



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 10234/1
File Number: DWERVT12666
Duration of Permit: From 17 September 2023 to 17 September 2030

PERMIT HOLDER

Shire of Mundaring

LAND ON WHICH CLEARING IS TO BE DONE

Bailup Road reserve (PIN 11738692), Woorooloo

AUTHORISED ACTIVITY

The permit holder must not clear more than 10 native trees within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 17 September 2025.

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

3. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner in one direction towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

5. Revegetation and rehabilitation

- (a) The permit holder shall plant and maintain 14 trees, comprising of marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*), within Bailup Road reserve (PIN 11738692), Woorooloo, in Figure 2 of Schedule 2 with the following conditions:
 - (i) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate*;
 - (ii) ensure planting is undertaken at the *optimal time*;
 - (iii) undertake *weed* control and watering of *plantings* for at least two years post *planting*;
 - (iv) the *revegetation* is to commence within 12 months of undertaking clearing authorised under this permit and no later than 19 September 2025.
- (b) Within 24 months of undertaking *revegetation* in accordance with condition 5(a) of this permit, the permit holder must:
 - (i) engage an *environmental specialist* to make a determination on whether 14 planted marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) trees will survive;
 - (ii) where, in the opinion of an *environmental specialist* the 14 planted trees will not survive, the permit holder must undertake additional planting of marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) to achieve this outcome; and
 - (iii) where additional planting of marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) trees is undertaken in accordance with condition 5(b)(ii), the permit holder must repeat the activities required by conditions 5(a)(i-iv) and 5(b)(i-ii) of this permit.

6. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the direction of clearing; (e) the size of the area cleared (in hectares); (f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2; and (g) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 3.
2.	In relation to the required <i>revegetation</i> activities in accordance with condition 5	<ul style="list-style-type: none"> (a) the location where the marri (<i>Corymbia calophylla</i>) and jarrah (<i>Eucalyptus marginata</i>) trees were planted, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA20), expressing the geographical coordinates in Eastings and Northings; (b) the date that the area was planted; (c) the number of marri (<i>Corymbia calophylla</i>) and jarrah (<i>Eucalyptus marginata</i>) trees planted; (d) the size (in mm) of the marri (<i>Corymbia calophylla</i>) and jarrah (<i>Eucalyptus marginata</i>) trees planted; (e) dates of the <i>weed</i> and watering actions undertaken in accordance with condition 5(b)(iii); (f) a copy of the <i>environmental specialist's</i> report; (g) a description of the <i>revegetation</i> activities undertaken; and (h) any remedial actions required to be undertaken.

7. Reporting

The permit holder must provide to the *CEO* the records required under condition 6 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
environmental specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under the permit, or who is approved by the <i>CEO</i> as a suitable <i>environmental specialist</i> .
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
mulch	Means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimum time	means the period from May to June for undertaking planting or seeding
planting/s	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
rehabilitate	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural regeneration, direct seeding and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
revegetate/ion	means actively managing an area containing native vegetation in order to improve the ecological function of the area.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and</i>

Term	Definition
	<p><i>Agriculture Management Act 2007</i>; or</p> <p>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</p> <p>(c) not indigenous to the area concerned.</p>

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

24 August 2023

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1)



Figure 1: Map of the boundary of the area within which clearing may occur

SCHEDULE 2

The boundary of the area within which planting is to occur is shown in hatched red in the map below (Figure 2)

