GOVERNMENT OF WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 8424/1
Permit Holder:	City of Busselton
Duration of Permit:	1 June 2020 to 1 June 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. **Purpose for which clearing may be done**
   Clearing for the purpose of road widening.

2. **Land on which clearing is to be done**
   Wonnerup South Road Reserve (PIN 11380875), Yalyalup.

3. **Area of Clearing**
   The Permit Holder must not clear more than 3 native trees within the area cross-hatched yellow on attached Plan 8424/1.

4. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. **Type of clearing authorised**
   This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

PART II – MANAGEMENT CONDITIONS

6. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in 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.

7. **Western ringtail possums**
   (a) In relation to the area cross-hatched yellow on attached Plan 8424/1, the Permit Holder must engage a *western ringtail possum specialist* to inspect that area, including all trees and tree hollows present, within 24 hours prior to, and for the duration of clearing, for the presence of (*Pseudocheirus occidentalis*) western ringtail possum(s).

(b) Clearing must cease in any area where fauna referred to in condition 10(a) above are identified until either:
    (i) the western ringtail possum(s) individual has moved on from that area to adjoining *suitable habitat*; or
    (ii) the western ringtail possum(s) individual has been removed by a *western ringtail possum specialist*.
(c) Any western ringtail possum (*Pseudocheirus occidentalis*) individuals removed in accordance with condition 10(b)(ii) of this Permit must be relocated by a *western ringtail possum specialist* to *suitable habitat*.
(d) Where fauna is identified under condition 10(a) of this Permit, the Permit Holder must provide the following records to the *CEO* as soon as practicable:
    (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 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
    (iv) the number of individuals removed and relocated;
    (v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;
    (vi) the date each individual was removed;
    (vii) the method of removal;
    (viii) the date each individual was relocated;
    (ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA94, 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

8. Record keeping

The Permit Holder must maintain the following records for activities done in pursuant to this Permit:

(a) In relation to the clearing of native vegetation authorised under this Permit:
    (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
    (ii) the date(s) that the area was cleared;
    (iii) the size of the area cleared (in hectares);
    (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 6 of this Permit;
    (v) actions taken to minimise the risk of the introduction and spread of *dieback* and *weeds* in accordance with condition 7 of this Permit;

9. Reporting

(a) The Permit Holder must provide to the *CEO*, on or before June 30 of each calendar year, a written report containing:
    (i) the records required to be kept under condition 9 of this Permit; and
    (ii) records of activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.
(b) If no clearing authorised under this Permit has been undertaken, a written report confirming that no clearing under this Permit has been undertaken, must be provided to the *CEO* on or before 30 June of each calendar year.
(c) The Permit Holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the Permit, a written report of records required under condition 9 of this Permit, where these records have not already been provided under condition 10(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

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;

suitable habitat means habitat known to support western ringtail possums (*Pseudocheirus occidentalis*) 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 (*Agonis flexuosa*) dominated woodlands, jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) forests, riparian vegetation with a canopy of Bullich (*Eucalyptus megacarpa*) or flooded gum (*Eucalyptus rudis*), karri (*Eucalyptus diversicolor*) forests, sheoak (*Allocasuarina fraseriana*) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains;

weed/s means any plant –

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; 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 person who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years' work experience in western ringtail possum (*Pseudocheirus occidentalis*) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016.*

