Vegetation, Flora, Fauna and Environmental Considerations Report

Shire of Esperance 2025-26 Strategic Purpose Permit Site A - Circle Valley Road, SLK 7.7-12.81

Report compiled by:

[redacted]

Shire of Esperance
Together, we make it happen!

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 respects to Elders past, present and emerging, and we extend that respect to other Aboriginal Australians today.

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Citation

Waters, J and Walkerden, K (2025) Vegetation, Flora, Fauna and Environmental Considerations Report, Shire of Esperance 2025-26 Strategic Purpose Permit, Site A - Circle Valley Road, SLK 7.7-12.81

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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)
SOE: Shire of Esperance
SLK: Straight Line Kilometres (Main Roads WA)
TEC: Threatened Ecological Community
TF: Threatened Flora (Under BC Act)
TPFL: Threatened and Priority Flora Database (DBCA)
TPRF: Threatened and Priority Flora Report Form
WAH: Western Australian Herbarium (PERTH)
WAOL: Western Australian Organism List
WONS: Weeds of National Significance

1 Executive Summary

The Shire of Esperance (SOE) Environmental Team was commissioned by the Shire of Esperance Asset Management department to undertake a review of the vegetation, flora, fauna and environmental values on the proposed Circle Valley Road, SLK 7.7-12.81 project in 2024-25 as part of their Strategic Purpose Permit application.

The proposed development involves the clearing of 0.073ha of native vegetation for the purpose of road upgrades during a pre-bitumen re-sheet.

This report details of results from the Environmental Impact Assessment completed by Shire of Esperance Environmental Services team over spring 2024.

The vegetation within the site was described as Mixed mallee over open mixed shrubland.

Vegetation Condition varied between a very good and completely degraded condition.

One Priority Ecological Community occurred within the 20km buffer of the project site; however, no vegetation in the survey area meets the requisite criteria for this community.

A total of 75 vascular plant taxa, representative of 46 genera and 25 plant families were recorded within the Circle Valley Road, SLK 7.7-12.81 survey area during the 2024 survey. This total included 57 native species and 18 introduced (weed) species.

Eucalyptus merrickiae (VU), *Cyathostemon* sp. Salmon Gums (P3) and *Eucalyptus histophylla* were recorded within the Circle Valley Road, SLK 7.7-12.81 survey area.

Suitable habitat for four threatened fauna species identified in the desktop survey was also present in the project area.

1 Introduction

The Shire of Esperance endeavors to maintain a high level of road safety, aiming to be proactive in identifying high-risk roads, reviewing designs and progressively upgrading these. The Shire of Esperance manages the largest road network of any local government in Western Australia, encompassing a total of 4,593 km of roads.

The Shire of Esperance is submitting 'Circle Valley Road, SLK 7.7-12.81' project as Site A under the '2024-25 Strategic Purpose Permit' (Figure 1).

The project is required for the purpose of road upgrades during a pre-bitumen resheet.

To complete these works a small amount of native vegetation, mainly around bends, will be cleared. This requires clearing of 0.073ha of native vegetation. Road widths and elevation changes have been kept to a minimum to reduce final road footprint, therefore reducing clearing, while improving road geometry and safety for the road user. To mitigate impact of clearing vegetation, where feasible clearing will not occur to the full permitted width, conserving vegetation.

1.1 Location and Scope of Project

The proposed works are located ~16 km south east of Salmon Gums, within the SOE managed road reserve of Circle Valley Road. Specifically, it is located at straight line kilometre (SLK) 7.7 to 12.81 (Main Roads 2024). A point within the proposed clearing permit area 387046m E, 6340836m N (UTM Zone 51 H, GDA94).

To complete these works a small amount of native vegetation mainly around bends and valleys will be cleared. This requires clearing of 0.073ha of native vegetation.

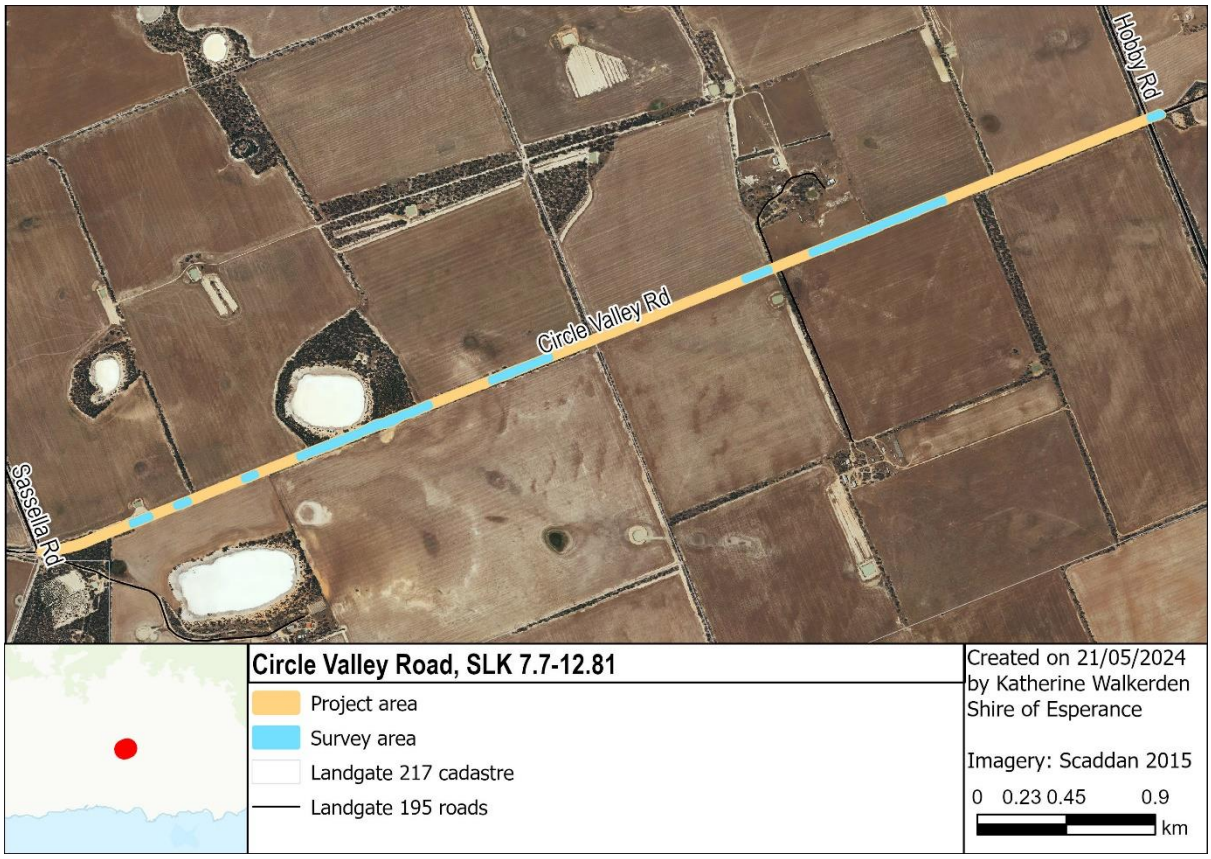

Figure 1. Location of Circle Valley Road, SLK 7.7-12.81.

1.2 Environmental Legislation and Guidelines

The following legislation is relevant to this survey:

Commonwealth (Federal):

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

Western Australian (State):

- *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); and
- *Environmental Protection Act 1986* (EP Act).

Western Australian (State) guidelines relevant to this survey are:

- 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); and
- Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020).

