



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 9544/1
<b>Permit Holder:</b>	Shire of Augusta Margaret River
<b>Duration of Permit:</b>	From 24 July 2022 to 24 July 2027

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

### **PART I – CLEARING AUTHORISED**

#### **1. Clearing authorised (purpose)**

The permit holder is authorised to clear *native vegetation* for the purpose of constructing a cycle path.

#### **2. Land on which clearing is to be done**

Crown Reserve 12646, Margaret River  
Lot 4713 on Plan 13100 (Crown Reserve 36747), Margaret River  
Lot 4744 on Plan 13364 (Crown Reserve 37326), Margaret River  
Lot 4841 on Plan 15896 (Crown Reserve 37326), Margaret River  
Lot 4845 on Diagram 71074 (Crown Reserve 40289), Margaret River  
Kevill Road reserve (PIN 11217567 and PIN 11602980), Margaret River  
Wallcliffe Road reserve (PIN 11604899), Margaret River

#### **3. Clearing authorised**

The permit holder must not clear more than 0.31 hectares of *native vegetation* within the area cross-hatched yellow in Figures 1-5 of Schedule 1.

### **PART II – MANAGEMENT CONDITIONS**

#### **4. 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.

## 5. Weed and dieback management

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

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

## 6. Directional clearing

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

## 7. Fauna management – retain *black cockatoo habitat trees*

- (a) Prior to undertaking any clearing authorised under this permit in relation to the area cross-hatched yellow in Figures 1-5 of Schedule 1, the permit holder must demarcate the two *black cockatoo habitat trees* at the locations in Table 1.

**Table 1: Locations of habitat trees to be retained**

Tree ID	Species	Latitude	Longitude
214	Marri ( <i>Corymbia calophylla</i> )	-33.96379	115.02231
227	Marri ( <i>Corymbia calophylla</i> )	-33.96383	115.02231

- (b) The permit holder must not clear the trees as described in *condition 7(a)*.

## 8. Fauna management – western ringtail possums and south- western brush-tailed phascogales

- (a) In relation to the area cross-hatched yellow in Figures 1-5 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area, including all trees, dreys and tree hollows present, immediately prior to, and for the duration of clearing activities, for the presence of western ringtail possum(s) (*Pseudocheirus occidentalis*) and south-western brush-tailed phascogales (*Phascogale tapoatafa*).
- (b) Clearing activities must cease in any area where fauna referred to in *condition 8(a)* are identified until either:
  - (i) the western ringtail possum / south-western brush-tailed phascogale individual(s) has moved on from that area to adjoining *suitable habitat*; or
  - (ii) the western ringtail possum individual(s) has been removed by a *western ringtail possum specialist* and/or the south-western brush-tailed phascogale individual(s) has been removed by a *fauna specialist*.
- (c) Any western ringtail possum individual(s) removed in accordance with *condition 8(b)(ii)* must be relocated by a *western ringtail possum specialist* to adjacent *suitable habitat*.

- (d) Any south-western brush-tailed phascogale individual individual(s) removed in accordance with *condition 8(b)(ii)* must be relocated by a *fauna specialist* to adjacent *suitable habitat*.
- (e) Where fauna is identified under *condition 8(a)*, the permit holder must, within 14 calendar days of undertaking the inspection, 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 1994/2020 (GDA94/2020), 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 *fauna specialist* undertaking the inspection and/or 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 GDA94/2020, 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.

### **PART III - RECORD KEEPING AND REPORTING**

#### **9. 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 2.

**Table 2: 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 Geocentric Datum Australia 1994/2020 (GDA94/2020), 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 <i>condition 4</i>;</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 <i>condition 5</i>;</li> </ul>

No.	Relevant matter	Specifications
		<p>(g) actions taken to undertake directional clearing in accordance with <i>condition 6</i>;</p> <p>(h) actions taken to retain <i>black cockatoo habitat trees</i> in accordance with <i>condition 7</i>; and</p> <p>(i) actions taken to manage and mitigate impacts to western ringtail possums and south-western brush-tailed phascogales in accordance with <i>condition 8</i>.</p>

## 10. Reporting

The permit holder must provide to the *CEO* the records required under *condition 9* of this permit when requested by the *CEO*.

## DEFINITIONS

In this permit, the terms in Table 3 have the meanings defined.

**Table 3: Definitions**

Term	Definition
black cockatoo habitat trees	means trees that have a diameter, measured at 130 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for <i>Eucalyptus salmonophloia</i> or <i>Eucalyptus wandoo</i> ) that contain hollows suitable for breeding by <i>black cockatoo species</i> .
black cockatoo species	means one or more of the following species: (a) <i>Calyptorhynchus lateriosis</i> (Carnaby's cockatoo); (b) <i>Calyptorhynchus 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.
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 <i>CEO</i> 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.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
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.

Term	Definition
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.
Suitable habitat (south-western brush-tailed phascogale)	Suitable habitat for southwestern brush-tailed phascogale ( <i>Phascogale tapoatafa</i> ) is typically characterised by dry sclerophyll forests and open woodlands that contain hollow bearing trees but a sparse ground cover.
weeds	means any plant – (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.
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> .

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**END OF CONDITIONS**




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Mathew Gannaway  
 MANAGER  
 NATIVE VEGETATION REGULATION

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

30 June 2022

# Schedule 1

The boundary of the area authorised to be cleared is shown in the maps below (Figure 1-5).