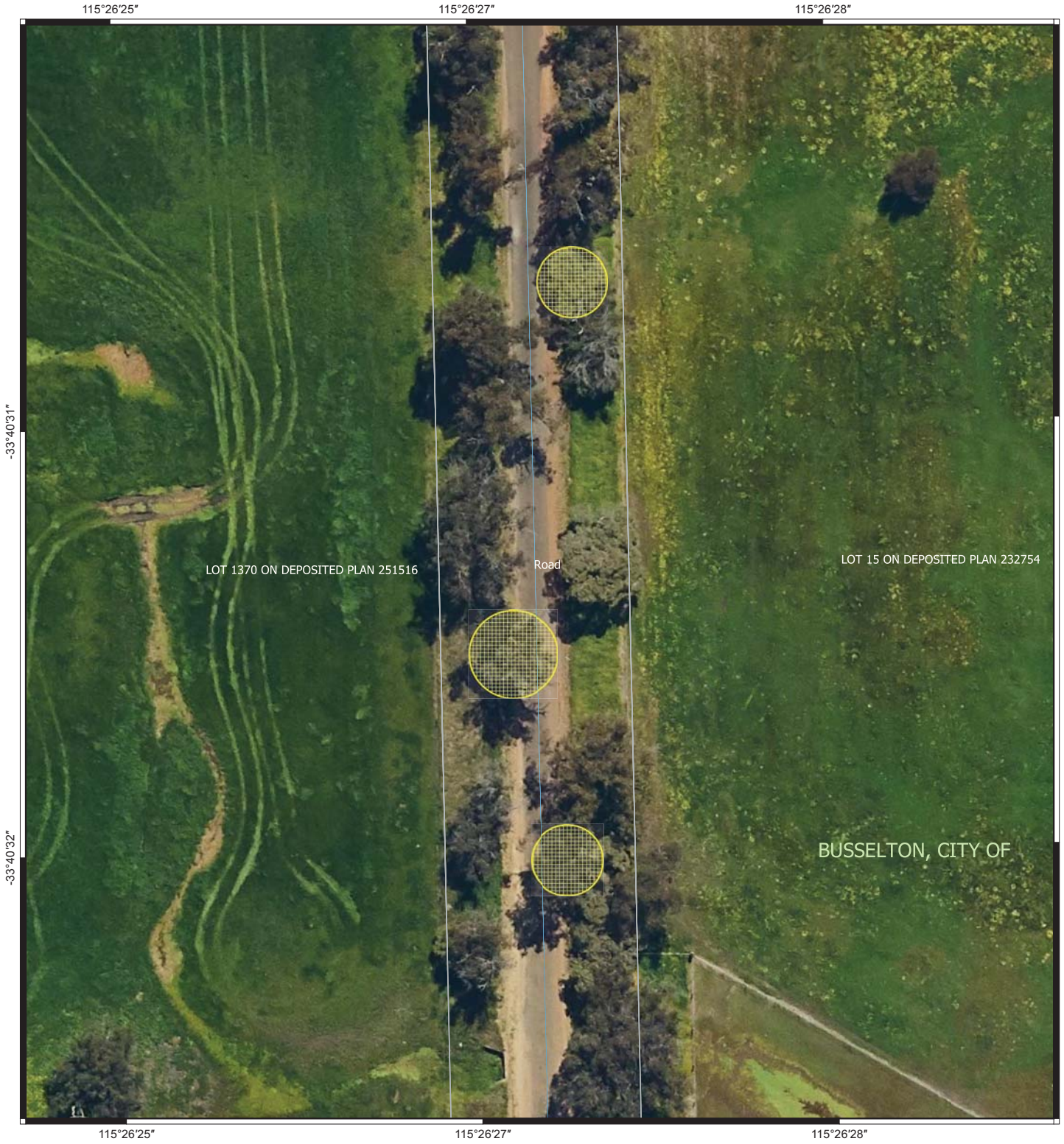
Digitally signed
by Adrian Wiley
Date: 2020.05.11
17:58:00 +08'00'

Adrian Wiley
SENIOR MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

11 May 2020

Plan 8424/1



Legend

- CPS areas approved to clear
- Local Government Authorities
- Cadastre - LGATE 218
- Localities - Landgate

0 10 20 30 40 m

MGA 94
Geocentric Datum of Australia 1994

Digitally signed by
Adrian Wiley
Date: 2020.05.11
17:57:11 +08'00'

Officer delegated under section 20 of the
Environmental Protection Act 1986

GOVERNMENT OF
WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

Permit application details

Permit application No.: 8424/1
Permit type: Purpose Permit

Applicant details

Applicant's name: City of Busselton
Application received date: 19 March 2019

Property details

Property: Wonnerup South Road Reserve (PIN 11380875)
Local Government Authority: City of Busselton
Localities: Yalyalup

Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
0.015		Mechanical Removal	Road reconstruction and widening

Decision on application

Decision on Permit Application: Grant
Decision Date: 11 May 2020

Reasons for Decision:

The clearing permit application has been assessed against the clearing principles, planning instruments and other relevant matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance with principle (e) and (f), may be at variance to principles (b) and (i), and is not likely to be at variance with the remaining principles.

The application proposed to clear two Flooded Gum - *Eucalyptus rudis* and one Paperbark - *Melaleuca rhaphiophylla*, both of which are known to grow in association with wetlands (Ecoedge, 2019a). The Delegated Officer notes, however, that the proposed clearing does not instersect any significant watercourse or wetland.

The Delegated Officer notes that Western Ringtail Possum (WRP) individuals, scats and a drey were recorded within close poximity to the application area (<120m), and given this the proposed clearing my impact on habitat utilised by WRP moving through the area. However, given small scale of clearing and presence of more suitable adjacent WRP habitat, the applied clearing is unlikely to lead to a significant environmental risk for WRP in the area.

The vegetation within the application area was surveyed to be in completely degraded (Keighery, 1994) condition, does not represent any known TEC or PEC or offer significant habitat for any threatened or priority flora species. The Delegated Officer notes that the vegetation within the application area is mappe as the extensively cleared Abba vegetation complex, retaining 6.5% of its pre-European vegetation extent. However, given it's degraded nature and the small scale of clearing the Delegated Officer considers that the clearing is unlikely to lead to a significant impact to this restriced vegetation complex.

In determing to grant to clearing permit, subject to avoid and minimise, fauna management, the Delegated Officer found that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description

The application is to clear 0.015 hectares of native vegetation within Wonnerup South Road reserve (PIN 11380875), Yalyalup, for the purpose of road reconstruction and road widening.

Vegetation Description

The application area is within the mapped Swan Coastal Plain vegetation complex - *Abba complex*, which is described as a mixture of open forest of Corymbia calophylla (Marri) - Eucalyptus marginata (Jarrah) - Banksia species and woodland of Corymbia calophylla (Marri) with minor occurrences of Corymbia haematoxylon (Mountain Marri). Woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca species along creeks and on flood plains. (Heddle et al. 1980).

