



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9610/1
<b>Permit type:</b>	Area permit
<b>Applicant name:</b>	Mr Samuel Heywood
<b>Application received:</b>	15 February 2022
<b>Application area:</b>	3.9 hectares (revised) of native vegetation
<b>Purpose of clearing:</b>	Horticulture, pasture, and grazing
<b>Method of clearing:</b>	Cutting, burning, mechanical clearing
<b>Property:</b>	Lot 8535 on Deposited Plan 140392
<b>Location (LGA area/s):</b>	Shire of Manjimup
<b>Localities (suburb/s):</b>	Perup

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area within Lot 8535 on Deposited Plan 140392, Perup. The proposed clearing is for the purpose of horticulture, pasture and grazing (see Figure 1, Section 1.5).

The application area was revised during the assessment process. The changes included a reduction in the extent of the proposed clearing from 10 hectares, to 3.9 hectares to avoid and minimise the clearing impacts on riparian vegetation and land degradation from salinity (see Section 3.1 for further details).

### 1.3. Decision on application

<b>Decision:</b>	Refused
<b>Decision date:</b>	28 May 2024
<b>Decision area:</b>	3.9 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 three submissions were received. Consideration of matters raised in the public submissions are summarised in Appendix B.

In making this decision, the Delegated Officer considered:

- site characteristics and environmental values within the local area (a 10-kilometre radius from the application area) (see Appendix C),
- GIS datasets available at the time of the assessment (see Appendix H.1),
- the findings of a targeted flora survey (Rumenos, 2023),
- findings of a site inspection undertaken by DWER officers (DWER, 2023), and
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix D).

In addition to the above information, and in accordance with section 51O of the EP Act, the Delegated Officer had also regard to relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

During the assessment of the application, it was identified that the proposed clearing will result in:

- the loss of critical habitat for woylie (*Bettongia penicillata ogilbyi*, CR);
- the loss of suitable foraging habitat for Carnaby's cockatoo, forest red-tailed black cockatoo and Baudin's cockatoo;
- potential impact on the local population and conservation status of conservation significant flora species;
- the loss of native vegetation within Zone A, *Country Areas Water Supply Act 1947* (CAWS Act) catchment, which would have a significant impact on the salinity risk; and
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that some of the impacts of the proposed clearing, including the potential to facilitate the introduction of weeds and dieback, could be minimised and managed to be unlikely lead to an unacceptable risk to environmental values through permit conditioning. However, impacts to critical habitat for woylie and black cockatoos, and vegetation within Zone A CAWS catchment remained significant even after the application of minimisation and mitigation measures and constituted a significant residual impact.

The Delegated Officer considered that, on balance, the necessity of the clearing was not such that it outweighed the significance of the environmental impacts. Accordingly, the Delegated Officer considered that the significant residual impacts as outlined above are unacceptable, and are unable to be adequately managed through conditions on a clearing permit. Consequently, the Delegated Officer has decided to refuse to grant a clearing permit.

1.5. Site map



Figure 1 Map of the application area

The area crosshatched blue indicates the area applied to be cleared.

## 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 polluter pays principle
- 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)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

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)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The applicant has implemented the following avoidance and mitigation measures throughout the assessment process, specifically:

- As a requirement under the CAWS Act, the applicant has:
  - reduced the proposed clearing area from 10 hectares, to 4.89 hectares and subsequently to 3.9 hectares, providing a 20 metre buffer to the watercourse located on the property.
  - committed to placing the remaining vegetation within Lot 8535 on Deposited Plan 140392 (approximately 18.9 hectares) under a conservation covenant to be protected in perpetuity.

After consideration of avoidance and mitigation measures, it was determined that the proposed clearing would result in unacceptable impacts to the environment and that it was would not be appropriate to consider an environmental offset to counterbalance the significant residual impacts.

### 3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) 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 **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to biological values (fauna and flora) 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. Biological values (flora and fauna) - Clearing Principles (a) and (b)

##### Assessment

According to the targeted flora survey (Rumenos, 2023) and the site inspection report (DWER, 2023) the vegetation within the application area consists of medium open forest dominated by wandoo (*Eucalyptus wandoo*), yarri (*E. patens*), flooded gum (*E. rudis*) in good to very good condition (Keighery, 1994). The survey and site inspection noted the vegetation showed signs of past grazing events, evidenced by the lack of abundance of typical understorey shrubs (DWER, 2023; Rumenos, 2023).

The vegetation surrounding the application area was noted to contain a matrix of wandoo and jarrah / marri woodland and forest. In comparison, the application area had a notable absence of jarrah and marri and yet a predominance of yarri, which is approximately 15 kilometres to the east of its normal recorded range (Rumenos, 2023).

