Vegetation, Flora, Fauna and Environmental Considerations Report

Government Dams Purpose Permit

No. 19 Dam – Logan Road, Grass Patch

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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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

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 a number of Government Dams in the north of the Esperance Shire over 2024. The eleven sites will be applied for under the Shire of Esperance's Government Dams Purpose Permit.

The proposed development involves the clearing of 5.279ha, of this 2.644ha is currently exempt from requiring a clearing permit due to having been most recently cleared between August 2018 and January 2021, however the entire catchment has been included in the application to ensure long term maintenance activities on the dam catchments can be carried out lawfully. 2.635ha of vegetation was not exempt from clearing.

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

The site contained a single vegetation community described as "Sparse Mallee over open Melaleuca shrubland".

Vegetation Condition varied between a Good and Very Good condition with the eastern half of the project being in a poorer condition due to being more recently cleared.

One Priority Ecological Community was identified by the Protected Matters Search Tool; however, no vegetation in the survey area met the requisite criteria for this or any other Threatened or Priority Ecological Communities.

A total of 94 vascular plant taxa, representative of 66 genera and 30 families, were recorded within No. 19 Dam survey area. Of these 72 were native species and 22 were introduced.

No threatened and three priority flora species were recorded within the No. 19 Dam survey area. However one of these priority species has since been delisted.

Suitable habitat for three conservation listed fauna species identified in the desktop survey was also present in the project area.

1 Introduction

The Shire of Esperance is the responsible land manager for a number of government dams. There are over 50 government dams within the Esperance Shire. The dams were constructed from 1910-1930 by the Public Works Department to provide water for new settlers as they arrived in Salmon Gums, Scaddan, Cascade and Grass Patch districts, where there were no large natural freshwater sources. Most of the dams include a graded catchment, with a dam (sometimes roofed). The dams provide valuable water for road construction, firefighting and can often be used as drought relief dams for stock when farm dams become dry.

All of the dam sites applied for under the Shires Government Dams Purpose Permit have been previously cleared, however due to many of them previously being in the Shire of Dundas, there was not a periodical maintenance program to regrade the catchments and many of the catchments have become overgrown. The dam catchments applied for under this strategic purpose permit would not be exempt under

Regulation 5, Item 15, of the Clearing Regulations as these sections have not been cleared in the last 10 years.

1.1 Location and Scope of Project

The proposed works are located 8.8km north east of the Grass Patch townsite, within SOE managed Reserve 19471. Specifically, it is located on Lot 300 on Plan 46675 Logan Road, Grass Patch. A point within the proposed clearing permit area is 33.15°S, 121.71°E.

No. 19 Dam project is required for drought relief, road construction and firefighting purposes. The project involves clearing and grading the previously cleared catchment, as well as clearing surrounding the dam to enable maintenance. In total 5.279ha is proposed to be cleared, of this 2.644ha is currently exempt from requiring a clearing permit due to having been most recently cleared between August 2018 and January 2021, however the entire catchment has been included in the application to ensure long term maintenance activities on the dam catchments can be carried out lawfully. 2.635ha of vegetation was not exempt from clearing.

On 3 October 2024, the dam contained some water, however reclearing the catchment should ensure water runoff into the dam is again restored and this water source maintained. The Shire of Esperance has attempted to avoid, reduce, minimise impacts by keeping as much as possible to existing cleared areas.

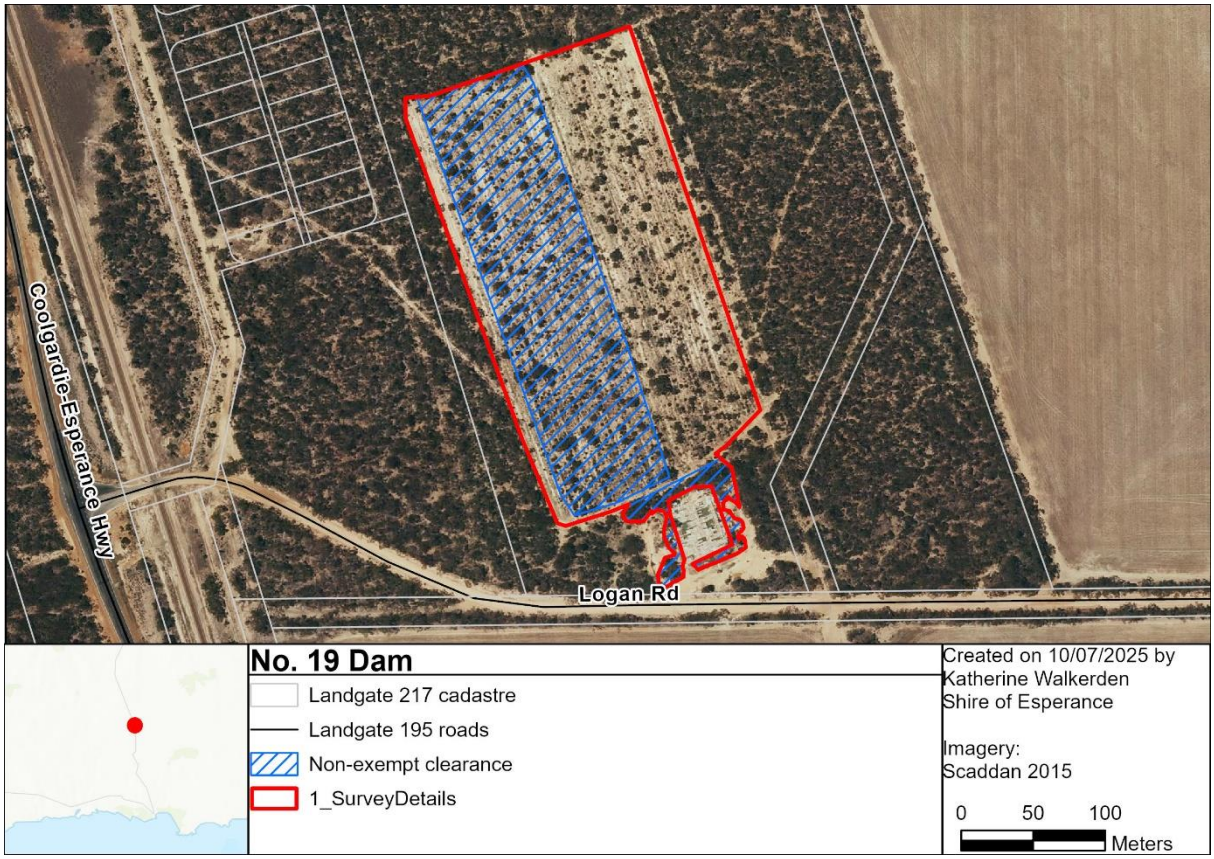

Figure 1. Location of No. 19 Dam, with non-exempt clearing in blue.