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

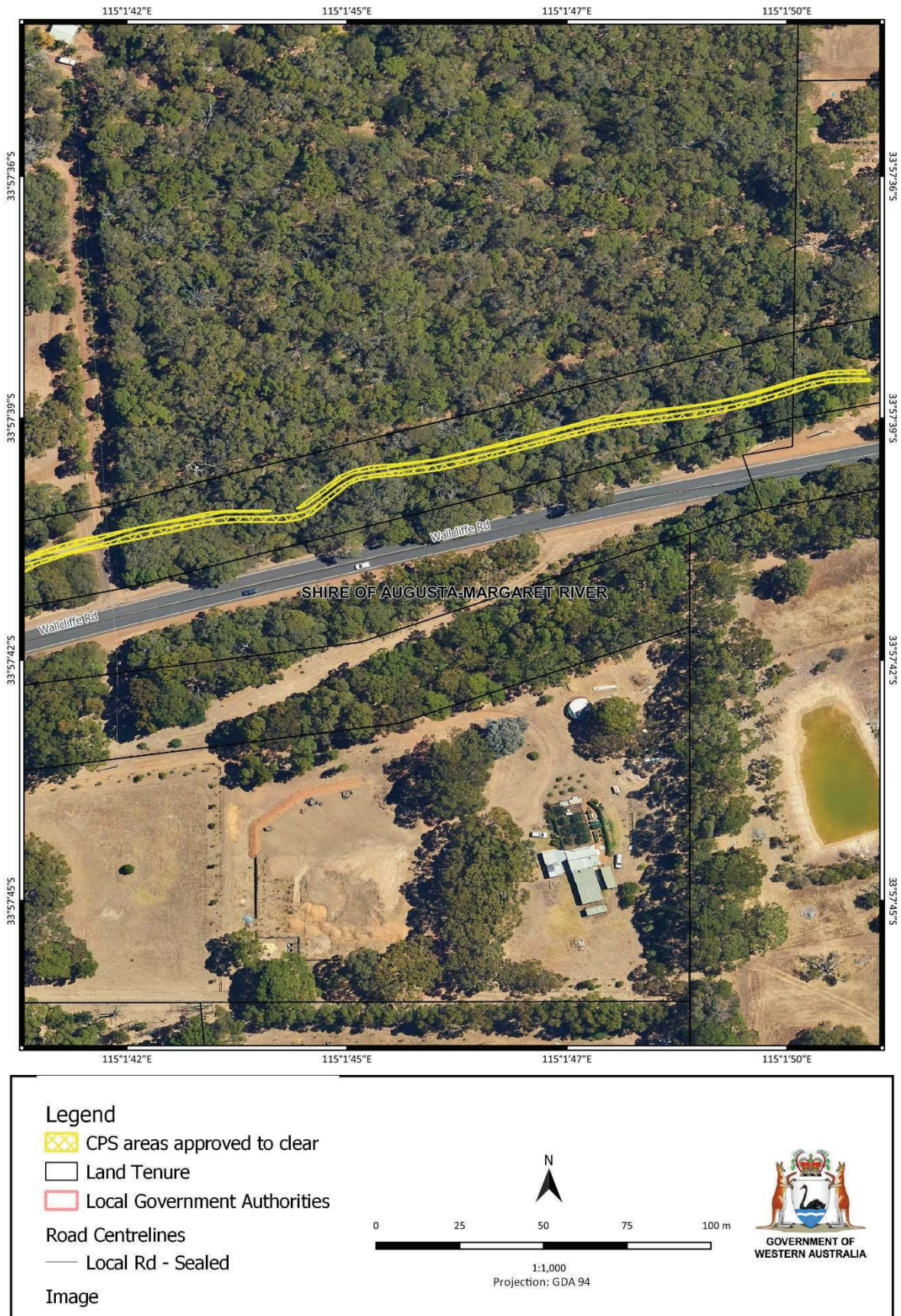


**Figure 2: Map of the boundary of the area within which clearing may occur.**

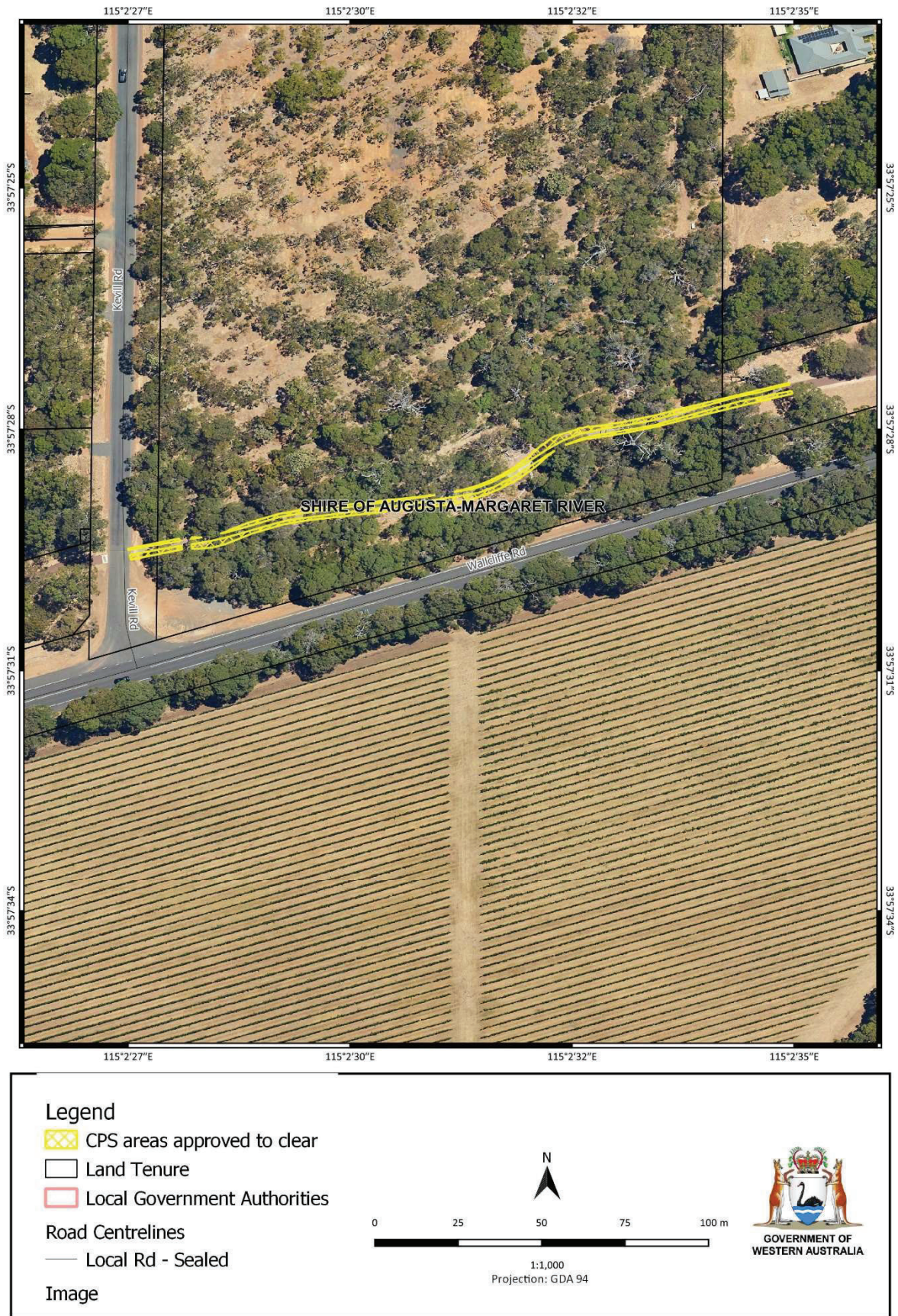


**Figure 3: Map of the boundary of the area within which clearing may occur.**





**Figure 4: Map of the boundary of the area within which clearing may occur.**



**Figure 5: Map of the boundary of the area within which clearing may occur.**



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9544/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Shire of Augusta Margaret River
<b>Application received:</b>	23 December 2021
<b>Application area:</b>	0.31 hectares of native vegetation
<b>Purpose of clearing:</b>	Constructing a cycle path
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Crown Reserve 12646 Lot 4713 on Plan 13100 (Crown Reserve 36747) Lot 4744 on Plan 13364 (Crown Reserve 37326) Lot 4841 on Plan 15896 (Crown Reserve 37326) Lot 4845 on Diagram 71074 (Crown Reserve 40289) Kevill Road reserve (PIN 11217567 and PIN 11602980) Wallcliffe Road reserve (PIN 11604899)
<b>Location (LGA area/s):</b>	Shire of Augusta Margaret River
<b>Localities (suburb/s):</b>	Margaret River

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across three linear areas of native vegetation along a 1.27-kilometre section of the existing Wallcliffe Road cycle path (see Figure 1, Section 1.5). The proposed clearing is required to reconstruct and widen the existing cycle path from 1.8 metres to a maximum of 2.5-3 metres to facilitate the significant foot and cycle traffic along the Wallcliffe Cycle Path.

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	30 June 2022
<b>Decision area:</b>	0.31 hectares of native vegetation, as depicted in Section 1.5, below.

### 1.4. Reasons for decision

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

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix F.1), the findings of a targeted western ringtail possum habitat assessment and survey

(Litoria Ecoservices, 2020) (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the applicant's avoidance and mitigation measures, including a commitment to avoid the clearing of all habitat trees within the application area (see section 3.1 for further details).

The assessment identified that the proposed clearing will result in:

- the loss of 0.31 hectares of native vegetation that is suitable foraging habitat for the forest red-tailed black cockatoo, Baudin's cockatoo, and Carnaby's cockatoo (black cockatoo species),
- the loss of 0.31 hectares of native vegetation that is suitable habitat for the western ringtail possum and south-western brush-tailed phascogale,
- the loss of 0.04 hectares of native vegetation that may be growing in, or in association with, an environment associated with a watercourse, and
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that the proposed clearing is unlikely to lead to long-term adverse impacts on biological, conservation, or land and water resource values, and can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values. The Delegated Officer considered that the proposed clearing was unlikely to represent a significant impact to foraging habitat for black cockatoo species, given its distance from the closest confirmed breeding sites and the extent of foraging habitat proposed to be cleared in the context of that available in the greater site and local area. The Delegated Officer also determined that impacts to significant habitat for the western ringtail possum and south-western brush-tailed phascogale was unlikely to result from the proposal, given that clearing was limited to mid- and understorey species and immature marri, jarrah, and peppermint and noting that the applicant had committed to retaining all habitat trees. The Delegated Officer also noted the extent and linear nature of suitable habitat for the western ringtail possum and south-western brush-tailed phascogale proposed to be cleared in the context of the adjacent Crown reserves and the local area. The assessment acknowledged that the proposed clearing has the potential to result in direct impacts to fauna that may be utilising the application area at the time of the clearing. The Delegated Officer determined that the potential for direct impacts to fauna can be mitigated through permit conditioning.

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

- avoid, minimise, and reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity,
- demarcate all black cockatoo habitat trees within the application area prior to clearing and retain all trees, and
- engage a fauna specialist to inspect the clearing area prior to, and for the duration of, clearing activities, for the presence of western ringtail possums and south-western brush-tailed phascogale, to mitigate direct impacts to individuals resulting from clearing activities.

## 1.5. Site map



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

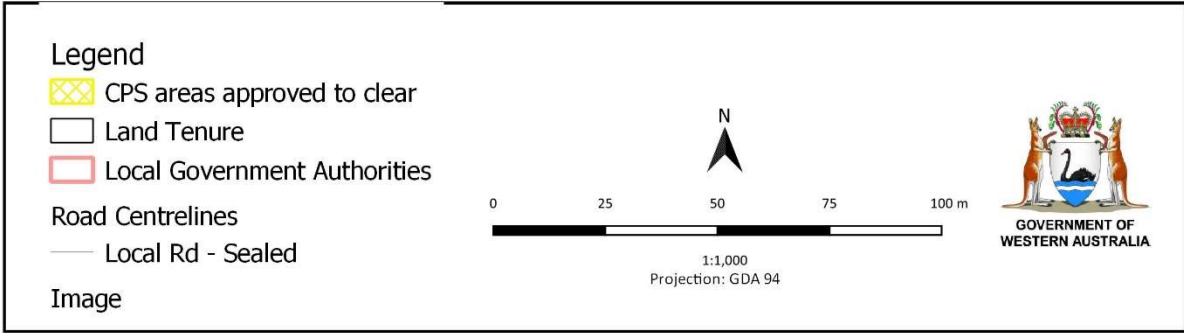


Figure 2 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

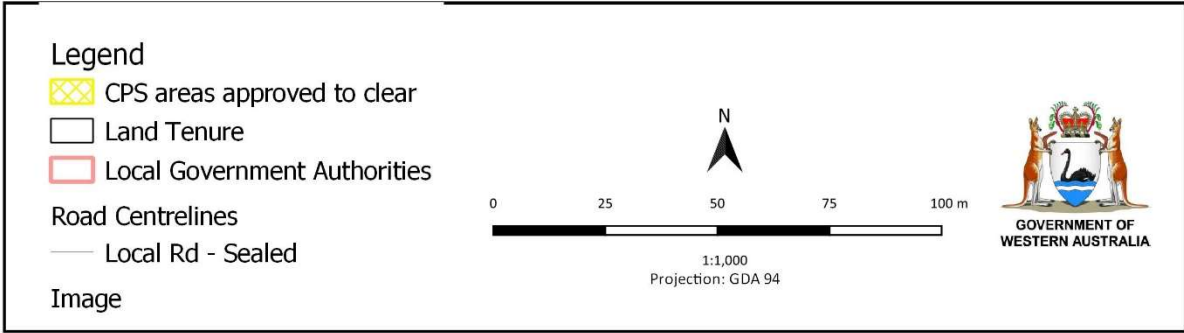
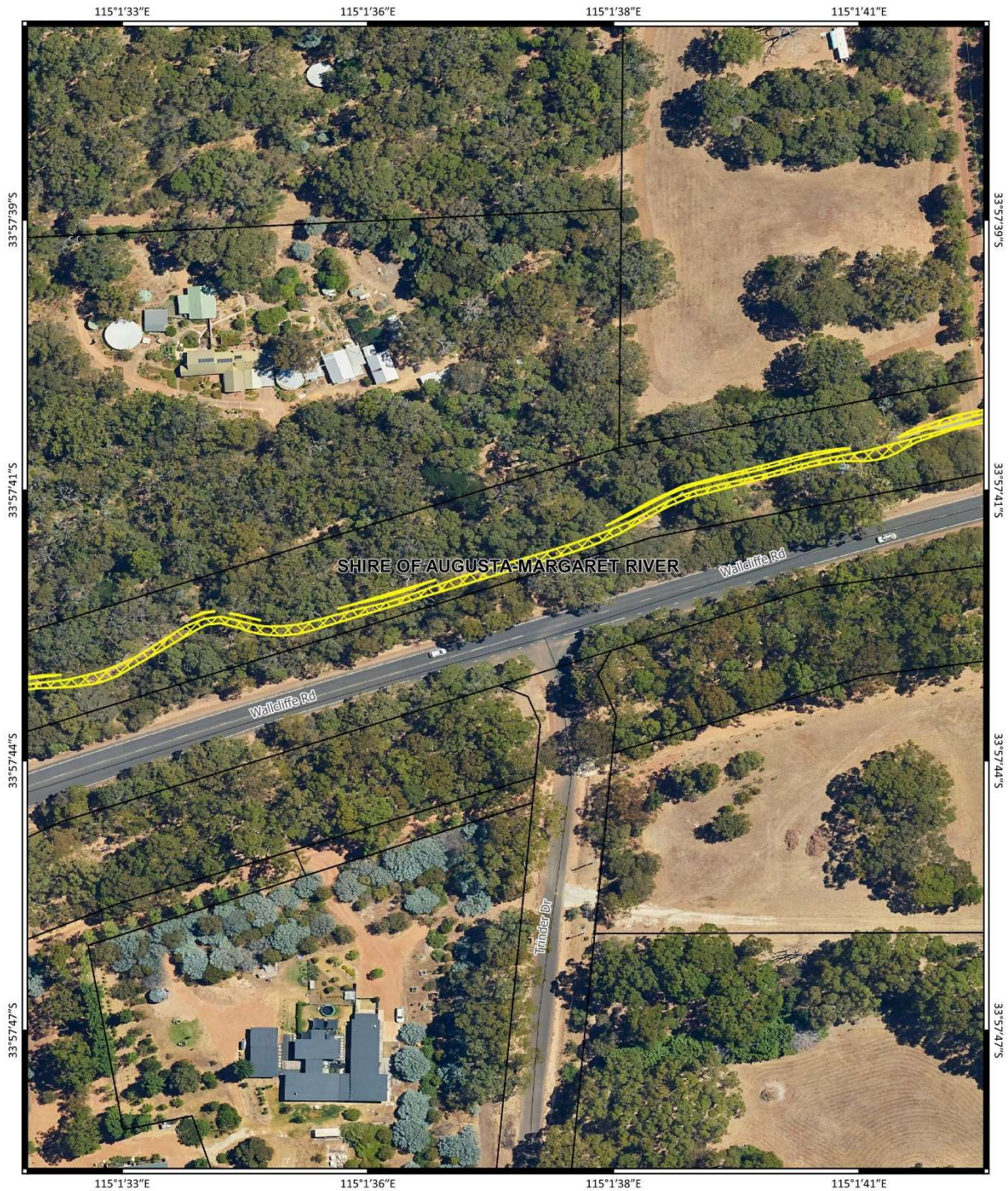


