Vegetation, Flora, Fauna and Environmental Considerations Report

Government Dams Purpose Permit

No. 20 Dam – Circle Valley Road, Salmon Gums

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 3.110ha of native vegetation for the purpose of dam catchment upgrade.

This report details the 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 "Mallee over open Fabaceae and Melaleuca dominated sparse mixed shrubland".

Vegetation Condition of the areas requiring a clearing permit was Good. Those areas not requiring a permit varied between Degraded and Completely degraded.

No Threatened or Priority Ecological Communities were relevant to the site.

A total of 82 vascular plant taxa, representative of 56 genera and 31 families, were recorded within No. 20 Dam survey area. Of these 77 were native species and 5 were introduced.

No threatened flora species and one priority flora species was recorded within the No. 20 Dam survey area, two recently delisted species were also recorded.

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 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 20km south-east of the Salmon Gums townsite, within SOE managed Reserve 19856. Specifically, it is located on Lot 697 on Plan 152302, Salmon Gums. A point within the proposed clearing permit area is 33.05°S, 121.85°E.

No. 20 Dam project is required for drought relief, road construction and firefighting purposes. The project involves clearing and grading the previously cleared catchment. Part of the catchment has been maintained and does not require a clearing permit. However, a total 3.110ha is proposed to be cleared. On 10 September 2024, the dam contained some water, however re-clearing the catchment should ensure water runoff into the dam is maximised.

The Shire of Esperance has attempted to avoid, reduce, minimise impacts by keeping as much as possible to existing cleared areas.

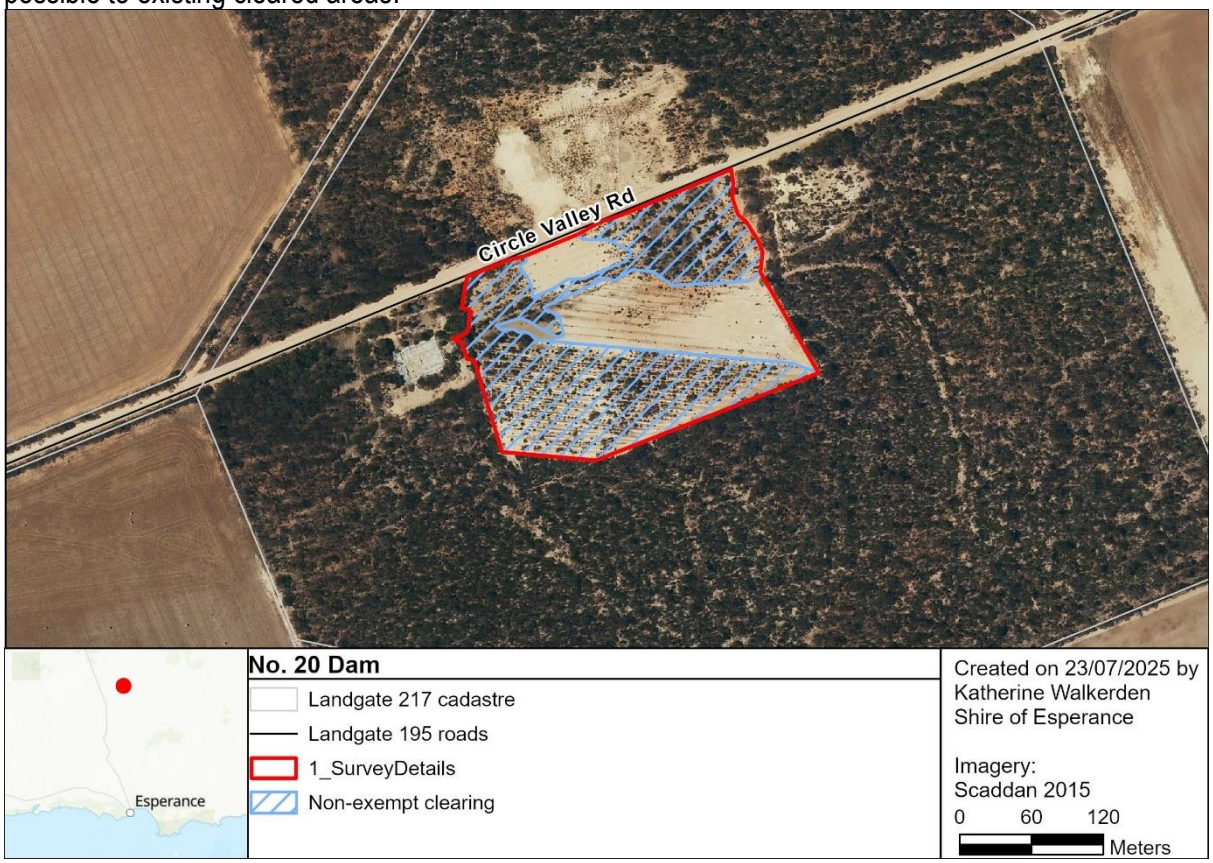

Figure 1. Location of No. 20 Dam.

