0.0
Sun 25	15	0	2	3	0	1	0	0	3	0	1	0
(%)	60.0	0.0	8.0	12.0	0.0	4.0	0.0	0.0	12.0	0.0	4.0	0.0

Average daily volume
Entire week

	19	4	1	1	0	0	0	0	2	0	2	0
29												
(%)	63.4	13.7	4.4	2.4	0.0	1.5	1.5	0.0	6.3	0.5	6.3	0.0

Weekdays

	20	5	1	0	0	0	1	0	1	0	2	0
31												
(%)	64.7	16.3	3.9	1.3	0.0	0.7	2.0	0.0	2.6	0.7	7.8	0.0

Weekend

	16	2	2	2	0	1	0	0	5	0	1	0
26												
(%)	59.6	5.8	5.8	5.8	0.0	3.8	0.0	0.0	17.3	0.0	1.9	0.0

* - Incomplete