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 No. 19 Dam 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 No. 19 Dam 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 No. 19 Dam survey area;
- Undertake a field survey of the No. 19 Dam survey area, and collect and identify the vascular plant species present;
- Define and map the vegetation communities present and their condition in the No. 19 Dam 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 No. 19 Dam 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 No. 19 Dam area. Search parameters were 'by polygon' and a 20km 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 (1973) (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 6 December 2023, by Julie Waters (SOE Environmental Coordinator). 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 No. 19 Dam survey area was undertaken by SOE botanists Katherine Walkerden and Mary Hoggart with volunteer Krystal-Jade Brooke on 3 October 2024 in accordance with methods outlined in Technical Guidance – Flora and vegetation surveys for environmental impact assessment (EPA 2016). Katherine Walkerden held a valid collection licence to collect flora for scientific purposes, issued under the BC Act. A follow up survey was conducted on 4 February 2025 by Julie Waters and Katherine Walkerden to map the locations of *Cyathostemon* sp. Salmon Gums at the site.

The methodology for assessing threatened and priority flora consisted of traversing by foot the entire No. 19 Dam survey area. Botanists used handheld Garmin GPS units loaded with the No. 19 Dam survey area boundary, walking every graded row to cover the entire area recording 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.

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 No. 19 Dam were 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 No. 19 Dam 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 No. 19 Dam were conducted in October, 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 1). 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 (1973).
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 small proportion of plants encountered during the survey were not able to be identified to species level. 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. 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 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 ± 5m.
Survey timing, rainfall, season of survey	**Not a limitation:** The EPA (2016a) recommends that flora and vegetation surveys in the South – West Botanical Province be conducted in Spring (September-November). All surveys have been conducted in October which falls within this period.
Disturbances (fire/flood/clearing)	**Not a limitation:** The No. 19 Dam survey area has no history of fire.

4 DESKTOP ASSESSMENT RESULTS

4.1 Climate

The Salmon Gums climate is described as Mediterranean, characterised by cool wet winters and dry warm summers (BoM 2024). The Salmon Gums locality receives an average annual rainfall of 350mm.

4.2 Catchment

No. 19 Dam is high in the landscape occurring approximately 240m above sea level.

No. 19 Dam project is mapped as being present within the Bandy Creek catchment area, however it is more likely to be internally drained rather than draining to the coast.

4.3 Geology, Soils and Topography

A single geological unit was identified by Schoknecht et al. (2004). This was described as: “Tertiary marine sediments with aeolian carbonate rich deposits in places”.

Within the area, the soil has been described by Schoknecht et al. (2004) as: “Alkaline grey shallow sandy duplex soils with associated pale deep sands and minor deep sandy duplexes, ironstone gravel soils and non-cracking clays”.

Within the area, the landform unit has been described by Schoknecht et al. (2004) as: “Level to gently undulating plain with areas of gilgai microrelief. Drainage is generally poorly developed and usually internal”.

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 a single vegetation association (VA) within the No. 19 Dam area – Salmon Gums 486 (Table 2). 58.6% of this vegetation type is remaining, however it is poorly reserved with only 3.93% in IUCN reserves.

Table 2. Vegetation associations mapped by Beard (1973) within the No. 19 Dam area, 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 (%)	3.93

4.5 Surrounding Land Use

The area directly included in the clearing permit application No. 19 Dam is a previously cleared catchment and dam surrounded by intact and vegetated 'water tank' reserve, managed by SOE. The surrounding land use is private property zoned agriculture used primarily for broad acre agriculture, The Red Lake Townsite Nature Reserve (Reserve 29680) and various Department Planning Lands and Heritage reserves including the gazetted Red Lake Townsite (which remains undeveloped). The project area is in a highly cleared area with only 3.4% of vegetation within 5km of the project remaining.

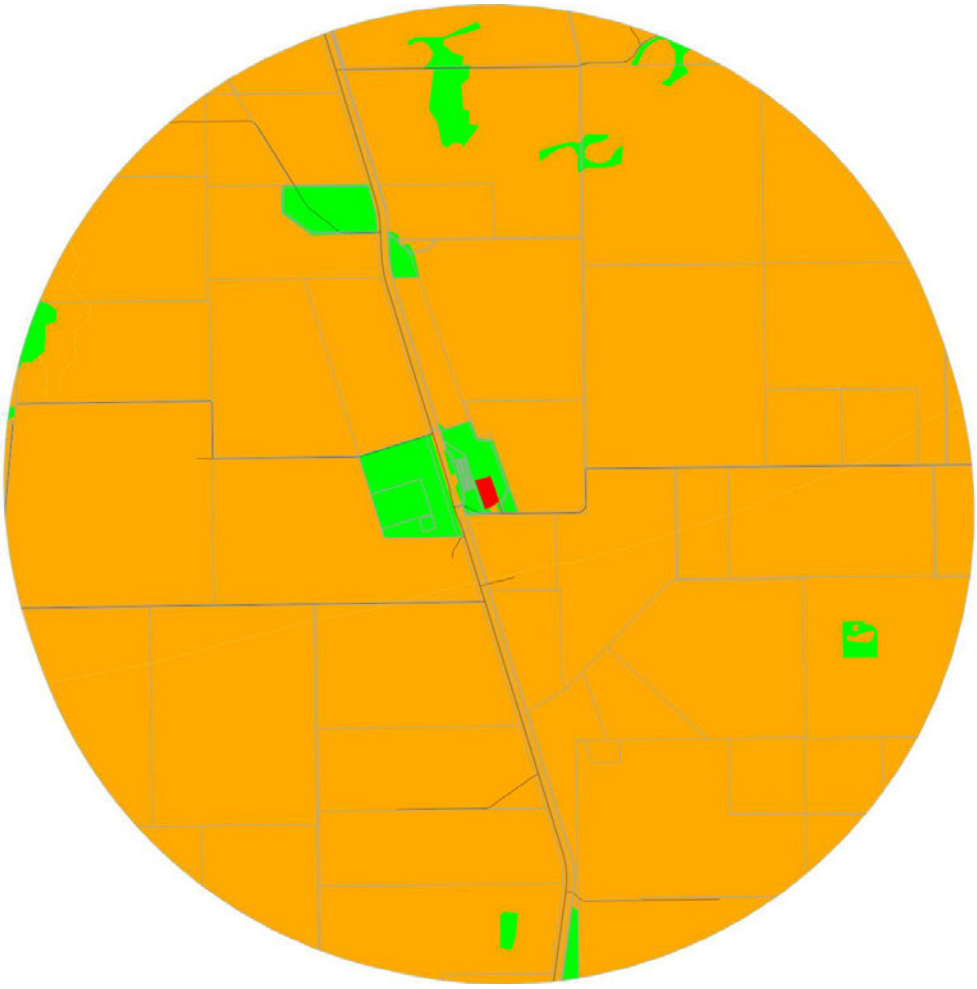

Figure 2. Map of remnant vegetation within a 5km buffer produced by DEISIP. Project area is highlighted in red, remnant vegetation is in green and cleared vegetation is in orange, road centrelines are in black and cadastre boundaries are in grey.

