



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: CPS 9594/1  
File Number: DWERVT9566  
Duration of Permit: From 14 October 2023 to 14 October 2033

### PERMIT HOLDER

Mr Jeremy Van Hazendonk

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 12325 on Deposited Plan 203150, Boorara Brook

### AUTHORISED ACTIVITY

The permit holder must not clear more than 17.57 hectares of *native vegetation* within the areas 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 14 October 2025

#### 2. Type of clearing authorised – silviculture

The Permit Holder may only undertake the following activities within the area cross-hatched red on Figure 2 of Schedule 1:

- (a) *Clearing* of *understorey* where undertaken in association with the activities described under conditions 2(b), 2(c) and 2(d);
- (b) *Clearing* for the establishment of up to two *log landings* no larger than 0.05 hectares in size in total;
- (c) *Thinning* of karri (*Eucalyptus diversicolor*) trees;
- (d) *Culling* and burning of unsaleable trees; and
- (e) *Prescribed burning* of *understorey* on one occasion.

### 3. **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.

### 4. **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;
- (c) Restrict the movement of machines and other vehicles to the limits of the areas to be cleared;
- (d) Only move soils in *dry conditions*;
- (e) Where *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable soil disease status;
- (f) at least once in each 12-month period, the permit holder must remove or kill any *weeds* growing within the area cross-hatched red on attached Figure 2 on Schedule 1; and
- (g) prior to leaving the area cross-hatched red on attached Figure 2 on Schedule 1, the permit holder must clean earth-moving machinery of soil and vegetation.

### 5. **Vegetation management – silviculture**

In relation to *clearing* within the area hatched red on Figure 2 on Schedule 1, the following conditions must be adhered to:

- (a) *Thinning* activities undertaken in accordance with condition 2(c) of this permit must be performed by a *forestry operator*.
- (b) Operation of logging machinery used to undertake activities authorised under this Permit must only be performed during *dry conditions*.
- (c) Prior to undertaking any *clearing* authorised under this permit, an *environmental specialist* must determine the species composition, structure and density of the *understorey* of areas proposed to be *thinned*;
- (d) The Permit Holder must retain a minimum of five (5) *habitat trees* per hectare, where present;

- (e) Where five (5) *habitat trees* per hectare are not present within the area crosshatched red in Figure 2 of Schedule 1, the permit holder must retain a minimum of five (5) of the largest trees with the potential to become *habitat trees* per hectare within the area cross-hatched red in Figure 2 of Schedule 1.
- (f) Prior to undertaking any *clearing* authorised under this permit, the permit holder must provide locations of each *habitat tree* and potential *habitat tree* retained in accordance with conditions 5(d)-(e), recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings, to the CEO.
- (g) A minimum retention rate of 16 m<sup>2</sup>/ha *basal area* is required;
- (h) A minimum of one 30 metre diameter patch of *healthy understorey*, on average, per hectare authorised to be cleared within the area cross-hatched red in Figure 2 of Schedule 1, is required to be retained, preferencing *healthy representative understorey*, where present containing *suitable western ringtail possum habitat*;
- (i) On average, a minimum of one *ground habitat log* per hectare authorised to be cleared within the area cross-hatched red in Figure 2 of Schedule 1, is required to be retained;
- (j) The permit holder must remove all *woody fuels* present within a one (1) metre radius of each *habitat tree* and potential *habitat tree* (retained under conditions 5(d) - 5(e) of this Permit) and each *ground habitat log* (retained under condition 5(i) of this permit);
- (k) Prior to undertaking any *clearing* authorised under this Permit, the Permit Holder must exclude all *stock* from the areas subject to *thinning* activities;
- (l) Within 3 months of 14 October 2025, the Permit Holder must *rehabilitate* any *log landings* and *extraction tracks* established within native vegetation by scarifying the soil surface to reduce compaction and facilitate natural *regeneration*; and
- (m) Within two years of 14 January 2026, the Permit Holder must:
  - i) determine the species composition, structure and density of the *understorey* of areas subject to *thinning*; and
  - ii) where, in the opinion of an *environmental specialist*, there is evidence that *understorey* will not recover and develop towards its pre-clearing composition, structure and density determined under condition 5(c), the Permit Holder must undertake *remedial action* at an *optimal time* within the next 12 months to ensure re-establishment of *understorey* prior to expiry of this Permit.

## 6. Vegetation management – prescribed burning

The Permit Holder must ensure that any *prescribed burning* undertaken in accordance with condition 2(e) of this permit shall only occur:

- (a) Between late autumn and early summer in any year; and
- (b) During *suitable conditions*.

**7. Vegetation management – watercourse or wetland**

The Permit Holder shall not clear native vegetation within 30 metres of the riparian vegetation of any watercourse or wetland.

**8. Vegetation management – fencing**

- (a) Within 12 months of *clearing*, the permit holder must construct a fence along the perimeters of the area cross-hatched green on Figure 3 of Schedule 1.
- (b) Fences should allow for the movement of wildlife by being raised 15 centimetres from the ground.
- (c) Within one month of installing the above fences, the permit holder must notify the CEO in writing that the fencing has been completed.

**9. Directional clearing**

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

**10. Fauna management – habitat trees**

- (a) Prior to undertaking any *clearing* authorised under this permit, a *forestry operator* or *fauna specialist* must inspect all *habitat trees* within the area cross-hatched yellow in Figure 1 of Schedule 1 and demarcate any *habitat trees* containing hollows suitable for use by *black cockatoo species* or *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale), including the trees identified to contain suitable hollows for black cockatoos at the following locations:
  - Latitude -34.644942, Longitude 116.26705
  - Latitude -34.64556302, Longitude 116.267702
  - Latitude -34.64606501, Longitude 116.267919
  - Latitude -34.646653, Longitude 116.272852
  - Latitude -34.64429903, Longitude 116.270037
  - Latitude -34.64466004, Longitude 116.270127
- (b) The permit holder must not clear any *habitat trees* containing hollows suitable for use by black cockatoo species or *Phascogale tapoatafa wambenger* (southwestern brush-tailed phascogale) identified in accordance with condition 10(a) of this permit.
- (c) Prior to undertaking any clearing authorised under this permit, the permit holder must provide locations of each habitat tree and potential habitat tree retained in accordance with condition 10(b), recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings, to the CEO.

**11. Fauna management – western ringtail possums and south-western brush-tailed phascogales**

- (a) In relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area immediately prior to, and for the duration of clearing activities, for the presence of western ringtail possum(s) (*Pseudocheirus occidentalis*) and *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale).
- (b) Clearing activities must cease in any area where fauna referred to in condition 11(a) are identified until either:
  - (i) the western ringtail possum or south-western brush-tailed phascogale individual(s) has moved on from that area to adjoining *suitable habitat*; or
  - (ii) the western ringtail possum or south-western brush-tailed phascogale individual(s) has been removed by a *western ringtail possum specialist* or *fauna specialist* respectively.
- (c) Any western ringtail possum or south-western brush-tailed phascogale individual(s) removed in accordance with condition 11(b)(ii) must be relocated by a *western ringtail possum specialist* or *fauna specialist* respectively to a *suitable habitat*.
- (d) Where fauna is identified under condition 11(a), the permit holder must within 14 calendar days provide the following records to the *CEO*:
  - (i) the number of individuals identified;
  - (ii) the date each individual was identified;
  - (iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (iv) the number of individuals removed and relocated;
  - (v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;
  - (vi) the date each individual was removed;
  - (vii) the method of removal;
  - (viii) the date each individual was relocated;
  - (ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
  - (x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

**12. 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"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(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;</li> <li>(c) the date that the area was cleared;</li> <li>(d) the size of the area cleared (in hectares);</li> <li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 3; and</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 4;</li> <li>(g) actions taken to construct a fence along the perimeters of the area cross-hatched green on Figure 3 of Schedule 1 in accordance with condition 8; and</li> <li>(h) actions taken to manage and mitigate impacts to western ringtail possums and south-western brush tailed phascogale in accordance with condition 11.</li> </ul>
2.	In relation to vegetation management pursuant to condition 5	<ul style="list-style-type: none"> <li>(a) the name and qualifications of the <i>forestry operator</i> used to undertake <i>thinning</i>;</li> <li>(b) the environmental specialist's report documenting the species composition, structure and density of the understorey in accordance with condition 5(c);</li> <li>(c) for habitat trees retained in accordance with conditions 5(d) and 5(e): <ul style="list-style-type: none"> <li>(i) the species of each tree;</li> <li>(ii) the location of each tree, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings;</li> <li>(iii) a photograph of each tree; and</li> </ul> </li> </ul>

No.	Relevant matter	Specifications
		<p>(iv) the number per hectare of habitat trees retained;</p> <p>(d) monitoring undertaken to ensure that the specified minimum basal area is retained;</p> <p>(e) the locations of patches of healthy representative understorey vegetation retained, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings;</p> <p>(f) actions taken to remove woody fuels surrounding retained habitat trees, potential habitat trees and ground habitat logs in accordance with condition 5(j) of this Permit;</p> <p>(g) number of log landings established;</p> <p>(h) the location of log landings, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020/1994 (GDA94/2020), expressing the geographical coordinates in Eastings and Northings;</p> <p>(i) the date(s) the log landings and extraction tracks were rehabilitated in accordance with condition 5(l);</p> <p>(j) photographs of the understorey taken at one year, two years and three years after completing clearing authorised under this permit; and a detailed description of the nature and extent of any remedial actions undertaken in accordance with 5(m)(ii).</p>
3.	In relation to vegetation management pursuant to condition 6	(a) date(s) when the prescribed burning activities were undertaken.
4.	In relation to fauna management pursuant to condition 10	<p>(a) for habitat trees retained in accordance with conditions 10(b):</p> <p>(i) the species of each tree;</p> <p>(ii) the location of each tree, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020</p>



No.	Relevant matter	Specifications
		(GDA2020), expressing the geographical coordinates in Eastings and Northings; and  (iii) a photograph of each tree.

### 13. Reporting

- (a) The permit holder must provide to the CEO on or before 30 June of each year, a written report:
- (i) of records required under condition 8 of this permit; and
  - (ii) concerning activities done by the permit holder under this permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.
- (c) The permit holder must provide to the CEO, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 12 of this permit where these records have not already been provided under condition 13(a) of this permit.