### Conservation significant flora

According to available databases, a total of 12 conservation significant flora species are recorded within the local area, comprising three threatened flora species and nine priority flora species (WA Herbarium, 1998). A likelihood of occurrence assessment for threatened and priority flora was undertaken. Noting the preferred habitat types, including soil and vegetation types mapped over the application area, the likelihood analysis concluded that the application area is unlikely to provide habitat for any of the conservation significant flora recorded within the local area. While suitable vegetation types were recorded for some of the flora species, the soil types across the application area are considered unsuitable (Appendix C.C.3).

A targeted flora survey was undertaken across the application area in accordance with the Technical Guidance (EPA, 2016). During the survey, one individual *Cymbonotus preissianus* (P3) plant was recorded, no other conservation significant flora were recorded within the application area (Rumenos, 2023).

*Cymbonotus preissianus* is a stemless perennial herb, represented by two records across the Esperance plains and Jarrah forest IBRA regions (WA Herbarium, 1998-). The closest record is 70 kilometres east of the proposed clearing area. The species is commonly found in South Australia, Victoria, New South Wales, Queensland and Tasmania. Given the lack of records within Western Australia and the local area, the proposed clearing of this individual is considered likely to be locally and regionally significant and potentially significant to the conservation status of the species.

### Conservation significant fauna

According to available database, 16 species of conservation significant fauna have been recorded within the local area. With consideration for the site characteristics and the habitat preferences of these species, a likelihood of occurrence analysis was undertaken. It was determined that habitat for the following species may occur within the application area:

- Woylie (*Bettongia penicillata ogilbyi*, CR)
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*, VU)
- Baudin's cockatoo (*Zanda baudinii*, EN)
- Carnaby's cockatoo (*Zanda latirostris*, EN)

Ground dwelling species, including chuditch (*Dasyurus geoffroii*, VU), Tammar wallaby (*Notamacropus eugenii derbianus*, P4) and quenda (*Isoodon fusciventer*, P4) were recorded within the local area. These species are known to rely on dense understorey for shelter and require den resources such as tree hollows, hollow logs, burrows or rock (DEC 2012a; 2012b). Given the lack of understorey, the application area is not considered to provide critical habitat for these species.

Western ringtail possums are also known to occur within the local area with the closest record within one kilometre. According to the recovery plan for this species, habitat critical to survival comprises forests with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation (DPAW, 2017). Given this, while the application area contains suitable vegetation (i.e. Eucalypt woodland), the lack of understorey and maturity of the vegetation as a result of previous grazing pressures (Rumenos, 2023; DWER 2023) is considered to limit the suitability of the vegetation as critical habitat for western ringtail possums.

### Woylie

The woylie (*Bettongia penicillata ogilbyi*, CR) is a small marsupial that once occupied most of the Australian mainland but is now concentrated to the south west region of Western Australia. The main threats to this species include predation by foxes and cats, disease and habitat destruction (DEC, 2012c).

A total of 1073 records of woylie occur within the local area with the closest occurring one kilometre away (see Appendix C.C.4). The majority of these records are located within the Boyup State Forest, located 0.2 kilometres southeast of the application area. Woylie are known to inhabit a range of habitats including tall Eucalypt forest; dense myrtaceous shrubland and kowngan or mallee heath (DEC, 2012c). The vegetation within the application area

consists of medium open Eucalypt forest dominated by wandoo, yarri, flooded gum and jarrah and is considered suitable habitat for the woylie.

During the targeted flora survey (Rumenos, 2023), there were two active woylie sightings. It was noted in the survey report provided, that the sightings may be two different individuals, however since they were observed within a comparatively short range in space and time, it cannot be ruled out with certainty that it was two sightings of the same individual (Rumenos, 2023).

According to the Woylie Recovery Plan (DEC, 2012c), all habitat meeting the key requirements within the current range, which is either known to be occupied by woylies or to have the identified potential to be occupied by woylies, is considered habitat critical to the survival of the species. Therefore, given the application area contains suitable habitat (i.e. Eucalypt woodland), and that woylies have been sighted occupying the area (Rumenos, 2023), the application area is considered to provide critical habitat for this species.

### **Black cockatoos**

The application area is mapped within the known distribution zones of the black cockatoos (DAWE, 2022). Records of the black cockatoos are known from the local area. Black cockatoo habitat can be considered in terms of breeding, roosting and foraging habitat. The South West Forest region, in which the application area occurs, is particularly important for Baudin's cockatoo and the forest red-tailed black cockatoo, as it is the main breeding region. Baudin's cockatoo area also known to have important foraging and wintering areas in this region (DAWE, 2022).