2 OBJECTIVES

The objective of this survey was to undertake a vegetation, flora, fauna and environmental assessment of the Circle Valley Road, SLK 7.7-12.81 survey area to enable an informed decision to be made in respect to the potential environmental impacts of the project. This is inclusive of the following:

- Undertake a desktop study of the vegetation, flora, fauna, threatened ecological communities, soils, geology, landform, aboriginal heritage, cadastre, important wetlands, soils of the Circle Valley Road, SLK 7.7-12.81 survey area using all available resources. This includes spatial interrogation using the Shire of Esperance's Desktop Environmental Impacts Spatial Interrogation Program (DEISIP), aerial photography interpretation and the Commonwealth Protected Matters Search Tool.
- Review available historical literature of the Circle Valley Road, SLK 7.7-12.81 survey area;
- Undertake a field survey of the Circle Valley Road, SLK 7.7-12.81 survey area, and collect and identify the vascular plant species present;
- Define and map the vegetation communities present and their condition in the Circle Valley Road, SLK 7.7-12.81 survey area;
- Define and map the location of any threatened flora (TF) and priority flora (PF), TECs, fauna and priority fauna habitat located within the Circle Valley Road, SLK 7.7-12.81 survey area;
- Provide recommendations on the local and regional significance of the vegetation communities;
- Define any management issues related to any environmental values; and
- Provide recommendations to the Shire of Esperance Asset Management department in relation to environmental management of the project.

3 METHODS

3.1 Desktop Assessment

Desktop information was collated for all areas within a 20km buffer zone of the site using DBCA datasets sourced under agreement. These data sources are listed below:

- Threatened and Priority Flora Database (TPFL; DBCA 2024a);
- Western Australian Herbarium data (DBCA 2024b)
- DBCA's Esperance District Threatened Flora spatial dataset (DBCA 2024c);
- Threatened and Priority Ecological Communities (TECs & PECs; DBCA 2024d);

- Threatened, Specially Protected and Priority Fauna (DBCA 2024e); and
- Black cockatoo / Carnaby's cockatoo roost and breeding sites (DBCA 2024e).

Additionally, the EPBC Act Protected Matters Search Tool (PMST), was also checked to identify the possible occurrence of Threatened and Priority flora, fauna and ecological communities within the Circle Valley Road, SLK 7.7-12.81 area. Search parameters were 'by polygon' and a 20 km buffer was applied to the search area; standard used in this IBRA subregion.

Historical and State documentation and datasets consulted include:

- Vegetation mapping of the region, principally the coarse-scale vegetation associations of Beard (1976) (DDIRP-006);
- Vegetation Extent by Statewide Pre-European mapping statistics (Department of Parks and Wildlife 2018);
- Soil landscape mapping (Schoknecht, et al 2004);
- EPBC Act list of TECs; (2024)
- Priority Ecological Communities for Western Australia Version 35 (DBCA 2023c);
- Nomination or listing descriptions of TECs or PECs, where available and relevant (State and Federal);
- Recovery Plans, Approved Conservation Advices, Significant Impact Guidelines and / or other relevant reports or documentation relating to the preferred habitats / distributions of TECs / PECs, Threatened flora and fauna;
- Dieback Information Data Management System (DIDMS 2024; Gaia Resources);
- Shire of Esperance Weed Mapping Data (2024);
- Existing site digital orthophotos (Scaddan 2015);
- Atlas of Living Australia database (2024)
- Hydrographic Catchments (DWER-028); and
- Crown Reserves (Landgate-227).
- RAMSAR sites (DBCA-010)
- Directory of Important Wetlands (DBCA-045)

3.2 Field Survey

The site was initially inspected on 11/09/2024, by Julie Waters (SOE Environmental Coordinator) and Katherine Walkerden (SOE 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.

A detailed field assessment of the flora and vegetation of the Circle Valley Road, SLK 7.7-12.81 survey area was undertaken by SOE botanists on the 11/09/2024 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. Another follow up survey was carried out on 13 February 2025, to target the counting of *Cyathostemon* sp. Salmon Gums and *Eucalyptus histophylla* plants after WAH confirmed the identity of the lodged specimens.

The methodology for assessing threatened and priority flora consisted of traversing by foot the entire Circle Valley Road, SLK 7.7-12.81 survey area. Due to the minimal amount of clearing only sections of the road where clearing was occurring was included as part of the survey area, see figure for the 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. Botanists used handheld Garmin GPS units. During the survey the Botanists recorded all species, and collecting all but the very common, well known species.

For threatened or priority flora 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 Circle Valley Road, SLK 7.7-12.81 was also constructed.

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

The vegetation communities of Site A – Circle Valley Road, SLK 7.7-12.81 was assessed for the presence a TEC or PEC (DBCA 2023, 2024d) comparing that to descriptions in approved conservation advice for these communities. PEC's do not have published approved conservation advice. Comparison of the vegetation community occurred using 'Priority Ecological Communities for Western Australia, Version 35 (DBCA 2023)' definitions, and other relevant documentation.

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 A – Circle Valley Road, SLK 7.7-12.81' for any fauna species identified in the desktop survey.

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), which is the peak flowering period for this region. As all surveys at Circle Valley Road, SLK 7.7-12.81 were conducted in September, survey timing falls within this period.

3.4 Vegetation Descriptions

Vegetation communities present within the survey area were 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) 10 Clearing Principles were inspected and evaluated.

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 1: 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 SOE 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.
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 counted.
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 September which falls within this period.
Disturbances (fire/flood/clearing)	**Not a limitation:** The Circle Valley Road, SLK 7.7-12.81 survey area exhibits minimal levels of disturbance.

4 DESKTOP ASSESSMENT RESULTS

4.1 Climate

The Salmon Gums climate is charecterised by cool winters and hot dry summers (BoM 2024). The Salmon Gums area receives an average annual rainfall of 349 mm.

4.2 Catchment

The project is present within the Bandy Creek catchment area.

4.3 Geology, Soils and Topography

Two geological unit was identified by Schoknecht et al. (2004). These include:

- Tertiary marine sediments with aeolian carbonate rich deposits in places
- Tertiary sediments. Lacustrine sediments with gypsum and salt in lakes

Within the area, there has been two soil types recorded by Schoknecht et al. (2004). These include:

- Alkaline grey shallow sandy duplex soils with associated pale deep sands and minor deep sandy duplexes, ironstone gravel soils
- Alkaline grey deep and shallow sandy duplex soils with associated salt lake soils, pale deep sands and calcareous loamy earths

Within the area, there has been two landform units recorded by Schoknecht et al. (2004). These include:

- Level to gently undulating plain with areas of gilgai microrelief. Drainage is generally poorly developed and usually internal
- Gently undulating to undulating plain with many small playas. Lunettes and sand dunes are common on eastern side of lakes

4.4 Regional Vegetation

The site is located within the Eastern Mallee (Mal01) Interim Biogeographic Regionalisation of Australia (Thackway & Cresswell 1995) region. The Mal01 is described as “the south-eastern of Yilgarn Craton is gently undulating, with partially occluded drainage. Mainly Mallee over Myrtaceous-Proteaceous heaths on duplex (sand over clay) soils. Melaleuca shrublands characterize alluvia, and Halosarcia low shrublands occur on saline alluvium. A mosaic of mixed Eucalypt woodlands and Mallee occur on

calcareous earth plans, and sandplains overlying the Eocene Limestone strata in the East. Semi-arid (dry) and warm Mediterranean".

Beard (1973) mapped vegetation association (VA) Salmon Gums 486 within the Site A – Circle Valley Road, SLK 7.7-12.81 area (Table 2). The vegetation association is moderately represented with 39% of its original extent remaining within the Shire of Esperance and 49% remaining within the Eastern Mallee INBRA region.

Table 2. Vegetation associations mapped by Beard (1973) within the Site A – Circle Valley Road, SLK 7.7-12.81, and statistics on pre-European remaining areas.