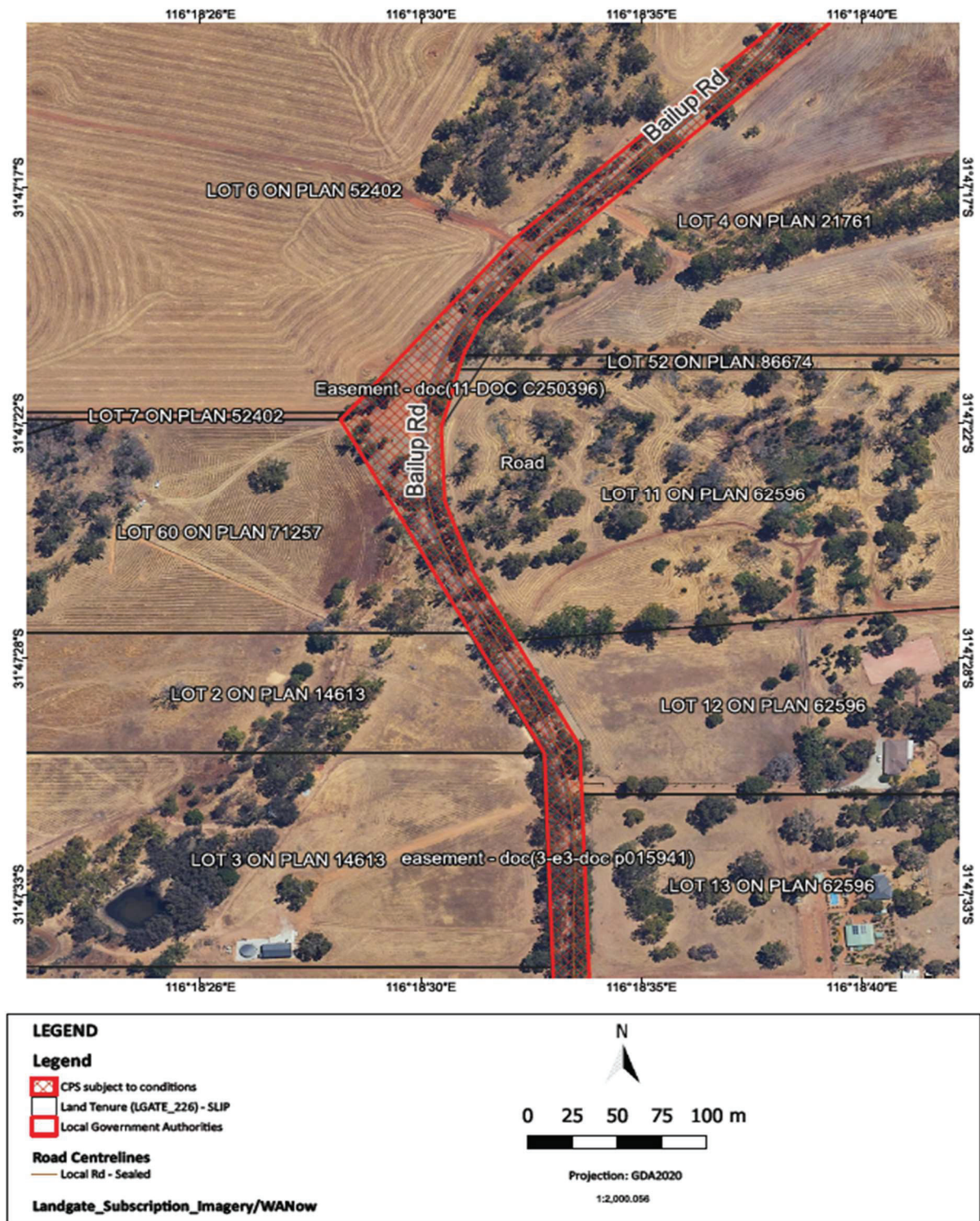


Figure 2: Map of the boundary of the area within which planting must occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10234/1
Permit type:	Area permit
Applicant name:	Shire of Mundaring
Application received:	14 June 2023
Application area:	10 native trees
Purpose of clearing:	Road widening and upgrades
Method of clearing:	Mechanical
Property:	Bailup Road reserve (PIN 11738692)
Location (LGA area/s):	Shire of Mundaring
Localities (suburb/s):	Wooroloo

1.2. Description of clearing activities

The Shire of Mundaring is proposing to undertake the clearing of native vegetation within Bailup Road reserve (PIN 11738692), Wooroloo. The proposed clearing will facilitate road upgrades and widening to improve the condition of the road and driver safety. The vegetation proposed to be cleared is ten native trees within Bailup Road reserve (PIN 11738692) (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	24 August 2023
Decision area:	10 native trees, 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), 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 that the purpose of the clearing is to improve community safety by widening and upgrading Bailup Road.