## DEFINITIONS

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

**Table 2: Definitions**

Term	Definition
basal area	is the method of expression of tree cover density in an area where the total area of tree trunk, whose diameter over bark is measured at 1.3 metres above the ground, is expressed as square metres per hectares of land area.
black cockatoo species	means one or more of the following species: (a) <i>Zanda lateriosis</i> (Carnaby's cockatoo); (b) <i>Zanda baudinii</i> (Baudin's cockatoo); and/or (c) <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).
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.
culled/ing	means the selective removal and/or killing of unsaleable trees for thinning, using methods including notching, felling or machine pushing.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the



<b>Term</b>	<b>Definition</b>
	administration of the EP Act, which includes Part V Division 3.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species
dry conditions	means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches.
environmental specialist	means an external person with experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.
extraction tracks	means tracks along which trees felled by logging machinery are moved from the cutting site to a landing or roadside.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
forestry operator	means an external person with a minimum of 5 years of experience in conducting forestry activities to meet harvest and silvicultural standards required for native forest operations on lands managed by Department of Biodiversity, Conservation and Attractions.
ground habitat log	means a log with a minimum length of 3 metres and a minimum internal hollow diameter of 10 centimetres.
habitat trees	means trees that have a diameter, measured over bark at 1.3 meters from the base of the tree, of at least 70 centimetres for karri ( <i>Eucalyptus diversicolor</i> ) and of at least 50 centimetres for jarrah ( <i>Eucalyptus marginata</i> ), blackbutt ( <i>Eucalyptus patens</i> ) or marri ( <i>Corymbia calophylla</i> ), that contain or have the potential to develop hollows or roosts suitable for native fauna.
healthy representative understorey	means native understorey vegetation that is vigorous, free of disease, and has a similar species composition to typical pre-clearing understorey vegetation present within the area in which clearing is authorised.
log landing/s	means an area established for the purpose of stockpiling commercially harvested trees, to enable loading for collection.
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.
optimal time	means the period from April to June for undertaking <i>planting</i> .
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.

Term	Definition
prescribed burning	is the process of planning and applying fire to a predetermined area, under specific environmental conditions, to minimise the size and intensity of fire on life, property and critical infrastructure.
regenerate/ed/ion	means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing <i>mulch</i> .
rehabilitate/ed/ion	means actively managing an area containing <i>native vegetation</i> in order to improve the ecological function of that area.
remedial action/s	means for the purpose of this Permit, any activity that is required to ensure successful re-establishment of <i>understorey</i> to its pre-clearing composition, structure and density, and may include a combination of soil treatments and <i>revegetation</i> .
revegetate/ed/ion	means the re-establishment of a cover of <i>local provenance native vegetation</i> in an area using methods such as <i>natural regeneration</i> , <i>direct seeding</i> and/or <i>planting</i> , so that the species composition, structure and density is similar to preclearing vegetation types in that area.
riparian vegetation	has the meaning given to it in Regulation 3 of the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i> .
suitable conditions	mean conditions that have been determined by a Bush Fire Officer appointed under the <i>Bush Fires Act 1954</i> to be suitable to allow the burning of vegetation within the area authorised under this Permit to occur.
suitable habitat (southwestern brush-tailed phascogale)	means habitat known to support <i>Phascogale tapoatafa wambenger</i> (south-western brush-tailed phascogales), within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity.
suitable habitat (western ringtail possum)	means habitat known to support western ringtail possums ( <i>Pseudocheirus occidentalis</i> ) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint ( <i>Agonis flexuosa</i> ) dominated woodlands, jarrah ( <i>Eucalyptus marginata</i> ) and marri ( <i>Corymbia calophylla</i> ) forests, riparian vegetation with a canopy of Bullich ( <i>Eucalyptus megacarpa</i> ) or flooded gum ( <i>Eucalyptus rudis</i> ), karri ( <i>Eucalyptus diversicolor</i> ) forests, sheoak ( <i>Allocasuarina fraseriana</i> ) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
stock	means the horses, cattle, sheep, pigs and other non-indigenous grazing animals kept or bred on a property.
thinned/ing	describes a silvicultural activity to promote the growth of selected trees by reducing competition through the removal of smaller stems with consideration of tree spacing to maintain the overall structure and composition of the dominant overstorey species.
understorey	means, for the purpose of this Permit, all native vegetation that does not include trees to be <i>culled</i> or subject to harvest.
watercourse	has the meaning given to it in section 3 of the <i>Rights in Water and Irrigation Act 1914</i> .
weeds	means any plant –

Term	Definition
	(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
wetland	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.
western ringtail possum specialist	means a <i>fauna specialist</i> who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years of work experience in western ringtail possum ( <i>Pseudocheirus occidentalis</i> ) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
woody fuels	mean woody vegetative materials that have a diameter of 75 millimetres or greater and a length of 1 metre or greater.

---

**END OF CONDITIONS**




---

Jessica Burton  
 A/MANAGER  
 NATIVE VEGETATION REGULATION

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

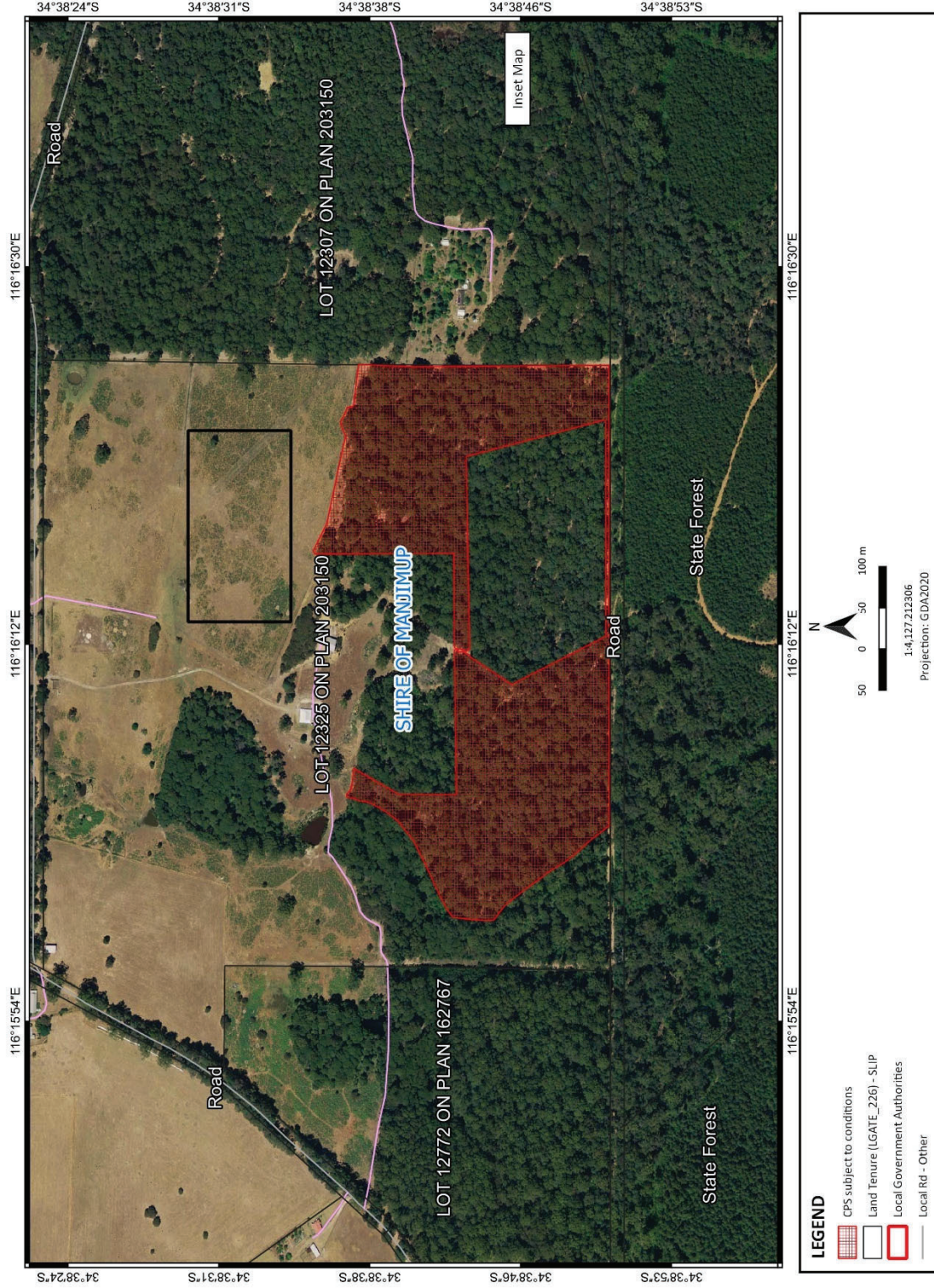
20 September 2023

# SCHEDULE 1



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





**Figure 2: Map of the boundary of area within which conditions apply**





**Figure 3: Map of the boundary of area within which conditions apply**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9594/1
<b>Permit type:</b>	Area permit
<b>Applicant name:</b>	Mr Jeremy Van Hazendonk
<b>Application received:</b>	7 February 2022
<b>Application area:</b>	17.57 hectares
<b>Purpose of clearing:</b>	Timber harvesting (silviculture), pasture and horticulture
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 12325 on Deposited Plan 203150
<b>Location (LGA area/s):</b>	Shire of Manjimup
<b>Localities (suburb/s):</b>	Boorara Brook

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area of 17.57 hectares (see Figure 1, Section 1.5). The applicant proposes to undertake broadscale clearing within a 4 hectare portion of this area for the purpose of grazing and horticulture, and propose to undertake silviculture within the remaining 13.57 hectares (refer to Figure 2, Section 1.5). Silvicultural clearing is limited to, as conditioned on the permit, the following:

- Thinning of karri (*Eucalyptus diversicolor*) trees;
- Clearing for the establishment of up to two log landings no larger than 0.05 hectares in size in total;
- Culling and burning of unsaleable trees;
- Clearing of understorey only where undertaken in association with the activities described above; and
- Prescribed burning on one occasion .

The application was reduced from an original clearing area of 28.01 hectares (see Figure 3, Section 1.5) during the assessment process. The changes included:

- Removal of a 4.54 hectare area of riparian vegetation associated with a mapped watercourse (refer to Section 3.1 for further information);
- Removal of a 5.54 hectare area dominated by marri trees (refer to Section 3.1 for further information);
- Removal of areas comprising approximately 0.36 hectares that have been previously cleared.