Breeding habitat for species of black cockatoos is described within the 'EPBC Act referral guidelines for three threatened black cockatoo species' (DAWE, 2022) which includes a list of tree species known to support breeding which either, have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 mm. The vegetation within the application area was identified as Eucalypt woodland regrowth (approximately 50 years old) with trees described as multistemmed with DBH less than 50 mm and most less than 30 mm (Rumenos, 2023; DWER, 2023). Given this, and that no breeding records occur within 12 kilometres of the proposed clearing area, the vegetation within the application area is considered unlikely to provide suitable breeding habitat for black cockatoos.

Black cockatoos are known to forage in areas up to 12 kilometres from their breeding nests during the breeding season. Foraging resources in proximity to known breeding sites are significant as black cockatoos rely on these foraging resources to successfully raise chicks. Given no suitable breeding habitat trees were recorded within the application area and the distance to the closest known breeding site, the vegetation within the application area is unlikely to be supporting foraging by breeding individuals.

Roosting habitat for Black cockatoos is usually located the tallest trees within an area, and preferably in close proximity to both food supply and surface water (DAWE, 2022). No suitable roosting habitat was recorded across the application area (Rumenos, 2023; DWR, 2023). During the non-breeding period, black cockatoos will mainly forage in areas up to 20 kilometres from night roosting habitat, and in some cases this distance is greater. Black cockatoos rely upon the availability of night roosting habitat in proximity to foraging resources, and rely on access to watering points in selecting night roost sites, with roost sites usually within two kilometres of a watering point. According to available databases, three known roost sites are recorded within 20 kilometres of the application area.

The preferred foraging habitat for each of the species is described below:

- Carnaby's cockatoo – native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as *banksia* spp, *hakea* spp. and *grevillea* spp, as well as allocasuarina and eucalyptus species, marri and a range of introduced species (Valentine and Stock, 2008).
- forest red-tailed black cockatoo – jarrah and marri woodlands and forest, edges of karri forests including wandoo and blackbutt within the range of the species (DAWE, 2022).
- Baudin's cockatoo – eucalypt woodlands and forest, proteaceous woodland, and heath. Primarily feeding on marri during the breeding season and non-native species outside of the breeding season (DAWE, 2022).

The flora survey conducted across the application area recorded Eucalypt species considered to provide suitable foraging for black cockatoos including, wandoo (*Eucalyptus wandoo*), yarri (*E. patens*) and *Eucalyptus decipiens* (Rumenos, 2023). The application area is therefore considered to provide foraging resources for black cockatoos, supporting roosting individuals.

Given the above, it is considered that the remaining suitable habitat for this species within its current range is likely to be significant. Specifically, it is considered that the 3.9 hectares of foraging habitat within the application area is significant for all three species of black cockatoo.

### Conclusion

Based on the above assessment, and mitigation measures provided by the applicant (see section 3.1), the Delegated Officer has considered that the potential impacts of the proposed clearing on flora and threatened fauna, in particular impacts to critical habitat for woylie, constitute a significant residual impact. It is considered that on balance, the environmental impacts associated with the proposed clearing are unacceptable and it would not be appropriate to mitigate them using an environmental offset. This is supported by the WA Offsets Policy, which states that offsets are not appropriate for all projects.

### **3.2.2. Land and water resources - Clearing Principles (g) and (i)**

#### Assessment

The mapped soils within the application area are described as:

- Yerraminup valley floor phase - broad valley floors with saline wet soils, duplex sandy gravels and wet soils, and
- Yerraminup gentle slope phase - gentle valley slopes usually <10% loamy and sandy duplex soils with yellow subsoils are common.

These soil types are identified as having a moderate risk of wind erosion, and subsurface acidification (CSLC, 2022). Advice was sought from Department of Primary Industries and Regional Development (DPIRD) in regard to soil and land degradation impacts on site as a result of the proposed clearing. DPIRD assessed the suitability of land for the purpose of the final land use and identified the map units have a moderate to high capability for the proposed land use of horticulture and grazing.

It was also identified that the soils within the application area have a high risk of eutrophication, water erosion and waterlogging, particularly along the valley floor and the area adjoining the existing dam. Maintaining ground cover to control surface runoff on the gentle slopes is considered to reduce the likelihood of water erosion and nutrient export from these areas. Retaining and fencing off the riparian vegetation as a buffer strip along the bank of the dam will reduce impacts from winter waterlogging and stabilize the soil in this area, protecting it from erosion (CSLC, 2022). The applicant has proposed to avoid the clearing of the watercourse and has provided a 20 metre buffer of vegetation to reduce land degradation impacts of water erosion and nutrient export.

The application area is located within the Warren River Water Reserve which is a 'Zone A - very high salinity risk' clearing control catchment area under the CAWS Act. Given this, a CAWS Act Licence to Clear (DWER, 2023) is required for the proposed clearing. It is considered that the proposed clearing may increase the risk of salinisation and cause deterioration in the quality of surface or underground water.