Vegetation Association	Salmon Gums_486
Description	Mosaic: Medium woodland; salmon gum & red mallee / Shrublands; mallee scrub Eucalyptus eremophila
Pre-European extent in IBRA sub-region Mal01 (%)	48.71
Pre-European extent in LGA (%)	39.38
Current extent conserved in IUCN area (%)	4.86

4.5 Surrounding Land Use

The area directly included in the clearing permit application Site A – Circle Valley Road, SLK 7.7-12.81 is a vegetated 20m wide road reserve, managed by the SOE. The surrounding land use is agricultural. The area is within rural zoning. The project area is in an extremely cleared area with only 3.417% of vegetation within 5km of the project remaining.

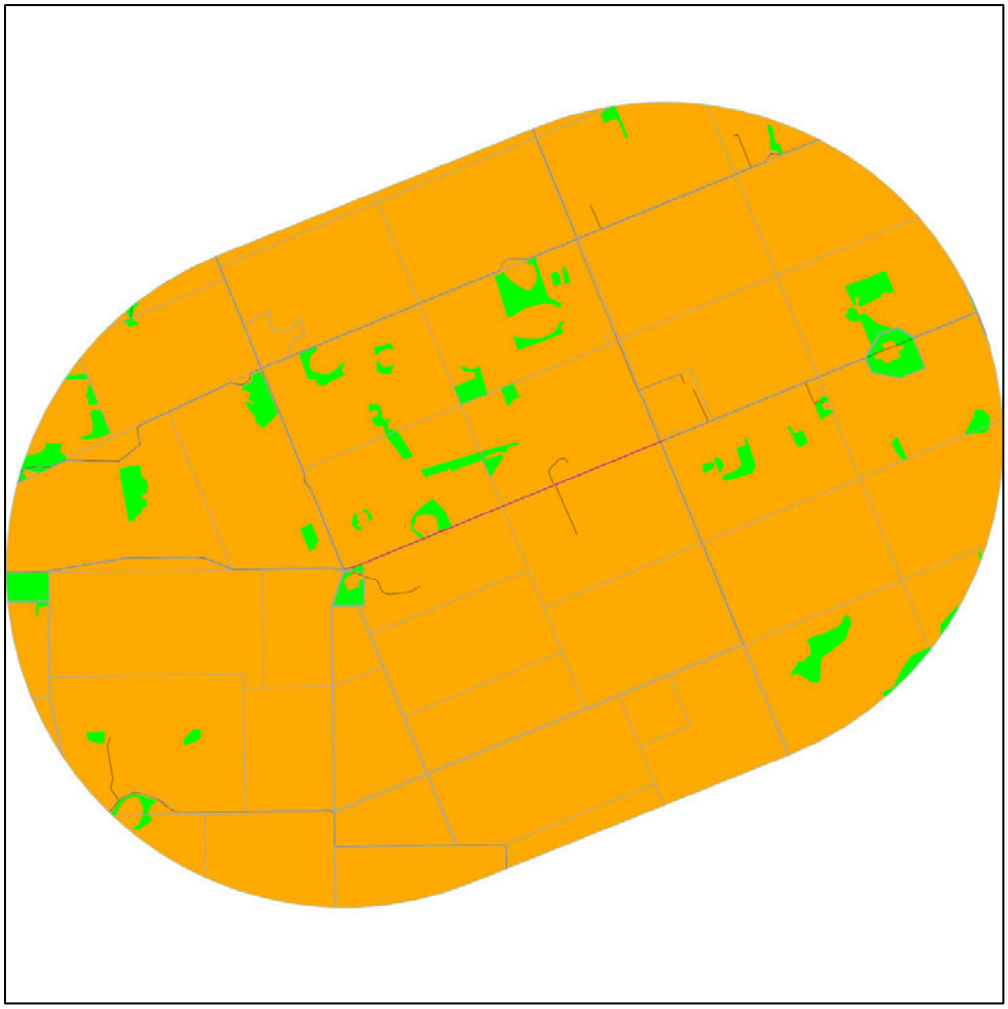

Figure 2. Map of remnant vegetation within a 5km buffer produced by DEISIP. Project area is highlighted in red, remnant vegetation is in green and cleared vegetation is in orange, road centrelines are in black and cadastre boundaries are in grey.

The site was 9.40km from Reserve 29680 'Red Lake Townsite Nature Reserve' the closest conservation reserve. No other conservation vested reserves were within 10km of the site.

4.6 Potential Threatened and Priority Flora

1 threatened flora (TF) and 33 priority flora (PF) were recorded within a 20km radius of the proposed impact site (Appendix 3). Of these, 1 TF species and 21 PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of Site A – Circle Valley Road, SLK 7.7-12.81 project. Confirmed records, indicating known populations of *Eucalyptus merrickiae* (Vulnerable) were directly located within the clearing permit area.

4.7 Potential Threatened and Priority Ecological Communities

The desktop study identified the Biodiversity Conservation (BC) Act 2016 listed priority ecological community (PEC) 'Granite outcrop pools with endemic aquatic fauna' 6.5km from the project area. No other TEC's or priority ecological communities (PEC) were identified by the desktop study as being within Site A – Circle Valley Road, SLK 7.7-12.81 or within a 20km buffer of the site.

4.8 Potential Threatened and Priority Fauna

3 threatened fauna, 2 priority fauna and 1 other specially protected fauna were recorded within a 20km radius of the proposed impact site (Appendix 4).

4.9 *Phytophthora* Dieback

Dieback Information Delivery and Management System (DIDMS; GAIA Resources, SCNRM & State NRM 2024) data shows no *Phytophthora cinnamomi* or other *Phytophthora* sp. sample results in the Salmon Gums area.

5 FIELD SURVEY RESULTS AND DISCUSSION

5.7 Vegetation Communities

One vegetation community was identified within the Site A – Circle Valley Road, SLK 7.7-12.81, as defined by structure and composition. Vegetation within the project was defined as Mixed mallee over open mixed shrubland. It is believed that the Beard (1973) vegetation associations identified in Section 4.4 are an appropriate match for the vegetation observed within the project area.

Figure 3. Vegetation within Site A – Circle Valley Road, SLK 7.7-12.81 project area, described as: Mixed mallee over open mixed shrubland.

5.8 Vegetation Condition

Vegetation condition varied dramatically throughout the site, with vegetation varying between excellent and very good condition. A large majority (93%) of the vegetation proposed to be cleared was in very good condition. A number of historic and current degrading processes are impacting the vegetation within the project area, these included historical clearing for fence lines and crossovers, weed invasion, and spray drift. The vegetation within the project area was within a narrow-vegetated road reserve, reducing the vegetations resilience to these disturbances.

Quantifying vegetation condition, there is:

- <0.001 ha of vegetation is in Excellent condition

- 0.068ha of vegetation is in Very Good condition
- 0.002 ha of vegetation is in Good condition
- <0.001 ha of vegetation is in Degraded condition
- 0.001 ha of vegetation is in Completely Degraded condition