The site was 350m west from Red Lake Townsite Nature Reserve 29680, the closest conservation reserve. No other conservation reserves were within 10km of the site.

4.6 Potential Threatened and Priority Flora

Two threatened flora (TF) and 25 priority flora (PF) were recorded within a 20km radius of the proposed impact site (Appendix 3)). The Protected Matters Search Tool identified an additional two species. Of these, one TF species and fifteen PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of No. 19 Dam project.

4.7 Potential Threatened and Priority Ecological Communities

The desktop study did not identify any Threatened Ecological Communities within 20km of the site. The desktop study identified the Priority 3 Ecological Community: “Granite outcrop pools with endemic aquatic fauna” 8.48km from the site.

The Protected Matters Search Tool identified the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed threatened ecological community (TEC) ‘Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)’ likely to occur within the buffer of No. 19 Dam project area.

4.8 Potential Threatened and Priority Fauna

Three threatened fauna, two priority fauna and one specially protected fauna species were recorded within a 20km radius of the proposed impact site (Appendix 4). In addition, the Protected Matters Search Tool identified an additional seven species.

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 immediate area. The Department of Biodiversity, Conservation and Attractions defines the vulnerable zone for Dieback as areas with over 400mm of annual rainfall. Some positive Dieback samples have been retrieved from areas within the 300 - 400mm rainfall zone if they receive high summer rainfall. The rainfall in the area of No. 19 Dam is probably too low.

5 FIELD SURVEY RESULTS AND DISCUSSION

5.7 Vegetation Communities

A single vegetation community was identified within the No. 19 Dam Site, as defined by structure and composition. It is believed that the Beard (1973) vegetation associations identified in Section 4 is an appropriate match for the vegetation type observed.

Table 3. Vegetation communities identified within proposed No. 19 Dam project area.

Type	Description	Figures	Closest Matching Beard Vegetation Association	Area (ha)
A	Sparse Mallee over open *Melaleuca* shrubland	3	Salmon Gums 486	5.279

Figure 3. Vegetation within the No. 19 Dam project area, described as: “Regenerating mixed mallee woodland over mixed shrubland”.

5.8 Vegetation Condition

Vegetation condition ranged from Good to Very Good over the site. The eastern portion of the catchment had been more recently cleared (between August 2018 and January 2021 based on Google Earth satellite imagery) and hence obtained a vegetation condition rating of Good. Whilst the vegetation in this eastern section is currently exempt from requiring a permit, the schedule and budget for dam catchment clearing under this Strategic Purpose Permit has not yet been set. The Shire of Esperance is applying for clearing the entire required area of No. 19 Dam catchment so it can all be done in one operation and is in line with all other dams catchments under our management.

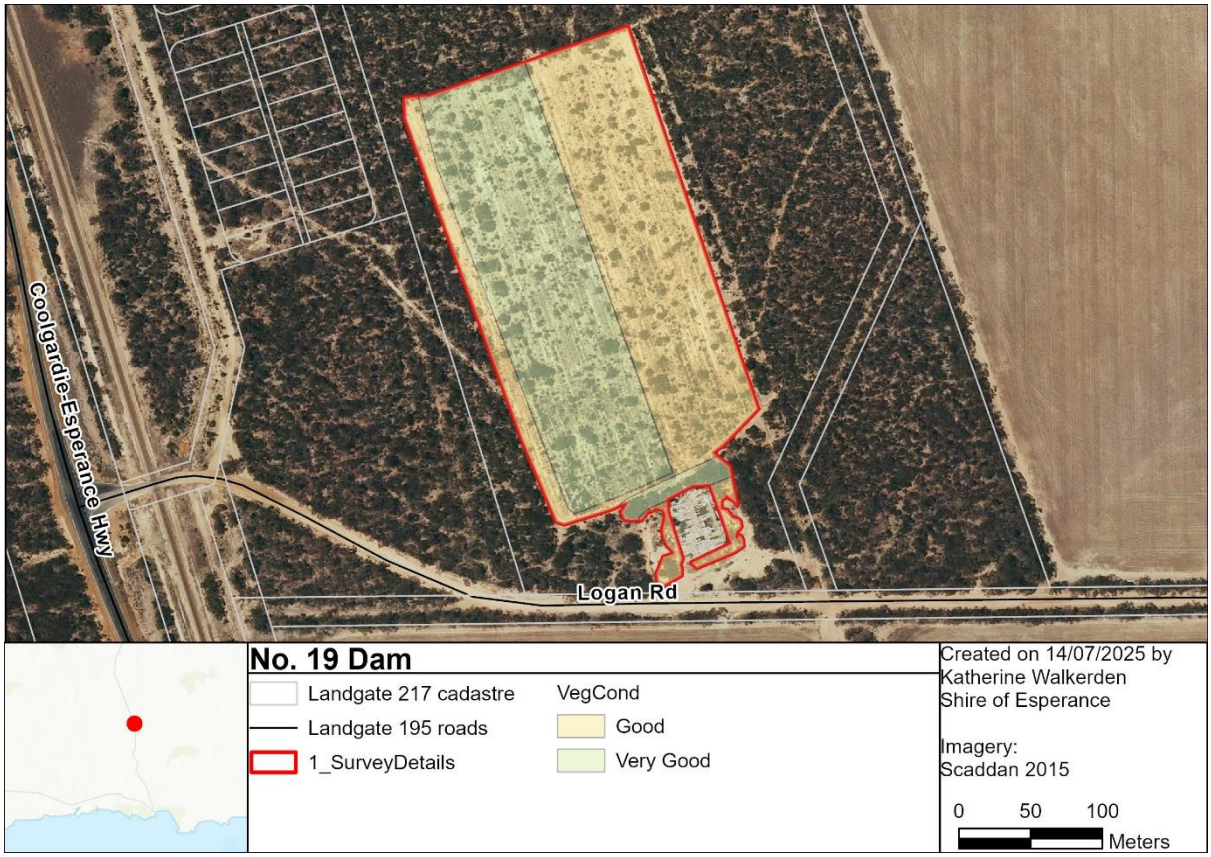

Figure 4. Map of Vegetation within No.19 Dam.