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. 20 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. 20 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. 20 Dam survey area;
- Undertake a field survey of the No. 20 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. 20 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. 20 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. 20 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 (Dundas 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. 20 Dam survey area was undertaken by SOE botanists Katherine Walkerden and Julie Waters on 10 September 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.

The methodology for assessing threatened and priority flora consisted of traversing by foot the entire No. 20 Dam survey area. Botanists used handheld Garmin GPS units loaded with the No. 20 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 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.

A supplementary survey was conducted by Julie Waters and Katherine Walkerden on 4 February 2025 to map the distribution of the Priority 3 species *Cyathostemon* sp. Salmon Gums, and *Micromyrtus elobata* ssp. *scopula*.

The vegetation communities of No. 20 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. 20 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. 20 Dam 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 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:** Only one specimen could not be identified to species level (*Lepidosperma* sp.) due to deficiencies in being able to identify at WA Herbarium. 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 September which falls within this period.
Disturbances (fire/flood/clearing)	**Not a limitation:** The site has had numerous clearing in the past and part of the site is recently cleared.

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 348 mm.

4.2 Catchment

No. 20 Dam has numerous small salt lakes within 4km of the site. is close to a series of internally drained lake salt chains and occurs at approximately 190m above sea level.

No. 20 Dam project is mapped as being present within the upper parts of the Bandy Creek catchment area, however due to its topography, it is 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. 20 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. 20 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. 20 Dam is a previously cleared, catchment and dam surrounded by intact and vegetated 'water' reserve 19856, managed by SOE. Surrounding Reserve 19856 is mostly cleared broadacre agriculture paddocks with some remnant vegetation. The area is within rural zoning. The project area is in a highly cleared area with only 9.12% of vegetation within 5km of the project remaining.

