



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9085/1
Permit type:	Area permit
Applicant name:	Shire of Manjimup
Application received:	13 October 2020
Application area:	0.51 hectares of native vegetation
Purpose of clearing:	Dam maintenance
Method of clearing:	Mechanical
Property:	Lot 13888 on Deposited Plan 36955 (Crown Reserve 47823)
Location (LGA area/s):	Shire of Manjimup
Localities (suburb/s):	Deanmill

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area that surrounds an existing earth dam and is adjacent to vegetation on all sides (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	8 November 2021
Decision area:	0.51 hectares of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), photographs provided by the applicant (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing which is for the maintenance of an existing dam that is used to irrigate the community sports oval located on the adjacent property.

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values and
- clearing activity may lead to degradation of surface water quality. The risk of water quality degradation is likely to be temporary and short-term

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation or have long-term adverse impacts on the environment. Potential impacts can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

1.5. Site map



Figure 1. Map of the application area

The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that they propose to 'clean up' the dam and to only remove the trees growing below/on the high-water line and remove debris to improve access. The Shire does not propose to make the dam wall larger. The Delegated Officer was satisfied that the applicant has made reasonable commitments to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (adjacent vegetation) and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Conservation Area - Clearing Principles (h)

The proposed clearing occurs 40 metres from an unnamed reserve managed by Department of Biodiversity, Conservation and Attractions (DBCA) and is connected to this conservation area through continuous vegetation. The proposed clearing may have an impact on the environmental values of this adjacent conservation areas through the spread and introduction of weeds and dieback into adjacent vegetation.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on the environmental values of the adjacent conservation area can be managed through weed and dieback hygiene measures and does not constitute a significant residual impact.

Conditions

- Weed and dieback management measures
- Avoid and minimise clearing

3.2.2. Land and water resources - Clearing Principles (f, g and i)

Assessment

There is an existing dam within the application area and photographs provided by the applicant indicate that the application area contains vegetation growing in association with this waterbody. The clearing of vegetation along the

banks of this dam may result in increased surface water turbidity due to sedimentation as a result of soil erosion. Considering the purpose of clearing is to expand the existing dam, sedimentation is likely to be short-term and confined to the construction period.

Considering the proposed clearing is for a dam expansion it is unlikely the application will cause or exacerbate the incidence or intensity of flooding beyond the extent of the enlarged dam.

The mapped soils within the application area are highly susceptible to wind erosion, subsurface acidification and nutrient export risks (DPIRD, 2019). However, given the proposed clearing location on the banks of the dam and will likely be inundated by water after the dam is expanded, risks posed by wind erosion are considered low. This, coupled with the relatively small extent of the application area, suggest that the proposed clearing is not likely to cause appreciable land degradation.

Conclusion

For the reasons set out above, it is considered that the impacts of the proposed clearing on vegetation growing in association with a waterbody and surface water is considered minor and short-term and does not constitute a significant residual impact.

Conditions

No conditions required.

3.3. Relevant planning instruments and other matters

The application area falls within a crown reserve which is reserved for the purpose of water supply. The proposed clearing is consistent with this purpose.

The applicant has advised that surface water from the on-site dam is used to irrigate the sports oval located on the adjacent Lot 13887. The applicant has advised that the expansion of the dam will allow its continued use through the summer months when surface water in the existing dam is limited (Shire of Manjimup, 2020).

Other relevant authorisations required for the proposed land use include:

- Licence to abstract water under the *Rights in Water and Irrigation Act 1914*.
- Permit to interfere with bed and banks under the *Rights in Water and Irrigation Act 1914*.

The application area falls within an area mapped as a contaminated site classified as 'possibly contaminated – investigation required'. Sediment and surface water sampling undertaken as part of a contaminated sites investigation within the application area did not identify any potential contaminants of concern (including arsenic) above the applicable assessment levels as published in the guideline 'Assessment and Management of Contaminated Sites' (DER, 2014) and is therefore no longer considered a contaminated site (DWER, 2020). The site is not located within an area that is mapped as having a risk of encountering acid sulfate soils. However, development of a dam has the potential to disturb acid sulfate soils. It is recommended that the applicant referred to the DWER's acid sulfate soil guidelines for information to assist with the identification and management of acid sulfate soils (DWER, 2020).