A targeted flora and vegetation survey conducted by Ecoedge in September 2019 (Ecoedge, 2019a) identified five different vegetation units across the survey site. Most of the survey area was categorised as completely degraded as shown in Table 2 below.

Unit	Description	Area (ha)
A	Woodland/Open woodland of Corymbia calophylla with over occasional Banksia grandis over very scattered Acacia extensa, A. saligna, Adenanthos meisneri, Viminaria juncea, Jacksonia urcellata, Kingia australis and Xanthorrhoea preissii shrubs over grassland/herbland including *Avena barbata, *Cenchrus landestinus, *Ehrharta calycina, *Eragrostis curvula, *Arctotheca calendula, *Romulea rosea and *Watsonia meriana on grey-brown sandy-loam. (Agonis flexuosa appears as a mid-storey tree in the southern part of the Survey Area) (TEC: SWAFCT01b)	2.89
B	Woodland of Eucalyptus rudis, (Corymbia calophylla) over Melaleuca rhaphiophylla or M. preissiana over shrubland of Hakea prostrata, Kingia australis, Melaleuca rhaphiophylla and Xanthorrhoea preissii over Juncus pallidus and introduced herbaceous species. (Good to Degraded)	0.61
C	Open forest of Eucalyptus rudis or Corymbia calophylla over Melaleuca preissiana over shrubland of Astartea scoparia, Hakea ceratophylla, H. varia, Kingia australis, Melaleuca viminea, M. lateritia over Leptocarpus coangustatus and scattered *Briza maxima on damp grey-brown clay-loam. (Good-Degraded) (TEC: SWAFCT02)	0.10
D	Open forest of Corymbia calophylla (with patches of Eucalyptus patens) over Agonis flexuosa over scattered Darwinia citriodora and Xanthorrhoea preissii shrubs over introduced herbaceous taxa including *Avena barbata and *Eragrostis curvula on greybrown sandy loam. (Degraded- Completely Degraded)	0.9
E	Scattered Corymbia calophylla and introduced Eucalyptus spp. and grassland of Introduced species with isolated native shrubs such as Xanthorrhoea preissii on greybrown loam (includes roadway and gravel shoulders). (Completely Degraded)	11.59
	Area	16.19

Table 1. Vegetation Condition (Ecoedge, 2019a)

Vegetation Condition

A targeted flora and vegetation survey conducted by Ecoedge in September 2019 (Ecoedge, 2019a) indicted the majority of the survey area was categorised as completely degraded as shown in Table 2 below.

According to the survey report, all the applied clearing area (0.015 hectares) is classed as Completely Degraded (Keighery, 1994) condition (Ecoedge, 2019).

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 (Keighery, 1994).

Condition	Area (ha)	%
Good	0.09	0.57
Degraded	1.04	6.63
Completely Degraded	14.56	92.80
Total	15.69	100.00

Table 2. Vegetation Condition (Ecoedge, 2019a)

Soil and Landform Type:

The application is mapped as the following soil type:

- Abba wet vales phase: Small narrow swampy depressions along drainage lines. Alluvial soils. (Department of Primary Industries and Regional Development, 2017).

Comments:

The local area is defined as ten kilometres surrounding the application area

Figure 1. Clearing Area as defined by the cross-hatched blue area

Figure 2. *Melaleuca rhaphiophylla* – Paperbark to be cleared.

Figure 3. *Eucalyptus rudis* – Flooded Gum to be cleared.

Figure 4. *Eucalyptus rudis* – Flooded Gum to be cleared.

3. Avoidance and minimisation measures

The original application proposed clearing of 1 hectare of native vegetation within a 1.8 hectares foot print, within Wonnerup South Road reserve (PINs 11380879, 11380875, 11380848, 11380767 and 11380750), Yalyalup, for the purpose of road reconstruction and road widening.

During the assessment of the application, a delegated officer wrote to the City of Busselton on 29 July 2019 to request targeted fauna surveys for Western Ringtail Possum's (WRP), a Black Cockatoo habitat assessment, and noting that the application area is within an extensively cleared landscape. The letter requested additional evidence of the efforts to avoid and/or mitigate the proposed clearing.

The applicant informed DWER on Friday 13 September 2019 that the design of the Wonnerup South Road alignment had progressed, and the overall clearing footprint of the project had been determined. The applicant requested the clearing area be amended from 1 hectare to 0.4 hectare and informed DWER. On 8 November 2019, the City of Busselton submitted documents outlining the trees identified for clearing on Wonnerup South Road. This documentation indicated the city had removed large parts of the applied clearing area in an attempt to maintain existing tree linkages for fauna within the site.

The applicant provided the Reconnaissance and Targeted Flora and Vegetation Survey for Wonnerup South Road on 15 January 2020 (Ecoedge, 2019a) and the Level 2 Fauna Assessment for Wonnerup South Road on 17 January 2020 (Ecoedge, 2019b). The results of the fauna survey indicate all the hollow containing habitat trees had been avoided and none of the WRP sightings or dreys were contained within the clearing area.

A delegated officer emailed the City of Busselton on 12 March 2020 to inform the applicant that in order to progress the application, DWER requires the City to contact DBCA regarding the impacts and modification to the TEC '*Southern Corymbia calophylla woodlands on heavy soils*' (SWAFCT01b), their resulting obligations under the *Biodiversity Conservation Act 2016*, and requested the applicant provide further mitigation and/or offsets to address the significant residual impacts to the Abba Vegetation Complex.