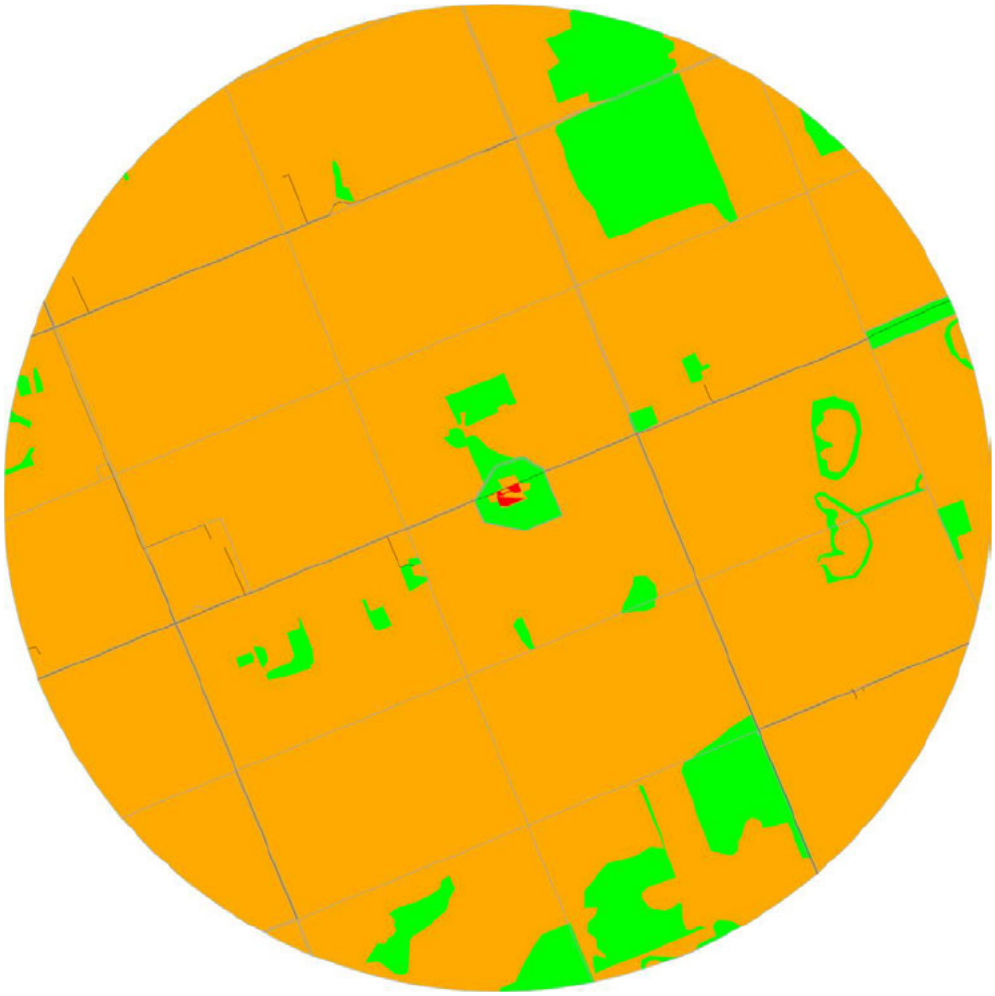

Figure 2. Map of remnant vegetation within a 5km buffer produced by DEISIP. Project area is highlighted in red, remnant vegetation is in green and cleared vegetation is in orange, road centrelines are in black and cadastre boundaries are in grey.

The site is 9.65km from unnamed Nature Reserve 33113, the closest conservation reserve. Red Lake Townsite Nature Reserve is the only other conservation reserve within 20km (18km away)

4.6 Potential Threatened and Priority Flora

Two threatened flora (TF) and 48 priority flora (PF) were recorded within a 20km radius of the proposed impact site (Appendix 3)). Of these, no TF species and 14 PF species had suitable known associated habitat that corresponded with vegetation communities and soil type of No. 20 Dam project.

4.7 Potential Threatened and Priority Ecological Communities

The desktop study identified the Priority 3 Ecological Community "Granite outcrop pools with endemic aquatic fauna" 16km away.

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. 20 Dam project area.

4.8 Potential Threatened and Priority Fauna

10 threatened fauna, and 3 priority 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 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. 20 Dam is probably too low.

5 FIELD SURVEY RESULTS AND DISCUSSION

5.1 Vegetation Communities

A single vegetation community was identified within the No. 20 Dam Site, as defined by structure and composition (Table 3). It is believed that the Beard (1973) vegetation associations identified in Section 4.4 are an appropriate match for the vegetation type observed.

Table 3. Vegetation communities identified within proposed No. 20 Dam project area.

Type	Description	Figure	Closest Matching Beard Vegetation Association	Area (ha)	Diversity (native species)
A	Mallee over open Fabaceae and *Melaleuca* dominated sparse mixed shrubland.	3, 4	Salmon Gums 486	3.110	77

Figure 3. Vegetation type A identified in No. 20 Dam project area within the dam catchment, described as: “Mallee over open Fabaceae and *Melaleuca* dominated sparse mixed shrubland”.

Figure 4. Vegetation type A identified in No. 20 Dam project area within the dam catchment, described as: “Mallee over open Fabaceae and *Melaleuca* dominated sparse mixed shrubland”.

5.2 Vegetation Condition

Vegetation condition was Good throughout the parts of the catchment that were identified as requiring a clearing permit. The sections of the catchment that were more recently cleared that do not require a clearing permit were in Degraded and Completely degraded condition.

Figure 5. Some more recently maintained parts of the catchment were in Degraded (tops of windrows) and Completely degraded condition due to past clearing. Whilst these areas were surveyed, they would be exempt from requiring a clearing permit.