Figure 5. The eastern portion of the catchment had been more recently cleared.

5.8.1 Weeds

There was a moderate amount of weed invasion across the entirety of the proposed No. 19 Dam area with a majority of weeds being herbaceous or grasses, the western section of the catchment had a higher relative density of weeds. Weed density was highest surrounding the dam. 22 introduced plant species

were identified. Bridal Creeper (*Asparagus asparagoides*) and African Boxthorn (*Lycium ferocissimum*) are Weeds of National Significance (WONS), and both Stemless Thistle (*Cirsium acaule*) and Bridal Creeper are Declared Pests under the Biosecurity and Agriculture Management (BAM) Act of 2007. The *Asparagus asparagoides* being localised to being around the dam and the *Lycium ferocissimum* plant was present within the catchment and will be cleared during the course of the project. Other weeds of concern at the site are Onion Weed, Spear Thistle and Maltese cockspur.

5.8.2 Phytophthora Dieback

Surveyors were unable to detect any signs of *Phytophthora cinnamomi* dieback disease within the clearing permit area.

5.9 Threatened Ecological Communities

The Protected Matters Search Tool identified the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 listed threatened ecological community (TEC) 'Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia (Kwongkan)' may occur within the buffer of No. 19 Dam project area. Only three proteaceous species were recorded within the survey area; *Grevillea plurijuga, G. oligantha and G. huegeliana*. None of these are diagnostic species as per the approved conservation advice for this community.

The Priority 3 Ecological Community "Granite outcrop pools with endemic aquatic fauna" was detected in the desktop survey as occurring 8.48km away. No granite outcrops were present at the site and this PEC does not occur here.

5.10 Flora

A total of 94 vascular plant taxa, representative of 66 genera and 30 families, were recorded within No. 19 Dam survey area. Of these 72 were native species and 22 were introduced. The plurality of taxa recorded were representative of the Asteraceae (16 taxa), Myrtaceae (14 taxa), Fabaceae (10 taxa), and Poaceae (10 taxa) families (see Appendix 1 for the complete incidental species list).

5.11 Threatened and Priority Flora

The targeted flora survey identified three priority species and no threatened species, within the No. 19 Dam survey area. Since the survey was conducted *Acacia glaucissima* has been delisted.

Table 3: Summary of Priority flora species recorded in No. 19 Dam project area.

Taxon	BC Act Conservation Status	Total plants counted in population	Total plants impacted in non-exempt clearing	Total plants impacted
Acacia amyctica	P2	57	52	56
*Acacia glaucissima** (delisted)	NT	191	151	189
Cyathostemon sp. Salmon Gums	P3	38	28	28

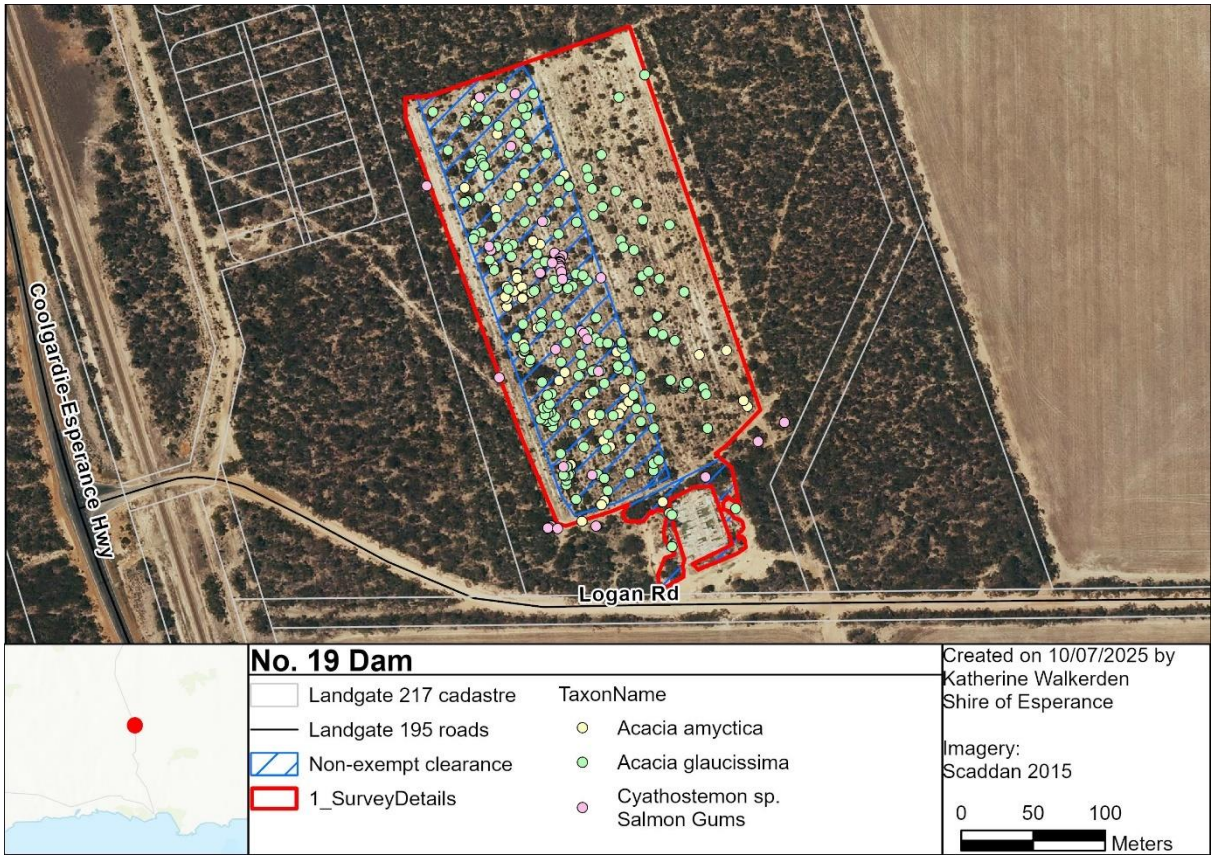

Figure 6. Map of priority flora present within No. 19 Dam.

5.11.1 *Acacia amyctica,* Priority 2

A specimen of *Acacia amyctica* was sent to the WA Herbarium for identification confirmation (KSW06624; Accession 11208 with specimen retained). The identification was confirmed by Mike Hislop on 17 December 2024. There was a total of 57 plants counted within the survey area, a total of 56 plants will be impacted during the project, 52 of these were within the non-exempt clearing.