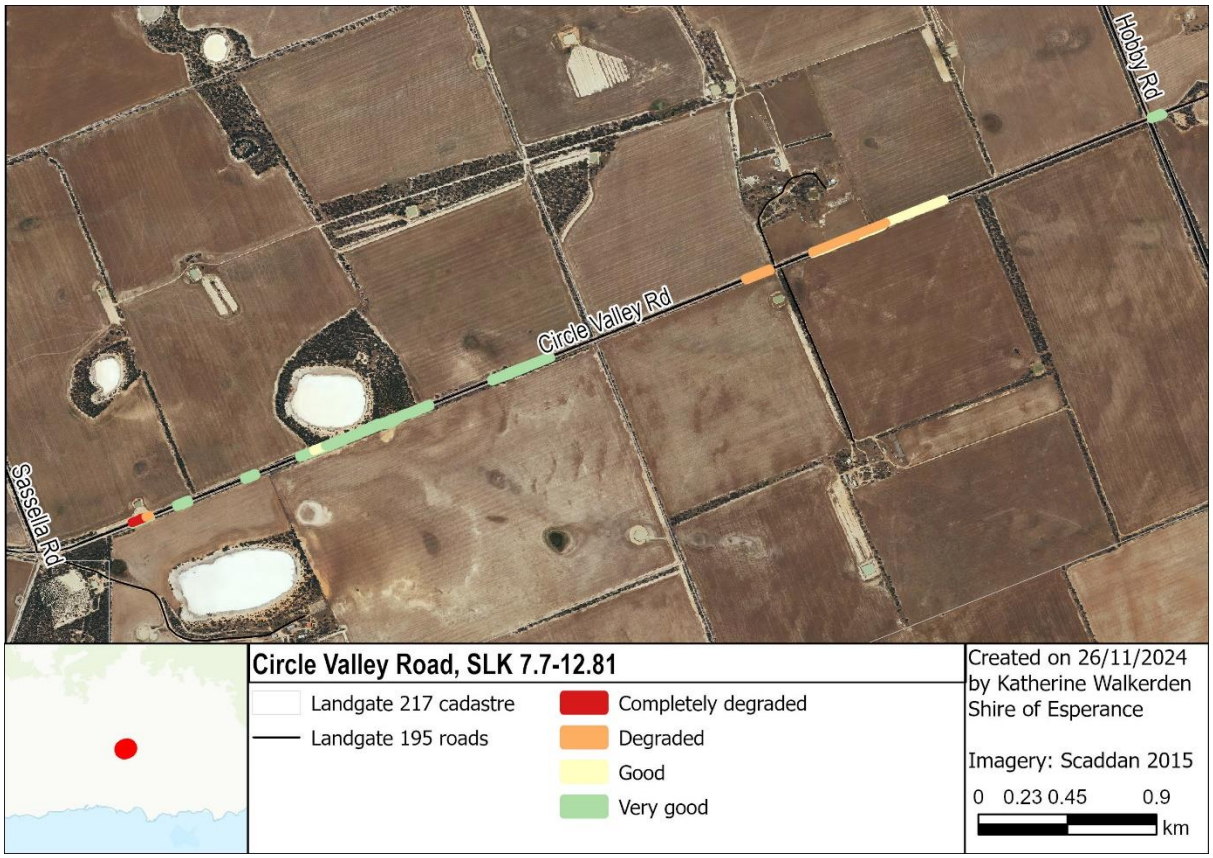

Figure 4. Vegetation condition across 'Site A –Circle Valley Road, SLK 7.7-12.81' project, ranging from Completely Degraded to Very Good condition.

5.8.1 Weeds

There was moderate weed invasion throughout the site, with weeds present being agricultural weeds primarily from the Asteraceae, Brassicaceae and Poaceae families. Overall, 18 invasive species were identified within the project area (Appendix 1). Of these, the most extensive and of serious concern were *Eragrostis curvula* (African lovegrass). This is a priority environmental weed in the Shire of Esperance's Environmental Weed Strategy 2009-2018.

5.9 Threatened Ecological Communities

The desktop study identified the Biodiversity Conservation (BC) Act 2016 listed priority ecological community (PEC) 'Granite outcrop pools with endemic aquatic fauna' 6.5km from the project area. There were no granite outcrops present within the project area, and as such the PEC was not relevant to the project.

No other TECs or PECs were found in the desktop survey or relevant to the project area.

5.10 Flora

A total of 75 vascular plant taxa, representative of 46 genera and 25 families, were recorded within Circle Valley Road, SLK 7.7-12.81 survey area. Of these 57 were native species and 18 were introduced. The

majority of taxa recorded were representative of the Myrtaceae (18 taxa), Poaceae (11 taxa) and Chenopodiaceae (10 taxa) families (see Appendix 1 for the complete incidental species list).

A number of plant specimens collected could not be identified accurately to the 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, *Medicago sp.*

5.11 Threatened and Priority Flora

The targeted flora survey identified 2 PF and 1 TF species, within the Circle Valley Road, SLK 7.7-12.81 survey area. Queries of spatial datasets were requested specifically for these species, to interrogate impact of proposed works on species sustainability (DBCA 2024a; DBCA 2024b; DBCA 2024c).

Eucalyptus histophylla and *Cyathostemon* sp. Salmon Gums were not recorded on the TPFL database. DBCA do not actively manage or monitor the majority of low priority species, due to their prevalence in the landscape relative to TF. It was noted that additional information on *Cyathostemon* sp. Salmon Gums was located on file.

Table 3: Summary of Priority flora species recorded in Site A – Circle Valley Road, SLK 7.7-12.81 project area.

Taxon	BC Act Conservation Status	Total plants	Total plants in maintenance zone	Total plants impacted
Eucalyptus merrickiae	VU	12	0	2
Eucalyptus histophylla	P3	81 (tentative)	13	9
Cyathostemon sp. Salmon Gums	P3	20	1	4
Acacia glaucissima	NT (delisted since survey)	3	0	0

5.11.1 *Eucalyptus merrickiae*, Vulnerable

A known population of *Eucalyptus merrickiae* (TPFL Population 33*)* were present within the project area. 12 plants were counted within the project area, however the TPFL record for this species indicates a total population of 44 plants extending into private property. If proposed works occur, 2 plants will be taken and an additional 5 plants will have branches trimmed.

A Threatened and Priority Flora Reporting Forms (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) District Flora Conservation Officer and Species and Communities Branch on 22/07/2025 (Appendix 2). A small amount of clearing will occur within the *Eucalyptus merrickiae* area of occurrence though this is unlikely to significantly impact any of the plants, with some branches of the mallees likely to be removed, other *Eucalyptus merrickiae* will be trimmed back to the maintenance zone. *Eucalyptus merrickiae* is a widespread species with 64 confirmed herbarium records and 89 TPFL records, a majority of these records were present within road reserves. However, numerous populations were present with conservation reserves or Unallocated crown land. The species has a 70km east to west and a 75km north to south range. Given the large number of populations present within a large geographic area the species is likely suitable for delisting or downgrading to a Priority 4 status. A permit to take application will be submitted concurrently with this permit.

5.11.2 *Acacia glaucissima*, NT

Acacia glaucissima was found by the Shire of Esperance during the survey when It was listed as Priority 3. The species has since been delisted.

5.11.3 *Cyathostemon* sp. Salmon Gums, Priority 3

A specimen of *Cyathostemon sp.* Salmon Gums was sent to the WA Herbarium for identification confirmation (KSW08624; Accession 11315 with specimen retained). The identification was confirmed by Mike Hislop on 10/01/2025. If proposed works occur, 4 plants will be impacted upon, from a population total of 20.

A Threatened and Priority Flora Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) Esperance District Flora Conservation Officer and Species and Communities Branch on 22/07/2025 (Appendix 2).

Cyathostemon sp. Salmon Gums has been nominated for delisting by the Esperance DBCA District Conservation Officer on 05/03/2024 (Appendix 13).

5.11.4 *Eucalyptus histophylla*, Priority 3

A specimen of *Eucalyptus histophylla* was sent to the WA Herbarium for identification confirmation (KSW08524; Accession 11229 with specimen). The identification was tentatively identified by Mike Hislop on 27/12/2024 as *Eucalyptus tumida.* Due to the difficult taxonomy of the group the specimen was referred to Malcom French who identified the specimen as *Eucalyptus histophylla* on the 17/01/2025.

Given the difficult taxonomy of the species, being extremely similar from the common *Eucalyptus tumida*, any potential *Eucalyptus histophylla* were mapped, many of these may be the closely related *Eucalyptus tumida*. If proposed works occur, 9 plants will be impacted upon, from a population total of 81.

A Threatened and Priority Flora Reporting Form (TPRF) was completed and sent to Department of Biodiversity, Conservation and Attractions (DBCA) Esperance District Flora Conservation Officer and Species and Communities Branch on 22/07/2025 (Appendix 2).