Given there is little scope for the establishment of salinity mitigation, approval of the CAWS licence may be subject to the undertaking of an infill planting of undergrowth species in the north-eastern corner of the property (approximately 1.3 hectares) and the establishment of a Soil and Lands Commission Agreement to Reserve over the remaining native vegetation on the property (DWER, 2023).

### Conclusion

Due to the potential significant impact of the increased risk of salinity within this catchment, it was determined that infill planting and the conservation of the remaining vegetation on the property would be required to address these impacts (DWER, 2022a; 2022b). However, it is considered that on balance, the environmental impacts associated with the proposed clearing are unacceptable and it would not be appropriate to mitigate them using an environmental offset. This is supported by the WA Offsets Policy, which states that offsets are not appropriate for all projects.

### **3.3. Relevant planning instruments and other matters**

The proposed clearing is located within a Zone A catchment controlled under the CAWS Act. The applicant has applied for a permit under the CAWS Act. The Water Source Protection Planning team of DWER has advised that a permit under the CAWS Act will be subject to the grant of a clearing permit under the EP Act (DWER, 2023).

The Shire of Manjimup advised that local government approvals are not required, for the purpose of the proposed clearing and that the proposed clearing is consistent with the Shire's Local Planning Scheme No. 4 as priority agriculture. The Shire did not have any objections to the application (Shire of Manjimup, 2023).

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with relevant legislation and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

**End**



## Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
A targeted flora survey	A targeted flora survey was undertaken in support of the application. The results of the survey are discussed under Section 3.2.1.

## Appendix B. Details of public submissions

Three submissions were received raising seven grounds in total, with supporting information provided as comments under each ground of submission. Where the comments within the grounds of submission raised similar concerns, they have been combined in the summary table below to provide a streamlined approach.

Summary of comments	Consideration of comment
The applicant provides no information about the land attributes (including native vegetation) other than a location map.	DWER requested a targeted flora survey of the application area. The results of this survey and a site inspection are discussed in section 3 of the decision report.
There has been no attempt at undertaking an environmental assessment or land capability assessment of any sort, the application and approval process places no economic value on our native vegetation.	A targeted flora surveys of the application area has been requested. In addition, advice was sought on potential land degradation issues from DPIRD. The results of the flora survey, DPIRD advice and site inspection are discussed in section 3 of the decision report.
The proposed clearing is a part of a substantial area of native vegetation that will become further fragmented and degraded. This is significant for bird conservation outcomes.	The application area has been determined to contain habitat for fauna, including the threatened black cockatoos species. This is discussed in section 3.2 of the decision report.
It is clear that the area proposed is adjacent to a substantial water supply (farm dam). It can then be reasonably assumed (from the location of the dam and in the absence of any other information) that the landholder proposing the clearing also owns the agricultural land to the west of the proposed site. That agricultural land will have the same land suitability rating for horticulture and grazing as the area proposed for clearing. There should be no grounds for clearing native vegetation when cleared land suitable for horticulture and grazing is already available. Land clearing for horticulture and grazing is unnecessary in the south-west.	The necessity and purpose of the clearing has been taken into consideration by the Delegated Officer and it has been determined that the purpose of the necessity does not outweigh the significant environmental impacts of the proposed clearing and is therefore refusing to grant the permit (see section 1.3 of the decision report).
Black cockatoo impact: <ul style="list-style-type: none"> <li>• Potential importance of black cockatoo foraging habitat in the area of the proposed clearing</li> <li>• Importance of considering cumulative impacts to black cockatoos</li> <li>• Importance of retaining not only existing but also future breeding (hollow bearing) trees</li> <li>• Need for mitigation measures that are effective for black cockatoo conservation.</li> </ul>	The application area has been determined to contain habitat for fauna, including the threatened black cockatoos species. This is discussed in section 3.2 of the decision report.
Approving this application will contribute the collapse of our unique ecosystems and biodiversity in south-west Western Australia.	The necessity and purpose of the clearing has been taken into consideration by the Delegated Officer and it has been determined that the purpose of the necessity does not outweigh the significant environmental impacts of the proposed clearing and is therefore refusing to grant the permit (see section 1.3 of the decision report).