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	20 September 2023
<b>Decision area:</b>	17.57 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 two submissions were received. Consideration of matters raised in the public submissions is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Table G.1G.1), the findings of black cockatoo impact assessment and targeted fauna survey (Smithson Environmental, 2023), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing:

- is unlikely to result in significant impacts to conservation significant fauna species, including black cockatoo species, western ringtail possum (WRP), brush tailed phascogale and quokka;
- is unlikely to result in significant impacts to the epiphytic cryptogams of the karri forests (Cryptogams) Priority 3 ecological community.
- is unlikely to result in impacts to an ecological linkage;
- may result in an increased risk of spread of weeds and dieback to the nearby Shannon State Forest
- has low risks of wind erosion, water erosion and phosphorus export; and
- may result in soil compaction, which may in turn have impacts upon recovering vegetation in silviculture areas.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the risks of the proposed clearing identified above can be minimised and managed such that they are to unlikely lead to an unacceptable risk to environmental values, and that the applicant has suitably demonstrated avoidance and minimisation measures.

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

- Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to fauna individuals;
- Retention of trees containing suitable hollows for black cockatoos and brush-tailed phascogales;
- Inspection of vegetation for brush-tailed phascogales and WRP prior to clearing;
- In silviculture areas:
  - Retention of a minimum of 16 metres squared per hectare basal area;
  - Retention of patches of healthy understorey;
  - Retention of ground habitat logs;
  - Retention of a minimum of five habitat trees per hectare;
  - Operation of logging machinery must only be performed during dry conditions to reduce the likelihood of compaction
  - Rehabilitation of any log landings and extraction tracks established within native vegetation by scarifying the soil surface to reduce compaction and facilitate natural regeneration.
  - Conditions to ensure recovery of understorey vegetation;
- No clearing to occur within 30 metres of the riparian vegetation of any watercourse or wetland.



# Clearing Permit Decision Report

## 1.5. Site maps



Figure 1. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



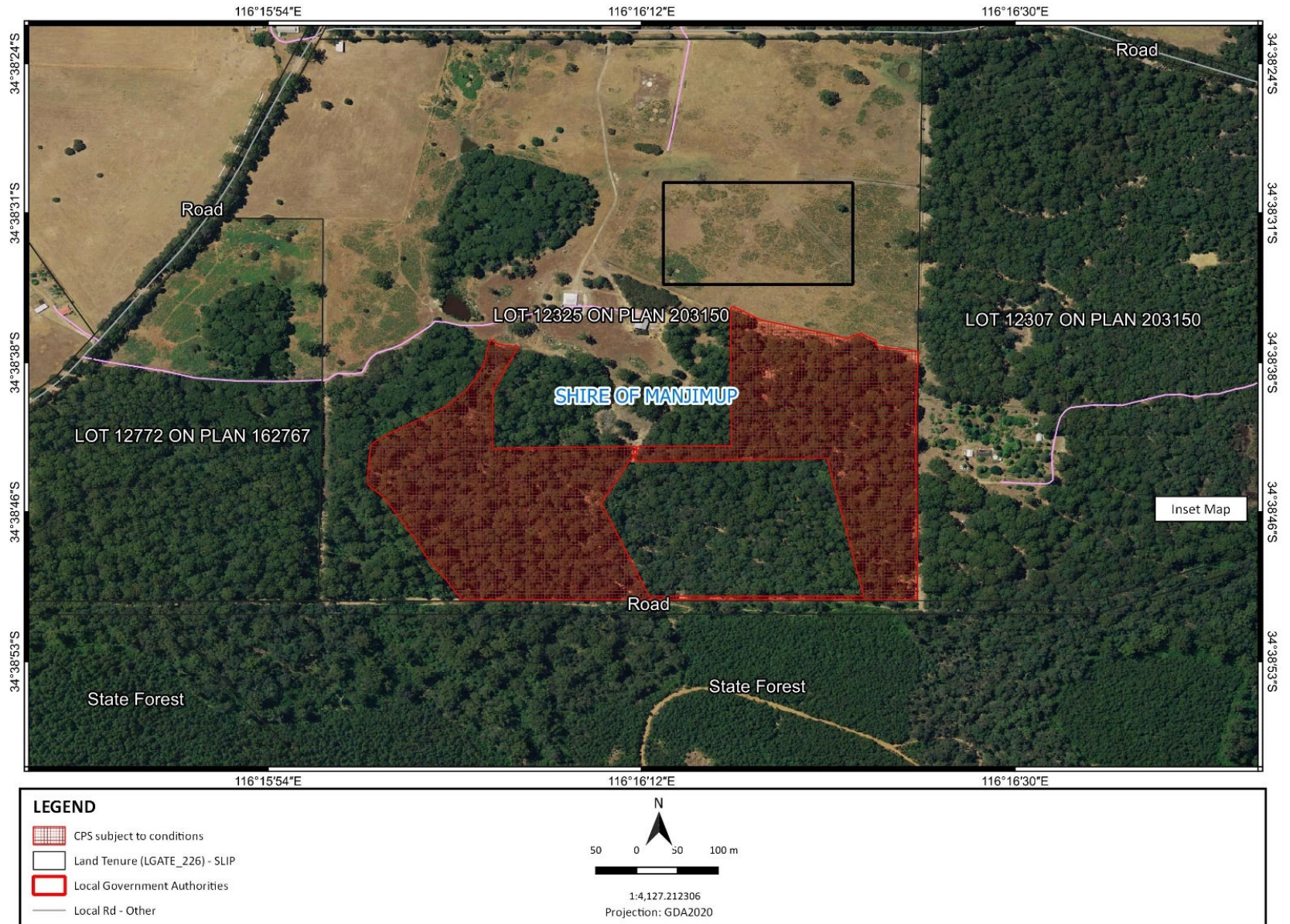


Figure 2. The areas crosshatched red indicate the areas where only silviculture is permitted to occur under the granted clearing permit.





# Clearing Permit Decision Report

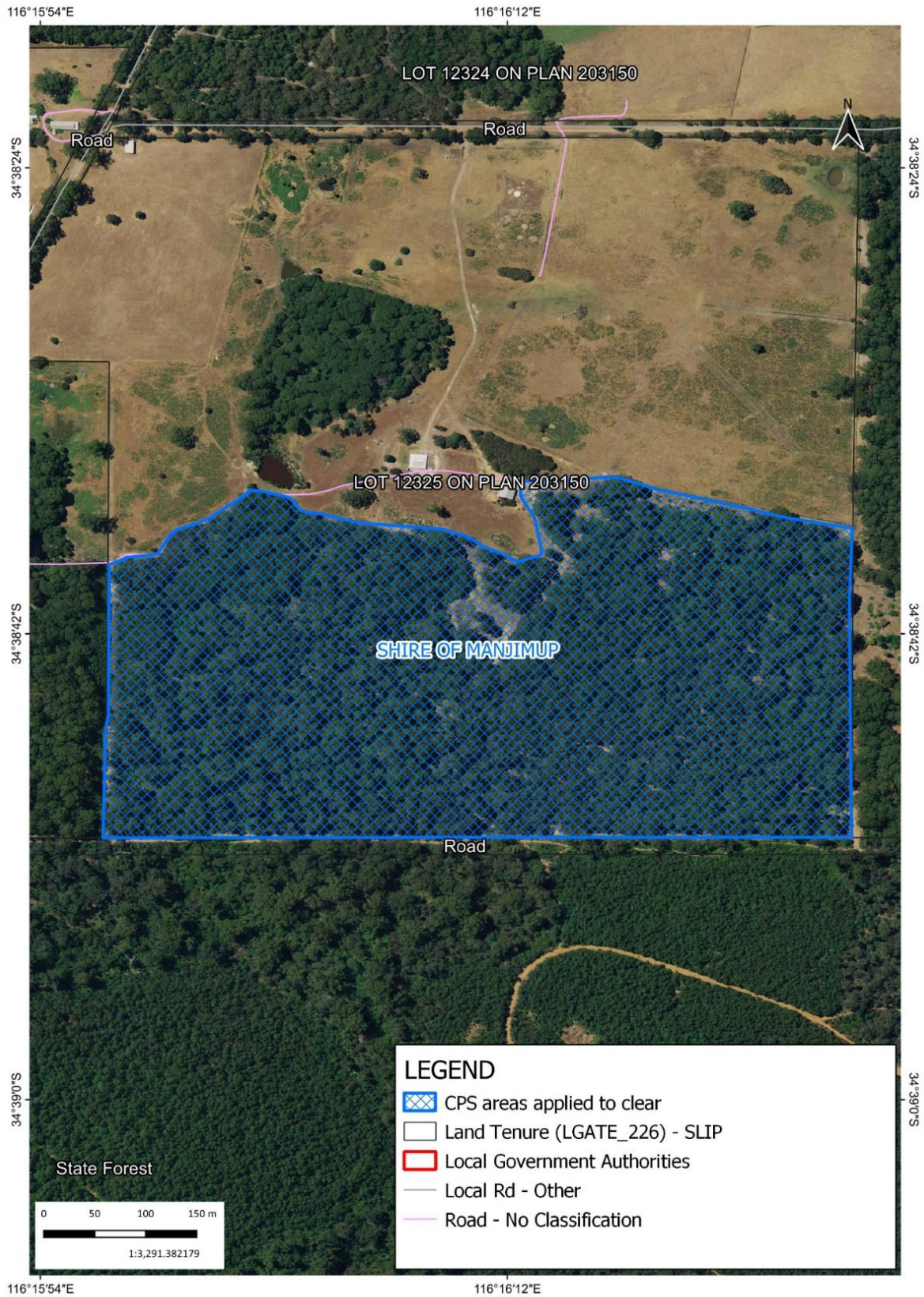


Figure 3. The area crosshatched blue indicates the area originally applied to be cleared.

## 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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016).

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

In the supporting documentation provided with their application (Van Hazendonk, 2022), the applicant advised the following in regard to avoidance and mitigation measures considered for silviculture in their original 28.01 hectare application area:

- At least five habitat trees will be retained per hectare;
- Any trees with hollows suitable for black cockatoos will be retained;
- A crop tree basal area of 15 metres square per hectare will be retained ;
- Tops disposal will occur; and
- Log landings no greater than 300 meters squared will be created, and will be rehabilitated.
- They wish to undertake silvicultural thinning within the application area as this vegetation is very close to their house to help create a fuel reduced buffer around the house.