The species is typically known to occur on granite outcrops or in gravelly soils in the Salmon Gums, Norseman, Balladonia, Fraser Range, North Cascade and Burraminya localities.

A total of 19 herbarium records are present for this species (DBCA 2024h). The 19 herbarium records represent 12 distinct populations. There was no population counts associated with these populations, with frequency either not listed or described as sparse, common or locally common. Based on the herbarium records associated with the species it is known to occur on granite outcrops or in gravelly soils in the Salmon Gums, Norseman, Balladonia, Fraser Range, North Cascade and Burraminya localities.

There was no TPFL data associated with the species.

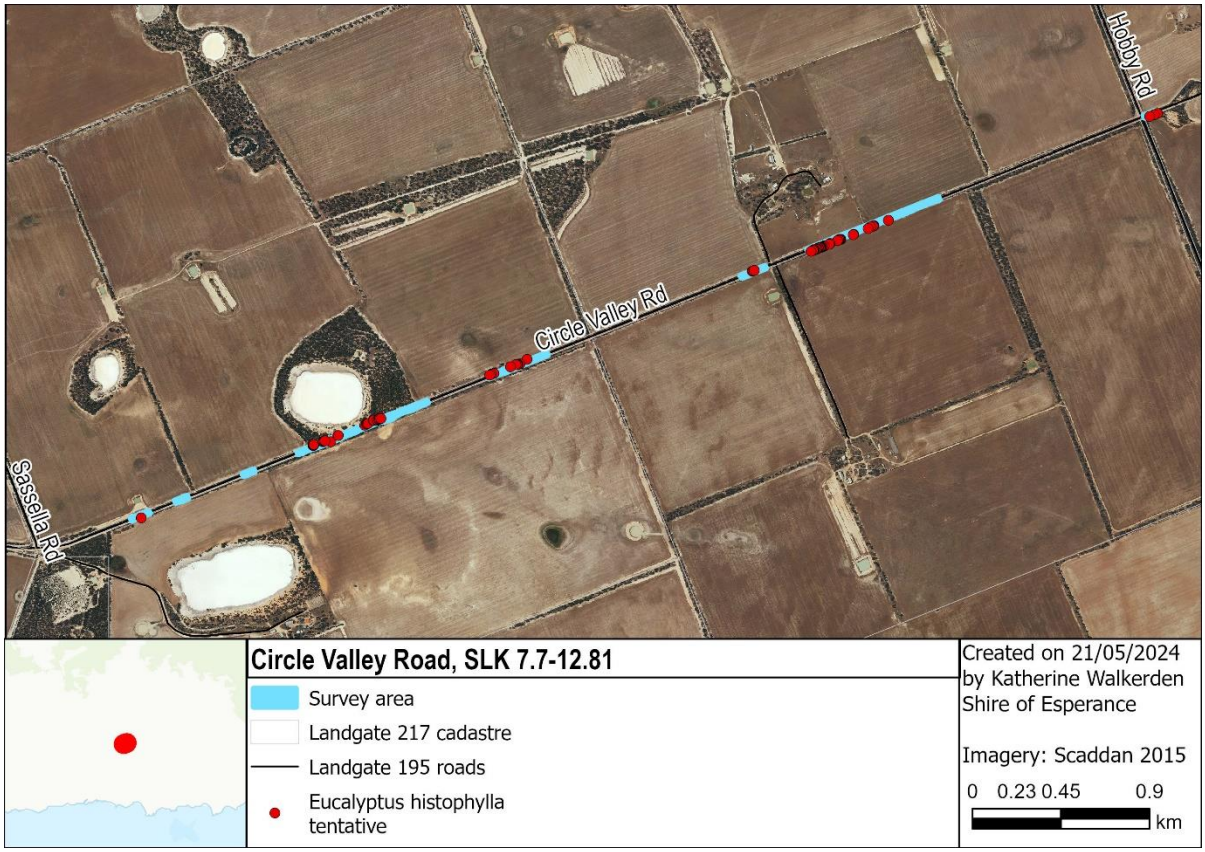

Figure 5. Location of priority 3 *Eucalyptus histophylla* within the 'Site A – Circle Valley Road, SLK 7.7-12.81' project.

5.12 Fauna

Of the species identified within the Desktop survey, only *Aphelocephala leucopsis*, *Dasyurus geoffroii*, *Falco hypoleucos*, and *Falco peregrinus* have suitable habitat within the proposed clearing permit area.

5.12.1 Southern Whiteface, *Aphelocephala leucopsis,* VU

The Southern Whiteface was listed as 'may occur' under the EPBC protected matters tools. There were no records of this species in the DBCA threatened fauna database within the Esperance region.

The habitat for the Southern Whiteface was described as "Wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Southern whiteface forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover. Birds mainly feed on insects, spiders, and seeds, largely gleaned from the bare ground or leaf litter" which was suitable for the vegetation within the project area.

However, given the significant distance from known records of the species, it is highly unlikely that the vegetation at the site would ever be utilised by the species.

5.12.2 Chuditch, *Dasyurus geoffroii*, VU

The closest known record (2008) for this species was 6.37km from the project area. The Chuditch has historically inhabited a wide range of habitats, but today it survives mostly in Jarrah (*Eucalyptus marginata*) forests and woodlands, mallee shrublands and heathlands. The vegetation within the project

area would likely provide important habitat connectivity for this species.

5.12.3 Peregrine falcon, *Falco peregrinus,* other specially protected

The closest known record of the species was 19.49km from the project area. The species habitat is described as "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".

Given the generalist habitat requirements for this species it is likely that the vegetation within the project provides suitable habitat for this species.

5.12.4 Western rosella (inland), *Platycercus icterotis xanthogenys*, P4

The closest known record of the species was 10km from the project area. The species habitat is described as "Open eucalypt forest and timbered areas, including cultivated land and orchards." The xanthogenys subspecies is found in drier woodland, with a heath understorey.

6 REVIEW OF 10 CLEARING PRINCIPLES FOR NATIVE VEGETATION

The Site A – Circle Valley Road, SLK 7.7-12.81' 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.

Not at Variance: There was a moderate amount of biodiversity at the site.

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.

Not at Variance: The vegetation within the reserve may have provided some limited habitat to several conservation listed fauna

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

Not at Variance: *Eucalyptus merrickiae* (VU), *Eucalyptus histophylla* and *Cyathostemon* sp. Salmon Gums (P3) priority species were observed in the area. However, all of these species have a wide distribution and are unlikely to be impacted by the project.

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.

Not at Variance: There were no threatened or priority ecological communities occurring within the project area.

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.

Likely at Variance: The local area was highly cleared with 3.4% native vegetation within 5km of the project site remaining, the narrow-vegetated road reserve provides some ecological connectivity in the local 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.

Likely at Variance: Vegetation at the site occurred near several salt lakes.

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

Not at Variance: The vegetation within this area will be providing limited function as windbreaks and erosion control for the agricultural areas surrounding it. However, given the minimal amount of clearing proposed to occur within the project area there is unlikely to be any appreciable land degradation as a result of the project area.

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.

Not at Variance: The closest conservation reserve to the site was Reserve 29680 'Red Lake Townsite Nature Reserve', which was 9.4km from the site. Given the significant distance to the site there is unlikely to be any impact to the conservation values of the site.

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.

Not at Variance: The project was adjacent to small Salt Lake, and there may be some increase in roadside runoff due to clearing surrounding the salt lake. However, given the minimal amount of clearing associated with the project there is unlikely to be any notable impact to 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.

Not at Variance: The project was adjacent to small Salt Lake, and there may be some increase in runoff due to clearing surrounding the salt lake. However, given the minimal amount of clearing associated with the project there is unlikely to be any notable impact to water quality.