The assessment identified that the proposed clearing will result in:

- The loss of native vegetation that is suitable foraging habitat for the forest red-tailed black cockatoo, Baudin's cockatoo and Carnaby's cockatoo (black cockatoo species).

- The potential loss of habitat for quenda, chuditch, south-western brush-tailed phascogale, peregrine falcon and western brush wallaby.
- 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.

To minimise impacts to fauna, progressive one directional clearing is required to allow individuals present at the time of clearing to move to adjacent vegetation. The planting of species suitable for black cockatoo foraging and breeding habitat will be undertaken to reduce impacts to black cockatoos. The likelihood of impact from weeds and dieback can be minimised by applying weed and dieback management measures.

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 the applicant has suitably demonstrated avoidance and minimisation measures and that the impacts of the proposed clearing can be minimised and managed to unlikely 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,
- a minimum of 14 jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) trees will be required to be planted and maintained within the road reserve, as mitigation measures for the clearing of ten native trees that provide habitat value,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.

1.5. Site map

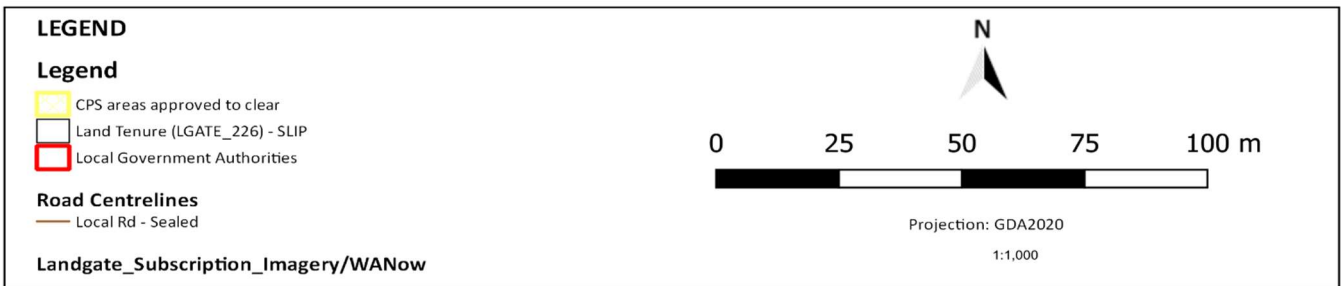


Figure 1 Map of the application area

The areas crosshatched yellow indicate the areas 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 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)
- *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)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has advised that the following avoidance and mitigation measures have been/will be undertaken (Shire of Mundaring, 2023):

- the asphalt surface was widened from 4.2m to 6m wide to improve road safety on this non-speed zoned portion of regional distributor road,
- to accommodate the extra width, the road centreline had to be modified to avoid significant vegetation, this was set out with a surveyor and confirmed on site,
- all vegetation identified for removal is within the road clear zone (Austroads Guide to Road Design Part 6) and is both a roadside hazard to drivers and detrimental to the longevity of the road due to inadequate roadside drainage,
- the ten trees that are proposed to be removed are required to be removed for road drainage (spoon drain) purposes and there are no alternate options. These trees are all have a DBH of less than 500mm and are a mixture of marri, wandoo and blackbutt species. All trees with a DBH of >500mm will be retained as part of the road upgrade works. In addition to the information provided above we have also updated the Environmental Impact Report with extra information about the 10 trees proposed to be removed.

DWER have identified that the planting and maintaining of 14 jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*), would be required to ensure a significant residual impact to fauna habitat does not remain after the proposed clearing. The Shire of Mundaring have agreed to the planting of 14 trees within the Bailup Road Reserve.