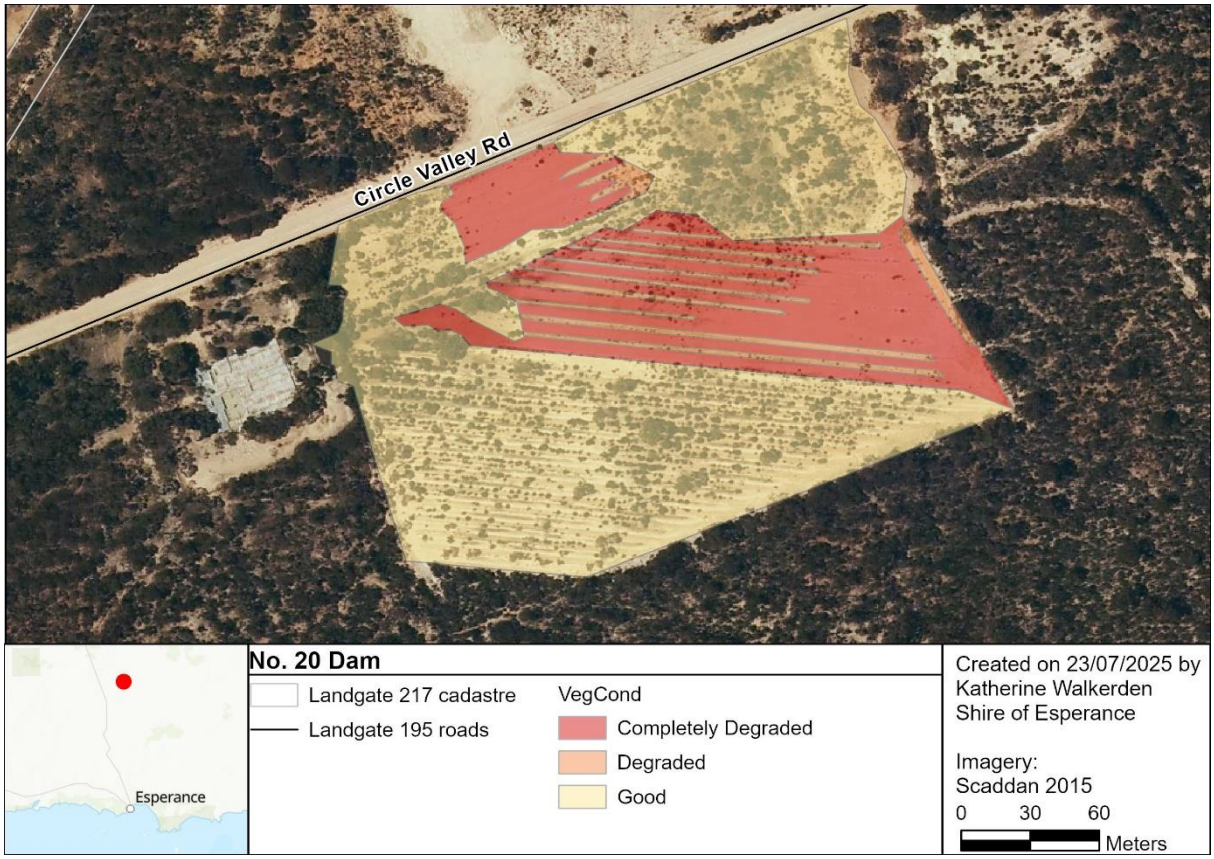

Figure 6. Vegetation condition across No. 20 Dam catchment.

5.2.1 Weeds

There was minimal weed invasion across the proposed No. 20 Dam area. In total 5 invasive species were identified within the project area (Appendix 1). None of these were Weed of National Significance (WONS) species / Declared Pest under the Biosecurity and Agriculture Management (BAM) Act of 2007 or priority environmental weeds in the Shire of Esperance's Environmental Weed Strategy 2009-2018.

5.2.2 Phytophthora Dieback

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

5.3 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)' as may occur within the buffer of No. 20 Dam project area. Only four proteaceous species were recorded within the survey area. None of these of these are considered as 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 9.9km away. No granite outcrops were present at the site and this PEC does not occur here.

5.4 Flora

A total of 82 vascular plant taxa, representative of 56 genera and 31 families, were recorded within No. 20 Dam survey area. Of these 77 were native species and 5 were introduced. The plurality of taxa recorded were representative of the Myrtaceae (15 taxa), Fabaceae (11 taxa) and Asteraceae (9 taxa), families (see Appendix 1 for the complete incidental species list).

5.5 Threatened and Priority Flora

The targeted flora survey identified four Priority 3 species, and no threatened species, within the No. 20 Dam survey area.

Table 4: Summary of Priority flora species recorded in No. 20 Dam project area.

Taxon	BC Act Conservation Status	Total plants counted in population	Total plants impacted
Acacia glaucissima	Was P3, (delisted on 5 March 2025)	52	32
Cyathostemon sp. Salmon Gums	P3	126	120
Micromyrtus elobata ssp. *scopula*	Was P3, (delisted on 23 June 2025)	15	15

5.5.1 *Acacia glaucissima*, delisted

A specimen of *Acacia glaucissima* was sent to the WA Herbarium for identification confirmation (KSW08924; Accession 11315 with specimen retained). The identification was confirmed by Mike Hislop on 10 January 2025.