Figure 3 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

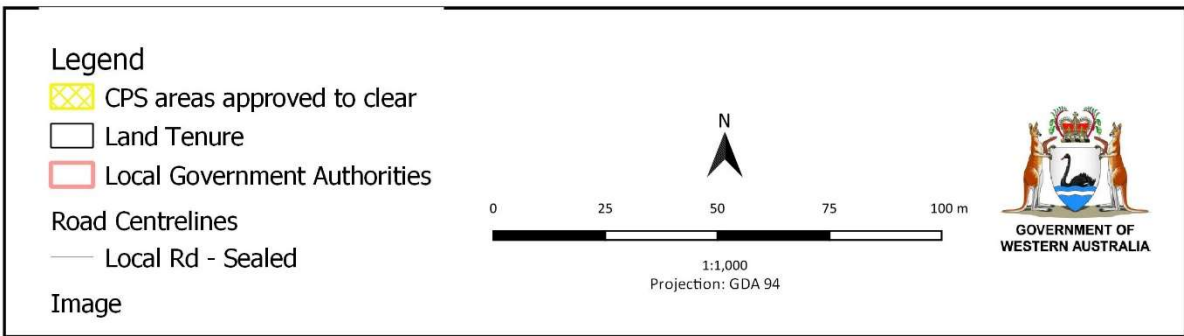


Figure 4 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



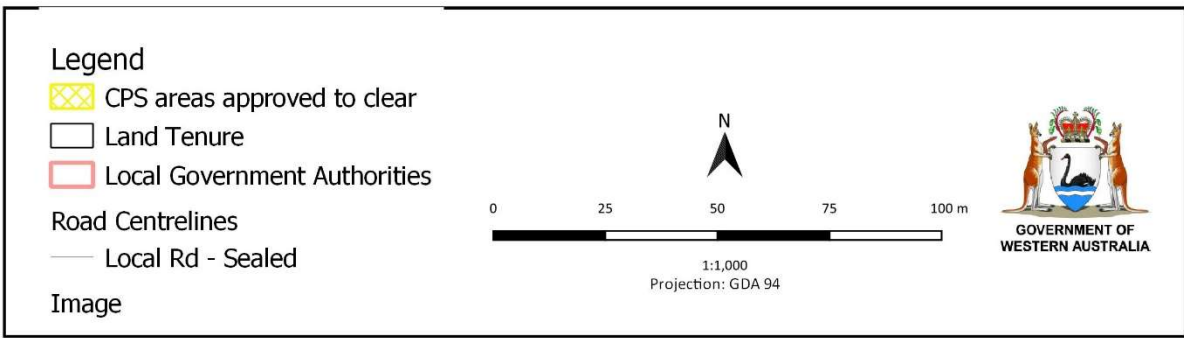


Figure 5 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

## 2 Legislative context

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

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

- the precautionary principle
- the principle of intergenerational equity
- the 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)
- *Rights in Water and Irrigation Act 1914* (WA) (RIWI 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 Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

#### Avoidance and minimisation

Supporting documentation was submitted by the applicant, advising that the Wallcliffe Cycle Path is identified as a Primary cycle route in the *Leeuwin Naturaliste 2050 Cycling Strategy* (Department of Transport, 2020). A Primary cycle route is the highest level of cycle route in the regional route hierarchy, providing cyclists with safe and uninterrupted journeys and typically comprising high-quality, shared paths of at least 3 metres in width (Shire of Augusta Margaret River, 2021). The existing Wallcliffe Cycle Path runs parallel to Wallcliffe Road for a total of seven kilometres and currently provides the only safe pedestrian access between Margaret River and Prevelly (Shire of Augusta Margaret River, 2021).

The path was originally constructed to a width of 1.8 metres, which is not sufficient to allow safe two-way passage of cycle and pedestrian traffic in a Primary cycle route (Shire of Augusta Margaret River, 2021). In addition, given the age and high level of use of the existing path, the surface has become degraded and uneven, causing a safety hazard in some sections (Shire of Augusta Margaret River, 2021). In order to ensure the Wallcliffe Cycle Path is suitable and safe for use as a Primary cycle route, the applicant advised that upgrades to the existing path are required, including widening the path to a width of three metres and re-sealing the upgraded sections with red asphalt (Shire of Augusta Margaret River, 2021).

The applicant advised that sections of the Wallcliffe Cycle Path have been upgraded and widened to three metres in recent years, where they do not traverse native vegetation (Shire of Augusta Margaret River, 2021). However, a remaining 1.27-kilometre section of the path passes through a corridor of remnant native vegetation and may require minor clearing to facilitate the construction works (Shire of Augusta Margaret River, 2021). The applicant advised that the upgrades to this section have been specifically designed to minimise clearing and that the proposed clearing area of 0.31 hectares is limited to historically disturbed vegetation in the maintenance strip of the existing path (Shire of Augusta Margaret River, 2021). The applicant also advised that the width of the path will be pinched in and reduced to 2.5 metres in areas where habitat trees (diameter at breast height (DBH) greater than 500 millimetres) are located within the clearing corridor (Shire of Augusta Margaret River, 2021). Accordingly, the applicant has committed to retaining all habitat trees (two trees) within the proposed clearing area and limiting clearing to understorey species and smaller or juvenile trees only (Shire of Augusta Margaret River, 2021).

#### Mitigation

The applicant has advised that the following mitigation measures will be employed during clearing and construction, to ensure that impacts are minimised:

- Construction of the path will be undertaken in a sensitive manner to minimise disturbance to vegetation, including the use of smaller machinery to undertake earthworks, and hand-trenching adjacent to trees in order to avoid damage to roots,

- Where removal of grass trees and sedges cannot be avoided, plants will be relocated to a suitable location within the project area,
- A fauna specialist will inspect the clearing area prior to and for the duration of clearing for the presence of western ringtail possums. Any individuals observed will be removed and relocated by a western ringtail possum specialist to a suitable habitat, in accordance with the Department of Biodiversity, Conservation and Attraction's (DBCA's) *Procedures to minimise the risk to western ringtail possums during vegetation clearing and building demolition* (DPAW, 2015),
- Clearing activities will be undertaken in a slow, progressive manner in a single direction to allow fauna to move into adjacent native vegetation ahead of the clearing activity,
- Existing surface drainage patterns will be maintained during road reconstruction, with no changes to surface hydrology or movement of sediment into the surrounding environment,
- The widened path will be resealed with red asphalt to prevent erosion, and
- Best practice weed and dieback hygiene measures will be implemented during clearing and construction (Shire of Augusta Margaret River, 2021).

The applicant has also advised that a revegetation project is planned for the area along the Walcliffe Cycle Path in winter of 2022, with an objective of planting 360 local native species to enhance the flora and fauna values along the upgraded path (Shire of Augusta Margaret River, 2021). While this is not considered as a measure to directly mitigate impacts resulting from the proposed clearing, the sentiment of enhancing the environmental values of the upgraded cycle path is acknowledged as a positive outcome post-clearing.

In considering the above, the Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

### **3.2. Assessment of impacts on environmental values.**

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

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

#### **3.2.1. Biological values (fauna) - Clearing Principles (a) and (b)**

##### Assessment

Noting the findings of the *'Western Ringtail Possum Habitat Assessment and Survey - Wallcliffe Road Bike Path, Margaret River'* (Litoria Ecoservices, 2020), the site characteristics (see Appendix A), and the habitat preferences of the conservation significant fauna species recorded in the local area, the application area was considered to contain suitable habitat for the following species:

- *Calyptorhynchus banksii naso* (Forest red-tailed black cockatoo) (listed as Vulnerable under the BC Act and EPBC Act),
- *Calyptorhynchus baudinii* (Baudin's cockatoo) (listed as Endangered under the BC Act and EPBC Act),
- *Calyptorhynchus latirostris* (Carnaby's cockatoo) (listed as Endangered under the BC Act and EPBC Act),
- *Falco peregrinus* (Peregrine falcon) (listed as other specially protected fauna by DBCA),
- *Isoodon fusciventer* (Quenda) (listed as Priority 4 by DBCA),
- *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale) (listed as a species of special conservation interest (conservation dependent fauna) by DBCA),
- *Pseudocheirus occidentalis* (Western ringtail possum) (listed as Critically Endangered under the BC Act and EPBC Act), and
- *Tyto novaehollandiae novaehollandiae* (Masked owl) (listed as Priority 3 by DBCA).

The applicant may have notification responsibilities under the EPBC Act for impacts to Baudin's black cockatoo, Carnaby's cockatoo, forest red-tailed black cockatoo, and western ringtail possum and their habitats, as set out in the EPBC Act referral guidelines for these species. The applicant has been advised to contact the federal Department of Water, Agriculture and the Environment (DAWE) to discuss EPBC Act referral requirements.

## **Black cockatoo species**

### Breeding and roosting habitat

Baudin's cockatoo, Carnaby's cockatoo and the forest red-tailed black cockatoo, collectively known as black cockatoo species, are known to nest in hollows of live and dead trees, including *Corymbia calophylla* (marri), *Eucalyptus marginata* (jarrah), *Eucalyptus diversicolor* (karri), *Eucalyptus wandoo* (wandoo), *Eucalyptus gomocephala* (tuart), *Eucalyptus rudis* (flooded gum), and other *Eucalyptus* spp. (Commonwealth of Australia, 2012). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is 500 millimetres for most tree species (Commonwealth of Australia, 2012). Breeding black cockatoos also generally forage within a 6-to-12-kilometre radius of their nesting site (Commonwealth of Australia, 2012). As the application area is located within the modelled breeding range for all three black cockatoo species and contains suitable tree species for foraging and breeding, it is considered to comprise potential breeding habitat.

Supporting information provided by the applicant indicates that two habitat trees of suitable DBH to provide breeding habitat for black cockatoo species occur within the application area (Shire of Augusta Margaret River, 2022). However, the applicant has advised that the width of the path will be 'pinched in' and reduced to 2.5 metres in the areas where the habitat trees occur, to ensure that both trees can be avoided from clearing (Shire of Augusta Margaret River, 2021). In accordance with the applicant's commitments, a condition will be applied to the permit, requiring the retention of the two habitat trees within the application area. Given the applicant has committed to retaining all black cockatoo habitat trees, the proposed clearing is not considered likely to impact potential breeding habitat for black cockatoo species or to significantly impact breeding by black cockatoo species in the local area.

It is recognised that the two habitat trees within the application area may also represent suitable roosting habitat for black cockatoo species. According to available databases, there are 18 documented roost sites for black cockatoo species in the local area, with the closest confirmed active roost site being approximately 0.8 kilometres from the application area (DBCA, 2007-). However, given the applicant has committed to avoiding the clearing of these habitat trees, the proposed clearing is also not likely to result in the loss of significant roosting habitat for any black cockatoo species.