Considering the above, the Delegated Officer was satisfied that the applicant has made a reasonable effort 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 fauna. 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 (fauna) - Clearing Principles (a) and (b)

Assessment

The application area is located within the Jarrah Forest IBRA region. According to available databases, a total of 14 conservation significant fauna species have been recorded in the local area (10-kilometre radius of the application area).

Of the conservation significant fauna species recorded in the local area, the application area may provide habitat for the following conservation significant fauna species:

- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (VU)
- *Zanda baudinii* (Baudin's cockatoo) (EN)
- *Zanda latirostris* (Carnaby's cockatoo) (EN)
- *Dasyurus geoffroii* (chuditch, western quoll) (VU)
- *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale, wambenger) (CD)
- *Isodon fusciventer* (quenda, southwestern brown bandicoot) (P4)
- *Falco peregrinus* (peregrine falcon) (OS)
- *Notamacropus irma* (western brush wallaby) (EN)

This assumption is based on the habitat requirements, distribution, mapped vegetation types and condition of the vegetation. Photos provided by the Shire of Mundaring identified that the vegetation along the Bailup Road reserve was largely consistent with the mapped vegetation types for the area, consisting of *Eucalyptus* spp. and *Corymbia calophylla* (marri) woodland.

Black cockatoos

Black cockatoo species are noted to forage on a range of plant species, with the primary foraging resources varying between species (Commonwealth of Australia, 2012). Carnaby's cockatoos forage on the seeds, nuts, and flowers of a variety of plants, including Proteaceous species (*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 cockatoos feed predominantly on the seeds of marri and jarrah, which comprise approximately 90 per cent of their diet (DEC, 2008). Baudin's cockatoos primarily feed on the seeds of marri, but may also forage on the seeds of jarrah and Proteaceous species (DEC, 2008). Given the application area contains jarrah and marri trees and occurs within the predicted occurrence range for all the black cockatoo species, the application area provides suitable foraging habitat for black cockatoos.

All trees with a DBH of >500mm will be retained as part of the road upgrade works. No trees of a suitable size to contain a hollow suitable for black cockatoo breeding will be cleared.

Food resources within the range of roost and breeding sites are important to sustain populations of black cockatoos, and foraging resources should therefore be viewed in the context of the proximity to the known roosting and breeding sites to the application area. Available databases show that there are ten records of black cockatoo roost sites within the local area but no mapped breeding locations. Following breeding, they will flock in search of food, usually within six kilometres of a night roost (Commonwealth of Australia, 2012), but may range up to 20 kilometres. Given the presence of suitable foraging habitat within the known foraging distance to multiple roosting locations, the clearing of the jarrah and marri trees is significant.

Western quoll

The Western Quoll used to live in most of continental Australia, except for the tropical north and temperate east. Currently, they can be found in areas dominated by sclerophyll forest, drier woodland, heath, and mallee shrubland, similar to the application area (Van Dyck and Strahan, 2008; National Environmental Science Program Threatened Species Research Hub, 2019). They are carnivorous and nocturnal, feeding on small mammals, birds, lizards, and frogs. The western quoll requires large areas of uncleared vegetation that provide enough food and refuge resources (National Environmental Science Program Threatened Species Research Hub, 2019). The application area is mostly cleared. It is possible that the chuditch may occasionally occur within the application area, potentially as transient individuals, however it is unlikely that the taxon would regularly use and rely on habitats within the application area.

South-western brush-tailed phascogale

The south-western brush-tailed phascogale is an arboreal dasyurid, associated with dry sclerophyll forests and open woodlands that contain hollow-bearing trees, characterised by high canopy cover and connectivity (DEC, 2012a). As the application area contains remnant marri and jarrah woodland, the application area provides suitable habitat for the south-western brush-tailed phascogale. Noting the clearing will be limited to smaller trees with a DBH <500 mm, impacts to south-western brush-tailed phascogale will be unlikely. It is possible that the south-western brush-tailed phascogale may occur within the application area, as it moves through the landscape.