On 5 March 2025 the Shire of Esperance received notification from Emma Adams (DBCA Esperance District Flora Conservation Officer) that the species has been removed from the Priority Flora list.

5.5.2 *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 January 2025.

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 23 July 2025 (Appendix 2).

Cyathostemon sp. Salmon Gums has been nominated for delisting, 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 many in pristine condition, which are collectively likely to contain large numbers of plants around their perimeters.

No survey for the species was undertaken in the areas outside the dam catchment, however there is plenty of suitable habitat within Reserve 19856 for *Cyathostemon* sp. Salmon Gums, and the species was recorded 5km west of the site along Circle Valley Road, during Shire of Esperance surveys for road widening program in spring 2024. Despite 120 of the 126 mapped plants being disturbed as part of this proposal, it is unlikely to be significant at a local or regional scale.

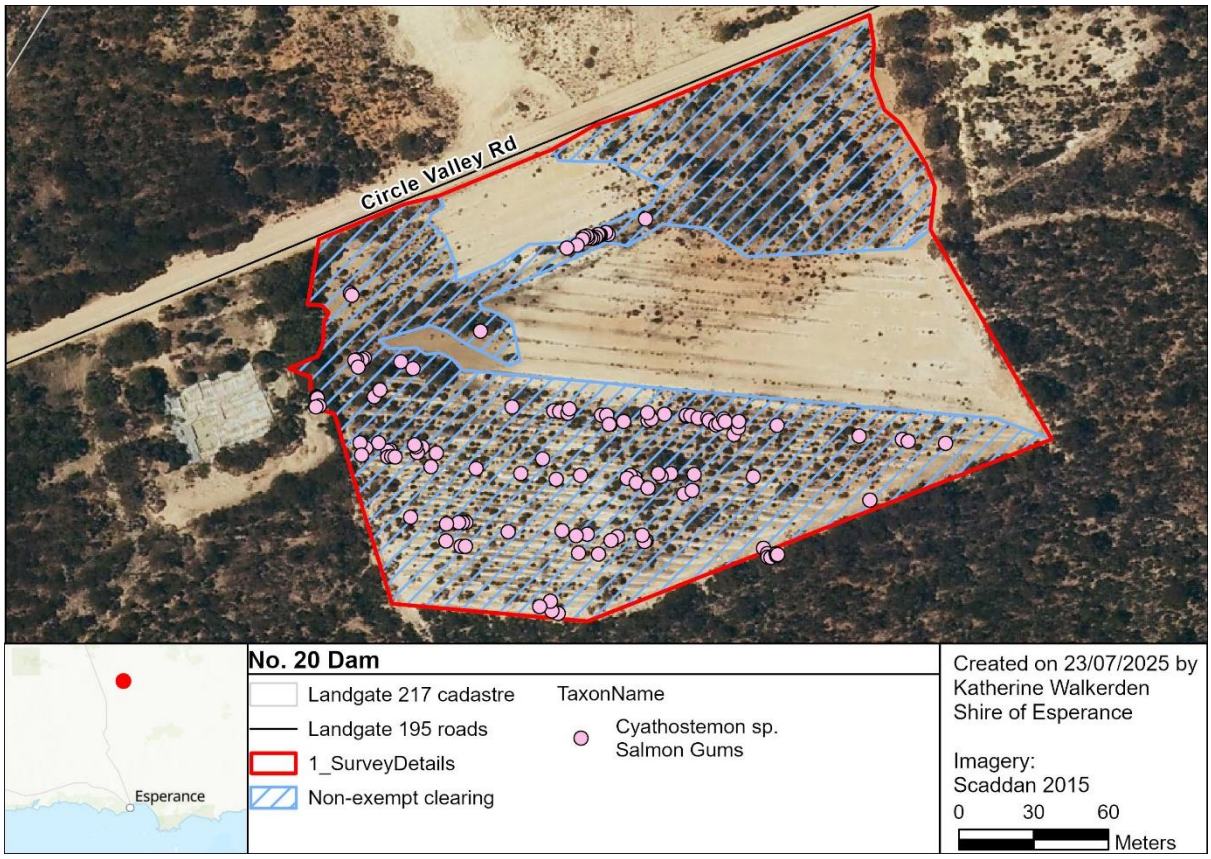

Figure 7. *Cyathostemon* sp. Salmon Gums distribution across No. 20 Dam catchment.