The proposed clearing within the *Country Areas Water Supply Act 1947* (CAWS Act) gazetted Warren River Water Reserve and falls within a 'Priority Not Assigned' Public Drinking Water Source Area. This catchment has also been subject to CAWS Act native vegetation clearing controls since December 1978 to prevent salinisation of water resources. DWER records show no CAWS Act licence or compensation history for the subject land.

The proposed clearing is located within Zone D of the catchment which is considered a low salinity risk area where DWER Policy and Guidelines for the "Granting of Licences to Clear Indigenous Vegetation" provide for the grant of a licence to clear for any purpose subject to the statutory requirement that 10% of the land in question remains uncleared unless there are exceptional reasons for not refusing an application (Section 12C (3)). Analysis of aerial imagery indicates that the subject land currently has ~75% (0.61 ha) of native vegetation remaining. If a clearing permit were granted for the application area, ~12% (0.1 ha) of native vegetation would remain on the subject land.

The application area falls within a RIWI Act area and a bed and banks permit and amendment to water licence is required for the purpose of the proposed clearing.

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details	
Local context	<p>The area proposed to be cleared is part of a 225 hectare patch native vegetation in the extensive land use zone of Western Australia. It is surrounded by remnant vegetation on all sides and includes an unnamed reserve managed by DBCA.</p> <p>Aerial imagery indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 36 per cent of the original native vegetation cover.</p>	
Ecological linkage	The application area falls within a South West Ecological Regional Linkage.	
Conservation areas	<p>The closest conservation area to the proposed clearing is unnamed reserve located 40 metres from the proposed clearing.</p> <p>Donnelly State Forest is located 965 m from the application area</p>	
Vegetation description	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of tall forest of <i>Eucalyptus diversicolor</i> (karri) over <i>Lepidosperma</i> sp. and scattered native shrubs. Representative photos are available in Appendix D.</p> <p>This is consistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> Beard association 1144, which is described as Tall forest; karri and marri (<i>Corymbia calophylla</i>) (Shepherd et al, 2001) Yanmah, YN1South West Vegetation Complex, which is described as Mixture of tall open forest of <i>Eucalyptus diversicolor</i> and tall open forest of <i>Corymbia calophylla</i>-<i>Eucalyptus patens</i>-<i>Eucalyptus marginata</i> subsp. <i>marginata</i> over <i>Agonis flexuosa</i> and <i>Agonis juniperina</i> on valleys in perhumid and humid zones (Mattiske and Havel, 1998). 	
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in very good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. <p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>	
Soil description	The soil is mapped as Yanmah Subsystem (Pimelia) (254PvYN): Shallow (5-20 m) minor valleys, usually U-shaped with gentle sideslopes (3-10%) and broad swampy floors. Soils are loamy gravels, sandy gravels and deep sands with non-saline wet soils on the valley floors.	
Land degradation risk	Risk categories	Land Unit 1
	Wind erosion	H2: >70% of the map unit has a high to extreme hazard
	Water erosion	M1: 10-30% of the map unit has a very high to extreme hazard
	Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
	Subsurface Acidification	H2: 70% of the map unit has a high susceptibility
	Flood risk	L2: 3-10 of the map unit has a moderate to high hazard
	Water logging	L2: 3-10% of the map unit has a moderate to very high to risk
	Phosphorus export risk	M2: 30-50% of the map unit has a high to extreme hazard

Characteristic	Details
Waterbodies	The desktop assessment and aerial imagery indicated that the application area surrounds an existing dam. The application area is 162 metres from Lefroy Brook.
Hydrogeography	The application area falls within a CAWS Act, Zone D area and a public drinking water source area. Groundwater Salinity (Total Dissolved Solids): 500-1000mg
Flora	According to available datasets, no known priority or threatened flora has been recorded within the application area. Two threatened flora species have been recorded within the local area of the proposed clearing. There are records of 6 priority flora within the local area, with none occurring on similar soil and habitat as that present within the application area.
Ecological communities	No priority or threatened ecological communities have been recorded within a 10 km radius of the proposed clearing area.
Fauna	According to the available datasets, 20 conservation significant fauna species have been recorded within the local area. No records occur within the application area.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Warren	833,985.56	659,432.21	79.07	558,485.38	84.69
Vegetation complex					
Beard vegetation association 1144 *	159,668.36	127,836.26	80.06	118,301.16	74.09
Mattiske vegetation complex Yanmah, YN1**	23,494.22	19,229.71	81.85	18,180.49	77.38
Local area					
10km radius			~36	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area	Are surveys adequate to identify? [Y, N, N/A]
<i>Caladenia christineae</i>	T	N	N	Y	5.0	1	N/A
<i>Caladenia harringtoniae</i>	T	N	N	Y	9.7	1	N/A