## Appendix C. Site characteristics

### C.1. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix D.

Characteristic	Details
Local context	<p>The area proposed to be cleared is a 3.9-hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is surrounded by native vegetation and adjacent to Tone-Perup National Park directly to the east.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 80.38 per cent of the original native vegetation cover.</p>
Ecological linkage	The proposed clearing area is not attached to any ecological linkages. The closest ecological linkage (152) is located approximately 1.2 kilometres west of the application area. The proposed clearing is unlikely to negatively affect any ecological linkages.
Conservation areas	No conservation areas are mapped within the application area. The closest conservation area is the Tone-Perup National Park located adjacent to the application area.
Vegetation description	<p>A targeted flora survey (Rumenos, 2023) and DWER site inspection (DWER, 2023) indicate the vegetation within the proposed clearing area consists of medium open forest, the dominant species being wandoo, yarri and flooded gum. Representative photos and the full survey descriptions and maps are available in Appendix F.</p> <p>This is consistent / inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> <li>• Bevan BE2, which is described as Open forest to woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> with some <i>Corymbia calophylla</i> on lateritic uplands in humid and subhumid zones.</li> <li>• Carbunup CB, which is described as Woodland of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i> and low woodland of <i>Melaleuca preissiana</i>-<i>Banksia littoralis</i> on slopes in the subhumid zone.</li> <li>• Yerraminup YEf, which is described as Mosaic of woodland of <i>Eucalyptus wandoo</i>, woodland of <i>Eucalyptus rudis</i>-<i>Melaleuca preissiana</i> and tall shrubland of <i>Melaleuca viminea</i>-<i>Hakea prostrata</i> on broad flats in the subhumid zone.</li> </ul> <p>The mapped vegetation types retain approximately 88.07, 78.81 and 58.27 per cent respectively of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>A targeted flora survey (Rumenos, 2023) and DWER site inspection (DWER, 2023) indicate the vegetation within the proposed clearing area is in good to very good (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos and the full survey descriptions are available in Appendix F.</p>
Climate and landform	The climate of Western Australia is described as having a Mediterranean- type climate of mild wet winters and warm to hot, dry summers. The mean annual rainfall for the region is 700 millimetres.
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> <li>• Yerraminup valley floor phase (254WvYEf) described as broad valley floors with saline wet soils, duplex sandy gravels and wet soils, and</li> <li>• Yerraminup gentle slope phase (254WvYE1) described as gentle valley slopes usually &lt;10% loamy and sandy duplex soils with yellow subsoils are common.</li> </ul>
Land degradation risk	The mapped soil types within the application area are mapped as having a moderate risk of wind erosion, and subsurface acidification (DPIRD, 2023).

Characteristic	Details
Waterbodies and Hydrogeography	<p>The desktop assessment and aerial imagery indicated that the application area is adjacent to a minor, earth dam.</p> <p>The application area falls within the a Groundwater Area, as proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) and within the <i>Country Area Water Supply Act 1947</i> (CAWS Act) gazetted Warren River Water Reserve (Zone A), which is a high salinity risk area of the catchment.</p> <p>Groundwater salinity within the application area is mapped at 3000 to 7000 milligrams per litre of total dissolved solids (highly saline).</p>
Flora	The desktop assessment identified that a total of 12 conservation significant flora species have been recorded in the local area, comprising of four threatened flora species and eight priority flora species (WA Herbarium, 1998-).
Ecological communities	<p>The desktop assessment identified that there are no conservation significant ecological communities within the application area.</p> <p>The flora and vegetation survey conducted across the application area recorded no occurrences of conservation significant ecological communities within the survey area.</p>
Fauna	<p>The desktop assessment identified that a total of 16 conservation significant fauna species have been recorded within the local area, including eight threatened fauna species, six priority fauna species, one migratory fauna species and two other specially protected fauna species (DBCA, 2007-) None of these existing records occur within the application area, with the closest record being an occurrence of a <i>Notamacropus eugenii derbianus</i>, approximately 0.5 kilometres from the application area.</p> <p>The targeted flora survey recorded two sightings of Woylie (<i>Bettongia penicillata ogilbyi</i>, CR) within the application area (Rumenos, 2023).</p>

## C.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*					
Jarrah Forest	4506660.25	2399838.15	53.25	1673614.25	69.74
Vegetation complex					
Bevan 2 BE2 *	45,828.05	40,360.14	88.07	38,982.75	85.06
Carbunup CB *	6,136.81	4,836.13	78.81	4,667.85	76.06
Yerraminup YEf *	1,029.43	599.82	58.27	485.51	47.16
Local area					
10km radius	32404.22	26048.56	80.38	-	-

\*Government of Western Australia (2019a)

### C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and biological survey information (Rumenos, 2023), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Andersonia annelsii</i>	T	Y	N	3.65	20	Y
<i>Melaleuca micromera</i>	P3	Y	N	4.00	4	Y
<i>Senecio oldfieldii</i>	P2	N	N	5.83	2	Y
<i>Caladenia christineae</i>	T	Y	N	5.91	2	Y
<i>Amanita cretaceaverruca</i>	P2	N	N	6.03	1	Y
<i>Amanita kalamundae</i>	P3	N	N	6.04	2	Y
<i>Wurmbea</i> sp. Cranbrook (A.R. Annel 3819)	P3	Y	N	6.48	5	Y
<i>Amanita fibrillopes</i>	P3	N	N	6.48	1	Y
<i>Bossiaea reptans</i>	T	N	N	7.76	3	Y
<i>Xanthoparmelia louisii</i>	P2	N	N	8.09	1	Y
<i>Deyeuxia inaequalis</i>	P1	N	N	8.46	1	Y