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 17 July 2025 (Appendix 2).

Acacia amyctica occurs between Salmon Gums and Grass Patch, with the plant extending to north Cascade in the west and to Mt Ridley in the east. This equates to an east-west range of 115km and a north-south range of 58km. The area of occupancy includes largely unsurveyed and uncleared southern parts of the Great Western Woodlands, so the species is probably more common than recorded.

It grows in loam and on sandy clay plains in low woodland and open shrubland. There was a total of 15 herbarium records for this species, with 14 TPFL records for the species. EcoScape had located an additional four populations during the state barrier fence surveys totalling 337 plants. Including the population associated with this project, the Shire of Esperance staff has located 5 new populations totalling 330 plants which have not yet been databased at the WA Herbarium

5.11.2 *Acacia glaucissima*, (was Priority 3)

A specimen of *Acacia glaucissima* was sent to the WA Herbarium for identification confirmation (KSW06824; Accession 11208 with specimen retained). The identification was confirmed by Mike Hislop on 17 December 2024. 191 plants were counted during the survey, a total of 189 plants will be impacted during the course of the project of which 151 are within the non-exempt clearing. The Shire of Esperance received notification from Emma Adams (DBCA Esperance District Flora Conservation Officer) on 5 March 2025 that the species has been removed from the Priority Flora list.

5.11.3 *Cyathostemon* sp. Salmon Gums, Priority 3

A specimen of *Cyathostem* sp. Salmon Gums was sent to the WA Herbarium for identification confirmation (KSW06524; Accession 11208 with specimen retained). The identification was confirmed by Mike Hislop on 17 December 2024. A total of 38 plants were counted during the survey, 28 plants will be impacted during the project, all of these were within the non-exempt clearing area.

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 17 July 2025 (Appendix 2).

Cyathostemon sp. Salmon Gums has been nominated for delisting by Emma Adams (DBCA Conservation Officer), but at time of report writing this was still pending.

Cyathostemon sp. Salmon Gums has a fairly large distribution from Lake Cowan (north of Norseman) to south of Grass Patch, west to Frank Hann National Park and just east of this site. There are 19 specimens on Florabase and the species is often described in these collecting notes as “common”. Ecoscape (2017) recorded 4684 plants over 24 populations during their State Barrier Fence surveys. Over *Cyathostemon* sp. Salmon Gums’ distribution range, there are a large number of poorly surveyed salt lakes in pristine condition, which are collectively likely to contain large numbers of plants around their perimeters. Despite 106 plants being disturbed as part of this proposal, it is unlikely to be significant at a local or regional scale.

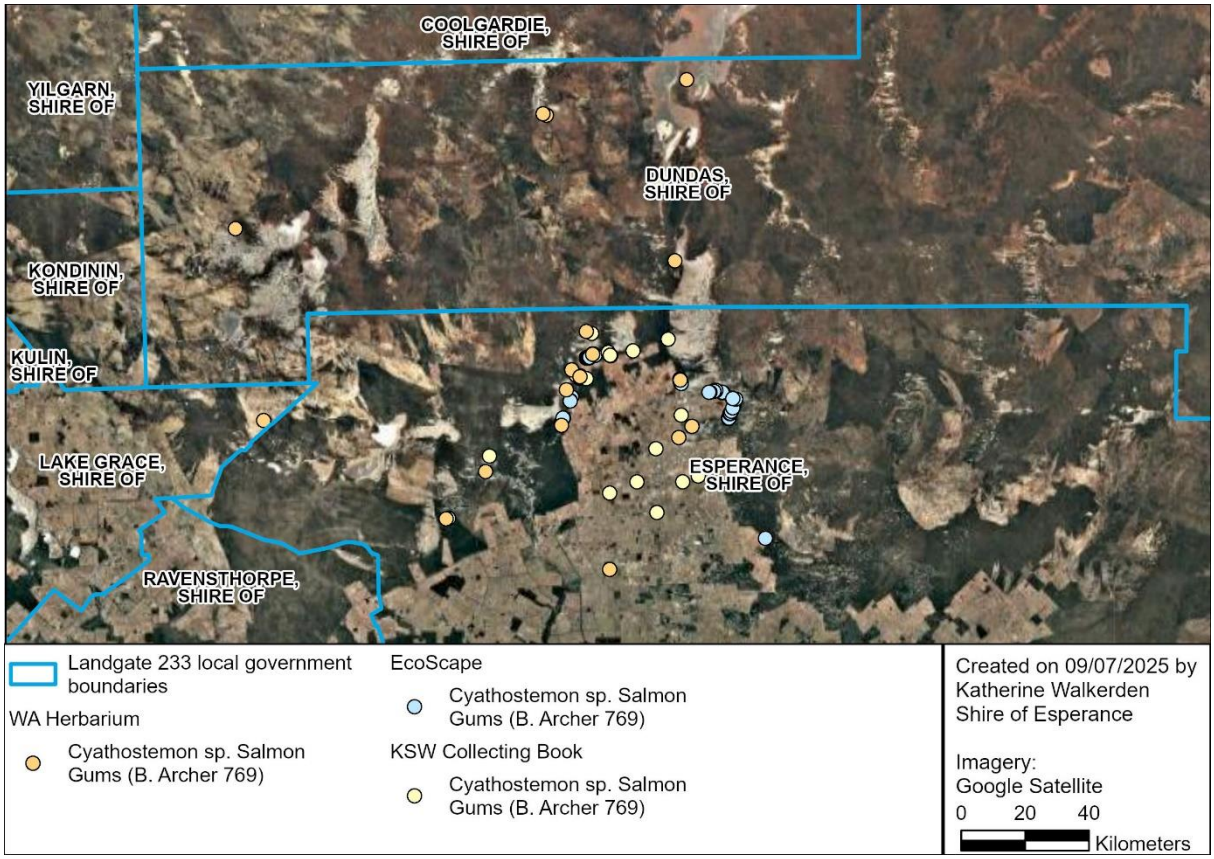

Figure 7. Map of known *Cyathostemon* sp. Salmon Gums populations.

5.12 Fauna

Of the six species identified as occurring within 20km of the site within the Desktop survey, only the Peregrine falcon, Western rosella, and Chuditch have suitable habitat within the proposed clearing permit area. Given the fact that this site has been cleared 100 years ago, any impacts to these species at this area are insignificant.

There is not enough vegetative cover or leaf litter at the site for malleefowl. Not enough foraging species for Carnabys cockatoo and no wetlands for the Hooded Plover.