### Foraging habitat

Black cockatoo species are noted to forage on a range of plant species, with the primary foraging resources varying between species (Commonwealth of Australia, 2012). Carnaby's cockatoos forage on the seeds, nuts, and flowers of a variety of plants, including Proteaceous species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri and a range of introduced species (Valentine and Stock, 2008). Forest red-tailed black cockatoos feed predominantly on the seeds of marri and jarrah, which comprise approximately 90 per cent of their diet (DEC, 2008). Baudin's cockatoos primarily feed on the seeds of marri, but may also forage on the seeds of jarrah and Proteaceous species (DEC, 2008). Given the application area contains marri and jarrah and occurs within the predicted occurrence range for all three black cockatoo species, the application area is likely to provide suitable foraging habitat for black cockatoos.

As the application area includes remnant jarrah and marri forest, it is likely to provide 0.31 hectares of suitable foraging habitat for black cockatoo species. However, the proposed clearing area constitutes a 0.31-hectare linear remnant of understorey species and juvenile trees and is not likely to constitute significant foraging habitat, particularly noting juvenile marri and jarrah trees are not likely to provide significant foraging value, given the lack of mature seeds and flowering bodies.

According to available databases, approximately 12,767 hectares of remnant native vegetation exists within the local area, which intersects the Warren Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and Jarrah Forest IBRA bioregion. Only the Jarrah Forest bioregion has been mapped as black cockatoo foraging habitat, however the vegetation complexes within the local area include Cowaramup, Gracetown, Gracetown Karst, Kilcarnup, and Wilyabrup, all of which contain marri and/or jarrah species, with the exception of the Kilcarnup complex. The Kilcarnup complex represents approximately 1430 hectares of remnant native vegetation and therefore. Based on the descriptions of the mapped vegetation complexes within the local area (Mattsike and Havel, 1998), approximately 9013 hectares (70.8 per cent) of remnant vegetation in the local area is likely to comprise marri and jarrah dominated woodland that is consistent with the vegetation proposed to be cleared within the application area. The application area represents approximately 0.003 per cent of all expected suitable foraging habitat in the local area and 0.008 per cent of all mapped marri and jarrah dominated woodland in the local area. Therefore, the application area is not considered likely to be significantly contributing to the availability of local foraging resources.

Further, approximately 43.8 per cent of expected suitable foraging habitat in the local area is located within secure conservation estate and is likely to provide larger areas of higher quality foraging habitat than that present within the application area.

The referral guidelines for black cockatoo species also acknowledges that foraging habitat within 12 kilometres of a breeding site and within 6 kilometres of a night roost are of particular importance for black cockatoo species (Commonwealth of Australia, 2012). According to available databases, there are no confirmed breeding sites for any black cockatoo species within 12 kilometres of the application area. While there are 11 confirmed roost sites within 6 kilometres, the application area also represents less than 0.003 per cent of mapped vegetation that is expected to provide foraging habitat within 6 kilometres of the nearest confirmed roosting sites. Therefore, the foraging habitat within the application area is also not considered likely to be significant in supporting foraging by roosting or breeding populations in the local area.

Given the extent of foraging habitat within the application area, the juvenile trees proposed to be cleared that lack mature seeds and flowering bodies, and the existence of larger remnants of secure foraging habitat in the vicinity, the application area is not considered likely to comprise significant foraging habitat for black cockatoo species or to be critical in supporting foraging by black cockatoo species in the local area. As discussed above, the proposed clearing is not considered likely to represent a significant loss of foraging resources for black cockatoo species in the context of the broader landscape.

### **Other avian fauna**

The peregrine falcon typically nests on rocky ledges in tall, vertical cliff faces and gorges, or in tall trees associated with drainage lines, and can hunt in a range of habitat types including timbered watercourses, riverine environments, wetlands, plains, open woodlands, and pylons and spires of buildings (Australian Museum, 2021). Given its woodland structure and proximity to existing records, the application area may provide suitable foraging habitat for the peregrine falcon but is unlikely to provide suitable nesting habitat. Noting that the peregrine falcon is a highly mobile species with a large home range that does not rely on specialist niche habitats, the species is likely to be transient in the application area only and it is unlikely that the application area represents significant habitat for the species. Further, noting that the application proposes to clear a 0.31-hectare linear remnant of understorey species and small trees adjacent to the existing Walcliffe Cycle Path and that larger remnants of secure native vegetation exist in the vicinity (e.g., Leeuwin-Naturaliste National Park), it is unlikely that the peregrine falcon would be reliant on the application area for foraging in the local area.

The masked owl (southern race) occurs across southern Australia from New South Wales to Western Australia and inhabits a wide variety of lowland forests and woodlands that provide mature trees with hollows suitable for nesting and roosting, and nearby open areas for foraging (DSE, 2003). The remnant marri and jarrah forest within the application area, therefore, may provide suitable habitat for the masked owl. However, given the applicant has committed to retaining all habitat trees within the application area and that larger remnants of higher quality habitat persist in conservation estate in the local area, it is not considered likely that the masked owl is reliant on the application area for foraging or roosting in the local area or that the application area comprises significant habitat for these species.

### **Quenda**

Quenda are ground-dwelling marsupials, typically associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012a). Given the application area includes remnant marri and jarrah forest within three larger patches of remnant vegetation, it may provide suitable habitat for quenda. However, it is acknowledged that the application area comprises a 0.31-hectare linear remnant of vegetation in Degraded (Keighery, 1994) condition adjacent to the existing Walcliffe Cycle Path and is unlikely to represent the dense understorey typically associated with significant habitat for quenda. Given the extent and linear distribution of the proposed clearing and the presence of larger remnants of secure native vegetation in the local area, the application area is not considered likely to comprise significant habitat for the species. The implementation of slow, progressive directional clearing is also considered to aid any individuals present at the time of clearing to move into adjacent native vegetation outside of the clearing area and is considered appropriate to minimise the potential for direct impacts to individuals.

### **Arboreal fauna**

The western ringtail possum is an arboreal folivore, associated with long unburnt mature remnant peppermint woodlands along the Swan Coastal Plain management zone from Mandurah to Augusta, characterised by high

canopy cover and connectivity (DPAW, 2017). Throughout the range of the western ringtail possum, suitable habitat also includes marri and jarrah woodlands and other Eucalyptus dominated forests with appropriate canopy, that provide suitable foraging habitat and tree hollows for breeding and diurnal refuge (DPAW, 2017). Where tree hollows are lacking, the most commonly utilised diurnal refugia for western ringtail possums are dreys, a nest typically formed from a mass of twigs (DPAW, 2017). As the application area comprises remnant marri, jarrah and peppermint woodland, it is likely to provide suitable habitat for the western ringtail possum.

The south-western brush-tailed phascogale is an arboreal dasyurid, associated with dry sclerophyll forests and open woodlands that contain hollow-bearing trees, characterised by high canopy cover and connectivity (DEC, 2012b). As the application area contains remnant marri and jarrah woodland with mature trees that may be of suitable size to produce hollows, it is also likely to provide suitable habitat for the south-western brush-tailed phascogale.

A targeted western ringtail possum habitat assessment and survey, including a desktop review, reconnaissance survey, habitat assessment and nocturnal spotlighting, was undertaken along the 1.27-kilometre length of the Wallcliffe Cycle Path (the survey transect) by Litoria Ecoservices in July and August 2020 (Litoria Ecoservices, 2020). The reconnaissance survey and habitat assessment identified that the survey transect was likely to provide suitable habitat for western ringtail possums due to the presence of multiple preferred food species and large, potentially hollow-bearing trees (Litoria Ecoservices, 2020). The reconnaissance survey also identified indirect evidence of western ringtail possums, noting that scat was observed in multiple locations, with a higher density of scat in the western portion of the path, and observing six dreys within peppermint trees along the survey transect (Litoria Ecoservices, 2020). However, it is noted that all six dreys were located in trees outside of the application area (Figure 6; Litoria Ecoservices, 2020).

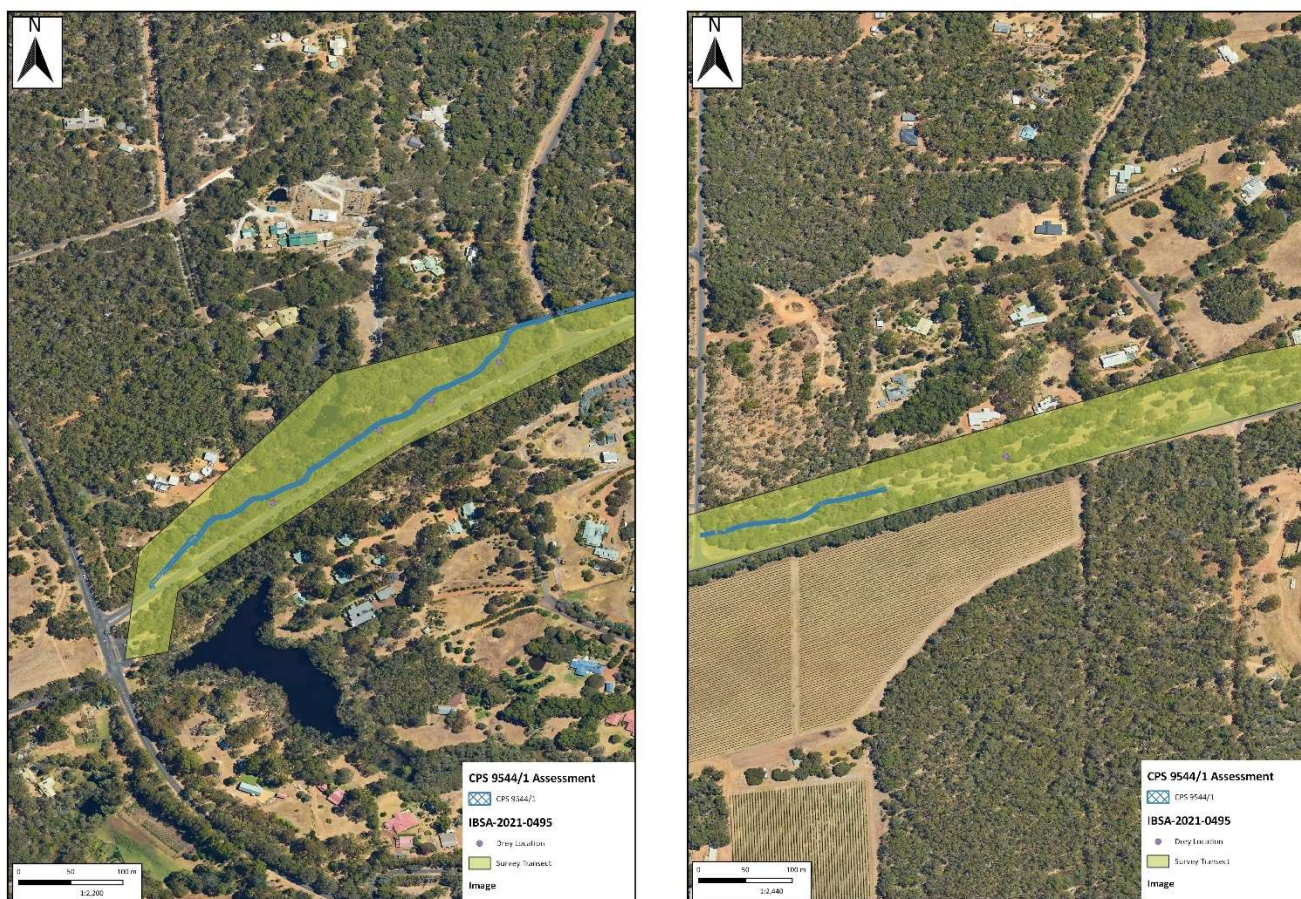


Figure 6. Location of western ringtail possum dreys identified during the western ringtail possum habitat assessment and survey in relation to the area proposed to be cleared under CPS 9544/1 (Litoria Ecoservices, 2020).