5.5.3 *Micromyrtus elobata* ssp *scopula*, delisted

A specimen of *Micromyrtus elobata ssp scopula* was sent to the WA Herbarium for identification confirmation (KSW08824; Accession 11315 with specimen retained). The identification was confirmed by Mike Hislop on 10 January 2025. 15 plants were mapped within the project area with all of these occurring in the parts of the catchment with the most mature vegetation.

On 23 June 2025 the Shire of Esperance received e mail notification from Emma Adams (Conservation Officer, Esperance District, Department of Biodiversity Conservation and Attractions) that *Micromyrtus elobata* ssp. *scopula* had been delisted and is no longer Priority Flora.

5.6 Fauna

Of the nine species identified within the Desktop survey, only the Southern whiteface, Western rosella, Chuditch, and Grey falcon have suitable habitat within the proposed clearing permit area. The Malleefowl may have suitable habitat in the surrounding previously uncleared reserve.

6 REVIEW OF 10 CLEARING PRINCIPLES FOR NATIVE VEGETATION

The No. 20 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 77 native 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 may provide suitable habitat for Southern whiteface, Western rosella, Chuditch, and Grey falcon. However, this is unlikely to be significant given the large range of these species, and they may continue to use the are in exactly the same manner after clearing.

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 flora species; *Acacia glaucissima, Cyathostemon* sp. Salmon Gums and *Micromyrtus elobata* ssp. *scopula* were located within the clearing footprint. Two of these species (*Acacia glaucissima* and *Micromyrtus elobata* ssp. *scopula*) have since been removed from the priority list. *Cyathostemon* sp. Salmon Gums is fairly widespread and has been nominated for delisting, impacts to this species is likely to be negligible.

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: There was 9.11% of native vegetation within 5km of the project site. The vegetation in surrounding Reserve 19856 retains good ecological linkages in the area.

6.6 Principle (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Not at Variance: Vegetation in this area is not associated with and water courses or wetlands.

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.

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 9.6km from Reserve 33113, the closest conservation reserve and clearing is unlikely to have any impacts on this conservation area.

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. All surface water falling on the dam catchment will be directed into the dam, so there will be no impacts to surface or ground water in the area.

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 clearing all feeds into a dam and the area is 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.
- 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	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	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	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 modestus*			
Amaranthaceae	*Ptilotus spathulatus*			
Asparagaceae	*Thysanotus patersonii*			
Asphodelaceae	*Asphodelus fistulosus*	x		
Asteraceae	*Actinobole uliginosum*			
Asteraceae	*Arctotheca calendula*	x		
Asteraceae	*Blennospora drummondii*			
Asteraceae	*Brachyscome ciliaris*			
Asteraceae	*Olearia muelleri*			
Asteraceae	*Olearia* sp. Eremicola			
Asteraceae	*Pogonolepis muelleriana*			
Asteraceae	*Rhodanthe pygmaea*			
Asteraceae	*Siemssenia capillaris*			
Boraginaceae	*Halgania andromedifolia*			
Brassicaceae	*Brassica tournefortii*	x		
Caryophyllaceae	*Spergularia diandra*	x		
Chenopodiaceae	*Chenopodium desertorum* ssp. *desertorum*			
Chenopodiaceae	*Enchylaena tomentosa*			
Chenopodiaceae	*Maireana erioclada*			
Chenopodiaceae	*Maireana suaedifolia*			
Chenopodiaceae	*Maireana trichoptera*			
Crassulaceae	*Crassula exserta*			
Cyperaceae	*Lepidosperma* sp.			
Dilleniaceae	*Hibbertia psilocarpa*			
Ericaceae	*Styphelia intertexta* or *subulata*			
Fabaceae	*Acacia brachyclada*			
Fabaceae	*Acacia camptoclada*			
Fabaceae	*Acacia cupularis*			KSW0825
Fabaceae	*Acacia hadrophylla*			
Fabaceae	*Acacia pachypoda*			
Fabaceae	*Acacia pritzeliana*			
Fabaceae	*Acacia glaucissima*		Was P3	KSW08924
Fabaceae	*Daviesia aphylla*			
Fabaceae	*Dillwynia* sp. Mallee			
Fabaceae	*Pultenaea elachista*			
Fabaceae	*Senna* sp. Pallinup River			
Goodeniaceae	*Coopernookia strophiolata*			
Goodeniaceae	*Scaevola spinescens*			
Juncaceae	*Juncus aridicola*			
Lamiaceae	*Prostanthera serpyllifolia*			