During the validation stage for this clearing permit the applicant clarified that initially wanted to clear for silviculture, then progressively clear the majority of the application area such that it could be used for grazing and horticulture (i.e. broadscale clearing), and in regards to this level of clearing they advised that:

- “Parkland clearing” would take place (i.e. some larger trees would be left); and
- Some other areas would be left as nature strips.

Following DWER’s assessment of the environmental values within the application area, the applicant agreed to remove the following areas from the original 28.01 hectare application area to reduce impacts to these values:

- 4.54 hectare area of riparian vegetation within 50 metres of a mapped watercourse in the western portion of the property (Figure 4), to minimise impacts to this watercourse and flora and fauna associated with it.
- 5.54 hectare area dominated by marri trees (based upon data Smithson Environmental, 2023 (refer to Figure F-8, Appendix F) (Figure 5), to minimise impacts to high quality black cockatoo foraging habitat.

Furthermore, the applicant agreed to the following conditions to be placed on the permit to further mitigate impacts to environmental values:

- No clearing to take place within 30 metres of riparian vegetation, to protect any riparian vegetation that may be outside of the 4.54 hectare area of riparian vegetation removed from the application area;
- Fencing of the 5.54 hectare marri dominated area removed from the application area to ensure stock are excluded;
- Broadscale clearing can only be undertaken within a 4 hectare area in the northern extent of the remaining application area, with only silviculture to take place within the remaining 13.57 hectares (refer to Figure 1);
- Retention of all habitat trees containing hollows suitable for use by black cockatoo species or brush-tailed phascogale, including six such trees identified in a fauna survey (Smithson, 2022), to reduce impacts to these species;
- The following conditions within the silviculture areas:



- Retention of a minimum of five habitat trees per hectare (or two of the largest trees present if habitat trees are not present)
- Retention of a minimum basal area of 16 metres square per hectare;
- Retention of a minimum of one 30 metre diameter patch of healthy understorey, on average, per hectare;
- Retention of a minimum of one ground habitat log per hectare;
- Removal of woody fuels surrounding habitat trees and ground habitat logs to protect these features should a bushfire occur;
- Operation of logging machinery is to only be undertaken during dry conditions to minimise land degradation;
- Rehabilitation of soils within log landings and extraction tracks to reduce compaction and facilitate regeneration of vegetation;
- Monitoring of understorey to ensure it recovers to pre-clearing condition, and if not, rehabilitation of understorey;
- Thinning activities are to be undertaken by a suitably experienced forestry operator;
- Conditions placed to mitigate impacts to breeding black cockatoos, brush-tailed phascogales and western ringtail possums that may be present during the clearing; and
- Weed and dieback management conditions.

Following 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.



Figure 4. Original 28.01 hectare application area (blue-hatched area), mapped watercourse (light blue line) and surrounding vegetation buffer (brown area) removed from the original application area.





Figure 5. Original 28.01 hectare application area (blue-hatched area) and area of vegetation dominated by marri (grey area) removed from this area and required to be fenced as a condition of the permit.

### 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 risk of impacts of the proposed clearing present to biological values (flora and fauna), significant remnant vegetation and conservation areas, and land and water resources required further consideration. 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

Impacts of the following conservation significant fauna species recorded within the local area required further consideration:

- *Zanda baudinii* (Baudin's cockatoo) (Endangered)
- *Zanda latirostris* (Carnaby's cockatoo) (Endangered)
- *Calyptorhynchus banksia naso* (forest red-tailed black cockatoo) (Vulnerable)
- *Pseudocheirus occidentalis* (western ringtail possum, ngwayir) (Critically Endangered)
- *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale, wambenger) (Conservation Dependent)
- *Setonix brachyurus* (Quokka) (Vulnerable)

##### **Black cockatoos**

Baudin's cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo (hereafter referred to as black cockatoo species) all forage upon *Eucalyptus diversicolor* (karri), *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), *Allocasuarina* species (sheoak) and *Banksia* species found within the application area, to differing extents (DAWE, 2022). While no known roosting and breeding sites have been recorded within a distance from the application area in which black cockatoos are likely to forage from, there may be black cockatoo breeding and roosting sites locally that have not been documented, and evidence of marri nut foraging (from forest red-tailed black cockatoos) was



found within the application area (Smithson Environmental, 2023). As such, the application area contains vegetation that is considered likely to be used as foraging habitat by black cockatoo species.

It is noted that, of the tree species present, only karri is permitted to be cleared under this permit in the 13.57 hectare silviculture area. Clearing of all vegetation species is permitted within the 4 hectare broadscale clearing area, however this area is dominated by karri, with no marri, jarrah or sheoak trees with a diameter larger than 50 centimetres present within this area (Smithson Environmental, 2023), and as such minimal impacts to foraging species other than karri are expected from the proposed broadscale clearing. Karri is not considered to be a preferred food resource by black cockatoos (Department of Environment and Conservation, 2008; DAWE, 2022; Valentine and Stock, 2008) and is likely to be used primarily when other foraging sources are not available. Given that 68.16 per cent of vegetation remains within the local area, a large proportion of which is within land managed by DBCA and is likely to be dominated by karri, it is not considered that the proposed clearing is likely to significantly limit the amount of karri vegetation available for foraging in the context of the local area. Noting this, and that clearing of other foraging species will be minimal, it is considered that the proposed clearing is unlikely to significantly impact foraging habitat for black cockatoo species.

The application area is within the breeding range of Baudin's cockatoo and forest-red tailed black cockatoo (DAWE, 2022), and both of these species nest in suitable hollows in live or dead trees with a diameter at breast (DBH) height of greater than 50 cm, including within karri, marri and jarrah trees (DAWE, 2022). The application area contains six trees identified to contain suitable hollows for breeding (Smithson Environmental, 2023). A condition will be placed on the permit to retain all of these trees. Furthermore, given that Smithson Environmental (2023) noted that there was a possibility that some trees with suitable hollows may not have been detected in the survey, a condition has been placed on the permit requiring that all potential habitat trees (defined by DAWE (2022) as trees of suitable species to develop hollows with a diameter at breast height of 50 centimetres or greater) are inspected by a fauna specialist or forestry operator prior to clearing, and any other such trees identified to contain suitable hollows must also be retained. These conditions will ensure that there are no significant impacts to current black cockatoo breeding habitat. It is acknowledged that it is also important to retain potential habitat trees, as these provide future breeding habitat for black cockatoo species. While some potential habitat trees will be cleared under this permit, a condition will be placed on the permit requiring that at least five potential habitat trees will be retained within the 13.57 hectare silvicultural clearing area, which is considered adequate in the context of the highly vegetated local area.

Although no roosting activity was noted within the application area by Smithson Environmental (2023), large *Eucalyptus* and marri trees within the application area are likely to provide roosting habitat for black cockatoo species (DAWE, 2022). However, noting that the local area is highly vegetated, it is considered that the proposed clearing would not significantly impact the availability of black cockatoo roosting habitat within the context of the local area.

### **Western ringtail possum**

Key management zones have been identified for western ringtail possum (WRP), which are areas that currently support or previously have supported large numbers of WRP, although WRP can still occur outside of these areas (DPAW, 2017). While the application area is outside any of these identified management zones, it is closest to the southern forest management zone, where WRP can inhabit karri forest (DPAW, 2017). Habitat critical to the survival of WRP within this zone 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 incidence of fragmentation (DPAW, 2017). Although the application area may provide suitable habitat for WRP, noting that fox activity was recorded within the application area (Smithson Environmental, 2023), that no WRP or evidence of WRP activity was noted by Smithson (2023) and that there is only one historical record of WRP within the local area (i.e. no recent records are present), the application area is not considered likely to provide significant habitat for WRP. Conditions placed on the permit (see below) will mitigate impacts to any WRP that may be present within the application area as well as WRP habitat.

### **Brush tailed phascogale**

Southwestern brush-tailed phascogale inhabit dry sclerophyll forests and open woodlands that contain hollow bearing trees but a sparse groundcover (DEC, 2012b), including karri forest (Bradshaw, 2015). While southwestern brush-tailed phascogale have been identified within the application area (Smithson Environmental, 2023), noting the following the clearing is unlikely to significantly impact the conservation status of this species,

- the presence of extensive native vegetation in the vicinity of the application area, including within lands managed by DBCA for conservation.
- That, noting their habitat requirements, the 13.57 hectare silviculture clearing area will still contain habitat suitable for southwestern brush-tailed phascogale after clearing;
- Conditions to be placed on the permit to mitigate impacts to fauna habitat (see below), most notably that all habitat trees containing hollows suitable for use brush-tailed phascogales will be retained.

A condition requiring that all trees are inspected for southwestern brush tailed phascogale prior to clearing (and individuals managed appropriately) will mitigate impacts to individuals of this species that may be present.

## **Quokka**

Quokka most commonly inhabit jarrah, marri and karri forests or riparian habitats with sedge understorey in the southwest of Western Australia, with a known range that encompassed the application area (DEC, 2013). The quokka has relatively high water requirements, which necessitates close proximity to fresh water throughout the year, hence, the species is often present in riparian and swamp habitat (Hayward et al. 2005), however, the feeding ecology of quokkas frequently results in their use of habitat beyond riparian zones (DBCA, 2023). As such, although mapped watercourses (and vegetation within 50 metres of these) have been excluded from the application area, it is possible that quokka may utilise other vegetation within the application area. However, the vegetation present within the application area is not considered likely to provide significant habitat for quokka, particularly when considering the highly vegetated local area. Conditions placed on the permit (see below) will mitigate impacts to any quokka that may be present within the application area as well as their habitat.

## Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to conservation significant fauna species, including black cockatoo species, western ringtail possum, brush tailed phascogale and quokka, given the nature of the clearing as conditioned on the permit. Conditions placed on the permit will mitigate impacts to individuals of these species present.

## 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 fauna individuals;
- Retention of trees containing suitable hollows for black cockatoos and brush-tailed phascogales will protect individuals and habitat of these species;
- Inspection of vegetation for brush-tailed phascogales and WRP prior to clearing will prevent impacts to any individuals of these species that may be present;
- In silviculture areas:
  - Retention of a minimum of 16 metres squared per hectare basal area;
  - Retention of patches of healthy understorey;
  - Retention of ground habitat logs;
  - Retention of a minimum of five habitat trees per hectare; and
  - Conditions to ensure recovery of understorey vegetation.