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area	Are surveys adequate to identify? [Y, N, N/A]
<i>Chamelaucium forrestii</i>	P2	N	N	N	5.6 km	1	N/A
<i>Hemigenia microphylla</i>	P3	N	N	N	8.5 km	1	N/A
<i>Stylidium roseonanthum</i>	P3	N	N	N	5 km	1	N/A
<i>Pultenaea pinifolia</i>	P3	N	N	Y	8.6 km	1	N/A
<i>Calytrix pulchella</i>	P3	N	N	N	5 km	1	N/A
<i>Deyeuxia inaequalis</i>	P1	N	Y	N	7.6 km	1	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Tyto novaehollandiae novaehollandiae</i>	P3	N	N	2.7 km	N/A
<i>Westralunio carteri</i>	VU	N	N	5 km	N/A
<i>Cacatua pastinator pastinator</i>	Specially Protected	Y	Y	5km	N/A
<i>Calyptorhynchus banksii naso</i>	VU	N	Y	2.7km	N/A
<i>Falco peregrinus</i>	Specially Protected	Y	Y	1.5km	N/A
<i>Calyptorhynchus baudinii</i>	EN	N	Y	84 m	N/A
<i>Oxyura australis</i>	P4	N	N	0.6 km	N/A
<i>Isodon fusciventer</i>	P4	Y	Y	2.7km	N/A
<i>Pseudocheirus occidentalis</i>	CR	N	N	2.4 km	N/A
<i>Setonix brachyurus</i>	VU	N	N	5km	N/A
<i>Hydromys chrysogaster</i>	P4	N	N	5km	N/A
<i>Bettongia penicillata ogilbyi</i>	CR	N	N	5km	N/A
<i>Dasyurus geoffroyi</i>	VU	N	N	3.2km	N/A
<i>Tringa nebularia</i>	Migratory	N	N	0.6km	N/A
<i>Myrmecobius fasciatus</i>	EN	N	Y	5km	N/A
<i>Notamacropus eugenii derbianus</i>	P4	N	N	5km	N/A
<i>Notamacropus irma</i>	P4	N	Y	6.5km	N/A
<i>Phascogale tapoatafa wambenger</i>	CD	N	Y	1.3km	N/A
<i>Calyptorhynchus latirostris</i>	EN	N	N	0.6km	N/A
<i>Botaurus poiciloptilus</i>	EN	N	N	0.6km	N/A

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>"Native vegetation should not be cleared if it comprises a high level of biodiversity."</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain locally or regionally significant flora, fauna, habitats or assemblages of plants.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> <i>"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."</i></p> <p><u>Assessment:</u></p> <p>While the vegetation within the application area may provide suitable habitat for some ground dwelling and aerial fauna, the vegetation proposed to be cleared is well represented elsewhere within the local and regional area and suitable habitat, in a similar or better condition, is located adjacent to the application area. Habitat suitable for breeding for threatened black cockatoo species or the Western Ringtail Possum is not present within the application area.</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> <i>"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</i></p> <p><u>Assessment:</u></p> <p>The two threatened flora species recorded within the local area are known to occur within winter wet flats and margins of freshwater lakes. Given that the application area is adjacent to a man-made dam and does not fall within a naturally occurring wetland, watercourse or lake, it is not considered that the application area contains suitable habitat for these species. The proposed clearing is not likely to impact on flora species listed as threatened under the BC Act.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>"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."</i></p> <p><u>Assessment:</u></p> <p>According to available datasets, no state listed TECs are mapped within the local area. The vegetation proposed to be cleared is not likely to comprise the whole or a part of, or be necessary for the maintenance of a TEC.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is a part of an ecological linkage, however, given the small extent (0.51 ha) of the proposed clearing, it is not expected to impact the connectivity of this ecological linkage.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (h):</u> <i>"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."</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area (40 metres) and that this area is connected to the application area through continuous vegetation, the proposed clearing may have an impact on the environmental values of this adjacent conservation areas through the spread and introduction of weeds and dieback.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."</i></p> <p><u>Assessment:</u></p> <p>The application area surrounds an existing dam and the proposed clearing will impact on vegetation growing in association with a waterbody.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (g):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</i></p> <p><u>Assessment:</u></p> <p>The mapped soils are highly susceptible to wind erosion, nutrient export, and subsurface acidification. Noting the small extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (i):</u> <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."</i></p> <p><u>Assessment:</u></p> <p>Given that the proposed clearing is within the banks of an existing dam, the proposed clearing may impact surface water quality.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (j):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</i></p> <p><u>Assessment:</u></p> <p>The mapped soils do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Considering the proposed clearing is for a dam expansion, it is unlikely the application will cause or exacerbate the incidence or intensity of flooding beyond the extent of the enlarged dam.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