The presence of western ringtail possums along the Wallcliffe Cycle Path was confirmed during nocturnal spotlighting, which observed 25 individuals along the survey transect across three nights of spotlighting from 28 July to 1 August 2020, of which 15 individuals were recorded within or adjacent to the application area (Litoria Ecoservices, 2020). However, it is acknowledged that this is unlikely to represent the actual number of individuals along the Wallcliffe Cycle Path as the same individuals may have been recorded on multiple nights (Litoria Ecoservices, 2020).

Nocturnal spotlighting also identified the presence of *Trichosurus vulpecula* (common brushtail possum) and the south-western brush-tailed phascogale within the survey transect (Litoria Ecoservices, 2020). It is noted that one individual south-western brush-tailed phascogale was identified in the stretch of the Wallcliffe Cycle Path between the western and eastern portions of the application area (Litoria Ecoservices, 2020).

Given the findings of the targeted western ringtail possum habitat assessment and survey, it is likely that both the western ringtail possum and south-western brush-tailed phascogale are utilising the application area. Noting that the recovery plan for the western ringtail possum describes critical habitat as any habitat where the species occurs naturally (DPAW, 2017), the greater patch of vegetation along the Wallcliffe Cycle Path is likely to be considered critical habitat for the species. Regarding the south-western brush-tailed phascogale, critical habitat is likely to comprise mature, hollow-bearing trees that the species relies upon for breeding and diurnal refuge sites (DEC, 2012b), which may be present in the greater patch of vegetation along the Wallcliffe Cycle Path. However, it is acknowledged that the application area itself comprises 0.31 hectares of degraded vegetation along a 1.27-kilometre length of the existing cycle path and predominantly includes mid- and understorey species and immature marri, jarrah, and peppermint that provide some connectivity to the adjacent patch of native vegetation within Crown Reserves 36747, 37326, and 40289. The targeted western ringtail possum habitat assessment and survey also did not identify any dreys within the application area itself, meaning it is likely that use of the application area by western ringtail possums is limited to foraging and movement between diurnal refuge sites in adjacent vegetation. Further, the applicant has committed to retaining all habitat trees of suitable size to produce hollows within the application area (Shire of Augusta Margaret River, 2021), making it unlikely that significant breeding or diurnal refuge sites for the western ringtail possum and south-western brush-tailed phascogale will be impacted by the proposed clearing. Given the above, the extent and linear nature of the proposed clearing, and the presence of large, intact remnants of suitable habitat for western ringtail possums and south-western brush-tailed phascogale adjacent to the application area and in the local area, it is not considered likely that the application area itself represents significant habitat for these species or that the proposed clearing represents a significant risk to their continuation.

However, as it is possible that individual western ringtail possums and south-western brush-tailed phascogale will be using the site at the time of the clearing, a condition will be applied to the permit requiring the inspection of all trees and hollows for individuals by a fauna specialist prior to clearing and the delay of clearing until any individuals identified have moved out of the clearing area or have been relocated.

#### Conclusion

Based on the above assessment, the proposed clearing will result in impacts to 0.31 hectares of suitable foraging habitat for several conservation significant species, most notably all three black cockatoo species, the western ringtail possum and the south-western brush-tailed phascogale, but is unlikely to impact suitable breeding habitat or diurnal refuge sites. Given the applicant's avoidance and mitigation measures, the condition of the vegetation and the extent and linear nature of the proposed clearing in the context of the greater site and local area, the Delegated Officer determined that the vegetation within the application area is unlikely to represent significant breeding, roosting or foraging habitat for any conservation significant fauna species, and that the proposed clearing does not constitute a significant residual impact to fauna habitat.

For the reasons set out above, it is considered that the direct impacts of the proposed clearing on conservation significant fauna can be managed through permit conditioning requiring the retention of all habitat trees within the application area, the implementation of slow, progressive direction clearing, and pre-clearing inspections for the presence of fauna.

#### Conditions

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

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing,
- Fauna management (retain black cockatoo habitat trees), which requires the demarcation of all habitat trees within the application area prior to clearing and the retention of both trees, and
- Fauna management (western ringtail possums and south-western brush-tailed phascogale), which requires the inspection of all trees and hollows for the presence of western ringtail possums and south-western brush-tailed phascogale prior to clearing and for clearing to cease where any individuals are identified until the individual has dispersed or been relocated.

### 3.2.2. Biological values (flora) - Clearing Principles (a) and (c)

#### Assessment

A review of the site characteristics and habitat preferences of conservation significant species recorded within the local area (see Appendix A) identified that the application area may provide suitable habitat for the following species:

- *Caladenia excelsa* (Giant Spider-orchid) (listed as Endangered under both the BC Act and EPBC Act), and
- *Caladenia lodgeana* (Lodge's Spider-orchid) (listed as Critically Endangered under both the BC Act and EPBC Act).

The giant spider-orchid is a tuberous perennial herb with green, white, and red flowers occurring between September and October, and is typically associated with low, dense shrubs in woodlands dominated by *Eucalyptus* spp., marri, *Agonis flexuosa* (peppermint), *Banksia* spp., and *Allocasuarina* spp. (sheoak), on hilltops, slopes, swales and low plains in deep yellow, white or grey sandy soils (Western Australian Herbarium, 1998-). The giant spider-orchid is known from a population size of 257 plants across 26 small, fragmented sub-populations (DEWHA, 2008). As the application area consists of remnant marri, jarrah, and peppermint woodland within soil systems that are consistent with existing records, the application area may provide suitable habitat for the giant spider-orchid. Given the giant spider-orchid is listed as threatened under both the state BC Act and Commonwealth EPBC Act and is limited to small, fragmented populations, the presence of the species within the application area would be considered significant. However, it is acknowledged that the application area comprises a linear strip of 0.31 hectares of Degraded (Keighery, 1994) condition native vegetation along a 1.27-kilometre length of the existing Wallcliffe Cycle Path. Supporting information provided by the applicant also notes that the application area contains several significant weed species including *Zantedeschia aethiopica* (Arum lily), *Acacia decurrens* (early black wattle), *Acacia iteaphylla* (Flinders Range wattle) and *Acacia longifolia* (Sydney golden wattle) (Shire of Augusta Margaret River, 2021). Noting that the giant spider-orchid is typically associated with dense shrubland and that invasive weeds are noted to pose a significant threat to the species (DEWHA, 2008), it is unlikely that the application area would comprise significant habitat for the giant spider-orchid.

Lodge's spider-orchid is a tuberous perennial herb with cream, pale yellow or greenish-yellow, maroon-marked flowers occurring in October, and is typically associated with seasonally moist to wet clay soil on the margins of low granite outcrops (DSEWPC, 2013). Lodge's spider-orchid is known from a total of 137 mature individuals across four populations (one near Augusta and three south-east of Collie), with two other populations (one near Augusta and one south-west of Margaret River) now thought to be extinct (DSEWPC, 2013). The Augusta population inhabits low scrub of *Dodonaea ceratocarpa*, *Melaleuca* spp. and *Leptospermum* spp. with occasional emergent marri, while the Collie populations have been recorded within jarrah, marri and sheoak forest over dwarf scrub and sedges (DSEWPC, 2013). As the application area consists of remnant marri and jarrah woodland over sedges within soil systems that are consistent with existing records, the application area may provide suitable habitat for Lodge's spider-orchid. Given Lodge's spider-orchid is listed as threatened under both the state BC Act and Commonwealth EPBC Act and is limited to a small number of individuals across four populations, the presence of the species within the application area would be considered significant. However, it is acknowledged that while the application area contains typically associated species, it is not located on a wetland margin and does not contain the granite outcrops typically associated with significant habitat for Lodge's spider-orchid. Further, it is noted that the only record of Lodge's spider-orchid in the local area is from 1987 and is now considered to be an extinct population (DSEWPC, 2013). The next closest recorded of the species is approximately 37 kilometres south of the application area in Augusta (Western Australian Herbarium, 1998-). Given the above, the extent and condition of vegetation within the application area, and proximity to existing populations, it is not considered likely that the proposed clearing will impact significant habitat for Lodge's spider-orchid.

#### Conclusion

Based on the above assessment, the proposed clearing is not considered likely to represent significant habitat for any threatened or priority flora species or to be critical for the continuation of these species. For the reasons set out above, it is considered that impacts to conservation significant flora species are unlikely to result from the proposed clearing and that this does not constitute a significant residual impact.

#### Conditions

No flora management conditions required.



### 3.2.3. Water resources - Clearing Principle (f)

#### Assessment

Given the westernmost and easternmost sections of the application area are located adjacent to non-perennial tributaries of the Margaret River System, some of the vegetation within the application area may be growing in, or in association with, an environment associated with a watercourse. However, it is acknowledged that the extent of the application area that runs adjacent to this watercourse is approximately 0.04 hectares across a 0.4-kilometre area. It is also acknowledged that the vegetation in these areas is in Degraded (Keighery, 1994) condition and is subject to ongoing disturbance from the adjacent Wallcliffe Cycle Path. Therefore, it is unlikely that the vegetation within the application area is contributing significantly to the function of riparian communities within the Margaret River System. Given the extent and location of the proposed clearing, the condition of the vegetation, and adjacent land use, the proposed clearing is not considered likely to result in any significant or long-term impacts to the ecological values of the vegetation communities associated with the non-perennial tributaries of the Margaret River System adjacent to the application area.

Noting the condition of the vegetation and that supporting information provided by the applicant indicates the presence of invasive weed species, it is acknowledged that the proposed clearing may cause degradation of adjacent and nearby remnant native vegetation and riparian communities by facilitating the spread of weeds and dieback. A weed and dieback management condition is considered to minimise this risk, and it is not considered likely that the proposed clearing will have a significant impact on adjacent remnant vegetation or riparian communities within the Margaret River System.

#### Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to the ecological values of vegetation communities associated with a watercourse but may facilitate the spread of weeds and dieback into adjacent and nearby remnant vegetation in the local area, including an adjacent riparian vegetation. For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed to be environmentally acceptable by taking steps to minimise the risk of the introduction and spread of weeds and dieback and does not constitute a significant residual impact.

#### Conditions

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

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.

### 3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on DWER's website on 12 February 2022, inviting submissions from the public within a 21-day period. No submissions were received in relation to this application.

Supporting information provided by the applicant indicated that a Bed and Banks permit under the *Rights in Water and Irrigation Act 1914 (WA)* (RIWI Act) will be obtained from the Department, should any clearing be required within culverts or in the vicinity of the non-perennial tributary of the Margaret River System that transects the application area (Shire of Augusta Margaret River, 2021). However, the Department notes that the application area is not located within a surface water area proclaimed under the RIWI Act and therefore, additional approvals are unlikely to be required.