## **3.2.2. Biological values (flora) - Clearing Principle (a)**

### Assessment

The epiphytic cryptogams of the karri forests (Cryptogams) Priority 3 ecological community (PEC) is known to comprise liverworts, mosses and lichens found on the bark of mature (plants greater than 15 years old and prior to senescence at about age 50) of *Trymalium odoratissimum* subsp. *odoratissimum* and *Chorilaena quercifolia* in the karri forest of south-west Western Australia (DBCA, 2023). These communities occur in typically long unburnt pockets in the forest, usually in situations where high soil moisture and local high atmospheric humidity persists for most of the year along creek systems, valley, riparian zone and associated upper slopes (DBCA, 2023). Noting the presence of suitable habitat, including the presence of *Trymalium odoratissimum* and *Chorilaena quercifolia* (Smithson Environmental, 2023), this PEC may occur within the application area. However, noting that riparian vegetation has been excluded from the clearing area and that clearing of vegetation within 30 metres of riparian vegetation is not permitted as a condition of the permit, the likelihood of this community being impacted by the clearing is reduced. Furthermore, it is noted that only karri silviculture will occur within the majority of the application area (13.57 hectares), and a condition has been placed on the permit to ensure that understorey is to recover and develop towards its pre-clearing condition. This will help mitigate any impacts to this PEC within the silviculture area, should it be present. Noting the above, the proposed clearing is considered unlikely to significantly impact upon the conservation status of this PEC.

### Conclusion

Based on the above assessment, and noting the conditions placed on the permit below, the proposed clearing is unlikely to result in significant impacts to the epiphytic cryptogams of the karri forests (Cryptogams) Priority 3 ecological community.

### Conditions

The following management measures will be required as conditions on the clearing permit:

- No clearing to occur within 30 metres of the riparian vegetation of any watercourse or wetland;
- Conditions to ensure recovery of understorey vegetation within silviculture areas.

### **3.2.3. Conservation areas - Clearing Principles (e) and (h)**

#### Assessment

The application area is within an ecological linkage axis line (147) mapped within the South West Regional Ecological Linkages (Molloy et al, 2009). Ecological linkage axis lines are used to identify the whole of patches of remnant vegetation that have edges which touch or come within a nominated proximity of the linkage (Molloy et al, 2009). Noting that extensive areas of native vegetation are present adjacent to the application area, much of which are within the conservation estate, the proposed clearing is not considered likely to compromise this linkage. It is also noted that the majority of the application area be cleared for silviculture only, with some trees retained and any impacted understorey expected to recover, and these areas will still be able to act as a corridor for wildlife and maintain other ecosystem values.

The application area is approximately 20 metres north of the Shannon State Forest. While the Shire of Manjimup already require a firebreak to be maintained between the property containing the application area and the Shannon State Forest boundary, the proposed further clearing may increase the likelihood of the spread of dieback and weeds to the Shannon State Forest. Weed and dieback management conditions placed on the permit are expected to mitigate these impacts.

#### Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in impacts to an ecological linkage. The proposed clearing may result in an increased risk of spread of weeds and dieback to the nearby Shannon State Forest, however these risks will largely be mitigated by the below weed and dieback management conditions placed on the permit.

#### Conditions

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

- Earth-moving machinery to be cleaned of soil and vegetation prior to entering and leaving the area to be cleared;
- Permit holder to ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared;
- Movement of machines and other vehicles to be restricted to the limits of the areas to be cleared;
- Soils can only be moved in dry conditions;
- Where dieback or weed-affected soil, mulch, fill, or other material are to be removed from the area to be cleared, it can only be transferred to areas of comparable soil disease status; and
- At least once in each 12-month period, the permit holder must remove or kill any weeds growing within the area to be cleared for silviculture.

### **3.2.4. Land and water resources - Clearing Principle (g)**

#### Assessment

Advice provided from the Commissioner of Soil and Land Conservation (2022) indicates that soils within the application area may be at risk of wind erosion, water erosion and phosphorus export, particularly in the steeper southern portions of the application area, however that these risks are minor and can be managed. Noting that silviculture is proposed in the majority of the application area, including within its southern and eastern extents, and hence a large proportion of native vegetation will remain and be allowed to re-establish in these areas, it is considered that the risks of wind erosion, water erosion and phosphorus export from the proposed clearing are relatively low.

The movement of heavy harvesting machinery can result in soil disturbance and compaction, particularly during wet conditions (Smolinski and Kuswardiyanto, 2007). Soil compaction is likely to be most severe where log landings and extraction tracks have been established (Whitford and Mellican, 2001). Soil compaction may result in detrimental impacts to plant growth and other ecosystem processes. The effects of compaction and mixing of soil profiles can be prevented by restricting machine activity during moist soil conditions (DPAW, 2014). Conditions placed on the permit to restrict operation of logging machinery to dry conditions and require rehabilitation of log landings and extraction tracks will prevent impacts to recovering vegetation from harvesting machinery.

## Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in low risks of wind erosion, water erosion and phosphorus export. Harvesting machinery may result in soil compaction, which may in turn have impacts upon recovering vegetation in silviculture areas, however these risks can be mitigated through conditions placed on the permit.

## Conditions

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

- Within silviculture areas, operation of logging machinery must only be performed during dry conditions to reduce the likelihood of compaction; and
- Within silviculture areas, the Permit Holder must rehabilitate any log landings and extraction tracks established within native vegetation by scarifying the soil surface to reduce compaction and facilitate natural regeneration.

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

The Shire of Manjimup (2022) advised DWER that the application area is zoned by Local Planning Scheme No. 4 as "Priority Agriculture" and planning approval for clearing of vegetation is not required. The Shire of Manjimup (2022a) also noted that silvicultural thinning does not require local government planning approval, and did not have any objections to the proposed clearing.

In accordance with the *Biodiversity Conservation Act 2016*, a Private Land Supplier's Licence is required where flora (including native timber) is taken from private land and is to be sold either directly to the public or to a flora wholesaler or timber mill (for the native timber and firewood industry). The applicant has been made aware of the requirement for this licence.

No Aboriginal Sites of Significance have been mapped within the application area, although four Sites are present within a 20 kilometre radius. It is the permit holder's responsibility to comply with the *Aboriginal Cultural Heritage Act 2021 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

**End**

## Appendix A. Additional information provided by applicant

During the assessment of this clearing permit application, the following information, additional to that provided at the application stage, was provided.

Summary of comments	Consideration of comment
Black Cockatoo Impact Assessment and Targeted Survey for Presence of Brush-Tailed Phascogale ( <i>Phascogale tapoatafa wambenger</i> ) (Smithson Environmental, 2023) was provided following a request from DWER	Considered in Table C.1 and further in Section 3.2.1
Discussions held with the consultant that conducted the above survey (Smithson, 2023)	Considered in Table C.1 and further in Section 3.2.1

## Appendix B. Details of public submissions

Concerns raised in two public submissions received for this clearing permit (Submission 2022a and 2022b) are summarised below.

Summary of comments	Consideration of comment
Noting the applicant's concerns regarding fire risk to their house stated in their application, perhaps the applicant should not have chosen to live in this location	Whether or not the applicant has chosen to live in this location is not a relevant matter for this permit. Noting that the environmental impacts of the clearing are considered able to be suitably managed through conditions on the permit and avoidance and minimisation measures have been sufficiently considered, it is considered that the proposed clearing can be justified.
It is unclear whether this proposed clearing was referred at the federal level; the permit application seems to indicate that this has not occurred	The applicant has been advised that any action that has, will have or is likely to have a significant impact on any matters of national environmental significance (MNES) will require approval from Department of Climate Change, Energy, the Environment and Water under the EPBC Act. It is the proponent's responsibility to ensure that they comply with the EPBC Act and refer any actions that may impact MNES.
It was not clear in the application whether other foraging species for black cockatoos, such as marri or jarrah, are present and will be cleared.	The black cockatoo habitat survey confirmed that marri trees were present throughout the application area, but largely confined to a 5.5 hectare area that was subsequently removed from the application area. Some jarrah trees also present within this area. Marri and jarrah trees in the silviculture area are not permitted to be cleared as a condition of the permit. No marri or jarrah trees with a diameter of 50 centimetres or greater are present within the broadscale clearing area.
Insufficient information was provided in the application to enable the public to assess the quality of black cockatoo habitat. Flora and fauna assessments and, if required, targeted black cockatoo habitat assessments should occur.	In order for the department to accept a clearing permit application, it does not need to include information about the vegetation or flora or fauna surveys. Should it be determined that surveys are warranted in order to undertake a clearing permit assessment, these will be requested during the assessment stage. It is acknowledged that a lack of available information at the time of advertising a clearing permit for public comment may create some difficulties for the public when submitting comments. However, it is noted that surveys can create a financial burden upon applicants that may not be necessary. In the instance of this clearing permit, the applicant was asked to provide a

Summary of comments	Consideration of comment
	black cockatoo habitat assessment during the assessment of this application, however flora surveys were not deemed necessary noting the clearing was unlikely to impact conservation significant flora.
<p>Any black cockatoo habitat assessment required should:</p> <ul style="list-style-type: none"> <li>Account for the fact that not all suitable black cockatoo breeding hollows are likely to be observable from ground level</li> <li>Inspect larger hollows for signs of use (recent or otherwise).</li> <li>Be undertaken at appropriate seasons/ times of year to have the best chance of capturing use of the site by different species</li> </ul>	<p>The black cockatoo habitat assessment (Smithson Environmental, 2023) identified that nest holes were likely to have been underestimated due to height of the extant tree canopy. As such, a condition has been placed on the permit requiring that a forestry operator or fauna specialist must inspect all trees with suitable diameter to develop hollows, and that any trees with hollows must not be cleared.</p> <p>Noting the above, the black cockatoo habitat assessment may not have been adequate to identify where hollows have been used by black cockatoos, however, no trees with any suitable hollows (regardless of whether or not they area used) can be cleared as a condition of the permit.</p> <p>Noting the black cockatoo habitat management conditions to be placed on the permit, it is considered that the black cockatoo habitat adequately characterised the use of the area by black cockatoo species.</p>
<p>Concerns regarding silviculture operations as described in application:</p> <ul style="list-style-type: none"> <li>Applicant has stated in application that they want to retain habitat trees, however also that they want to undertake progressive silvicultural operations and eventually clear-fell – this would result in the removal of hollow bearing trees</li> <li>Applicant has discussed a silvicultural regime involving multiple thinning operations and eventual clear-felling and described this as “the normal cycle for productive karri forest” – that time cycle is far too short to give a ‘productive forest’ with respect to sustaining Western Australia’s threatened biodiversity.</li> </ul>	<p>This permit only authorises the silvicultural clearing to the extent and within the timeframe as allowed in the permit conditions. This permit does not allow any clearing of trees containing suitable breeding hollows for black cockatoos. Any future silvicultural clearing would need to undergo a new assessment process which would have regard to available knowledge at the time of assessment.</p>
<p>The application area provides habitat for black cockatoo species, and black cockatoo numbers are in decline due to loss of habitat. As such this clearing should be avoided or:</p> <ul style="list-style-type: none"> <li>Minimised, including retention of species providing foraging habitat such as jarrah, marri and other foraging sources;</li> <li>Effective mitigation measures should be put in place to ensure no net habitat loss occurs within appropriate timeframes. Mitigation measures should compensate adequately for actual habitat loss (e.g. reveg for foraging habitat, artificial hollows)</li> </ul>	<p>The department acknowledges that the application area contains habitat for black cockatoo species, however as discussed in Section 3.2.1 it considers that, following avoidance and minimisation measures and conditions required on the permit, including retention of most marri and jarrah trees and all suitable breeding trees within the original application area, the clearing will not result in unacceptable risks to black cockatoo foraging or breeding habitat and will not require revegetation offsets or artificial hollows.</p>
<p>Cumulative and impacts to black cockatoos should be considered:</p> <ul style="list-style-type: none"> <li>Loss of black cockatoo habitat, including breeding, foraging and corridor habitat, is occurring through multiple small clearing impacts</li> </ul>	<p>The department acknowledges that clearing of black cockatoo habitat needs to be considered in the context of cumulative impacts to habitat across the southwest. However, as considered in Section 3.2.1, the foraging habitat to be cleared largely consists of karri vegetation, which is considered a secondary foraging source and plentiful in the local area, and noting the</p>