6 REVIEW OF 10 CLEARING PRINCIPLES FOR NATIVE VEGETATION

The No. 19 Dam 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.

Likely at Variance: Biodiversity at this site is high with 72 native flora species recorded over a single vegetation community.

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 site provided suitable habitat for Peregrine falcon, Chuditch, and Western rosella. Given the large habitat ranges of all of these species, and the fact that this catchment has been clear for 100 years, there is likely to be minimal impact to any of these species.

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: Three priority species were observed in the area. Two of these have been recommended to be delisted. At this stage, only *Acacia glaucissima* has been removed from the priority list.

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: No TEC's or PEC's were relevant to the study 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 area is highly cleared area with only 3.4% of vegetation within 5km of the project remaining.

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.

Not at Variance: Vegetation in this area was not growing in association with a natural watercourses or wetland.

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: Vegetation within this area will be providing limited function as windbreaks and erosion control for the agricultural areas surrounding it, as it is fully enclosed within a vegetated reserve.

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 project is very close (350m) from Red Lake Townsite Nature Reserve (Reserve 29680). It is unlikely to have any measurable impacts on that conservation reserve. There are no other conservation reserves within 10km 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: Clearing of the catchment will enable more runoff to enter the dam providing a valuable water source in a semi-arid environment.

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: Surface water falling on the clearing area all feeds into a dam and the area in not susceptible to flooding.

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.

- Permit boundaries will be accurately marked out by surveyors prior to clearing.
- Boxthorn control prior to clearing.
- All vehicles and construction equipment to be cleaned prior to start of the project to prevent weed introduction into the site.

8 LIST OF PERSONNEL

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

Name	Julie Waters
Position	Environmental Coordinator
Project Involvement	Desktop and Field Survey, Specimen Identification, GIS Mapping Data Interpretation and Report Writing
Qualifications	BEnvSc (Hons)
Experience	20 years working in environmental field including Flora Conservation Officer for previous DBCA, and 15 years' experience as a botanist in the region
Scientific Licence	FT61000787-2

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	Field Survey and Specimen Identification
Qualifications and Experience	BSc (Hons)Ag
	15 years' experience as a botanist in the region and is highly regarded by Esperance Wildflower Society and her peers in Esperance as one of the best botanists in Esperance.
Scientific Licence	N/A

Name	Krystle-Jade Brooke
Position	Unpaid work placement
Project Involvement	Field Survey Assistant
Qualifications	BEnvSc
Experience	Limited
Scientific Licence	N/A

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Appendix 1: Incidental species list

Family	Taxon	Weed	BC Act (EPBC) Conservation Status	Herbarium Reference
Aizoaceae	*Mesembryanthemum nodiflorum*	*		
Aizoaceae	*Carpobrotus modestus*			
Asparagaceae	*Asparagus asparagoides*	*		
Asparagaceae	*Thysanotus patersonii*			
Asphodelaceae	*Asphodelus fistulosus*	*		
Asteraceae	*Arctotheca calendula*	*		
Asteraceae	*Asteridea athrixioides*			
Asteraceae	*Brachyscome ciliaris*			
Asteraceae	*Centaurea melitensis*	*		
Asteraceae	*Cirsium vulgare*	*		
Asteraceae	*Leontodon rhagadioloides*	*		
Asteraceae	*Monoculus monstrosus*	*		
Asteraceae	*Olearia muelleri*			
Asteraceae	*Olearia* sp. Eremicola			
Asteraceae	*Onopordum acaulon*	*		
Asteraceae	*Ozothamnus blackallii*			
Asteraceae	*Podolepis rugata*			
Asteraceae	*Pogonolepis muelleriana*			
Asteraceae	*Rhodanthe pygmaea*			
Asteraceae	*Senecio glossanthus*			
Asteraceae	*Sonchus oleraceus*	*		
Boraginaceae	*Halgania andromedifolia*			
Brassicaceae	*Brassica tournefortii*	*		
Brassicaceae	*Sisymbrium irio*	*		
Caryophyllaceae	*Spergularia diandra*	*		
Chenopodiaceae	*Atriplex acutibractea* ssp. *karoniennsis*			
Chenopodiaceae	*Enchylaena tomentosa*			
Chenopodiaceae	*Rhagodia preissii* ssp. *preissii*			
Chenopodiaceae	*Maireana trichoptera*			
Chenopodiaceae	*Threlkeldia diffusa*			
Convolvulaceae	*Wilsonia humilis*			
Crassulaceae	*Crassula exserta*			
Dilleniaceae	*Hibbertia rupicola*			
Fabaceae	*Acacia amyctica*		P2	KSW06624, Acc 11208
Fabaceae	*Acacia crassuloides*			
Fabaceae	*Acacia deficiens*			
Fabaceae	*Acacia glaucissima*		P3	KSW06824, Acc 11208
Fabaceae	*Acacia hadrophylla*			
Fabaceae	*Acacia lachnophylla*			

Fabaceae	*Daviesia aphylla*			
Fabaceae	*Pultenaea elachista*			
Fabaceae	*Dillwynia* sp. Mallee			
Fabaceae	*Senna artemisioides* ssp. *filifolia*			
Goodeniaceae	*Coopernookia strophiolata*			
Goodeniaceae	*Goodenia concinna*			
Goodeniaceae	*Goodenia incana*			
Hemerocallidaceae	*Dianella revoluta* or *brevicaulis* (Sterlie)			
Iridaceae	*Romulea rosea*	*		
Lamiaceae	*Prostanthera serpyllifolia*			
Lamiaceae	*Westringia rigida*			
Lauraceae	*Cassytha melantha*			
Myrtaceae	*Melaleuca cucullata*			
Myrtaceae	*Melaleuca eleuterostachya*			
Myrtaceae	*Melaleuca hamata*			
Myrtaceae	*Melaleuca pauperiflora*			
Myrtaceae	*Melaleuca podiocarpa*			
Myrtaceae	*Melaleuca sapientes*			
Myrtaceae	*Cyathostemon* sp. Salmon Gums		P3	KSW06524, Acc 11208
Myrtaceae	*Eucalyptus brachycalyx*			
Myrtaceae	*Eucalyptus conglobata* ssp. *conlobata*			
Myrtaceae	*Eucalyptus cylindriflora*			
Myrtaceae	*Eucalyptus flocktoniae* ssp. *flocktoniae*			
Myrtaceae	*Eucalyptus leptocalyx*			
Myrtaceae	*Eucalyptus oleosa* ssp. *oleosa*			
Myrtaceae	*Eucalyptus rigidula*			
Orchidaceae	*Thelymitra vulgaris*			
Poaceae	*Austrostipa elegantissima*			
Poaceae	*Avena barbata*	*		
Poaceae	*Hordeum leporinum*	*		
Poaceae	*Rytidosperma acerosum*			
Poaceae	*Austrostipa drummondii*			
Poaceae	*Austrostipa echinata*			
Poaceae	*Austrostipa hemipogon*			
Poaceae	*Avelina festucoides*	*		
Poaceae	*Bromus rubens*	*		
Poaceae	*Lolium* sp.	*		
Polygalaceae	*Comesperma spinosum*			
Polygalaceae	*Comesperma integerrimum*			
Polygalaceae	*Comesperma polygaloides*			
Primulaceae	*Lysimachia arvensis*	*		
Proteaceae	*Grevillea huegelii*			
Proteaceae	*Grevillea oligantha*			
Proteaceae	*Grevillea plurijuga*			