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

- All vehicles and construction equipment to be cleaned prior to start of the project
- Regular washdowns to occur during the project to reduce spread of weed and pathogens within the project area
- Follow up spraying of emergent roadside weeds where gravel has been sourced from farmland to prevent weeds coming into the weed free areas

8 LIST OF PERSONNEL

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

Name	Julie Waters
Position	Environmental Coordinator
Project Involvement	Field Survey, Specimen Identification and report review
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	FT61000787-2

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	3.5 years' experience as a Botanist in the region
Scientific Licence	FT61000788-2

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

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Appendix 1: Incidental species list

Family	Taxon	Weed	BC Act (EPBC) Conservation Status	Herbarium Reference
Aizoaceae	*Carpobrotus modesta*			
Aizoaceae	*Mesembryanthemum crystallinum*			
Apiaceae	*Platysace effusa*			
Apocynaceae	*Alyxia buxifolia*			
Asphodelaceae	*Asphodelus fistulosus*	*		
Asteraceae	*Sonchus oleraceus*	*		
Asteraceae	*Arctotheca calendula*	*		
Asteraceae	*Brachyscome ciliaris*			
Asteraceae	*Monoculus monstrosus*	*		
Asteraceae	*Olearia muelleri*			
Asteraceae	*Onopordum acaulon*	*		
Asteraceae	*Senecio glossanthus*			
Brassicaceae	*Brassica napes*	*		
Brassicaceae	*Lepidium africanum*	*		
Brassicaceae	*Sisymbrium irio*	*		
Chenopodiaceae	*Enchylaena tomentosa*			
Chenopodiaceae	*Atriplex acutibractea subsp. karyokinesis*			
Chenopodiaceae	*Atriplex lindleyi subsp. inflata*			
Chenopodiaceae	*Atriplex semibaccata*			
Chenopodiaceae	*Chenopodium desertorum subsp. desertorum*			
Chenopodiaceae	*Enchylaena tomentosa*			
Chenopodiaceae	*Maireana erioclada*			
Chenopodiaceae	*Maireana radiata*			
Chenopodiaceae	*Maireana trichoptera*			
Chenopodiaceae	*Threlkeldia diffusa*			
Crassulaceae	*Crassula exserta*			
Cupressaceae	*Callitris preissii*			
Dilleniaceae	*Hibbertia gracilipes*			
Fabaceae	*Acacia cupularis*			
Fabaceae	*Medicago sp.*	*		
Fabaceae	*Acacia glaucissima*		NT	
Fabaceae	*Acacia patagiata*			
Fabaceae	*Acacia pritzeliana*			
Fabaceae	*Acacia hadrophylla*			
Fabaceae	*Daviesia aphylla*			
Goodeniaceae	*Scaevola spinescens*			
Myrtaceae	*Cyathostemon sp. Salmon Gums*			KSW08424, KSW08624 Acc 11229

Myrtaceae	*Eucalyptus conglobata*			
Myrtaceae	*Eucalyptus connexa*			
Myrtaceae	*Eucalyptus eremophila*			
Myrtaceae	*Eucalyptus flocktoniae*			
Myrtaceae	*Eucalyptus histophylla*		P3	KSW08524 Acc 11229
Myrtaceae	*Eucalyptus leptocalyx*			
Myrtaceae	*Eucalyptus phenax*			
Myrtaceae	*Eucalyptus merrickiae*		T	
Myrtaceae	*Melaleuca eleuterostachya*			
Myrtaceae	*Melaleuca halmaturorum*			
Myrtaceae	*Melaleuca plumea*			
Myrtaceae	*Melaleuca sapientes*			
Myrtaceae	*Melaleuca teuthidoides*			
Myrtaceae	*Melaleuca undulata*			
Myrtaceae	*Melaleuca uncinata*			
Myrtaceae	*Melaleuca linguiformis*			
Myrtaceae	*Melaleuca podiocarpa*			
Myrtaceae	*Melaleuca thyoides*			
Poaceae	*Austrostipa elegantissima*			
Poaceae	*Austrostipa flavescens*			
Poaceae	*Austrostipa hemipogon*			
Poaceae	*Avena barbata*	*		
Poaceae	*Avena fatua*	*		
Poaceae	*Avena sativa*	*		
Poaceae	*Ehrharta calycina*	*		
Poaceae	*Eragrostis curvula*	*		
Poaceae	*Hordeum leporinum*	*		
Poaceae	*Lolium sp.*	*		
Poaceae	*Schismus barbatus*	*		
Polygalaceae	*Comesperma integerrimum*			
Primulaceae	*Lysimachia arvensis*	*		
Proteaceae	*Grevillea oligantha*			
Proteaceae	*Hakea multilineata*			
Rhamnaceae	*Spyridium mucronatum*			
Rutaceae	*Phebalium lepidotum*			
Santalaceae	*Exocarpos capnodioides*			
Sapindaceae	*Dodonaea stenozyga*			
Scrophulariaceae	*Eremophila psilocalyx*			
Scrophulariaceae	*Eremophila decipiens subsp. decipiens*			

Appendix 2: Threatened and Priority Flora Report Forms

Eucalyptus merrickiae - Vulnerable

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: Eucalyptus merrickiae **TPFL Pop. No:** 33A

OBSERVATION DATE: 11/09/2024 **CONSERVATION STATUS:** VU **New population** ☐

OBSERVER/S: Katherine Walkerden, Julie Waters **PHONE** 90831518

ROLE: Environemntal 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):

Shire Road Reserve. Circle Valley Rd. 1.3km E of Circle Valley Rd and Sassella Rd intersection. Both sides of road reserve.

Reserve No:

DBCA 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 ☒

Lat / Northing: 6340376.2

Long / Easting: 385956.3

ZONE: 51

METHOD USED: GPS ☒ Differential GPS ☐ Map ☐

No. satellites: Map used:

Boundary polygon captured: ☐ Map scale:

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): 30 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	12			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

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

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐

Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: %

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

COMMENT: Survey was only conducted within Road Reserve, population extends into private property.

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 ☐

Site A – Circle Valley Road, SLK 7.7-12.81 - Vegetation, Flora, Fauna and Environmental Considerations Report

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

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

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

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

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

1. Mixed mallee over open mixed shrubland
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: 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:

LODGEMENT: WA Herb Lodgement No:

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

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

Submitter of Record: Katherine walkerden Role: Environmental Officer Signed: KW Date: 21/07/2025

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 ☐

Cyathostemon sp. Salmon Gums – Priority Three - SLK 8.95-9.36

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.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Cyathostemon sp. Salmon Gums **TPFL Pop. No:**

OBSERVATION DATE: 13/02/2025 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Katherine Walkerden, Julie Waters **PHONE** 90831518

ROLE: Environemntal 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):

Shire Road Reserve. Circle Valley Rd. 1.25 – 1.66km E of Circle Valley Rd and Sassella Rd intersection. North side of road reserve.

Reserve No:

DBCA 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 ☒

Lat / Northing: 6340492.9

Long / Easting: 386188.6

ZONE: 51

METHOD USED: GPS ☒ Differential GPS ☐ Map ☐

No. satellites: Map used:

Boundary polygon captured: ☐ Map scale:

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): 30 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	19			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

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

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐

Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: ____%

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

COMMENT: Survey was only conducted within Road Reserve, population may extend into private property.