Summary of comments	Consideration of comment
<ul style="list-style-type: none"> <li>• There are other contributing impacts (climate change, more frequent and hotter prescribed burns and wildfires) to black cockatoo habitat</li> <li>• Risks posed to black cockatoos from cumulative habitat loss appears to be greatly under-appreciated</li> </ul>	<p>conditions relating to breeding habitat placed on the permit, the clearing is considered unlikely to lead to unacceptable risks to black cockatoo foraging and breeding habitat in the context of the local area. Impacts to ecological corridors have been considered in Section 3.2.3 and are also considered to be acceptable.</p>
<p>Other concerns regarding clearing of black cockatoo habitat:</p> <ul style="list-style-type: none"> <li>• Black cockatoo habitat in the application area should not be considered less important due to the presence of surrounding public forests, especially noting the level of prescribed burning occurring in DBCA managed lands</li> <li>• 28 hectares is a large amount of foraging habitat to be cleared.</li> <li>• Any remaining hectares of foraging vegetation (particularly in breeding areas, as is the case here), may be critical for the persistence of the flocks that depend on them.</li> </ul>	<p>Following discussions with the department, the applicant agreed to a reduced application area of 17.55 hectares, in which only 4 hectares will be broadscale clearing of predominantly karri, and the remainder will be karri silviculture. While the department acknowledges that all remaining habitat plays a role in black cockatoo survival, as discussed in Section 3.2.1, karri is considered a secondary foraging source, and while it is used when other sources of foraging is not available, it is not considered to be limited within the local area. As such the department considers that the clearing will not result in unacceptable risks to foraging habitat for black cockatoo flocks in the local area.</p>
<p>Noted that applicant intends to retain habitat trees and trees with suitable hollows, however concern that would need to be undertaken by trained experts to actually occur</p>	<p>A forestry operator, defined as a person with a minimum of 5 years of experience in conducting forestry activities to meet harvest and silvicultural standards required for native forest operations on lands managed by Department of Biodiversity, Conservation and Attractions, is required to mark out habitat trees required to be retained under this permit. Furthermore, all habitat trees are required to be inspected by either a forestry operator or fauna specialist to determine whether they contain hollows suitable for use, and any such trees must be retained. It is considered that the persons required to undertake these actions would be suitably trained and experienced to adequately identify and retain habitat.</p>
<p>Importance of retaining all trees with large hollows wherever possible, and if these cannot be retained, then mitigation should involve the installation nearby of replacement nest boxes</p>	<p>As discussed in Section 3.2.1, all trees with suitable breeding hollows will be retained as a condition of the permit.</p>
<p>In addition to trees providing current breeding habitat, retention of trees providing future breeding habitat should be considered.</p>	<p>The applicant is required to retain a minimum of five habitat trees per hectare in the area in which only karri silviculture is permitted. Noting that there have only been four trees with current suitable hollows identified within this area, most of these trees to be retained comprise future breeding habitat.</p>
<p>Concern regarding at the applicant's comment: "Please note that we do not believe that an expensive black cockatoo habitat tree survey is necessary given the silvicultural prescription outlined". This may indicate they may be likewise unsupportive of the need for offsets to mitigate the impacts of their removal of habitat.</p>	<p>The applicant commissioned a black cockatoo survey as requested by the department.</p>



## Appendix C. Site characteristics

### C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is surrounded by native vegetation (although with areas that appear to be managed for timber production) to the west, south and east and largely cleared land to the north.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 68 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area is within a Linkage (147) mapped within the South West Regional Ecological Linkages (Molloy et al, 2009).
Conservation areas	Shannon State Forest is immediately south of the application area. Jane National Park is approximately 540 m northwest of and Boorara-Gardner National Park is approximately 700 m southwest of the application area.
Vegetation description	<p>A site inspection conducted by Department of Primary Industries and Regional Development officers (CSLC, 2022) and fauna survey conducted by Smithson Environmental (2023) indicates that vegetation within the application area consists of a tall forest of <i>Eucalyptus diversicolor</i> (karri) with a dense understorey of karri forest species including <i>Agonis flexuosa</i> (peppermint), <i>Banksia</i> spp. and <i>Allocasuarina</i> (sheoak) spp.. Occasional <i>Corymbia calophylla</i> (marri) and Warren River cedar (<i>Taxandria juniperina</i>) (towards the western extent of the application area) are also present (Smithson Environmental, 2023). Photographs are available in Appendix F</p> <p>This is partially consistent with the mapped vegetation types:</p> <ul style="list-style-type: none"> <li>• Collis, COd (59) in the eastern portion, which is described as Tall open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i>-<i>Banksia grandis</i> on saddles between hills in the perhumid zone (Mattiske and Havel, 1998).</li> <li>• Granite Valleys, Vh2 (285) in the western portion, which is described as Tall open forest of <i>Eucalyptus diversicolor</i>-<i>Eucalyptus patens</i> on slopes with <i>Agonis flexuosa</i>-<i>Allocasuarina decussata</i> -<i>Callistachys lanceolata</i> on valley floors in hyperhumid and perhumid zones.</li> </ul> <p>The mapped vegetation types retain approximately 68 and 84 per cent respectively of their original extents (Government of Western Australia, 2019).</p>
Vegetation condition	<p>A fauna survey conducted by Smithson Environmental (2023) indicates the vegetation within the proposed clearing area is largely in Excellent to Pristine (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>• Pristine: Pristine or nearly so, no obvious signs of disturbance.</li> <li>• Excellent: Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.</li> </ul> <p>Smithson Environmental (2023) noted that the presence of scattered notched tree stumps, combined with consideration of the current size distribution of karri, marri and jarrah was consistent with pre-1960s low-intensity logging of larger tree diameter classes.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos are available in Appendix F.</p>
Climate and landform	<p>Rainfall: 1200 mm</p> <p>Evapotranspiration: 900 mm</p>

Characteristic	Details
Topography	Elevation within the application area ranges from 125 m AHD in the southwestern corner to 160 m AHD in the southeastern corner.
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> <li>• West - Major Valleys V2 Subsystem (Pimelia) (254PvV2), described as Valleys in granitic areas; 20-40 m relief; smooth, moderate slopes; narrow terrace.</li> <li>• East - Collis sandy yellow duplex Phase (254NfCOd), described as Sandy yellow duplex soils; marri-jarrah forest.</li> </ul>
Land degradation risk	<p>Mapped soil types are mapped as having moderate phosphorus export, subsurface compaction and water erosion risks, and high risks of subsurface acidification and wind erosion (refer to table C.3.)</p> <p>A site inspection conducted by Department of Primary Industries and Regional Development officers (CSLC, 2022) concluded the following in relation to land degradation risks within the original 28.01 ha application area:</p> <ul style="list-style-type: none"> <li>• The site is dominated by gentle valley slopes with soil exhibiting overall good infiltration and nutrient absorption characteristics. The southern and eastern areas of the proposed clearing have moderately steep slopes which may present a risk of water erosion and nutrient export. However, risk in these areas can be reduced with good land management to prevent surface water runoff and if appropriate surface water control is implemented.</li> <li>• The valley slopes and drainage depression targeted for the proposed clearing have low wind exposure reducing the risk in this location. This is coupled with the dominant Loamy gravel soil type here with protective surface coarse fragments; therefore, the risk is rated moderate due to the protective nature of the coarse fragments. Careful management of ground cover in cleared areas reduces the likelihood further.</li> <li>• The area identified for clearing is dominated by gentle valley slopes, with some steeper slopes to the east and south. Clearing vegetation may increase likelihood of erosion on steeper slopes. No signs of water erosion were observed. Careful management of ground cover in the area proposed for clearing and implementation of surface water control on steeper slopes will reduce the risk. With good land management, clearing native vegetation is not expected to increase the likelihood of water erosion in this location; no significant change is expected.</li> <li>• The risk of salinity causing land degradation is low; no salinity is occurring on the property; no offsite salinity was observed. No significant change is expected</li> <li>• The likelihood of flooding in this location is considered to be low. No significant change is expected.</li> <li>• High risk terrain includes valley floors which are confined to narrow drainage areas in the area proposed to clear (See View 3 in Appendix 1). Valley sideslopes are better drained. Removal of native vegetation is not expected to increase the likelihood of waterlogging; no significant change is expected.</li> <li>• The soils examined at this site exhibit good water and nutrient retention properties. Surface runoff from valley slopes present the greatest risk. Therefore, with careful management of ground cover in the area proposed to clear and implementation of surface water control on steeper slopes, removal of native vegetation is not expected to increase the Phosphorus export risk in this location; no significant change is expected.</li> <li>• Soil types mapped within the application area are mostly suited for the proposed land uses of grazing and horticulture</li> </ul>
Surface Water	A minor, non-perennial watercourse within the Shannon River catchment is 50 metres west of the application area (note this watercourse was mapped within the original application area, and the applicant agreed to exclude it, and vegetation within 50 metres of it, from the application area during the assessment).