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

**End**

## Appendix A. Site characteristics

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

### A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of three patches of remnant native vegetation in the intensive land use zone of Western Australia. It runs parallel to the existing edge of the Wallcliffe Cycle Path in a section east of Caves Road and is otherwise surrounded by remnant native vegetation. The proposed clearing area comprises three linear strips of 0.046 hectares within a 4-hectare remnant of native vegetation, 0.142 hectares within a 46-hectare remnant of native vegetation, and 0.122 hectares within a 30-hectare remnant of native vegetation, in a landscape where vegetation has been highly fragmented by historical clearing. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 50 per cent of the original native vegetation cover (see Appendix A.2).
Ecological linkage	The application area does not intersect any formally mapped ecological linkages. Given the fragmented nature of vegetation in the local area, the vegetation within the application area is likely to be contributing to linkage values along Wallcliffe Road. However, noting the location of the application area adjacent to the existing Wallcliffe Cycle Path, the extent of the proposed clearing, and that mature trees and a continuous remnant of adjacent vegetation will be retained, the application area is not considered to be contributing significantly to the values of any formal or informal ecological linkages in the local area.
Conservation areas	The closest conservation areas are Leeuwin-Naturaliste National Park, located approximately 1.8 kilometres west of the application area, and Wooditjup National Park, located approximately 1.9 kilometres north-east of the application area. The nearest conservation areas are separated from the application area by historically cleared land and tributaries of the Margaret River.
Vegetation description	<p>Photographs and a site inspection report supplied by the applicant indicate that the vegetation within the proposed clearing area consists of remnant native <i>Eucalyptus marginata</i> (jarrah) and <i>Corymbia calophylla</i> (marri) forest and low <i>Agonis flexuosa</i> (peppermint) forest over <i>Xanthorrhoea</i> spp. (grass trees) and sedges (Shire of Augusta Margaret River, 2021). Representative photos are available in Appendix E.</p> <p>This is broadly consistent with the mapped South West Forest vegetation types:</p> <ul style="list-style-type: none"> <li>• Cowaramup, C1, which is described as open to tall open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i>-<i>Banksia grandis</i> on lateritic uplands in the hyperhumid zone,</li> <li>• Wilyabrup, W1, which is described as tall open forest of <i>Eucalyptus diversicolor</i>-<i>Corymbia calophylla</i>-<i>Allocasuarina decussata</i>-<i>Agonis flexuosa</i> on deeply incised valleys in the hyperhumid zone, and</li> <li>• Wilyabrup, Ww1, which is described as tall open forest of <i>Eucalyptus diversicolor</i>-<i>Agonis flexuosa</i>-<i>Callistachys lanceolata</i> with some <i>Corymbia calophylla</i> on flats and valleys in the hyperhumid zone (Mattiske and Havel, 1998).</li> </ul>
Vegetation condition	Photographs and a site inspection report supplied by the applicant indicate that the vegetation within the proposed clearing area is in Degraded (Keighery, 1994) condition.

Characteristic	Details
	<p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix E.</p>
Climate and landform	<p>The application area occurs on gently undulating topography, with rises ranging between 45 metres Australian Height Datum (m AHD) to approximately 90 m AHD.</p> <p>The application area has a mean annual maximum temperature of 19.8°C and a mean annual minimum temperature of 14.1°C. The mean annual rainfall is 1200 millimetres, and the annual evapotranspiration rate is 800 millimetres.</p>
Soil description and land degradation risk	<p>The soil within the application area is mapped as the following systems:</p> <ul style="list-style-type: none"> <li>• Cowaramup, undifferentiated upland Phase (216CoCOu), described as flats and gentles slopes (0-5% gradient) with gravelly duplex (Forest Grove) and pale grey mottled (Mungite) soils, and comprising approximately 75 per cent of mapped soils within the application area,</li> <li>• Wilyabrup, undifferentiated hillslope Phase (216WvWLh), described as slopes with gradients generally 5-15%, but ranging from 2-30%, and gravelly soils (i.e. Forest Grove and Keenan Soils), and comprising approximately 15 per cent of mapped soils within the application area, and</li> <li>• Wilyabrup narrow valley floor Phase (216WvWLV), described as narrow V-shaped drainage depressions, and comprising approximately 10 per cent of mapped soils within the application area (DPIRD, 2022).</li> </ul> <p>The soil types within the application area are mapped as having a low risk of land degradation resulting from water erosion, salinity, waterlogging, flooding, and phosphorus export, but as having a moderate to high risk of wind erosion and subsurface acidification (DPIRD, 2022).</p>
Waterbodies and hydrogeography	<p>The desktop assessment and aerial imagery indicated that the application area does not intersect any mapped watercourses or wetlands but is directly adjacent to a non-perennial tributary of the Margaret River System at its westernmost extent and occurs within 100 metres of Boodjidup Brook. The closest wetland to the application area is seasonally waterlogged flat (palusplain) located 240 metres south-west, separated from the application area by historically cleared land and road infrastructure.</p> <p>The application area is mapped within the Busselton-Capel Groundwater Area, a proclaimed groundwater area under the <i>Rights in Water and Irrigation Act 1914</i> (the RIWI Act). The application area does not transect any proclaimed surface water areas or any water resources proclaimed under either the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> or <i>Country Areas Water Supply Act 1947</i> (CAWS Act).</p> <p>Groundwater salinity within the application area is mapped at 1000 to 3000 milligrams per litre total dissolved solids.</p>
Flora	<p>The desktop assessment identified that a total of 21 threatened or priority flora species have been recorded within the local area, comprising three Priority 1 (P1) flora, two Priority 2 (P2) flora, nine Priority 3 (P3) flora, five Priority 4 (P4) flora, and two threatened (T) flora (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest records being an occurrence of <i>Caladenia excelsa</i> (T) approximately 540 metres from the application area.</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), the habitat preferences and conservation statuses of the aforementioned species, and the distribution and extent of existing records, the application area may provide suitable habitat for two threatened flora species and impacts to these species required further consideration (see Appendix A.3).</p>

Characteristic	Details
Ecological communities	<p>The desktop assessment identified that the closest state-listed threatened ecological community (TEC) is an occurrence of the Aquatic Root Mat Community Number 2 of Caves of the Leeuwin Naturaliste Ridge (Strongs Cave) TEC, located approximately 9.4 kilometres south of the application area.</p> <p>The closest state-listed priority ecological community (PEC) is an occurrence of the <i>Melaleuca lanceolata</i> forests, Leeuwin Naturaliste Ridge PEC, located approximately 2.6 kilometres west of the application area, separated by historically cleared land and tributaries of the Margaret River.</p>
Fauna	<p>The desktop assessment identified that a total of 49 threatened or priority fauna species have been recorded within the local area, including 27 threatened fauna species, 11 priority fauna species, 6 fauna species protected under international agreement, two other specially protected fauna species, and three species presumed extinct (DBCA, 2007-). Two existing records occur within the application area, both being records of <i>Pseudocheirus occidentalis</i> (western ringtail possum).</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), the habitat preferences and conservation statuses of the aforementioned species, and the distribution and extent of existing records, the application area may provide suitable habitat for eight conservation significant fauna species and impacts to these species required further consideration (see Appendix A.4).</p>

## A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion**					
Warren	833,985.56	659,432.21	79.07	558,485.38	66.97
Mattiske vegetation complex*					
Cowaramup, C1	18,981.79	6,540.87	34.46	2286.01	12.04
Wilyabrup, W1	7,296.19	3,915.60	53.67	1878.79	25.75
Wilyabrup, Ww1	2,267.64	1,218.01	53.71	495.37	21.85
Local area					
10-kilometre radius	25,470.78	12,767.36	50.13	-	-

\*Government of Western Australia (2019a)

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

### A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and the distribution and extent of existing records, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Caladenia excelsa</i>	EN	N	Y	Y	0.5	25	N/A
<i>Caladenia lodgeana</i>	CR	N	Y	Y	2.3	1	N/A

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

### A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), the distribution and extent of existing records, and biological survey information (Litoria Ecoservices, 2020), impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Calyptorhynchus banksii naso</i> (Forest red-tailed black cockatoo)	VU	Y	Y	2.2	12	N/A
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Y	Y	2.2	533	N/A
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	2.3	118	N/A
<i>Falco peregrinus</i> (Peregrine falcon)	OS	Y	Y	1.9	5	N/A
<i>Isodon fusciventer</i> (Quenda)	P4	Y	Y	1.3	89	N/A
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale)	CD	Y	Y	0.9	77	N/A
<i>Pseudocheirus occidentalis</i> (Western ringtail possum)	CR	Y	Y	0.0	450	N/A
<i>Tyto novaehollandiae novaehollandiae</i> (Masked owl)	P3	Y	Y	2.3	3	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority; CD: Species of special conservation interest (conservation dependent fauna); OS: other specially protected fauna

## Appendix B. 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> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared may contain suitable habitat for conservation significant flora and fauna species. However, given the area proposed to be cleared comprises degraded marri-jarrah-peppermint woodland within the maintenance zone of an existing cycle path, the application area is not considered likely to contain significant ecological communities or to comprise a high level of biodiversity.</p>	Not likely to be at variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2, above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared may contain foraging, roosting, and/or breeding habitat for eight conservation significant fauna species.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared may contain suitable habitat for two threatened flora species.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared comprises degraded marri-jarrah-peppermint woodland within the maintenance zone of an existing cycle path and is not considered to comprise vegetation representative of any threatened ecological community (TEC) listed under the BC Act or EPBC Act. Given the distance and separation from the nearest TEC, the proposed clearing is not likely to impact or be necessary for the maintenance of any TEC.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (see Appendix A.2). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> Given the distance and separation from the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any nearby conservation areas.</p>	Not likely to be at variance	No

**Environmental value: land and water resources**

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

**Assessment:** Given the application area is adjacent to a watercourse, the vegetation within the application area may be growing in, or in association with, an environment associated with a watercourse and the proposed clearing has the potential to impact on- or off-site hydrology and water quality.

May be at variance

Yes  
*Refer to Section 3.2.3, above.*

**Principle (g):** *“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”*

**Assessment:** The mapped soils are highly susceptible to wind erosion and subsurface acidification, which may be exacerbated by the clearing of surface vegetation. However, given the extent and linear nature of the proposed clearing, the highly disturbed condition of the vegetation, that no mature trees will be removed, and that the final land use will be a cycle path that is sealed with red asphalt and will not leave bare ground exposed to weathering for extended periods, the proposed clearing is not likely to have an appreciable impact on land degradation.

Not likely to be at variance

No

**Principle (i):** *“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”*

**Assessment:** Given the application area is adjacent to a watercourse, the proposed clearing has the potential to impact water quality. However, given the extent and linear nature of the proposed clearing, that the adjacent watercourse is non-perennial, and that no mature trees are proposed to be removed, it is unlikely that the proposed clearing will result in significant impacts to surface or groundwater quality.

Not likely to be at variance

No

**Principle (j):** *“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”*

**Assessment:** The mapped soils and topographic contours in the surrounding area do not indicate that the application area is susceptible to flooding. Noting this, the extent of the proposed clearing, and the condition of the vegetation, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding.

Not likely to be at variance

No

## Appendix C. Vegetation condition rating scale

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

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

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.