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** ☐

Site A – Circle Valley Road, SLK 7.7-12.81 - Vegetation, Flora, Fauna and Environmental Considerations Report

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
- Crest ☐
- Hill ☐
- Ridge ☐
- Outcrop ☐
- Slope ☐
- Flat ☐
- Open depression ☐
- Drainage line ☐
- Closed depression ☐
- Wetland ☐

ROCK TYPE:
- Granite ☐
- Dolerite ☐
- Laterite ☐
- Ironstone ☐
- Limestone ☒
- Quartz ☐

Specify other:

LOOSE ROCK: (on soil surface; eg gravel, quartz fields)
- 0-10% ☐
- 10-30% ☐
- 30-50% ☐
- 50-100% ☐

SOIL TYPE:
- Sand ☒
- Sandy loam ☐
- Loam ☐
- Clay loam ☐
- Light clay ☐
- Peat ☐

Specify other:

SOIL COLOUR:
- Red ☐
- Brown ☐
- Yellow ☐
- White ☐
- Grey ☒
- Black ☐

Specify other:

DRAINAGE:
- Well drained ☒
- Seasonally inundated ☐
- Permanently inundated ☐
- Tidal ☐

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

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

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

1. Mixed mallee over open mixed shrubland
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: 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:

LODGEMENT: WA Herb Lodgement No:

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

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

Submitter of Record: Katherine walkerden Role: Environmental Officer Signed: KW Date: 21/07/2025

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** ☐

Cyathostemon sp. Salmon Gums – Priority Three - SLK 11.18

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: Cyathostemon sp. Salmon Gums **TPFL Pop. No:**

OBSERVATION DATE: 13/02/2025 **CONSERVATION STATUS:** VU **New population** ☒

OBSERVER/S: Katherine Walkerden, Julie Waters **PHONE** 90831518

ROLE: Environemntal 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):

Shire Road Reserve. Circle Valley Rd. 1.57 W of Circle Valley Rd and Hobby Road Rd intersection. South side of road reserve.

Reserve No:

DBCA 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 ☒

Lat / Northing: 6341193.00

Long / Easting: 387932.00

ZONE: 51

METHOD USED: GPS ☒ Differential GPS ☐ Map ☐

No. satellites: Map used:

Boundary polygon captured: ☐ Map scale:

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): 30 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	1			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

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

Summary Quad. Totals: Alive

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒

Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: %

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

COMMENT: Survey was only conducted within Road Reserve, population may extend into private property.

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** ☐

Site A – Circle Valley Road, SLK 7.7-12.81 - Vegetation, Flora, Fauna and Environmental Considerations Report

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

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

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

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

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

1. Mixed mallee over open mixed shrubland
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: 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: KSW08424 WA Herb. ☒ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: ACC 11229

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: KW Date: 21/07/2025

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 ☐

Eucalyptus histophylla – 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.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Eucalyptus histophylla **TPFL Pop. No:**

OBSERVATION DATE: 13/02/2025 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Katherine Walkerden, Julie Waters **PHONE** 90831518

ROLE: Environmental Officer, Envrionental 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):

Circle Valley Road Reserve SLK 8.15-12.82 both sides of road.

Reserve No:

DBCA 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 ☒

Lat / Northing:

Long / Easting:

ZONE:

METHOD USED: GPS ☐ Differential GPS ☐ Map ☐

No. satellites: Map used:

Boundary polygon captured: ☐ Map scale:

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): 3hrs 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	81			
Dead				

Area of pop (m²):

Note: Pls record count as numbers (not percentages) for database.

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

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐

Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: ____%

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

COMMENT: Plant IDs in the field are tentative only, many of these may be the closely related Eucalyptus tumida.

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)
• Road upgrades	N	L	S
•			
•			

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: Crest ☐ Hill ☐ Ridge ☐ Outcrop ☐ Slope ☐ Flat ☐ Open depression ☐ Drainage line ☐ Closed depression ☐ Wetland ☐

ROCK TYPE: Granite ☐ Dolerite ☐ Laterite ☐ Ironstone ☐ Limestone ☐ Quartz ☐ Specify other:

LOOSE ROCK: (on soil surface; eg gravel, quartz fields) 0-10% ☐ 10-30% ☐ 30-50% ☐ 50-100% ☐

SOIL TYPE: Sand ☐ Sandy loam ☐ Loam ☐ Clay loam ☐ Light clay ☐ Peat ☐ Specify other:

SOIL COLOUR: Red ☐ Brown ☐ Yellow ☐ White ☐ Grey ☐ Black ☐ Specify other:

DRAINAGE: Well drained ☐ Seasonally inundated ☐ Permanently inundated ☐ Tidal ☐

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

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

VEGETATION CLASSIFICATION*:
1. Mixed mallee over open mixed shrubland
2.
3.
4.

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

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: FT61000788-2 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: KSW08524 ACC11229 WA Herb. ☒ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No:

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

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

Submitter of Record: Katherine Walkerden Role: Environental Officer Signed: KW Date: 21/07/2025

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 ☐

Appendix 3: Description of Threatened and Priority Flora Species with the Potential to occur within the Circle Valley Road, SLK 7.7-12.81 Survey Area

Threatened or priority flora identified by the desktop study to be present within a 20 km radius of Site A – Circle Valley Road, SLK 7.7-12.81 project area, using Threatened and Priority Flora Reporting (TPFL; DBCA 2024a), WA Herbarium (DBCA 2024b) and Esperance District Threatened Flora (DBCA 2024c).
Nt. Acronyms used in the table include priority flora (P), threatened flora (TF), Biodiversity Conservation (BC) Act 2018, Critically Endangered (CR) endangered (EN) and Vunerable (VU).

Taxon	BC Act Conservation Status	Associated Habitat	Likely to occur	Distance from site (km)
Angianthus sp. Salmon Gums (G.F. Craig 3074)	P1	Red-brown loam, salt lakes and granite outcrops.	y	17.14
Aotus lanea	P1	Salt-lakes, sandplains, disturbed areas. Grey clayey sand, yellow clay, deep siliceous sand.	y	10.32
Cyathostemon sp. Esperance (A. Fairall 2431)	P1	Salt lakes, saline watercourse. Sandy gravel	y	13.35
Eucalyptus dissimulata subsp. plauta	P1	Mallee shrubland or mixed Mallee woodland. Sandy to Loamy soil.	y	7.47
Hydrocotyle decorata	P1	Margins of salt lakes.	y	18.99
Acacia amyctica	P2	Loamy and sandy clay plains in low woodland, mallee and open shrubland.	y	16.22
Aotus sp. Dundas (M.A. Burgman 2835)	P2	Open mallee woodlands and margins of salt lakes on sand, Sandy-loam and loam. Associated with fire and chained firebreaks.	y	8.17
Conostephium uncinatum	P2	Various habits - Deep sandy soils, edge of salt lakes, undulating plains, claypans. Most records associated with salt lakes.	y	12.14
Halgania sp. Peak Eleanora (M.A. Burgman 3547 B)	NT (recently delisted)	Salmon Gums area. Loamy sand. Undulating plains.	y	14.27
Hydrocotyle decorata	P2	Edge of salt lakes.	y	19.01
Pimelea halophila	P2	Margins and dunes of salt lakes.	y	11.71