Rhamnaceae	*Spyridium minutum*			
Rutaceae	*Cyanothamnus baeckeaceus* ssp. *baeckeaceus*			
Rutaceae	*Cyanothamnus fabianoides* ssp. *fabianoides*			
Rutaceae	*Phebalium multiflorum* ssp. *baccharoides*			
Santalaceae	*Exocarpos capnodioides*			KSW06724, Acc 11208
Sapindaceae	*Dodonaea bursariifolia*			
Sapindaceae	*Dodonaea stenozyga*			
Scrophulariaceae	*Eremophila ionantha*			
Scrophulariaceae	*Eremophila decipiens* ssp. *decipiens*			
Solanaceae	*Lycium ferocissimum*	*		
Thymelaeaceae	*Pimelea erecta*			

Appendix 2: Threatened and Priority Flora Report Forms

Acacia amyctica – Priority 2

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: Acacia amyctica **TPFL Pop. No:**

OBSERVATION DATE: 03/10/2024 **CONSERVATION STATUS:** P2 **New population** ☐

OBSERVER/S: Katherine Walkerden, Mary Hoggart **PHONE** 90831518

ROLE: Environemntal Officer, Environmental Assistant **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):

Reserve 19471, No.19 Dam. 8.6km north of Grass Patch Townsite.

Reserve No: 19471

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: 6331840.6

Long / Easting: 379679.8

ZONE: 51H

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: Shire water reserve

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

EFFORT: Time spent surveying (minutes): 3 hours 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	57			
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: 40%

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

COMMENT:

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

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

RECORDS: Please forward to **Flora Administrative Officer**, Species and Communities Program.
Record entered by:_____ Sheet No.:_____ Record Entered In Database ☐

Department of Biodiversity, Conservation and Attractions

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:	ROCK TYPE:	LOOSE ROCK: (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: _____
(Refer to field manual for additional values)

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

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

1. Regenerating mixed mallee woodland over 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: FT61000788 Note if only observing plants (i.e. no specimens or plant material is taken) then no authorisation/licence is required. For further information on authorisation and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: KSW06624 Collectors No: WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: ACC11208

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: K Walkerden Date: 11/07/2025

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 3

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: 03/10/2024 **CONSERVATION STATUS:** P3 **New population** ☐

OBSERVER/S: Katherine Walkerden, Mary Hoggart **PHONE** 90831518

ROLE: Environemntal Officer, Environmental Assistant **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):

Reserve 19471, No.19 Dam. 8.6km north of Grass Patch Townsite.

Reserve No: 19471

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: 6331744.1
Long / Easting: 379709.6
ZONE: 51H

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: Shire water reserve

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

EFFORT: Time spent surveying (minutes): 3 hours 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	38			
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: 80%

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

COMMENT:

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

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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: _____
(Refer to field manual for additional values)

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

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

1. Regenerating mixed mallee woodland over 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: FT61000788 Note if only observing plants (i.e. no specimens or plant material is taken) then no authorisation/licence is required. For further information on authorisation and licensing requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: KSW06524 Collectors No: WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other: _____

LODGEMENT: WA Herb Lodgement No: ACC11208

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: K Walkerden Date: 11/07/2025

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Appendix 3: Description of Threatened and Priority Flora Species with the Potential to occur within the No. 19 Dam Survey Area

Threatened or priority flora identified by the desktop study to be present within a 20km radius of No. 19 Dam 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 Vulnerable (VU).

Taxon	BC Act (EPBC) Conservation Status	Associated Habitat	Likely to occur	Distance from site (km)
Acacia amyctica	P2	Loamy and sandy clay plains in low woodland, mallee and open shrubland.	Yes	19.82
Acacia bartlei	P3	Flat or gently undulating landscapes, waterlogged depression in brown/grey sandy loam or clay loam. Commonly associated with *Eucalyptus occidentalis*	No	8.08
Acacia glaucissima	P3	Open mallee woodland or Eucalyptus (tree) woodland. Frequently associated with fire or mechanical disturbance.	Yes	3.82
Acacia improcera	P3	Clay, rocky loam or sand in ecotone of heath and shrub mallee.	Yes	11.43
Adenanthos ileticos	P4	Mallee over myrtaceous shrubland in white, yellow or brown sand. Often in association with *Eucalyptus merrickiae*.	Yes	3.27
Aotus lanea	P1	Salt-lakes, sandplains, disturbed areas. Grey clayey sand, yellow clay, deep siliceous sand.	Yes	19.15
Aotus sp. Dundas	P2	Open mallee woodlands and margins of salt lakes on sand, Sandy-loam and loam. Associated with fire and chained firebreaks.	Yes	5.57
Conostephium marchantiorum	P3	Sand. Plains, creek lines, edges of salt lakes.	Yes	6.99
Conostephium uncinatum	P2	Sand, Sandy loam. Margins of salt lakes, Eucalyptus woodlands.	No	6.99
Darwinia polycephala	P4	Sand, clay. Flats, near salt lakes	No	9.47
Eremophila chamaephila	P3	Open mallee woodland with limestone.	Yes	16.89
Eremophila compressa	P3	Mallee woodland. Clay or clay loam, sandy loam, sand. Undulating plains. Often in disturbed areas	Yes	6.83