Quenda

Quenda is known to inhabit scrubby, often swampy vegetation with dense cover, often feeding in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. Populations which inhabit jarrah and wandoo forests are usually associated with watercourses. Quendas will thrive in more open habitat subject to exotic predator control. Quenda have become abundant in Lake Magenta Nature Reserve (Western Australia) in Mallee scrub and woodland following fox control (Department of Environment and Conservation, 2012b). Noting the condition of the vegetation within the application area and lack of wetter areas, it is unlikely that the application area will comprise of significant habitat for the species. It is possible that the quenda may occur within the application area, as it moves through the landscape.

Peregrine falcon

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise significant habitat for this species.

Western brush wallaby

The species optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets. It is also found in some areas of mallee and heathland and is uncommon in karri forest. Their range has been significantly reduced and fragmented due to clearing for agriculture and there is a significant decline in abundance within most remaining habitat. (Christensen, P, 1995). The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species. It is possible that the western brush wallaby may occur within the application area, as it moves through the landscape.

Ecological linkage

The application area may function as an ecological linkage for fauna to move between larger remnants of native vegetation within the local area. The ecological linkage values will not likely be severed by the proposed clearing, noting native vegetation will remain within the road reserve. Notwithstanding the above, given that native vegetation remains surrounding the application area, a weed and dieback management condition will be required to assist in mitigating impacts to surrounding vegetation and maintaining ecological linkage values.

Conclusion

Based on the above assessment, the proposed clearing includes suitable foraging habitat for black cockatoos. Given the lack of intact understory, the road reserve is not considered to provide permanent habitat for ground dwelling fauna species, but is considered to provide an ecological linkage between remnants of native vegetation. Slow directional clearing will mitigate impacts to individuals that may be present at the time of clearing.

The planting and maintenance of black cockatoo foraging habitat would be required to ensure a significant residual impact to black cockatoos does not remain after the proposed clearing. The mitigation planting proposed was input into the WA Environmental Offsets Metric Calculator to determine the ratio required to mitigate the loss of 10 trees. From this, 14 marri and jarrah trees are required to be planted to mitigate the loss. The Shire will be required to ensure the survival of at least 14 trees. The proposed planting was determined to be a suitable mitigation measure. A significant residual impact does not remain following the mitigation planting. DWER considers the mitigation planting aligns with the WA Environmental Offsets Policy (2011) and WA Environmental Offsets Guideline (2014).

For the reasons set out above, it is considered that the impacts of the proposed clearing on biological values can be managed through the avoidance, minimisation and mitigation measures committed to by the applicant including conditions as specified in the permit.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals.
- Planting and maintaining of 14 native marri and jarrah trees, would be essential to ensure a significant residual impact to fauna habitat does not remain after the proposed clearing.
- Weed and dieback management measures to assist in mitigating impacts to surrounding vegetation.

3.3. Relevant planning instruments and other matters

The Shire of Mundaring advised DWER that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme.

The applicant may have notification responsibilities under the EPBC Act for impacts to Baudin's black cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo and their habitats, as set out in the EPBC Act. The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

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

End

Appendix A. 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 B.