The City of Busselton responded on 18 March 2020 with a letter from Ecoedge (2020) indicating that none of the mapped TEC areas identified in the flora survey were contained in the clearing area and a 100-metre separation distance existed between any known occurrences.

On 20 April 2020, in response to a further request for an appropriate offset proposal, the City of Busselton provided DWER with amended shapefiles and maps of the clearing area on 20 April 2020, indicating the clearing footprint for CPS 8424/1 had been reduced from 0.4 hectares to 0.015 hectares within the road reserve. The remaining vegetation proposed for clearing included one Paperbark (*Melaleuca rhaphiophylla*) and two Flooded Gums (*Eucalyptus rudis*). It was noted that the trees fall within Vegetation Unit B (Ecoedge, 2019a), which is not identified as a TEC, and in a completely degraded (Keighery, 1994) condition.

Applicant Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this principle

The application proposes to clear 0.015 hectares of native vegetation within Wonnerup South Road reserve (PIN 11380875), Yalyalup, for the purpose of road reconstruction and road widening. The application area is in a completely degraded (Keighery, 1994) condition (DWER, 2109). The applied clearing will remove one Paperbark (*Melaleuca rhaphiophylla*) and two Flooded Gums (*Eucalyptus rudis*).

The applicant engaged Ecoedge to conduct a Reconnaissance and Targeted Flora and Vegetation survey and Level 1 Fauna Survey across the application area (1.40-8.88 SLK). The flora and vegetation survey was conducted on 3 September 2019 in accordance with State and Commonwealth requirements for the bioregion and species and communities present, and the *Environmental Protection Authority's 'Technical Advice'* (EPA, 2016a). The daytime fauna surveys were conducted over a period from 5 August to 2 November 2019. A single night-time survey was undertaken on 2 November 2019. The fauna surveys aimed to identify the presence of conservation significant fauna species and/or their habitat (EPA, 2016b). The fauna survey was expanded to include a Level 2 assessment (EPA, 2016b) due to the local area being known to support Black Cockatoo and WRP habitat.

DWER officers conducted a site inspection on 10 April 2019. The vegetation within the application road reserve is dominated by *Eucalyptus rudis*, *Melaleuca sp.* and included *Corymbia callophylla*, *Agonis flexuosa*, *Xanthorrhoea sp* and introduced gum, with invasive grasses dominating the understorey (DWER, 2019b).

As discussed under Principle (e), the application area is mapped as, and contains species representative of the Swan Coastal Plain vegetation complex, Abba complex. The Abba complex is extensively cleared and has experienced a significant reduction in its pre-European vegetation extent, where only 0.36 per cent of remaining vegetation mapped within this complex lies within conservation estate. Given the above, occurrences of vegetation representative of the Abba complex is likely to be significant for its maintenance, and represent regionally significant diversity within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion.

The flora and vegetation survey identified five vegetation units across the mapped application area (Ecoedge, 2019a). These vegetation units are described in section 2. As discussed under Principle (d), Vegetation unit A where it is in good or degraded condition resembles 'Southern *Corymbia calophylla* woodlands on heavy soils' TEC (SCP1b), listed as Vulnerable. Similarly, Vegetation Unit C where it is in good condition resembles the 'Southern Wet shrublands' TEC (SCP02), listed as Endangered. Both TEC's are listed under the *Biodiversity Conservation Act 2016*. SCP1b TEC is present in 0.73ha of degraded to good condition, and SCP02 TEC is present in 0.04 ha of good condition vegetation (Ecoedge, 2019a). None of the TEC representative vegetation units occur within the applied clearing area according to the vegetation survey (Ecoedge, 2019a). The nearest mapped TEC is 900m south-west of the application area and mapped as '*Corymbia calophylla woodlands on heavy soils of the southern Swan Coastal Plain (SCP1b)*' listed as Vulnerable under the *Biodiversity Conservation Act 2016*.

Forty-nine priority and fifteen threatened flora species have been recorded within the local area. Noting that the application area is in a degraded to completely degraded (Keighery, 1994) condition (DWER, 2019), the Department of Biodiversity, Conservation and Attractions (DBCA) advised that the remnant vegetation is highly unlikely to support threatened or priority flora species (DBCA, 2019).

Informal advice from DBCA indicated the P4 species *Eucalyptus rudis ssp. cratyantha* is known to occur in the survey area (Webb, 2020), however, the survey has not identified *E. rudis* to the subspecies level. It cannot therefore be known as to the extent this species is to be impacted. DBCA indicated, in lieu of subspecies identification, as many plants of this species should be retained as possible, but ultimately if some removal was to occur, it is unlikely to adversely affect the subspecies conservation status (Webb, 2020). Given that two of the trees to be cleared were recorded as Flooded Gum (*Eucalyptus rudis*), the clearing is potentially impacting on the P4 species mention above. If the recorded trees to be cleared are the P4 species, the scale of the clearing (2 trees) would be unlikely to impact on the conservation status of this species.