Eremophila lactea	T	Open Mallee over melaleuca shrubland. White sandy clay loam	Yes	12.41
Eucalyptus dissimulata ssp. *plauta*	P1	Mallee shrubland or mixed Mallee woodland. Sandy to Loamy soil.	Yes	4.57
Eucalyptus dolichorhyncha	P4	Flats or slightly rising ground with whitish to yellowish sandy clay soil.	No	2.15
Eucalyptus histophylla	P3	Mallee scrub, clay loam, near outcroppping granite and in gravelly soils.	No	17.01
Eucalyptus merrickiae	T	Margins of salt lakes or near salt lakes.	No	5.11
Grevillea aneura	P4	Grows in heath or mallee scrub in yellow sand or sandy loam over laterite, ussually on rises	No	1.79
Grevillea baxteri	P4	Sandplains in heath and mallee.	No	14.09
Halgania sp. Peak Eleanor	P2	Mallee over mixed melaleuca shrubland / heath. Loamy sand. Undulating plains	Yes	5.80
Kunzea salina	P3	Edge of salt lakes	No	16.96
Lepidium fasciculatum	P3	Cracking clays and red loams on plains, dry lake beds, flats and low shrublands.	Yes	18.62
Melaleuca fissurata	P3	White/grey sand, sandy loam. Samphire flats, salt pans	No	8.42
Persoonia cymbifolia	P3	Sandy soils. On flats or in rock crevices	No	8.07
Pityrodia chrysocalyx	P3	Variable. Mallee shrubs over mid-open heathland, Eucalyptus woodland, Moderately exposed dunes associated with salt lake system	No	3.42
Stenanthera lacsalaria	P2	Margins salt lakes, saline watercourses and saline drainage lines. Sandy soil.	No	9.70

Appendix 4: Description of Threatened and Priority Fauna Species with the Potential to occur within the No. 19 Dam Survey Area

Threatened or priority fauna identified by the desktop study to be present within a 20 km radius of No. 19 Dam 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 Vunerable (VU).

Taxon	Common Name	BC Act Status	EPBC Status	Associated Habitat	Likely to occur	Distance from site (km)	EPBC Protected Matters Tool
Falco peregrinus	Peregrine falcon	OS		Requires abundance of medium-sized birds such as waterfowl, doves, pigeons, parrots and passerines as prey. Requires open space for hunting, preferring to hunt over marshes, open water bodies, valleys, fields and grasslands. Utilising high perches, such as bare eucalypt stags, to surveil for potential prey.	Likely	11.8	
Platycercus ictrotis xanthogenys	Western rosella (inland)	P4		Prefer mature eucalypt woodlands (e.g. *E. salmonophloia* and *E. wandoo*), as well as *Allocasuarina heugeliana*, mallee and wooded scrub of the low-rainfall inland region. Sighted feeding on *Allocasuarina heugeliana, Eucalyptus eremophila, Olearia revoluta, Glischrocaryon flavescens*, and *Melaleuca acuminata*. Breed in small hollows.	Likely	0.68	
Zanda latirostris	Carnaby's cockatoo	EN	EN	Eucalypt woodlands with abundant foraging species and a reliable fresh water source; breed in large deep hollows in eucalypt trees > 200 years old. During the non-breeding season migrate to the coastline to forage on Proteaceous and Myrtaceous shrublands and heath.	Unlikely	8.86	
Leipoa ocellata	Malleefowl	VU	VU	Long-unburnt mallee woodland with abundant leaf litter and debris to build nest mounds and forage for seeds, small		2.04	Likely

				invertebrates and lerps. Semi-arid regions across southern Australia.			
Thinornis rubricollis	Hooded plover	P4		Inland and near-coastal salt lakes, brackish coastal lagoons, dispersing to the coast during the non-breeding season. Feeds on gastropods, crustaceans and seeds.	Unlikely	7.37	
Dasyurus geoffroii	Chuditch	VU	VU	Wide habitat range, requiring dense understorey for ambush hunting and an abundance of small to medium-sized mammalian, avian, amphibian and invertebrate prey.	Possible	9.04	Known
Aphelocephala leucopsis	Southern whiteface	Not listed	VU	Open woodlands and shrublands usually dominated by Acacia or Eucalyptus with an understorey of grasses and/or shrubs. Feed exclusively on the ground and favour open habitats with herbs in the litter. Nesting birds build bulky domed nests of grass, bark and roots in a hollow, crevice or low bush.	Possible		May
Botaurus poicephalus	Australasian bittern	EN	EN	Well-vegetated freshwater wetlands and less commonly estuaries or tidal wetlands, favouring fringes of reeds and rushes where they can camouflage. In south-west Australia can also occur where wetland-associated Melaleucas provide tall cover. Prefers peaty or muddy substrates and shallow water around the fringes.	Unlikely		May
Calidris acuminata	Sharp-tailed sandpiper	MI	VU	Muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be	Unlikely		May

				attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beachcast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs			
Calidris ferruginea	Curlew sandpiper	MI	EN	Occasionally occurs in suitable inland wetland environments. Widespread in coastal and subcoastal plains, especially around the Esperance Lakes area.	Unlikely		May
Cereopsis novaehollandiae ssp. *grisea*	Recherche Cape Barren goose	VU	VU	During winter breeds on the larger vegetated Islands of the Recherche Archipelago. Forages on herbfields (esp. Carpobrotus sp.) and grasslands along the southern coastline between Munglinup and Cape Arid. Prefers beaches, pasture, and rocky outcrops, with known visitation to Pink Lake and Red Islet. Has been observed in town, as well as Cape Arid, Stokes National Park, and Cape le Grand during the summer feeding months.	Unlikely		Likely
Falco hypoleucos	Grey falcon	VU	VU	Semi-arid and arid areas where it hunts over timbered lowland plains of mulga scrub and treed watercourses. Favours tussock grasslands and open woodland where it predates on birds such as doves, ducks, finches, small parrots and small mammals. Nests in largest trees in the landscape, usually mature E. camaldulensis and telecommunication towers.	Possible		May
Tringia nebularia	Common greenshank	MI	EN	Occurs in all types of coastal and inland wetlands.	Unlikely		May

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	Likely	In feature area

Listed Threatened Species

Scientific Name	Common Name	Simple Presence	Threatened Category	Migratory Status
Aphelocephala leucopsis	Southern whiteface	May	Vulnerable	
Botaurus poiciloptilus	Australasian bittern	May	Endangered	
Calidris acuminata	Sharp-tailed sandpiper	May	Vulnerable	Migratory
Calidris ferruginea	Curlew sandpiper	Known	Critically Endangered	Migratory
Cereopsis novaehollandiae grisea	Cape Barren goose	Likely	Vulnerable	
Falco hypoleucos	Grey falcon	May	Vulnerable	
Leipoa ocellata	Malleefowl	Likely	Vulnerable	
Tringa nebularia	Common green shank	May	Endangered	Migratory
Zandra latirostris	Carnaby's black cockatoo	Likely	Endangered	
Dasyurus geoffroii	Chuditch, Western quoll	May	Vulnerable	

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.