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

### C.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and biological survey information (Rumenos, 2023), impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Notamacropus eugenii derbianus</i> (Tammar wallaby)	P4	Y	Y	0.5	110	N/A
<i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir)	CR	Y	Y	0.8	93	N/A
<i>Bettongia penicillata ogilbyi</i> (woylie, brush-tailed bettong)	CR	Y	Y	1	1073	N/A
<i>Dasyurus geoffroii</i> (chuditch)	VU	Y	Y	1	162	N/A
<i>Isoodon fusciventer</i> (quenda, southwestern brown bandicoot)	P4	Y	Y	1.6	15	N/A
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	3.3	11	N/A
<i>Zanda baudinii</i> (Baudin's cockatoo)	EN	Y	Y	5.5	9	N/A
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	8.4	1	N/A

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

## Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a)</u>: “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment</u>: The application area contains suitable habitat and occurrences of conservation significant fauna and flora.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b)</u>: “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.”</p> <p><u>Assessment</u>: The area proposed to be cleared contains significant habitat for woylie, and black cockatoos species.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c)</u>: “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment</u>: The area proposed to be cleared is unlikely to contain suitable habitat for Threatened flora species listed under the BC Act. No Threatened flora were recorded during the targeted flora survey.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d)</u>: “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 (TEC).”</p> <p><u>Assessment</u>: The area proposed to be cleared is unlikely to be representative of any TEC listed under the BC Act or EPBC Act. No TEC’s were recorded during the targeted flora survey.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e)</u>: “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment</u>: The extent of the mapped vegetation type in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No
<p><u>Principle (h)</u>: “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.”</p> <p><u>Assessment</u>: Whilst the application is located adjacent to a conservation area, weed and dieback management actions would minimise the risk or impacts occurring to adjacent vegetation. The proposed clearing is not likely to have an impact on the environmental values of the nearby conservation areas.</p>	May be at variance	No
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f)</u>: “Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</p> <p><u>Assessment</u>: Given no water courses or wetlands are recorded within the application area, and the proposed clearing area was reduced to create a 20 metre buffer between the application area and nearby watercourse, the proposed clearing is considered unlikely to impact on- or off-site hydrology and water quality.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (g)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</p> <p><u>Assessment</u>: The application area is mapped within a very high-risk salinity catchment. Noting the location of the application area, the proposed clearing may have an appreciable impact on land degradation through salinity.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (i)</u>: “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.”</p> <p><u>Assessment</u>: The application area is located within a Zone A clearing control catchment area. Proposed clearing may increase the risk of salinisation. Given this, the proposed clearing may cause deterioration in the quality of surface or underground water.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.</p>	Not likely to be at variance	No