Characteristic	Details
	<p>Although the application area is not within a region where extensive comprehensive wetland mapping is available, two inundation areas associated with watercourses within the Shannon River catchment are located approximately 1 km east and 1.5 km west of the application area.</p> <p>The application area is not mapped within a Surface Water Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> or proclaimed Public Drinking Water Source Area.</p>
Groundwater and Hydrogeography	<p>Groundwater salinity: 500-1000 mg/L TDS</p> <p>Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers (granitoid lithology)</p> <p>The application area is not mapped within a Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i>.</p>
Flora	<p>There are two Threatened and six Priority flora species recorded within the local area, the closest of which to the application area is Priority 4 species <i>Lomandra ordii</i>, approximately 1 km to the southeast. Of these, one species (<i>Lomandra ordii</i>) is found within the same mapped soil type and vegetation type as the application area.</p>
Ecological communities	<p>There are two Priority ecological communities recorded within the local area, the closest of which to the application area is the Priority 3 Epiphytic Cryptogams of the karri forest ecological community, mapped within the same mapped vegetation and similar habitat to the application area. The other ecological community mapped within the local area is associated with granite pools not present within the application area.</p>
Fauna	<p>There are ten Threatened, two Priority and one Conservation Dependent fauna species recorded within the local area, the closest of which to the application area is Priority 2 species <i>Fibulacamptus bisetosus</i> (a non-marine Harpacticoid copepod (Muirillup Rock)), approximately 2 km to the southwest. Six of these species are solely associated with aquatic environments not present within the application area. Of the remaining species, five species are considered possible to be found within the application area noting the vegetation and habitat present.</p> <p>The application area is within the known range and breeding area for Baudin's cockatoo, core extent of forest red-tailed black cockatoo, and known range of Carnaby's cockatoo (although not breeding range). The closest known black cockatoo roost sites to the application area are located 14.3 km to the west northwest and 16.3 km to the northwest, and the closest known white tailed black cockatoo breeding site is located 17.3 km to the north northwest. No known forest red-tailed black cockatoo breeding sites are present within a 20 km range of the application area.</p> <p>A fauna survey (Smithson Environmental, 2023), mapped 750 trees of suitable diameter (i.e. 50 centimetres or greater at breast height (DAWE, 2022) and species to develop hollows for black cockatoo species within the application area. Of these, 39 are marri trees (all within the area in which only karri silviculture is permitted), 703 are karri trees, and 8 are dead stumps. Six of these habitat trees (three dead stumps, two karris and one marri) were found to contain hollows suitable for black cockatoo nesting, although nest holes were likely to have been underestimated due to height of the extant tree canopy. Smithson Environmental (2023) also recorded white tailed black cockatoos (assessed to be likely Baudin's cockatoos by their call) either flying overhead or within trees within surveyed vegetation. No black cockatoo night roosting behaviour was noted. Evidence of foraging by forest red-tailed black cockatoo (chewed marri nuts) was also recorded at two locations within the silviculture portion of the application area.</p> <p>Smithson Environmental (2023) also recorded one south-western brush-tailed phascogale individual on a trail camera, although no fauna tracks, scats or markings for this species were recorded. While the Smithson Environmental (2023) survey did not specifically target western ringtail possums (WRP), the consultant undertaking the fauna survey (Smithson, 2023) advised that they were looking out for all fauna species and no WRP or evidence of WRP activity (i.e. dreys) were noted during traverses of the application area, during spotlighting or on trail cameras. However, Smithson (2023)</p>

Characteristic	Details
	pointed out that due to survey limitations, the presence of WRP within the application area could not be ruled out.

## 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*					
Warren	833,985.56	659,432.21	79.07	84.69	66.97
Vegetation complex					
Mattiske vegetation complex 59**	2,118.29	1,460.17	68.93	1,069.10	50.47
Mattiske vegetation complex 285**	9,968.23	8,394.77	84.22	7,310.82	73.34
Local area					
10km radius	33,634.05	22,925.68	68.16	-	-

\*Government of Western Australia (2019a)

\*\*Government of Western Australia (2019b)

## C.3. Land degradation risk tables

Risk categories	Major Valleys V2 Subsystem (Pimelia) (254PvV2)
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	M1: 10-30% of map unit has a high to extreme water erosion risk
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	M2: 30-50% of map unit has a high to extreme phosphorus export risk
Subsurface compaction risk	M2: 30-50% of the map unit has a high subsurface compaction risk

Risk categories	Collis sandy yellow duplex Phase (254NfCOd)
Wind erosion	H1: 50-70% of the map unit has a high to extreme hazard
Water erosion	L1: <3% of map unit has a high to extreme water erosion risk
Salinity	L1: <3% of the map unit has a moderate or high hazard or is presently saline
Subsurface Acidification	H2: >70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of the map unit has a moderate to very high to risk
Phosphorus export risk	M1: 10-30% of map unit has a high to extreme phosphorus export risk
Subsurface compaction risk	M2: 30-50% of the map unit has a high subsurface compaction risk

#### C.4. Flora analysis table

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

Species name	Conservation status	Suitable habitat features ?	Same mapped vegetation type?	Same mapped soil type?	Distance of closest record to application area (km)	Number of records in local area	Number of Florabase records (total)	Are surveys adequate to identify?
<i>Actinotus repens</i>	P3	N	N	N	4.2	1	33	N/A
<i>Caladenia christineae</i>	T	N	N	N	8.5	7	58	N/A
<i>Cyathochaeta stipoides</i>	P3	N	N	N	3.5	6	23	N/A
<i>Gonocarpus simplex</i>	P4	N	N	N	6.4	10	26	N/A
<i>Kennedia glabrata</i>	T	N	N	N	1.5	1	36	N/A
<i>Lomandra ordii</i>	P4	N	Y	Y	1.0	20	35	N/A
<i>Myriophyllum trifidum</i>	P4	N	N	N	3.1	2	38	N/A
<i>Schizaea rupestris</i>	P2	N	N	N	7.4	3	13	N/A

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

#### C.5. Fauna analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Most recent record in local area	Number of records in local area	Are surveys adequate to identify? [Y, N, N/A]
<i>Atrichornis clamosus</i> (noisy scrub-bird, tjimiluk)	EN	N	5.4	2010	1	N
<i>Zanda baudinii</i> (Baudin's cockatoo)	EN	Y	4.3	2015	7	Y
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	Y	5.5	2001	6	Y
<i>Hydromys chrysogaster</i> (Water-rat, rakali)	P4	N	2.7	2012	3	N
<i>Phascogale tapoatafa wambenger</i> (south-western brush-tailed phascogale, wambenger)	CD	Y	4.4	1999	1	Y
<i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir)	CR	Y	9.6	Not known (historical)	1	N
<i>Setonix brachyurus</i> (Quokka)	VU	Y	7.6	2017	16	N

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

## C.6. Ecological community analysis table

With consideration for the site characteristics set out above and relevant datasets (see Section G.1), impacts to the following conservation significant ecological communities required further consideration.

Community name	Conservation status	Suitable habitat features?	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Number of records in local area	Are surveys adequate to identify?
Epiphytic Cryptogams of the karri forest	P3	Y	Y	Y	0.14	4	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 area proposed to be cleared contains habitat for conservation significant fauna and may contain a conservation significant ecological community. It is unlikely to contain conservation significant flora.</p>	May be at variance	Yes Refer to Sections 3.2.1 and 3.2.2 above.
<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 foraging, roosting, and breeding habitat for black cockatoo species and habitat for south-western brush tailed phascogale.</p>	At variance	Yes Refer to Section 3.2.1 above
<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 flora species listed under the BC Act.</p>	Not likely to be at variance	No
<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."</p> <p><u>Assessment:</u> The area proposed to be cleared does not contain species indicative of a threatened ecological community, defined as:</p> <p>a) those defined in the Biodiversity Conservation Act 2016 section 5(1); or  b) any other ecological community listed, designated or declared as threatened, endangered or vulnerable under or for the purposes of a written law; or  c) a listed threatened ecological community as defined in the Commonwealth Environment Act section 528.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		

Assessment against the clearing principles	Variance level	Is further consideration required?
<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>: Extents of the mapped vegetation type and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is within a mapped ecological linkage in the local area, however the proposed clearing is not considered likely to significantly impact this linkage.</p>	Not likely to be at variance	Yes Refer to Section 3.2.3 above.
<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>: The proposed clearing may have an impact on the environmental values of the adjacent Shannon State Forest.</p>	At variance	Yes Refer to Section 3.2.3 above.
<b>Environmental value: land and water resources</b>		
<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>: Vegetation within 50 metres of a watercourse on the property has been excluded from the application area. It is possible that some riparian vegetation may be present in the western extent of the application area adjacent to the excluded area, however a permit condition requiring that no clearing can occur within 30 metres of riparian vegetation will ensure the clearing has does not impact to any riparian vegetation that may be present within the application area.</p>	May be 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>: Advice provided from the Commissioner of Soil and Land Conservation indicates that soils within the application area may be at risk of wind erosion, water erosion and phosphorus export, however that these risks are minor and can be managed. As silviculture is proposed in the majority of the application area, and hence a large proportion of native vegetation will remain and be allowed to re-establish, risks are considered to be further reduced. There are risks of soil compaction associated with the use of logging machinery, which will be managed through conditions on the permit.</p>	May be at variance	Yes Refer to Section 3.2.4 above.
<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 the distance to the nearest mapped watercourse, that riparian vegetation will be retained, and that no Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to significantly 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> <p><u>Assessment</u>: Advice provided from the Commissioner of Soil and Land Conservation indicates that the risks of clearing resulting in flooding and waterlogging are low.</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 (1994).