A.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is located along Bailup Road reserve, within the intensive land use zone of the Jarrah Forest region of Western Australia. It is surrounded by rural industry, farms, dwellings, and patches of intact remnant native vegetation.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 40.4 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>Ecological linkage 98 is found 0.30 kilometres to the east of the application area. Noting the extend of the vegetation being cleared, the proposed clearing is not considered to significantly impact this linkage.</p>
Conservation areas	<p>The closest conservation area to the application area is Woorooloo conservation area, located approximately 0.9 kilometres to the southeast of the application area.</p>
Vegetation description	<p>The mapped vegetation complex within the application area is Murray 2, which is described as an open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica-Corymbia calophylla-Eucalyptus patens</i> and woodland of <i>Eucalyptus wandoo</i> with some <i>Eucalyptus accedens</i> on valley slopes to woodland of <i>Eucalyptus rudis-Melaleuca raphiophylla</i> on the valley floors in semiarid and arid zones.</p> <p>The mapped vegetation type retains approximately 69.04 per cent of the original extent (Government of Western Australia, 2019).</p> <p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is consistent with the mapped vegetation type for the application area (Shire of Mundaring, 2023).</p> <p>Representative photos are available in Appendix D.</p>
Vegetation condition	<p>Photographs supplied by the applicant (Shire of Mundaring, 2023) indicate the vegetation within the proposed clearing area is in Degraded to Completely Degraded condition (Keighery, 1994).</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p> <p>Representative photos are available in Appendix D.</p>
Climate and landform	<p>Rainfall Mean Annual- 800mm</p> <p>Evapotranspiration Areal Actual- 700mm</p> <p>Topography- 225-245 AHD</p>
Soil description	<p>The soil is mapped as Dwellingup 2 Phase, which is described as very gently to gently undulating terrain (<10%) with well drained, shallow to moderately deep gravelly brownish sands, pale brown sands and earthy sands overlying lateritic duricrust.</p>
Land degradation risk	<ul style="list-style-type: none"> • Water Erosion: 100% of the map unit has a nil to moderate water erosion risk • Wind Erosion: 30-65% of the map unit has a high to very high wind erosion risk • Salinity: 100% of the map unit has a slight to nil salinity risk or is presently saline • Flood: 100% of the map unit has a very low flood risk • Waterlogging: 100% of the map unit has a nil to low waterlogging risk • Subsurface Acidification: 90% of the map unit is presently acidic • Phosphorus Export: 100% of the map unit has a low to moderate phosphorus export risk.

Characteristic	Details
	It is unlikely that the proposed clearing will result in an increase risk to salinity, flooding, waterlogging or subsurface acidification. The depth of the road construction will be negligible. Any potential impacts from land degradation will not likely affect the surrounding environment.
Waterbodies	The desktop assessment and aerial imagery indicated that there are no wetlands or watercourses within the application area. The application area is mapped within 50 metres of a minor nonperennial tributary of the Swan River and 600 metres of a major nonperennial Woorooloo Brook.
Hydrogeography	Groundwater salinity: 100% nil of partial risk The application area is mapped within the Swan River Surface Water Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> . The road construction has been designed to maintain existing surface water flows, with no runoff of water or sediment into the surrounding environment. Surface water will not be affected.
Ecological communities	There are no mapped conservation significant ecological communities within the local area. The closest are the Wheatbelt Woodlands and the Central Granite Shrublands, both 21 kilometres to the east and west respectively.
Flora	There are records of 12 threatened and priority flora within the local area. None of these are located within the area applied to be cleared. Noting the proposed clearing is limited to tree species only, with no native understorey underneath, impacts to threatened and priority flora is not likely to occur.
Fauna	There are records of 13 fauna of conservation significance within the local area, the closest are records of chuditch, western brush wallaby and white-tail black cockatoo species, all within 1.1 kilometres from the application area. There is a known black cockatoo roost site two kilometres away.

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*					
Jarrah Forest	4506660.25	2399838.15	53.25	1673614.25	69.74
Vegetation complex					
Murray 2 (207) *	59317.10	40952.07	69.04	23956.38	40.39
Local area					
10km radius	31886.64	12898.45	40.45	-	-

*Government of Western Australia (2019a)