The flora and vegetation survey identified ninety-seven vascular flora taxa within the survey area, of which 39 (40%) were introduced taxa (Ecoedge, 2019a). One priority flora species listed under the *Biodiversity Conservation Act 2016* was identified in the survey area. *Calothamnus quadrifidus subsp. teretifolius* is mainly confined to ironstone soils (shallow soils over massive

ironstone) in the southern part of the Swan Coastal Plain. The survey indicated the loss of small populations will result in the loss of significant genetic diversity (Ecoedge, 2019a; Yates *et al.,* 2009). However, the individual *Calothamnus quadfiidus* subsp. *Teretifolius* was identified outside the applied clearing area, situated in a small area of Vegetation unit A in good condition. As such, it will not be impacted by the proposed clearing.

As discussed under Principle (b), the application area is located within 120 metres of vegetation containing a western ringtail possum individual (*Pseudocheirus occidentalis*) and drey. Several dreys and WRP individuals were identified in the wider survey area (Ecoedge, 2019b), however all were located outside the applied clearing area.

The application area forms a small disconnected patch of completely degraded remnant native vegetation. Vegetation within the Survey Area is connected to a formally mapped ecological linkage with the Sabina River, one of the few linkages occurring on the Abba Plains, as most the native vegetation has been cleared for agriculture (Ecoedge, 2019a). The small scale of clearing is unlikely to have a significant impact on the overall function of the mapped "Sabina River" regional ecological linkage. The clearing may have localised impacts to the ecological function of Survey Area vegetation by reducing the width of the corridor, in sections (Ecoedge, 2019a).

Given the completely degraded (Keighery, 1994) condition of the applied clearing area, and the relatively small scale of applied clearing (one Paperbark - *Melaleuca rhaphiophylla* and two Flooded Gums - *Eucalyptus rudis*), the proposed clearing is not likely to be at variance to this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing may be at variance to this principle

According to the available databases forty-five fauna species of conservation significance have been recorded within the local area (10 kilometres radius) (DBCA, 2007). Of these, the conservation fauna species that may use the application area as habitat includes forest red tailed black cockatoo (*Calyptorhynchus banksii* subsp. *Naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and the western ringtail possum (*Pseudocheirus occidentalis*) (DBCA, 2019).

The applicant engaged a zoologist to undertake a reconnaissance fauna survey of the application areas. The scope of works included a level 1 fauna survey in accordance with the EPA's Technical Guidance – Terrestrial Vertebrate Fauna Surveys. The work was expanded to include a Level 2 (EPA 2016b) assessment of the site's significance to Carnaby's cockatoo (Calyptorhynchus latirostris) in accordance with the EPA's Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna. The daytime fauna surveys were conducted on over a period from 5 August to 2 November 2019. A single night-time survey was undertaken on 2 November 2019. The fauna surveys, as defined by the EPA, were to identify the presence of conservation significant fauna species and/or their habitat (EPA, 2016b). The fauna survey was expanded to include a Level 2 assessment (EPA, 2016b) due to the local area being known to support Black Cockatoo and WRP habitat.

Black Cockatoo

Carnaby's Cockatoo and Baudin's Cockatoo are listed as Endangered and Forest Red-Tailed Black Cockatoo are listed as Vulnerable under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Black cockatoos' nest in hollows in live or dead trees of Karri, Marri, Wandoo, Tuart, Salmon Gum, Jarrah, Flooded Gum, York Gum, Powder Bark, Bullich and Blackbutt (Commonwealth of Australia, 2012). Breeding habitat or a 'habitat tree' is defined in the EPBC Act referral guidelines as 'trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow' (Department of Sustainability, Environment, Water, Population and Communities, 2012).

Of the 334 identified 'habitat trees' within the survey area, two are contained within the applied clearing area. These two were recorded as Flooded Gum (*Eucalypus rudis)* (Ecoedge, 2019a). A Level 1 Fauna Survey indicated none of the identified habitat trees within the application area contain hollows suitable for Black Cockatoos nesting and no evidence of Black Cockatoo roosting was observed during the survey (Ecoedge, 2019b). Noting scale of the proposed clearing and lack of suitable hollows in vegetation applied to clear (Ecoedge, 2019b), it is unlikely the vegetation within application area represents significant breeding or roosting habitat for Black Cockatoos.

Black Cockatoos have a preference for feeding habitat that includes Jarrah and Marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as Banksia sp., Hakea sp. and Grevillea sp. (Commonwealth of Australia, 2012). Evidence of Black Cockatoo foraging was observed during the field survey in the form of chewed marri fruit nuts and pinecones (Ecoedge, 2019b). Given the lack of key foraging tree species within the application area, the proposed clearing is unlikely to represent significant foraging habitat for Black Cockatoo species. Due to the presence of many key foraging trees adjacent to the clearing area and all of the applied clearing being classed as completely degraded (Ecoedge, 2019a), the application area is unlikely to cause a significant impact on the foraging habitat of Black Cockatoo species.