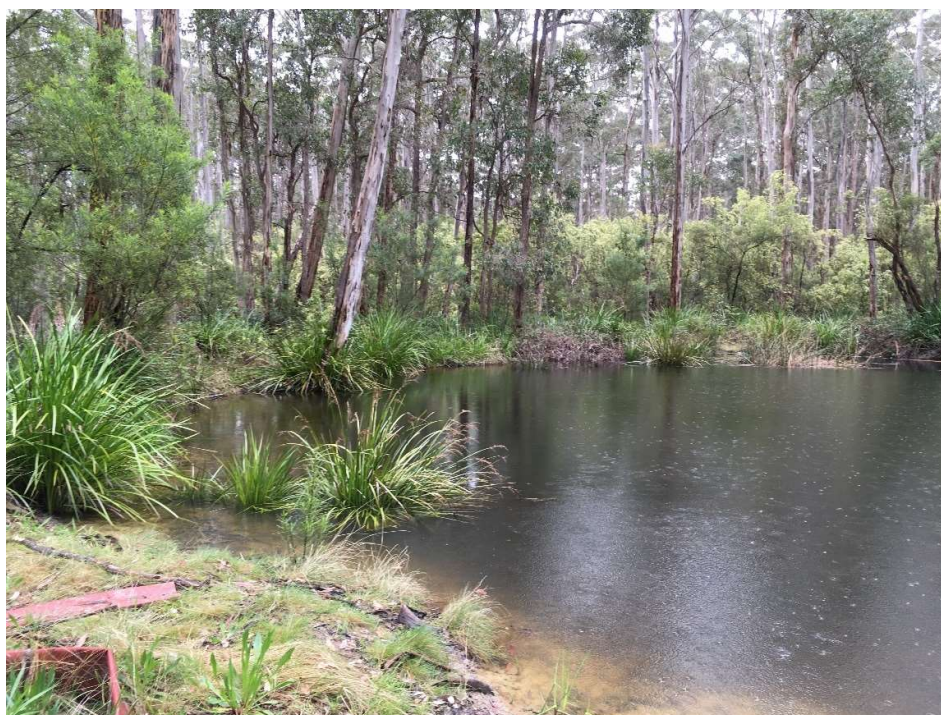
Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from:

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	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 and/or grazing.
Degraded	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 and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Photographs of the vegetation (Shire of Manjimup, 2021)





Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Hydrography – Inland Waters – Waterlines
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna

- Threatened Ecological Communities and Priority Ecological Communities

E.2. References

- Shire of Manjimup (2020) *Clearing permit application CPS 9085/1*, received 13 October 2020 (DWER Ref: A1942694).
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed 28 October 2021).
- Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.
- Department of Water and Environmental Regulation (DWER) (Regulatory Services – Water) (2021) *Rights in Water and Irrigation Act 1914 advice for clearing permit application CPS 9085/1*, received September 2021 (DWER Ref: A2051219).
- Department of Water and Environmental Regulation (DWER) (2020) *Contaminated sites advice for clearing permit application CPS 9085/1*, received December 2020 (DWER Ref: A1991773).
- Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia*. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed Oct 2021)