## Appendix D. Biological survey information excerpts

The applicant commissioned the *'Western Ringtail Possum Habitat Assessment and Survey - Wallcliffe Road Bike Path, Margaret River'* (targeted western ringtail possum habitat assessment and survey) to provide an indication of the likelihood of western ringtail possums utilised the site, an understanding of the populations utilising remnant bushland surrounding the site, and to provide recommendations in relation to minimising impacts to western ringtail possums (Litoria Ecoservices, 2020). The targeted western ringtail possum habitat assessment and survey included a desktop review, reconnaissance survey, habitat assessment, and nocturnal spotlighting (Litoria Ecoservices, 2020). Survey mapping excised from the flora and fauna assessments is available in Figures 2 and 3 below.

### Desktop review

The desktop review for the targeted western ringtail possum habitat assessment and survey was undertaken by an experienced ecologist and involved the following:

- A review of the DBCA Threatened and Priority Fauna Database (utilising an approximate 10-kilometre buffer surrounding the survey area) to gather fauna records in the locality, and
- A review of the database of records from the Nature Conservation Margaret River Region's Citizen Science Western Ringtail Possum surveys which includes a transect immediately east of the site (Litoria Ecoservices, 2020).

### Reconnaissance survey and habitat assessment

The reconnaissance survey and habitat assessment was undertaken by an experienced ecologist and involved an initial site visit and walkthrough of the entire survey area on 28 July 2020, to record habitat feature observations and indications of western ringtail possums (dreys and scats) within the survey area (Litoria Ecoservices, 2020).

### Spotlighting

Nocturnal spotlighting was undertaken by an experienced ecologist and involved the following:

- Spotlighting using a H14R.2 1000lm LED Lenser headtorch over three non-consecutive nights between 28 July and 1 August 2020, utilising a transect covering the site and adjoining portions of the Wallcliffe Cycle Path that are already widened,
- A walking speed of approximately one kilometre per-hour was exhibited, covering both sides of the transect where suitable vegetation exists,
- Fauna observations were recorded including:
  - GPS coordinates,
  - Fauna species,
  - Number of individuals,
  - Approximate height,
  - Species of tree, and
  - Activity when initially spotted (Litoria Ecoservices, 2020).

### Survey descriptions and mapping

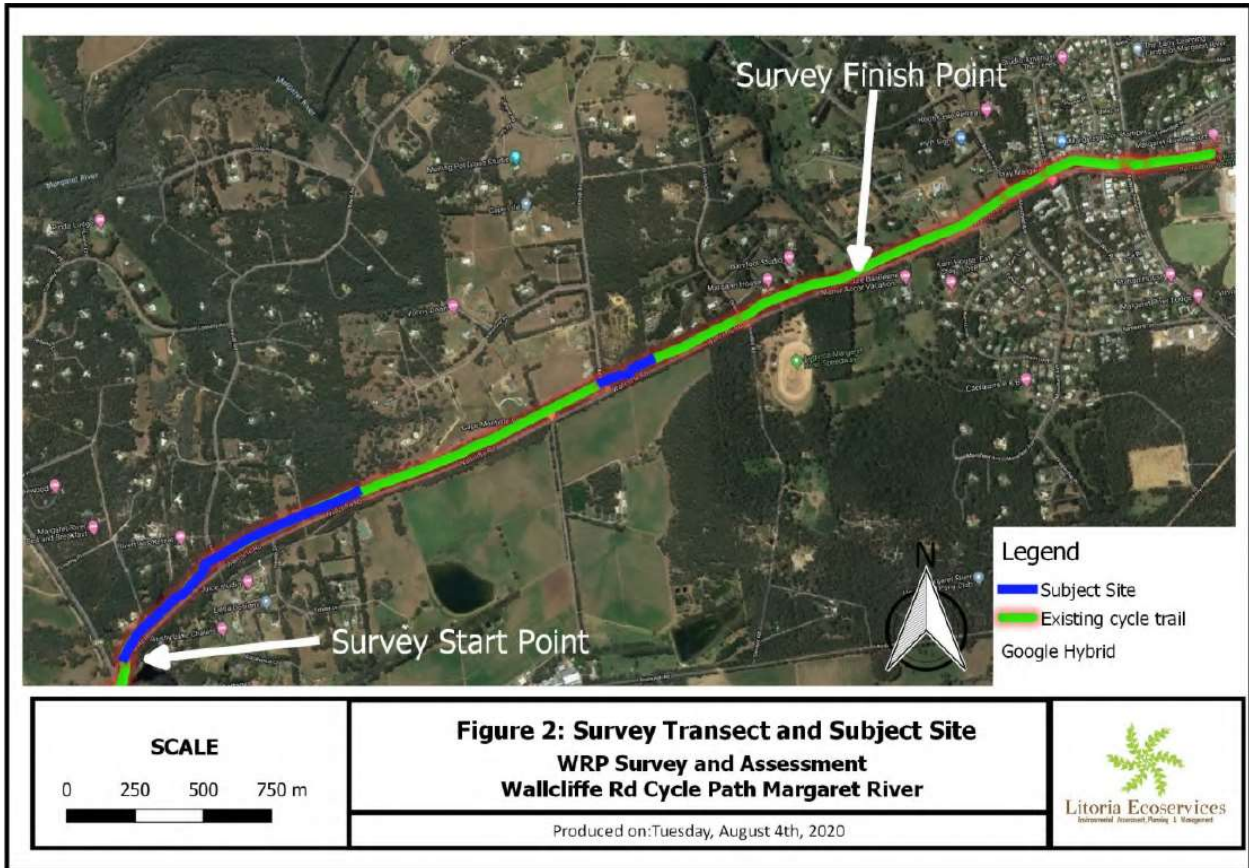


Figure 7. Survey transect and subject site for the targeted western ringtail possum habitat assessment and survey (Litoria Ecoservices, 2020).

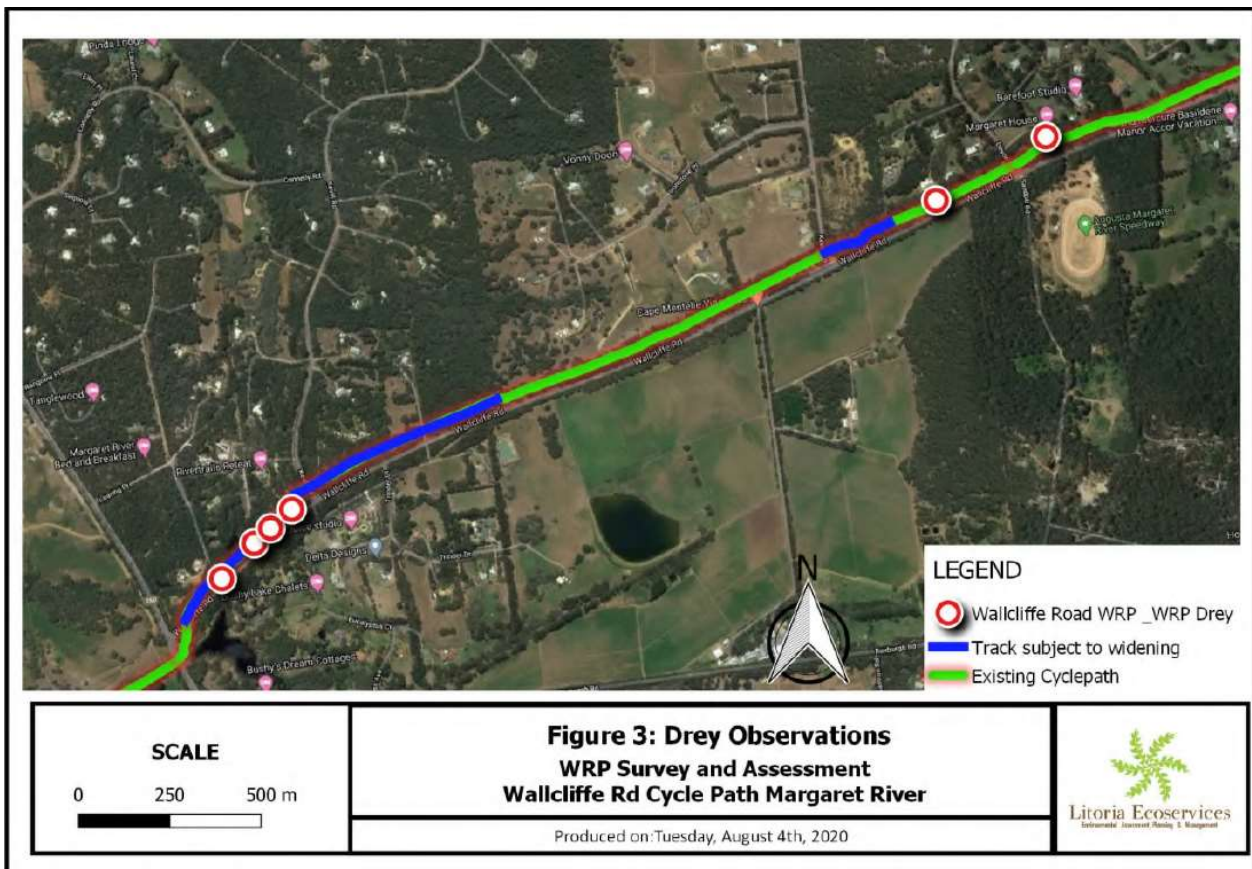


Figure 8. Drey observations during the targeted western ringtail possum habitat assessment and survey (Litoria Ecoservices, 2020).

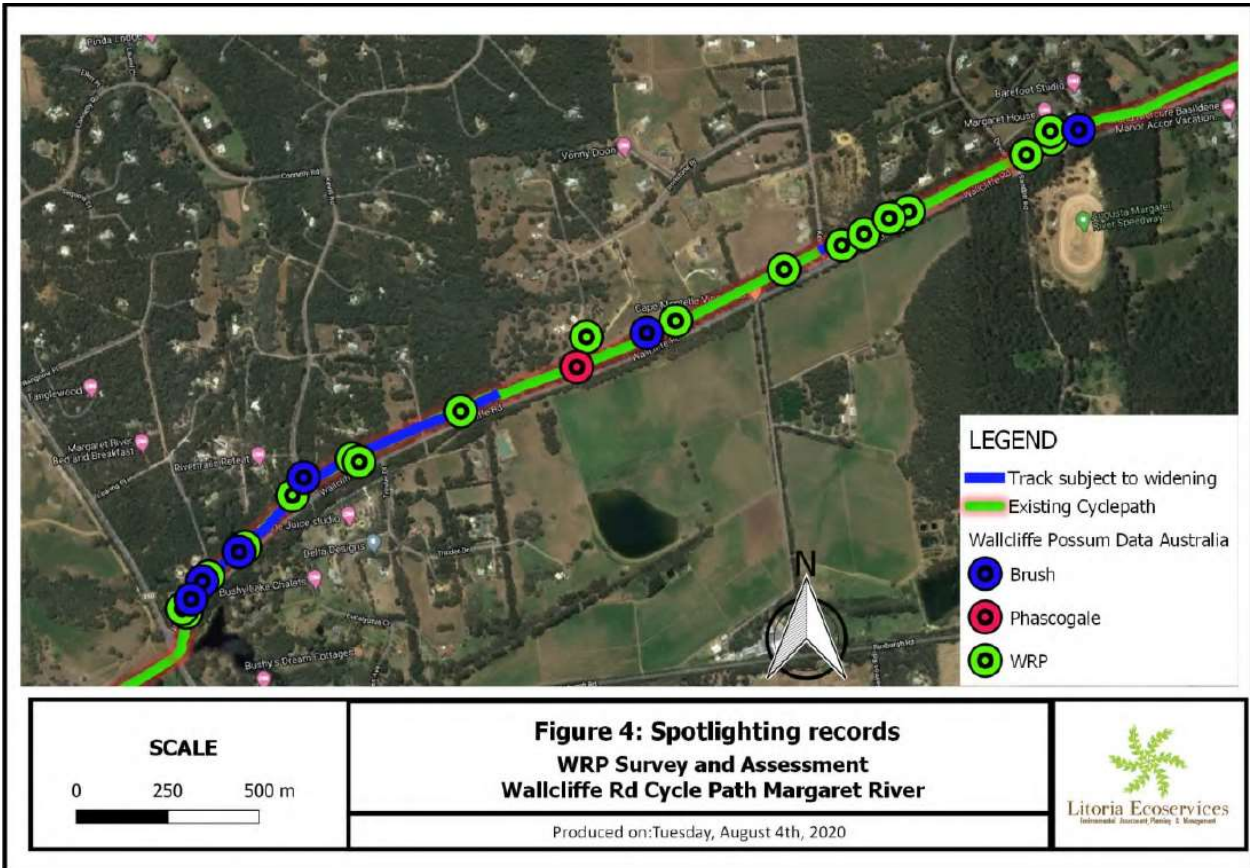


Figure 9. Spotlighting records for the targeted western ringtail possum habitat assessment and survey (Litoria Ecoservices, 2020).