Western Ringtail Possum's

Peppermint trees (*Agonis flexuosa*) are important habitat for Western Ringtail Possums (WRP's), listed as critically endangered under the *Biodiversity Conservation Act 2016*. There are no papers or reports that summarise WRP habitat or abundance for this area (DotEE, 2018) and one paper put an approximate estimate at 500 individuals in the cape to cape area (Jones, 2016). The applied clearing area makes up small part of the Swan Coastal Plain Management zone for WRP and is considered highly critical to the conservation of the species. Habitat critical to survival comprises long unburnt mature remnant peppermint woodlands with high canopy continuity and high nutrient foliage with minimal periods of summer moisture stress, and habitat connecting patches of remnants (Jones *et al.* 1994, Jones *et al*. 2004, Wayne *et al.* 2006). Although, any habitat where western ringtail possums occur naturally are considered critical and worthy of protection (DPaW, 2017).

During the survey, a WRP individual, scat and drey were all recorded within 120 metres of the application area (Ecoedge, 2019b). Several other individuals, scats and dreys were observed within the wider survey area, None of the observed WRP's, dreys or scats were contained within the clearing area (Ecoedge, 2019b). All of the observations were made in areas where *Agonis flexuosa* was the dominant component of the midstory vegetation (Ecoedge, 2019b). According to the WRP Approved Recovery Plan, any areas were stands of *Agonis flexuosa* are present is considered critical to the survival of the individuals they can support (DPaW, 2017). The extent of fragmentation between remnant patches of suitable habitat and the continued degradation of the vegetation has consequential impacts on the long-term viability of the WRP populations that utilise them (DPaW, 2017). Given that WRP's in this management zone are dependent on a connected canopy (DPaW, 2017), have a variable and limited home range (0.5 to 5 hectares) (Shedley & Williams, 2014) and the proximity of WRP observations to the applied clearing area, the proposed clearing may be at variance to this principle.

However, noting the small scale of clearing, and the survey indicating neither of the flooded gums applied to clear present suitable hollows, the applied clearing is unlikely to significantly reduce habitat for Western Ringtail Possums. A fauna management condition has been imposed on the permit to ensure the clearing of trees within potential WRP habitat does not occur when/where WRP are present.

Summary

The application area is in a completely degraded (Keighery, 1994) patch of vegetation and proposes to clear three trees; 2 Flooded Gums and a Paperbark. Neither of the Flooded Gum were recorded to have hollows and are therefore not suitable for Black Cockatoo breeding, roosting or foraging. A WRP individual, scat and drey were recorded within 120 metres of the applied clearing, indicating WRP may utilise the patch of vegetation transport through the canopy. Given this, the applied clearing may be at variance to this principle. No other conservation significant fauna were recorded in the application area. DWER has conditioned the permit to ensure a 'fauna specialist' inspects all trees to approved to clear for the presence of conservation significant fauna prior to clearing.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, Threatened flora.

Proposed clearing is not likely to be at variance to this principle

A review of the available databases identified fifteen threatened flora species, listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999,* occurring within ten kilometres of the applied clearing area (Western Australian Herberium, 1998-).

These species include:

- *Banksia mimica*
- *Banksia nivea subsp. Uliginosa*
- *Banksia squarrosa subsp. argillacea*
- *Caladenia huegelii*
- *Caladenia procera*
- *Chamelaucium sp. S coastal plain (R.D. Royce 4872)*
- *Darwinia whicherensis*
- *Daviesia elongata*
- *Drakaea elastica*
- *Gastrolobium papilio*
- *Grevillea elongata*
- *Grevillea maccutcheonii*
- *Lambertia echinata subsp. occidentalis*
- *Lambertia orbifolia subsp. Scott River Plains (L.W. Sage 684)*
- *Petrophile latericola*
- *Tetraria australiensis*
- *Verticordia densiflora var. pedunculata*
- *Verticordia plumosa var. ananeotes*
- *Verticordia plumosa var. vassensis*

A flora survey of the applied area, conducted on 3 September 2019 by Ecoedge did not identify any of the above mentioned threatened flora species, nor any other threatened flora species listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*. The survey limitations note although the survey was conducted in the prime season for the flowering for flora in the south-west of Western Australia, the dry previous winter may have limited the emergence and growth of herbaceous taxa (Ecoedge, 2019a).

Based on the survey findings, the proposed clearing is not likely to impact on any threatened flora species, and the proposed clearing is not likely to be at variance with this Principle.

(d) 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.

Proposed clearing is not likely to be at variance to this principle

After reviewing the available datasets, DWER notes there are no state listed threatened ecological communities (TEC's) as defined under the *Biodiversity Conservation Act 2016* (BC Act), mapped within the application area. The nearest mapped TEC is 900m south-west of the application area and mapped as 'Corymbia calophylla woodlands on heavy soils of the southern Swan Coastal Plain (SCP1b)' listed as Vulnerable under the Biodiversity Conservation Act 2016.

Noting the vegetation within the application area is in a degraded to completely degraded (Keighery, 1994) condition (DWER, 2019) with an understorey dominated by invasive grasses (DWER, 2019), the vegetation is not considered likely to comprise a TEC.

Given the above, the proposed clearing is not likely to be at variance to this principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is at variance to this principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is contained within the Swan Coastal Plain IBRA bioregion and is mapped as the Abba Vegetation Complex (Government of Western Australia, 2018b). The local area in the application was defined as a 10 km radius from the application area.