## Appendix E. 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.

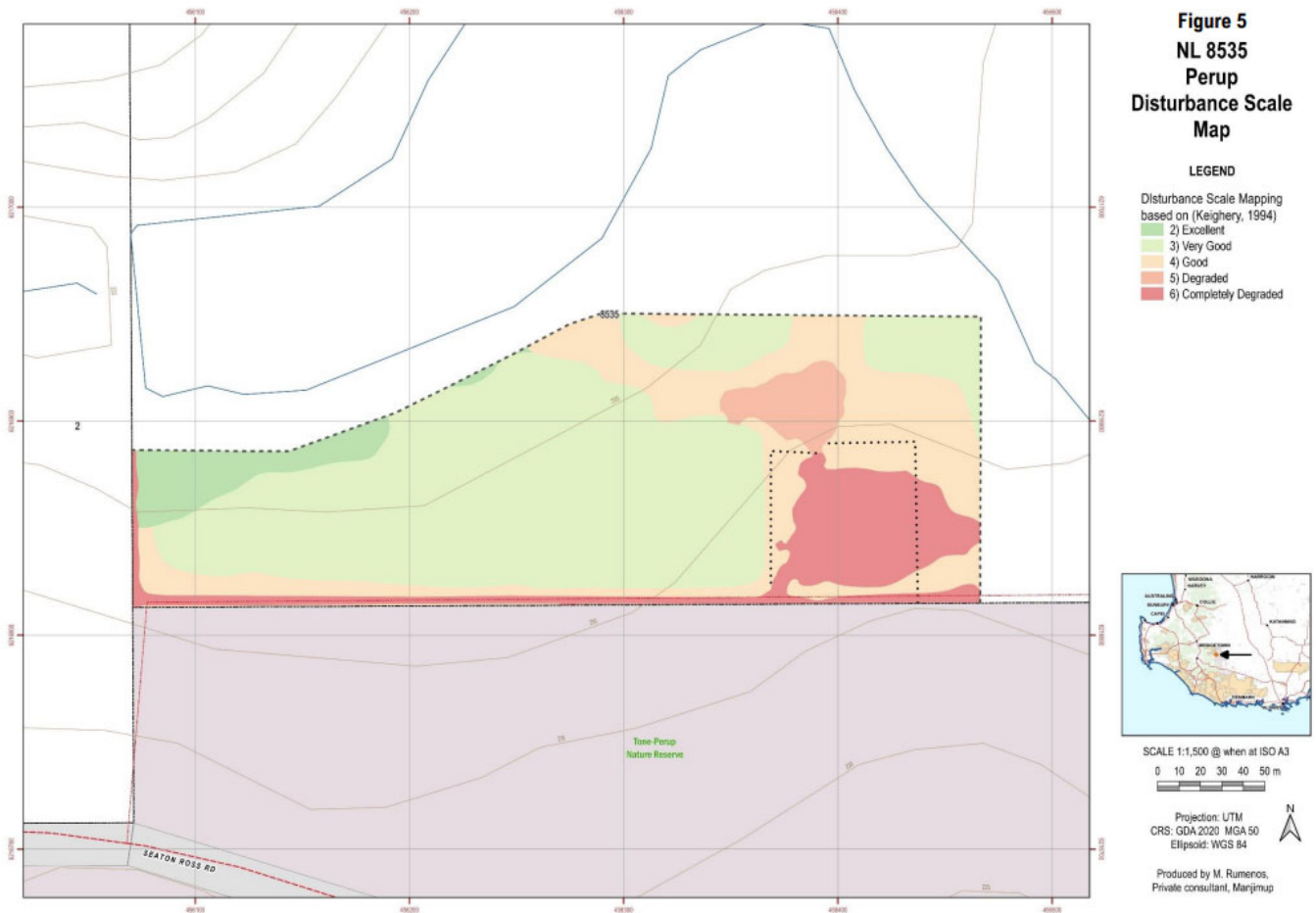
Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western 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.

Condition	Description
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.

**Appendix F. Biological survey information excerpts (Rumenos, 2023) and photographs from the department's site inspection (DWER, 2023)**



**Figure 1** Vegetation condition mapped within the survey area (Rumenos, 2023).



Figure 2 Vegetation types mapped within the survey area (Rumenos, 2023).