A.3. 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)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Apus pacificus</i> (fork-tailed swift)	MI	Y	Y	7.1	1	N/A
<i>Bettongia penicillata ogilbyi</i> (woylie, brush-tailed bettong)	CR	Y	Y	6.2	88	N/A
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	2.1	27	Y
<i>Zanda baudinii</i> (Baudin's cockatoo)	EN	Y	Y	4.7	21	Y
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	1.2	37	Y
<i>Zanda sp. 'white-tailed black cockatoo'</i> (white-tailed cockatoo)	EN	Y	Y	1.1	15*	Y
<i>Dasyurus geoffroyi</i> (chuditch, western quoll)	VU	N	Y	1.1	9	N/A
<i>Falco peregrinus</i> (peregrine falcon)	OS	Y	Y	4.7	2	N/A
<i>Isodon fusciventer</i> (quenda, southwestern brown bandicoot)	P4	Y	Y	5.9	83	N/A
<i>Notamacropus eugenii derbianus</i> (Tamar wallaby)	P4	Y	Y	6.2	25	N/A
<i>Notamacropus irma</i> (western brush wallaby)	EN	Y	Y	1.1	8	N/A
<i>Phascogale tapoatafa wambenger</i> (south-western brush-tailed phascogale, wambenger)	CD	Y	Y	7.6	5	N/A
<i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir)	CR	Y	N	6.4	4	N/A

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

* An additional 15 records of *Zanda sp. 'white-tailed black cockatoo'* (White-tailed black cockatoo) were recorded in the local area, which may comprise either of these species.

Appendix B Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p>Principle (a): "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p>Assessment: The area proposed to be cleared may contain habitat for conservation significant fauna including black cockatoo species.</p> <p>Noting the proposed clearing is restricted to trees over weeds, no conservation significant flora or vegetation communities will likely occur within the application area.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p>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."</p> <p>Assessment: Several conservation significant fauna have been recorded within the local area. The application area exhibits the habitat characteristics of at least 13 of the fauna, including the threatened species of black cockatoos. The application area comprises of jarrah and marri trees that provide foraging habitat for black cockatoo species.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p>Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The area proposed to be cleared is unlikely to contain threatened flora species. No threatened flora have been recorded within the application (DBCA, 2022a).</p>		
<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> The area proposed to be cleared does not contain species that indicate a threatened ecological community. The nearest threatened ecological community is located approximately 21 kilometres to the east of the application area. Given the distance and separation from the nearest occurrence, the proposed clearing is unlikely to comprise, or be necessary for the maintenance of a, TEC.</p>	Not 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> The extent of the mapped vegetation type and 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 not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No
<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> Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not at variance	No
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> Given no water courses or wetlands are recorded within the application area, the proposed clearing is not in an environment associated with a watercourse or wetland.</p>	Not at variance	No
<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> The mapped soils are highly susceptible to subsurface acidification. Noting the extent of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<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> Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<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>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Assessment:</u> Noting the mapped soils and topographic contours in the surrounding area and small extent of the proposed clearing, the proposed clearing is not likely to contribute to increased incidence or intensity of flooding or waterlogging.		

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.

Appendix D. Photographs of the vegetation in the application area along Bailup Road

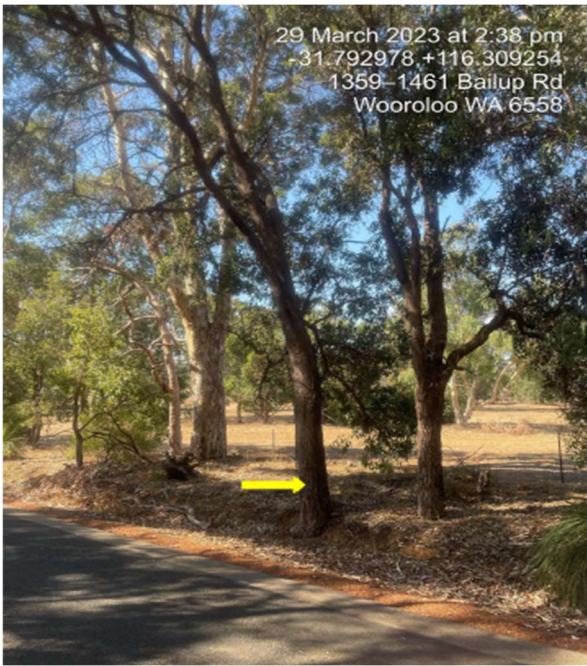


Figure 2. Photograph of tree proposed to be cleared at -31.792 +116.309 SLK 1.355 RHS (Shire of Mundaring, 2023)