### 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 F. Biological survey information excerpts and photographs of the vegetation**



Figure F-1. View of karri forest proposed to clear at north-central boundary (CSLC, 2022)



Figure F-2. Karri forest in centre of proposed clearing, looking north (CSLC, 2022)



Figure F-3. Southern boundary of proposed clearing looking uphill to the east (CSLC, 2022)





Figure F-4. Midway on southern boundary, looking downhill to west (CSLC, 2022)

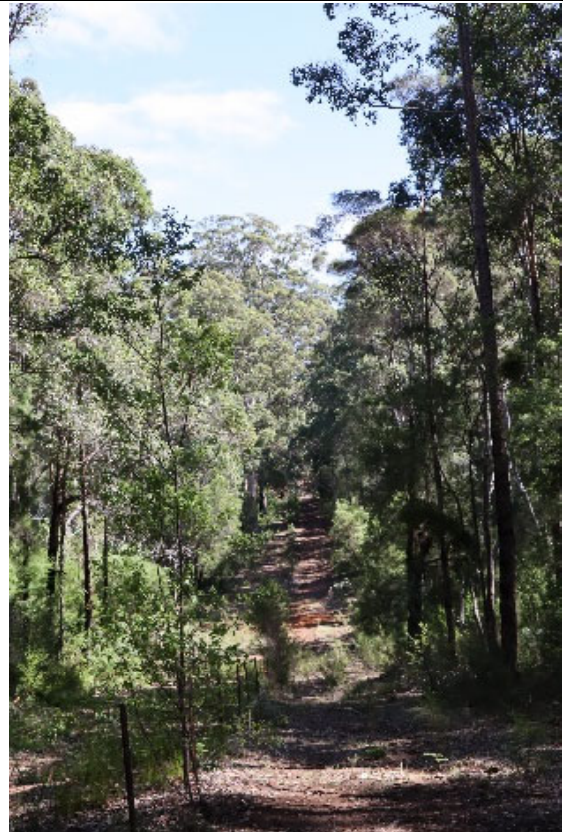


Figure F-5. Southern boundary looking east (CSLC, 2022)



Figure F-6. View of karri forest at north-eastern edge of proposed clearing (CSLC, 2022)



Figure F-7. Trail camera footage of brush-tailed phascogale (Smithson Environmental, 2023)



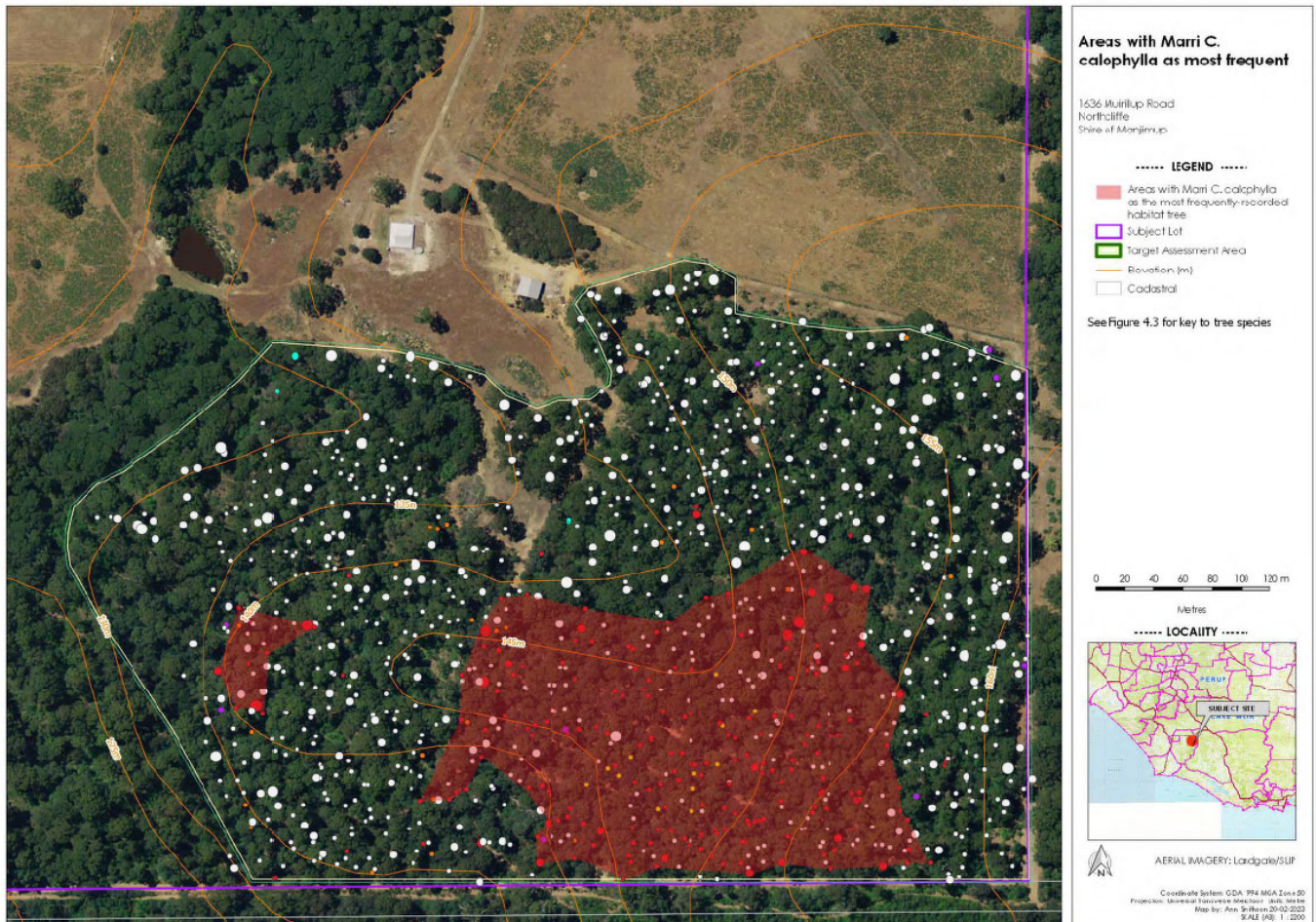


Figure F.8. Habitat tree locations (dots) and areas of vegetation dominated by marri trees (red shaded areas) (Smithson Environmental, 2023)

## Appendix G. Sources of information

### G.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)
- 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)

## G.2. References

- Bradshaw, F.J. (2015). *Reference material for karri forest silviculture*, Department of Parks and Wildlife, Perth. Retrieved from [https://www.dpaw.wa.gov.au/images/documents/conservationmanagement/forests/FMP/reference\\_material\\_for\\_karri\\_silviculture.pdf](https://www.dpaw.wa.gov.au/images/documents/conservationmanagement/forests/FMP/reference_material_for_karri_silviculture.pdf)
- Commissioner of Soil and Land Conservation (CSLC) (2022). *Land Degradation Advice and Assessment Report for clearing permit application CPS 9594/1*, received 11 April 2022, Department of Primary Industries and Regional Development, Western Australia (DWER Ref: DWERDT590103).
- Department of Agriculture, Water and the Environment (DAWE) (2022). *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo*. Department of Agriculture, Water and the Environment, Canberra, February
- Commonwealth of Australia (2001). *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2017). *Priority Ecological Communities for Western Australia Version 27*. Retrieved from [https://www.dpaw.wa.gov.au/images/documents/plantsanimals/threatened-species/Listings/priority\\_ecological\\_communities\\_list.pdf](https://www.dpaw.wa.gov.au/images/documents/plantsanimals/threatened-species/Listings/priority_ecological_communities_list.pdf)
- Department of Biodiversity, Conservation and Attractions (DBCA) (2023). *Species and Communities Branch fauna advice for clearing permit application CPS 9594/1*, received 13 April 2023. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: DWERDT764813).
- Department of Environment and Conservation (DEC) (2008). *Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksia naso) Recovery Plan*, Department of Environment and Conservation, Western Australia. Retrieved from <https://www.dccew.gov.au/sites/default/files/documents/wa-forest-black-cockatoos-recovery-plan.pdf>
- Department of Environment and Conservation. (DEC) (2012). *Fauna profiles. Brush-tailed Phascogale*. Phascogale tapoatafa (Meyer, 1793). Retrieved from <https://library.dbca.wa.gov.au/static/FullTextFiles/925273.pdf>

- Department of Environment and Conservation (DEC) (2013). *Quokka Setonix brachyurus Recovery Plan*. Wildlife Management Program No. 56. Department of Environment and Conservation, Perth, WA.
- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Retrieved from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf).
- Department of Parks and Wildlife (DPAW) (2014). *Karri Silviculture Guideline*. Sustainable Forest Management Series, FEM Guideline 3. Retrieved from <https://www.dbca.wa.gov.au/media/2180/download>
- Department of Parks and Wildlife (DPAW) (2017). *Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan*. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed April 2022).
- Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: [https://dwer.wa.gov.au/sites/default/files/Procedure\\_Native\\_vegetation\\_clearing\\_permits\\_v1.PDF](https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF).
- Environmental Protection Authority (EPA) (2016). *Technical Guidance – Terrestrial Fauna Surveys*. Available from: [https://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf](https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf).
- Government of Western Australia (2019). *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Government of Western Australia. (2019). *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Hayward, M.W., de Tores, P.J. & Banks, P.J. (2005). Habitat use of the Quokka, *Setonix brachyurus* (Macropodidae: Marsupalia), in the Northern Jarrah Forest of Australia. *Journal of Mammalogy*. 86(4):683-688
- Keighery, B.J. (1994). *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998). *Vegetation Complexes of the South-west Forest Region of Western Australia*. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009). *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68). *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.
- Schoknecht, N., Tille, P. and Purdie, B. (2004). *Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs* Resource Management Technical Report No. 280. Department of Agriculture.
- Shire of Manjimup (2022). *Advice for clearing permit application CPS 9594/1*, received 11 March 2022 (DWER Ref: DWERDT575173).
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001). *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.



- Smolinski, H. and Kuswardiyanto, K. (2007). Soil Survey and Assessment of Trafficability in the South-West Forests of Western Australia – Adaptive Management and Operational Trials Harvested in Winter 2004, Consultants Report to Department of Environment and Conservation, Western Australia, Sustainable Forest Management Series, SFM Technical Report No. 3.
- Submission (2022a). *Public submission in relation to clearing permit application CPS 9594/1*, received 17 March 2022 (DWER Ref: DWERDT578206).
- Submission (2022b). *Public submission in relation to clearing permit application CPS 9594/1*, received 30 March 2022 (DWER Ref: DWERDT584461).
- Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Van Hazendonk, J. (2022). *Clearing permit application and supporting documentation CPS 9594/1*, received 7 February 2022 (DWER Ref: DWERDT561131).
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed April 2022)
- Whitford K.R and Mellican A.E. (2011). Intensity, extent and persistence of soil disturbance caused by timber harvesting in jarrah (*Eucalyptus marginata*) forest on FORESTCHECK monitoring sites. *Australian Forestry* 74, 266-275.