Stenanthera lacsalaria	P2	Margins salt lakes, saline watercourses and saline drainage lines. Sandy soil.	y	14.13
Acacia bartlei	P3	Flat or gently undulating landscapes, waterlogged depression in brown/grey sandy loam or clay loam. Commonly associated with Eucalyptus occidentalis.	n	7.36
Acacia glaucissima	NT (recently delised)	Open mallee woodland or Eucalyptus (tree) woodland. Frequently associated with fire or mechanical disturbance.	y	3.34
Acacia improcera	P3	Sand, loamy clay, clay, rocky. Undulating plains, flats. Mallee woodlands. Disturbed areas.	y	8.51
Bossiaea spinosa	P3	Gravelly, sandy soils on undulating plains.	n	16.08
Conostephium marchantiorum	P3	White/grey sand. Plains, creek lines, edges of salt lakes.	y	13.30
Cyathostemon sp. Salmon Gums (B. Archer 769)	P3	Various soils - orange sand, white sandy, sandy clay over granite, light brown clay, saline soils. Various habitats – flats, dry river beds, claypans.	y	13.53
Eremophila chamaephila	P3	Open mallee woodland with limestone.	n	9.67
Eremophila compressa	P3	Grass Patch area, open woodland with red brown clay, clay loam, sandy lam on undulating plains	y	8.38
Eucalyptus creta	P3	Mallee country preferring heavy brown clay loam.	y	19.69
Eucalyptus histophylla	P3	Salmon Gums area. Sandy loam on granite or laterite. Granite outcrops.	n	3.34
Lepidium fasciculatum	P3	Cracking clays and red loams on plains, dry lake beds, flats and low shrublands.	n	15.65
Melaleuca fissurata	P4	Shrub mallee or woodland on sand or sandy loam usually over clay or clay loam.	y	2.86
Persoonia cymbifolia	P3	Sandy soils.	y	6.47
Pityrodia chrysocalyx	P3	Salmon Gums area. Sandplains with yellow sands. Associated with Eucalyptus Mallee woodlands with Banksia media and Hakea sp.	n	1.93
Ptilotus ostentans	P3	Plains in open mallee woodlands on pale brown, grey or red sandy or loamy soils.	y	17.71
Adenanthos ileticos	P4	Salmon Gums area – sandy soil, open woodland with various Eucalyptus species.	n	6.91
Darwinia polycephala	P4	Sand & clay on flats near salt lakes.	y	13.74
Eucalyptus dolichorhyncha	P4	Small areas south of Salmon Gums flats or slightly rising ground with whitish to yellowish sandy clay soil.	n	11.29
Grevillea aneura	P4	Prefers shrubby heathland with an acid sandy soil usually overlaying heavier soils. Associated with highly diverse Proteaceous shrublands.	n	9.80
Gyrostemon ditrigynus	P4	Grows on sand, sandy clay and loam. Plains and low ironstone ridges. Low rain fall zone. Recently burned areas.	n	10.60
Eucalyptus merrickiae	T	Associated with margin of salt lakes.	y	0.00

Appendix 4: Description of Threatened and Priority Fauna Species with the Potential to occur within the Circle Valley Road, SLK 7.7-12.81 Survey Area

Threatened or priority fauna identified by the desktop study to be present within a 20 km radius of Site A – Circle Valley Road, SLK 7.7-12.81 project area, using Threatened and Priority Fauna dataset (DBCA 2024e) and species identified by the EPBC protected matters search tool.

Nt. Acronyms used in the table include priority flora (P), threatened flora (TF), Biodiversity Conservation (BC) Act 2018, EPBC Act (1999), Extinct (EX), Critically Endangered (CR) endangered (EN) and Vulnerable (VU).

Taxon	Common Name	BC Act Status	EPBC Status	Associated Habitat	Likely to occur	Distance from site (km)	EPBC Protected Matters Tool
Aphelocephala leucopsis	Southern whiteface		VU	Wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Southern whiteface forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover. Birds mainly feed on insects, spiders, and seeds, largely gleaned from the bare ground or leaf litter.			X
Botaurus poiciloptilus	Australasian bittern	EN	EN	Densely vegetated wetlands.	No		X
Calidris accuminata	Sharp-tailed sandpiper	MI	VU (MI)	Breeds in northern Siberia in June to August, before migrating to Australia and NZ for non-breeding season. Widespread in both inland and coastal locations of fresh and saline habitats. Widespread from Cape Arid to Carnarvon. Utilises fresh to hypersaline aquatic environments; edges of mudflats, sewage ponds, wetlands, and inundated pastures. Roosts on rocky and sandy beaches, and wetland vegetation. Omnivorous; diet of seeds, worms, molluscs, crustaceans, and insects.	No		X
Calidris ferruginea	Curlew sandpiper	CR	CR (MI)	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps,	No		X

				lakes and lagoons near the coast, and ponds in saltworks and sewage farms.			
Dasyurus geoffroii	Chuditch	VU	VU	Historically inhabited a wide range of habitats, but today it survives mostly in Jarrah *Eucalyptus marginata* forests and woodlands, mallee shrublands and heathlands.	Yes	13.52	X
Falco hypoleucos	Grey falcon	VU	VU	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.	No		X
Falco peregrinus	Peregrine falcon	OS		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, and may even be found nesting on high city buildings.	Yes	19.49	
Leipoa ocellata	Malleefowl	VU	VU	Malleefowl are found in arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in Mulga (*Acacia aneura*), Broombush (*Melaleuca uncinata*), Scrub Pine (*Callitris verrucosa*), Eucalyptus woodlands and coastal heathlands. Malleefowl require abundant leaf litter and a sandy substrate for the successful construction of nest mounds.	No	8.54	X
Platycercus icterotis xanthogenys	Western rosella (inland)	P4		Open eucalypt forest and timbered areas, including cultivated land and orchards. The xanthogenys subspecies is found in drier woodland, with a heath understorey.	Yes	10.00	
Thinornis cucullatus	Hooded plover	P4		Freshwater lakes, freshwater marshes, coastal saline lagoons, and sandy beaches	No	7.43	
Zanda latirostris	Carnaby's cockatoo	EN	EN	Uncleared and remnant areas of woodland, shrubland and kwonkgan heath dominated by proteaceous species. They breed in the semiarid and subhumid interior eucalypt woodlands, principally dominated by Salmon Gum *Eucalyptus salmonophloia* or Wandoo *Eucalyptus wandoo*.	No	14.15	

Appendix 5: EPBC Act Protected Matters Report

Listed Threatened Ecological Communities

Community Name	Threatened Category	Presence	
		Rank	Text
Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia	Endangered	May	Community may occur within area

Listed Threatened Species

Scientific Name	Common Name	Simple Presence	Threatened Category	Migratory Status
Calidris ferruginea	Curlew sandpiper	May	Critically Endangered	Migratory
Botaurus poiciloptilus	Australasian bittern	May	Endangered	
Leipoa ocellata	Malleefowl	May	Vulnerable	
Aphelocephala leucopsis	Southern whiteface	May	Vulnerable	
Eucalyptus merrickiae	Goblet Mallee	Known	Vulnerable	
Dasyurus geoffroii	Chuditch, Western quoll	May	Vulnerable	
Calidris acuminata	Sharp-tailed sandpiper	May	Vulnerable	Migratory

Appendix 6: BC Act Threatened and Priority Flora and Fauna Definitions

Category	Definition
T – Threatened	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: **CR:** Critically Endangered – considered to be facing an extremely high risk of extinction in the wild (Schedule 1); **EN:** Endangered – considered to be facing a very high risk of extinction in the wild (Schedule 2); or **VU:** Vulnerable – considered to be facing a high risk of extinction in the wild (Schedule 3). **EX:** Presumed Extinct – taxa that have been adequately searched for and there is no reasonable doubt that the last individual has died (Schedule 4)
P1 – Priority 1 (Poorly known taxa)	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. 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.
P2 – Priority 2 (Poorly known taxa)	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. 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.
P3 – Priority 3 (Poorly known taxa)	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. 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.
P4 – Priority 4 (Rare, Near Threatened and other taxa in need of monitoring)	**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. **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. **3.** Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy

Appendix 7: EPBC Act (1999) Definition of Threatened Flora and Fauna Species

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 8: BC Act Definition of Threatened Ecological Communities

Category Code	Category
PTD	**Presumed Totally Destroyed** 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: (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	**Critically Endangered** 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: (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	**Endangered** 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: (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	**Vulnerable** 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: (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 9: BC Act 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 10: EPBC Act 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 11: BAM Act Categories and Control of Declared (Plant) Pests in Western Australia

Control Category	Control Measures
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.	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.
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.	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.
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.	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.

Appendix 12: Definition of Vegetation Condition Scale

For the south west and interzone botanical provinces

Condition Rating Description	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.