Vegetation Type	Structure	Area (m <sup>2</sup> )	Area (ha)	% of SA	Detailed Description	Species Recorded	% of SA Species Represented
1	Medium mixed woodland of flooded gum	2,696	0.27	6.1	Medium woodland of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> and (with some admixture of) regrowth <i>Eucalyptus patens</i> over tall scattered shrubland remnants of <i>Melaleuca viminea</i> subsp. <i>viminea</i> , and <i>Hakea prostrata</i> over low shrubland of <i>Hibbertia commutata</i> , <i>Styphelia propinqua</i> with mixed grasses, restios, sedges and herbs of <i>Desmocladius flexuosus</i> , <i>Desmocladius asper</i> , <i>Neurachne alopecuroidea</i> , <i>Desmocladius asper</i> , <i>Lagenophora huegelii</i> , <i>Oxalis perennans</i> , <i>Lysimachia arvensis</i> *, <i>Drosera menziesii</i> , <i>Ptilotus manglesii</i> and <i>Geranium retrorsum</i> .	56	40.3
2	Tree mallee of redheart with admixture of wandoo / yarri medium woodland	5,637	0.56	12.7	Tree mallee woodland of <i>Eucalyptus decipiens</i> with admixture of medium regrowth <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> and minor <i>Eucalyptus patens</i> over very sparse shrubland of <i>Acacia pulchella</i> var. <i>goadbyi</i> over mixed grasses, restios, sedges and herbs of <i>Desmocladius flexuosus</i> , <i>Rytidosperma setaceum</i> , <i>Plantago debilis</i> , <i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i> , <i>Lysimachia arvensis</i> *, <i>Hypochoeris glabra</i> *, <i>Panaetia lessonii</i> , <i>Thysanotus tenellus</i> , <i>Plantago debilis</i> , <i>Lagenophora huegelii</i> , <i>Trachymene pilosa</i> , and <i>Rhodanthe citrina</i> .	46	33.1
3	Medium woodland of wandoo / yarri	15,309	1.53	34.6	Medium woodland of regrowth <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> and <i>Eucalyptus patens</i> with fringing <i>Eucalyptus rudis</i> subsp. <i>rudis</i> (on lower slope) over sparse, variable shrubland of <i>Hakea prostrata</i> , <i>Acacia saligna</i> subsp. Tweed River, <i>Melaleuca viminea</i> subsp. <i>viminea</i> , and <i>Bossiaea linophylla</i> over small shrubs of <i>Hibbertia commutata</i> and <i>Styphelia propinqua</i> over mixed grasses, restios, sedges and herbs of <i>Desmocladius flexuosus</i> , <i>Neurachne alopecuroidea</i> , <i>Austrostipa campylachne</i> , <i>Lagenophora huegelii</i> , <i>Lysimachia arvensis</i> *, <i>Oxalis perennans</i> , <i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i> , and <i>Scaevola calliptera</i> ; and geophytes such as <i>Dichopogon</i> , <i>Thysanotus</i> and <i>Caladenia</i> spp.	110	79.1
4	Medium woodland of wandoo	9,337	0.93	21.1	Medium woodland of regrowth <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> over sparse shrubland of <i>Hakea prostrata</i> , <i>Acacia saligna</i> subsp. Tweed River and <i>Melaleuca viminea</i> subsp. <i>viminea</i> on lower slopes, and <i>Bossiaea linophylla</i> over mixed grasses, restios, sedges and herbs of <i>Neurachne alopecuroidea</i> , <i>Rytidosperma caespitosum</i> , <i>Panaetia lessonii</i> , <i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i> , <i>Desmocladius flexuosus</i> , <i>Acaena echinata</i> , and <i>Dichopogon capillipes</i> .	46	33.1
5	Tall open shrubland of mohan, janda and coojong with fringing medium woodland	5,320	0.53	12.0	Open, tall shrubland of <i>Hakea prostrata</i> , <i>Melaleuca viminea</i> subsp. <i>viminea</i> and <i>Acacia saligna</i> subsp. Tweed River over small to medium shrub layer of <i>Macrozamia riedlei</i> and <i>Hibbertia commutata</i> over <i>Dichopogon capillipes</i> , <i>Desmocladius asper</i> , <i>Desmocladius flexuosus</i> , <i>Lagenophora huegelii</i> , and <i>Haemodorum simplex</i> . Fringing medium trees of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> , <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> , and <i>Eucalyptus patens</i> .	20	14.4
6	Occasional juvenile / coppice wandoo in remnant low - medium shrub/herb/grassland	235	0.02	0.5	Remnant or regenerating low to medium shrubs of <i>Hakea prostrata</i> , <i>Acacia pulchella</i> var. <i>goadbyi</i> , <i>Hibbertia commutata</i> , <i>Banksia dallanneyi</i> with mixed grasses, restios, sedges and herbs, and with occasional emergent juvenile or coppicing <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> .	24	17.3
b	building / structures	301	0.03	0.7	[no vegetation]	n/a	n/a
c	cleared / tracks	5,470	0.55	12.3	[no / minimal vegetation]	n/a	n/a
		44,304	4.43				

\*Denotes an introduced species not native to Western Australia  
SA = Survey Area

Figure 3 Vegetation types recorded within the survey area (Rumenos, 2023).



**Fig 8.1: Type 1, Medium mixed woodland of flooded gum**



**Fig 8.2: Type 2, Tree mallee of redheart with admixture of wandoo / yarri medium woodland**



**Fig 8.3: Type 3, Medium woodland of wandoo / yarri. A relatively heavily wooded section where yarri was more dominant.**



**Fig 8.4: Type 3, Medium woodland of wandoo / yarri**



**Fig 8.5: Type 3, Medium woodland of wandoo / yarri. Edge of type near access driveway / S boundary. *Canis familiaris* in midground.**

**Figure 4** Photographs of the vegetation (Type 1 -3) within the survey area (Rumenos, 2023).



**Fig 8.6: Type 4, Medium woodland of wandoo**



**Fig 8.7: Type 5, Tall open shrubland of mohan, janda and coojong with fringing medium woodland. Roughly near centre of mapped type.**



**Fig 8.8: Type 5, Tall open shrubland of mohan, janda and coojong with fringing medium woodland. Transition to type 1 seen on left side of photo.**



**Fig 8.9: Type 6, Occasional juvenile / coppice wandoo in remnant low - medium shrub/ herb/ grassland. In photo no wandoo visible but low shrub vegetation is depicted. Juvenile wandoo is visible in the far left of 'Figure 7.5'.**

**Figure 5** Photographs of the vegetation (Type 4 -6) within the survey area (Rumenos, 2023).



**Figure 6** Photographs of the vegetation within the application area obtained from site inspection (DWER, 2023).

## Appendix H. Sources of information

### H.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- 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
- Soil Landscape Mapping – Systems

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
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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