## Appendix E. Photographs of the vegetation



Figure 10. Photographs of existing culvert within application area (Shire of Augusta Margaret River, 2021).



Figure 11. Photographs of the existing cycle path within application area (Shire of Augusta Margaret River, 2021).



Figure 12. Photographs of understorey and mid-storey vegetation to be cleared within the application area (Shire of Augusta Margaret River, 2021).



Figure 13. Photographs of the existing cycle path within application area (Shire of Augusta Margaret River, 2021).



Figure 14. Photographs of the existing cycle path within application area (Shire of Augusta Margaret River, 2021).

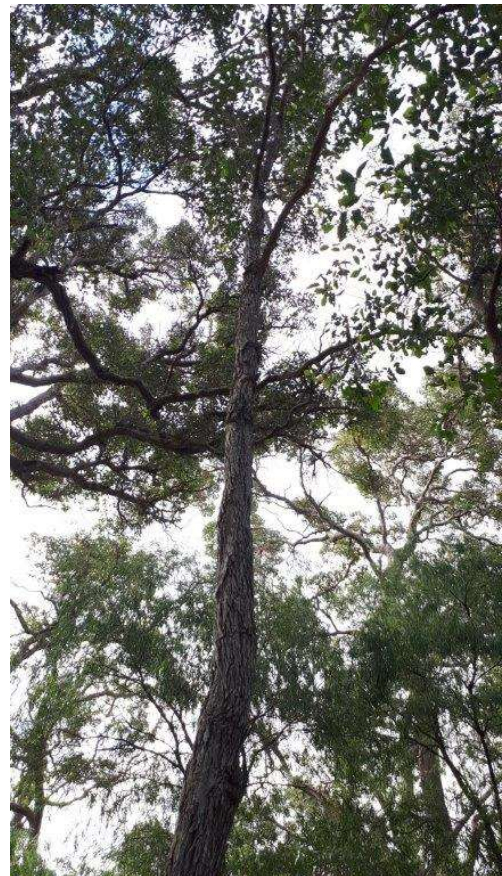


Figure 15. Photographs of an immature jarrah tree within application area (Shire of Augusta Margaret River, 2021).



Figure 16. Photographs of an immature jarrah tree within application area (Shire of Augusta Margaret River, 2021).



Figure 17. Photographs of marri trees within application area to be retained (Shire of Augusta Margaret River, 2021).



Figure 18. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).

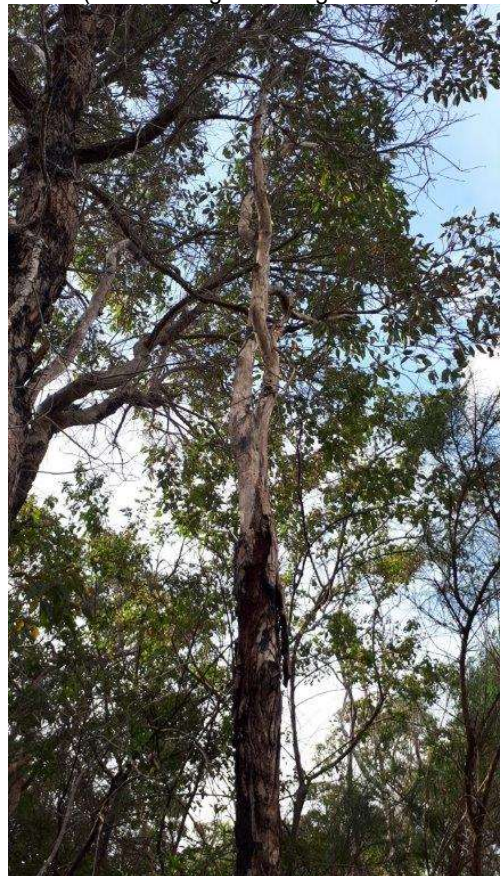


Figure 19. Photographs of an immature jarrah tree within application area (Shire of Augusta Margaret River, 2021).



Figure 20. Photographs of an immature jarrah tree within application area (Shire of Augusta Margaret River, 2021).



Figure 21. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).



Figure 22. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).



Figure 23. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).

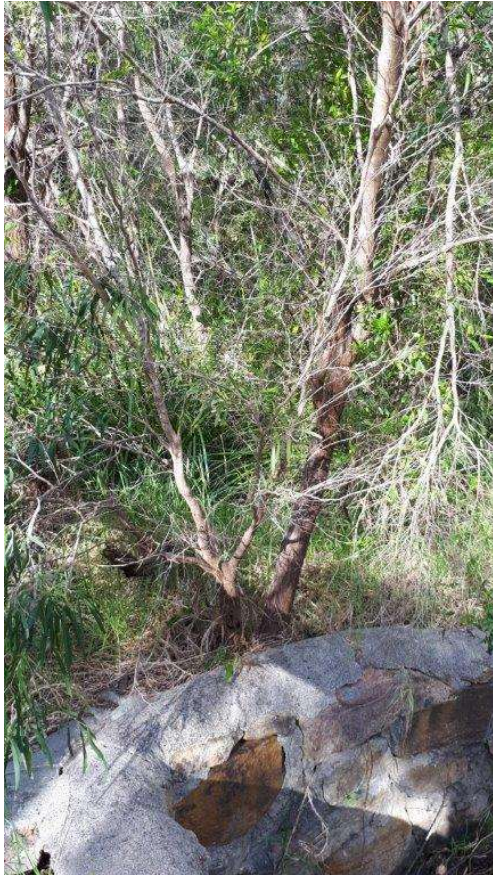


Figure 24. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).



Figure 25. Photographs of an immature peppermint tree within application area (Shire of Augusta Margaret River, 2021).

## Appendix F. Sources of information

### F.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)
- Bush Forever Areas 2000 (DPLH-019)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- CAWSA Part 2A Clearing Control Catchments (DWER-004)
- Consanguineous Wetlands Suites (DBCA-020)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- DBCA Statewide Vegetation Statistics
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Leeuwin Naturaliste Ridge and Donnybrook to Nannup - Unreviewed (DBCA-043)
- Geomorphic Wetlands, South West - Unreviewed (DBCA-040)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments - Catchments (DWER-028)
- Hydrographic Catchments - Divisions (DWER-029)
- Hydrography, Linear (Hierarchy) (DWER-031)
- 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 (DPIRD-006)
- 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 (DPIRD-027)
- Soil Landscape Mapping – Systems (DPIRD-064)
- Vegetation Complexes - South West forest region of Western Australia (DBCA-047)

#### Restricted GIS Databases used:

- Conservation Covenants Western Australia (DPIRD-023)
- Contaminated Sites Database - Restricted (DWER-073)
- 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)

## F.2. References

- Australian Museum (2021) *Perengrine falcon (Falco peregrinus)*. The Australian Museum, New South Wales. Available from: <https://australian.museum/learn/animals/birds/peregrine-falcon/>.
- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Commonwealth of Australia (2012) *EPBC Act referral guidelines for three threatened black cockatoo species*. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2007- ) *NatureMap: Mapping Western Australia's Biodiversity*. Department of Parks and Wildlife, Perth. Available from: <http://naturemap.dpaw.wa.gov.au/> (accessed March 2022).
- Department of Environment and Conservation (DEC) (2008) *Forest black cockatoo (Baudin's cockatoo, Calyptorhynchus baudinii, and forest red-tailed black cockatoo, Calyptorhynchus banksii naso) Recovery Plan*. Department of Environment and Conservation, Canberra.
- Department of Environment and Conservation (DEC) (2012a) *Fauna profiles: Quenda, Isoodon obesulus fusciventer*. Department of Environment and Conservation, Western Australia.
- Department of Environment and Conservation (DEC) (2012b) *Fauna profiles: Brush-tailed phascogale, Phascogale tapoatafa*. Department of Environment and Conservation, Western Australia.
- Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: [https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2\\_assessment\\_native\\_veg.pdf](https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf).



- Department of Parks and Wildlife (DPAW) (2015) *Procedures to Minimise the Risk to Western Ringtail Possums during Vegetation Clearing and Building Demolition*. Department of Environment and Conservation, Perth, WA.
- 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) (2022) *NRInfo Digital Mapping*. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed March 2022).
- Department of Sustainability and Environment (DSE) (2003) *Masked Owl (Tyto novaehollandiae novaehollandiae) Action Station, Flora and Fauna Guarantee Act 1988, No. 124*. Department of Sustainability and Environment, Victoria.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) (2013) *Approved Conservation Advice for Caladenia lodgeana (Lodge's spider-orchid)*. Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/68664-conservation-advice.pdf>.
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008) *Approved Conservation Advice for Caladenia excelsa (Giant Spider-orchid)*. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/56717-conservation-advice.pdf>.
- Department of Transport (2020) *Leeuwin Naturaliste 2050 Cycling Strategy*, partnering with the City of Busselton and Shire of Augusta Margaret River. Department of Transport, Perth, Western Australia.
- 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) (2020) *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Available from: [https://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf](https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf).
- Government of Western Australia (2019a) *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 (2019b) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Litoria Ecoservices (2020) *Western Ringtail Possum Habitat Assessment and Survey, Wallcliffe Road Bike Path, Margaret River*, prepared for the Shire of Augusta Margaret River, received 23 December 2021 (DWER Ref: DWERDT561192).
- 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.
- 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 Augusta Margaret River (2021) *Clearing permit application CPS 9544/1 and supporting information*, received 23 December 2021 (DWER Ref: DWERDT543216).

Shire of Augusta Margaret River (2022) *Habitat tree locations for clearing permit application CPS 9544/1*, received 13 April 2022 (DWER Ref: DWERDT591629).

Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnarara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.

Western Australian Herbarium (1998-) *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (accessed March 2022).