In assessing the risk of further loss and subsequent cumulative effects, consideration has been given to the extent of native vegetation remaining and what is currently managed as conservation estate:

- the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion retains approximately 38.6 per cent of its pre-European vegetation extent;
- approximately 15 per cent of the pre-European extent of all mapped vegetation complexes within the Swan Coastal Plain bioregion is contained in conservation estate;
- as indicated in Table 3, the City of Busselton contains approximately 41 one percent of its pre-European extent of mapped native vegetation, 28 percent of which are in currently managed DBCA lands;
- the local area retains approximately 26.5 per cent (10 300 hectares) vegetative cover, and the proposed clearing will reduce this by approximately 0.003 per cent; and
- the Abba vegetation complex retains 6.5 percent of its pre-European extent of all mapped vegetation, of which 0.36 percent is in currently managed DBCA lands.

The vegetation within the application area is located 1.5 kilometres and connected to the mapped SWREL linkage line, known as the Sabina River. The small scale clearing of three trees is unlikely to have a significant impact on the overall function of the mapped Sabina River regional ecological linkage.

Given both the local area and the Abba Complex retain less than 30% of their pre-European vegetation, the application area is considered to be within an extensively cleared landscape and significant as a remnant of native vegetation. Therefore, the proposed clearing is at variance to this principle.

It is noted that the application area includes species representative of the mapped Swan Coastal Plain vegetation complex, Abba complex. DWER notes the pre-European vegetation extent of the Abba complex has been significantly reduced and only 0.36 per cent of remaining vegetation mapped within this complex lies within conservation estate. Given the above, occurrences of vegetation representative of the Abba complex are likely to be significant for its maintenance, and the clearing of vegetation representative of the Abba complex may be significant. However, it is noted that the application area is in completely degraded (Keighery, 1994) condition, does not represent any state or federally listed TEC's or PEC's, and does not provide suitable habitat for conservation significant flora. Noting the above and that the application area comprises less than 0.001 per cent of the remaining vegetation mapped within the Abba complex, the loss of these three trees is not considered to be a significant impact to this restricted vegetation complex.

Table 3: Vegetation representation statistics (Government of Western Australia, 2018)

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands	
				(ha)	(%)
IBRA Bioregion					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	38.45	14.85
Local government					
City of Busselton	146,478.41	60,013.68	40.97	68.96	28.25
Heddle Vegetation Complex					
Abba	50893	3326	6.5	183.20	0.36
Local area					
10-kilometre radius	38 868.54	10 300.61	26.5	-	-

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

Proposed clearing is at variance to this principle

According to the survey (Ecoedge, 2019a), the application proposes to clear two *Eucalyptus rudis* and one *Melaleuca rhaphiophylla*. The application area is also within a mapped 'multiple use' palusplain wetland, which has been heavily altered via historical clearing for agriculture and appears to retain limited wetland habitat values. Three heavily modified minor perennial watercourses intersect the application area, all passing under Wonnerup South Road through culverts (DWER, 2019).

Noting the above, the application is at variance to Principle (f). While it is noted that the application area will impact on riparian vegetation, it is considered that impacts to the palusplain and watercourse are not likely to be significant given the culverts already in place. Therefore, the proposed clearing is unlikely to cause significant impact to any environments associated with a watercourse or wetland.

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

Proposed clearing is not likely to be at variance to this principle

The application area is mapped as the following soil type (DPIRD, 2017):

- Abba wet flats phase - 213AbABw: wet and semi-wet soils with pale sandy earths and pale deep sands.

The risks to land degradation are outlined in table 4 below. Although a number of the risk categories present moderate to high risks of land degradation, the small scale of the application area and the limited number of trees applied to clear, combine to indicate the proposed clearing is not likely to cause appreciable land degradation. Therefore, the proposed clearing is not likely to be at variance to this principle.

Table 4: Land degradation risk levels

Risk categories	Abba wet vales phase - 213AbABvw
Wind erosion	50-70% of map unit has a high to extreme water erosion risk
Water erosion	3-10% of map unit has a high to extreme wind erosion risk
Salinity	3-10% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	>70% of the map unit has a moderate to high flood risk
Waterlogging	>70% of map unit has a moderate to very high waterlogging risk
Water repellence	3-10% of map unit has a high-water repellence risk
Phosphorus export risk	>70% of map unit has a high to extreme phosphorus export risk

(h) 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.

Proposed clearing is not likely to be at variance to this principle

The application area is 1500 metres to the south of the Ludlow State Forest and Tuart Forest National Park, and 3500 metres north of the Whicher National Park and Millbrook State Forest.

Given the proximity of the conservation areas to the application area, the proposed clearing is not likely to impact the environmental values of any conservation area.

The proposed clearing may impact values of adjacent vegetation through the increase and spread of weeds and dieback. A weed and dieback condition will assist in mitigating the risk of weeds and dieback being spread into this conservation area.

The proposed clearing is therefore not likely to be variance to this 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.

Proposed clearing may be at variance to this principle

Groundwater salinity is mapped between 500 – 1000 milligrams per litre total dissolved solids which is considered to be marginally saline. Given the small scale (three trees) of the application, the clearing is not likely to cause deterioration in the quality of underground water.