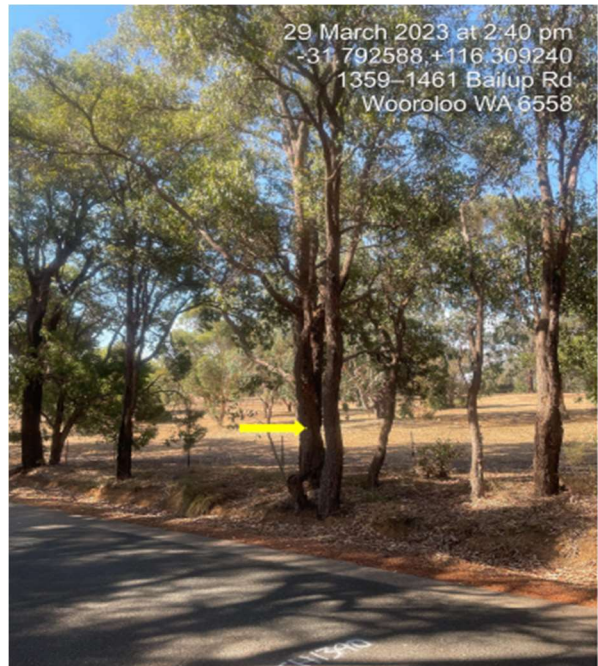


Figure 3. Photograph of tree proposed to be cleared at -31.792 +116.309 SLK 1.395 RHS (Shire of Mundaring, 2023)



Figure 4. Photograph of tree proposed to be cleared at -31.792 +116.309 SLK 1.460 LHS (Shire of Mundaring, 2023)



Figure 5. Photograph of trees proposed to be cleared at -31.791 +116.309 SLK 1.470 LHS (Shire of Mundaring, 2023)



Figure 6. Photograph of tree proposed to be cleared at -31.791 +116.309 SLK 1.500 LHS (Shire of Mundaring, 2023)



Figure 7. Photograph of trees proposed to be cleared at -31.791 +116.309 SLK 1.550 LHS (Shire of Mundaring, 2023)

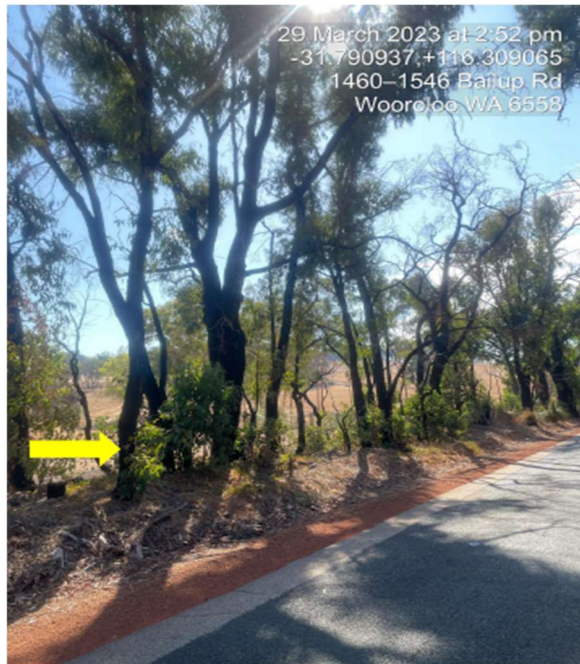


Figure 8. Photograph of tree proposed to be cleared at -31.790 +116.309 SLK 1.580 LHS (Shire of Mundaring, 2023)

Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from 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)
- 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
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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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