Lamiaceae	*Westringia rigida*			
Lauraceae	*Cassytha melantha*			
Loganiaceae	*Logania stenophylla*			
Myrtaceae	*Cyathostemon* sp. Salmon Gums		P3	KSW08624
Myrtaceae	*Eucalyptus conglobata* ssp. *conglobata*			
Myrtaceae	*Eucalyptus flocktoniae* ssp. *flocktoniae*			
Myrtaceae	*Eucalyptus gracilis*			
Myrtaceae	*Eucalyptus leptocalyx*			
Myrtaceae	*Eucalyptus tumida*			
Myrtaceae	*Melaleuca acuminata*			
Myrtaceae	*Melaleuca cucullata*			
Myrtaceae	*Melaleuca eleuterostachya*			
Myrtaceae	*Melaleuca hamulosa*			
Myrtaceae	*Melaleuca podiocarpa*			
Myrtaceae	*Melaleuca sapientes*			
Myrtaceae	*Melaleuca uncinata*			
Myrtaceae	*Melaleuca undulata*			
Myrtaceae	*Micromyrtus elobata* ssp. *scopula*		Was P3	KSW08824
Orchidaceae	*Caladenia brevisura*			
Orchidaceae	*Caladenia microchila*			
Orchidaceae	*Pterostylis mutica*			
Poaceae	*Austrostipa drummondii*			
Poaceae	*Austrostipa elegantissima*			
Poaceae	*Rytidosperma acerosum*			
Poaceae	*Rytidosperma caespitosum*			
Polygonaceae	*Persicaria prostrata*			
Primulaceae	*Lysimachia arvensis*	x		
Proteaceae	*Grevillea oligantha*			
Proteaceae	*Grevillea plurijuga*			
Proteaceae	*Grevillea huegelii*			
Proteaceae	*Hakea commutata*			
Rhamnaceae	*Cryptandra minutifolia* ssp. *brevistyla*			
Rhamnaceae	*Pomaderris rotundifolia*			
Rhamnaceae	*Spyridium mucronatum* ssp. *mucronatum*			
Rutaceae	*Alyxia buxifolia*			
Rutaceae	*Cyanothamnus baeckeaceus* ssp. *baeckeaceus*			
Rutaceae	*Cyanothamnus fabianoides* ssp. *fabianoides*			
Rutaceae	*Phebalium multiflorum* ssp. *multiflorum*			
Santalaceae	*Leptomeria pachyclada*			
Sapindaceae	*Dodonaea bursariifolia*			
Scrophulariaceae	*Eremophila dichroantha*			
Thymelaeaceae	*Pimelea erecta*			

Appendix 2: Threatened and Priority Flora Report Form

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: 4/2/2025 **CONSERVATION STATUS:** P3 **New population** ☒

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

ROLE: Environmental Officers **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 19856, Government Dam No.20 Dam. 20km south-east of the Salmon Gums townsite.

Lot 697 on Plan 152302, Salmon Gums

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: 33.05°S
Long / Easting: 121.85°E
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: 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	126			
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:

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	H	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. Mallee over open Fabaceae and Melaleuca dominated sparse 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.)

120 of the 126 plants counted wil be taken. Survey or Count was not done in wider Reserve area

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: KSW08624 Collectors No: WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: KSW08624; Accession 11315

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: 23/7/2025

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 No. 20 Dam Survey Area

Threatened or priority flora identified by the desktop study to be present within a 20 km radius of No. 20 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 bartlei	P3	Flat or gently undulating landscapes, waterlogged depression in brown/grey sandy loam or clay loam. Commonly associated with *Eucalyptus occidentalis*	No	15.65
Acacia glaucissima	P3 (since delisted)	Open mallee woodland or Eucalyptus (tree) woodland. Frequently associated with fire or mechanical disturbance.	Yes	6.46
Acacia improcera	P3	Clay, rocky loam or sand in ecotone of heath and shrub mallee.	No	8.81
Adenanthos ileticos	P4	Mallee over myrtaceous shrubland in white, yellow or brown sand. Often in association with *Eucalyptus merrickiae*.	No	6.55
Angianthus sp. Salmon Gums	P1	Near salt lakes, red, orange, brown loam, sandy loam.	No	15.80
Aotus lanea	P1	Salt-lakes, sandplains, disturbed areas. Grey clayey sand, yellow clay, deep siliceous sand.	No	15.04
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	14.40
Stenanthera lacsalaria	P2	Margins salt lakes, saline watercourses and saline drainage lines. Sandy soil.	No	16.35
Conostephium marchantiorum	P3	Sand. Plains, creek lines, edges of salt lakes.	Yes	13.12
Conostephium uncinatum	P2	Sand, Sandy loam. Margins of salt lakes, Eucalyptus woodlands.	Yes	11.78
Cyathostemon sp. Esperance	P1	Salt lakes, saline watercourse. Sandy gravel	No	13.31
Cyathostemon sp. Salmon Gums	P3	Various soils - orange sand, white sandy, sandy clay over granite, light brown clay, saline soils. Various habitats – flats, dry river beds, claypans.	Yes	13.35

Darwinia luehmannii	P2	White sand, sandy loam. Flat depressions, base of granite rocks.	No	16.58
Darwinia polycephala	P4	Sand, clay. Flats, near salt lakes.	No	10.45
Eremophila chamaephila	P3	Open mallee woodland with limestone.	Yes	8.18
Eremophila compressa	P3	Mallee woodland. Clay or clay loam, sandy loam, sand. Undulating plains. Often in disturbed areas	Yes	15.57
Eucalyptus dissimulata ssp. *plauta*	P1	Mallee shrubland or mixed Mallee woodland. Sandy to Loamy soil.	Yes	15.96
Eucalyptus dolichorhyncha	P4	Flats or slightly rising ground with whitish to yellowish sandy clay soil.	Yes	18.27
Eucalyptus histophylla	P3	Mallee scrub, clay loam, near outcroppping granite and in gravelly soils.	No	2.54
Eucalyptus merrickiae	T	Margins of salt lakes or near salt lakes.	No	6.47
Grevillea aneura	P4	Grows in heath or mallee scrub in yellow sand or sandy loam over laterite, usually on rises	No	15.97
Gyrostemon ditrigynus	P4	Sand, sandy clay, loam. Plains, low ironstone ridges. Associated with fire.	Yes	7.44
Hydrocotyle decorata	P2	Sandy loam soils surrounding the margins of inland salt lakes, in low open shrubland	No	15.98
Melaleuca fissurata	P3	White/grey sand, sandy loam. Samphire flats, salt pans	Yes	11.18
Persoonia cymbifolia	P3	Sandy soils. On flats or in rock crevices	No	14.40
Pimelea halophila	P2	Margins of salt lakes	No	10.88
Pityrodia chrysocalyx	P3	Variable. Mallee shrubs over mid-open heathland, Eucalyptus woodland, moderately exposed dunes associated with salt lake system	No	7.79
Ptilotus ostentans	P3	Plains in open mallee woodlands on pale brown, grey or red sandy or loamy soils.	Yes	15.04

Appendix 4: Description of Threatened and Priority Fauna Species with the Potential to occur within the No. 20 Dam Survey Area

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

Taxon	Common Name	BC Act Status	EPBC Status	Associated Habitat	Likely to occur	Distance from site (km)	EPBC Protected Matters Tool
Leipoa ocellata	Malleefowl	VU	VU	Long-unburnt mallee woodland with abundant leaf litter and debris to build nest mounds and forage for seeds, small invertebrates and lerps. Semi-arid regions across southern Australia.	Likely	16.66	Likely
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	17.74	
Apehlocephala 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
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		May
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	Possible		May

				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.			
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	18.14	Likely
Botaurus poiciliptilus	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 ferruginea	Curlew sandpiper	CR	CR	Occasionally occurs in suitable inland wetland environments. Widespread in coastal and subcoastal plains, especially around the Esperance Lakes area.	Unlikely		May
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	15.32	

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	Community may occur within 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 ferruginea	Curlew sandpiper	May	Critically Endangered	Migratory
Falco hypoleucos	Grey falcon	May	Vulnerable	
Leipoa ocellata	Malleefowl	Likely	Vulnerable	
Zanda latirostris	Carnaby's black cockatoo	Likely	Endangered	
Dasyurus geoffroii	Chuditch, Western quoll	May	Vulnerable	
Anigozanthus bicolor ssp. minor	Small Two-coloured Kangaroo Paw	May	Endangered	
Eucalyptus merrickiae	Goblet Mallee	Known	Vulnerable	
Ricinocarpos trichophorus	Barren's Wedding Bush	May	Endangered	

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.