As discussed under Principle (f) a multiple use palusplain wetland has been mapped over the application area. Palusplain wetlands are seasonally waterlogged flats and so may contain surface water in the wetter months of the year. Three heavily modified minor perennial watercourse also intersects the application area, passing under Wonnerup South Road through culverts, to the Sabina River. It is therefore considered that the proposed clearing may impact on the quality of surface water, particularly as the clearing occurs adjacent to the areas subject to inundation and comprises the removal of large deep rooted trees, whereby run-off and sedimentation may impact on this standing water. Given the above, the proposed clearing may be at variance to this principle.

However, given the small scale of clearing, the application is unlikely to lead to an unacceptable risk to the environment.

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

Proposed clearing is not likely to be at variance to this principle

As discussed under Principle (i), the application proposes to clear 0.015 hectares of native vegetation. According to the available dataset's, groundwater salinity within the application area is mapped between 500-1000 per litre total dissolved solids. This level of groundwater salinity is considered to be marginally saline. There is only a small risk of the increase of surface salinity and increase in the runoff to nearby watercourses through highly modified culverts (Principle 'f').

However, given the soils mapped within the application areas are moderately to highly permeable, the distance to the nearest hydrological feature, and the small scale of clearing, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

Planning instruments and other relevant matters.

The City of Busselton (2019) advised that the clearing is requires to ensure that Wonnerup South Road is safe and can be easily maintained.

The application area is located within the South West Boojarah #2 Indigenous Land Use Agreement (WI2017/013).

The application area is within the road reserve and is surrounded by areas zoned as 'agriculture' under the Town Planning Scheme.

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the DWER website on 30 April 2019 with a 21-day submission period. No public submissions have been received in relation to this application.

4. References

City of Busselton (2019) Information in support of application CPS 8424/1 (DWER Ref: A1773517)

Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.

Commonwealth of Australia. (2012). EPBC Act referral guidelines for three threatened black cockatoo species: *Carnaby's cockatoo (endangered) Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii, Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso*. Department of Sustainability, Environment, Water, Population and Communities.

Department of Biodiversity, Conservation and Attractions (DBCA) (2019) Regional advice from South West Region for Clearing Permit application CPS 8424/1 (DWER Ref: A1796569).

Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: http://naturemap.dpaw.wa.gov.au/. (accessed 17 May 2019)

Department of Primary Industries and Regional Development (DPIRD) (2017). NRInfo Digital Mapping. Accessed at https://maps.agric.wa.gov.au/nrm-info/. Accessed September 2018. Department of Primary Industries and Regional Development. Government of Western Australia.

Department of Parks and Wildlife (2017). Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan. Wildlife Management Program No. 58. Government of Western Australia.

Department of Water and Environmental Regulation. (2019a). Request for further information emailed to applicant. 29 July 2019. (DWER REF: A1803534)

Department of Water and Environment Regulation (2019b). Site Inspection Report for Clearing Permit Application CPS 8424/1. Site inspection undertaken 10 April 2019 (DWER Ref: A1803407).

Ecoedge (2019a). Reconnaissance and Targeted Flora and Vegetation Survey - Wonnerup South Road Upgrade. Ecoedge.

Ecoedge (2019b). Fauna Assessment (CPS 8424/1) Wonnerup South Road (SLK 1.40 to SLK 8.88) Abba River - City of Busselton. Ecoedge.

Ecoedge (2020) Information in support of application CPS 8424/1. DWER REF: A1877255

Environmental Protection Authority (EPA) (2008) Environmental Guidance for Planning and Development Guidance Statement No 33. Environmental Protection Authority, Western Australia.

Government of Western Australia (2019). 2018 South West Vegetation Complex Statistics. Current as of March 2019.

Government of Western Australia (2018). Wildlife Conservation Act 1950. Wildlife Conservation (Specially Protected Fauna) Notice 2018. Government Gazette, WA. 11 September 2018.

Heddle, E. M., Loneragan, O. W., and Havel, J. J (1980) Atlas of Natural Resources. Western Australia Department of Conservation and Environment.

Jones, Barabra (2016). While Southwestern Australia's rainfall was disappearing 2001-15, it was taking the possum *Pseudocheirus occidentalis* with it. Landline.

Jones, B.A.; How, R.A. and Kitchener, D.J. (1994b). A Field Study of Pseudocheirus occidentalis (Marsupialia: Petauridae). II. Population studies. Wildlife Research 21: 189-201

Jones, B.A. (2004) The possum fauna of Western Australia: decline, persistence and status. In: The Biology of Australian Possums and Gliders. R.L. Goldingay and S.M. Jackson (eds). Surrey Beatty & Sons, Chipping Norton, pp. 149-160.

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

Wayne, A. (2006). Fire management guideline: ngwayir (western ringtail possum). Department of Conservation and Land Management, Manjimup.

Webb, A (2020). Email correspondence providing broad advice from DBCA on the impacts of clearing. Received on 20 March 2020. (DWER REF: A1880285)
Webb, A, Keighery, B.J., Keighery, G.J., Longman, V. (2009). The flora and vegetation of the Busselton Plain (Swan Coastal Plain): a report for the Department of Environment and Conservation as part of the Swan Bioplan Project. Dept. of Environment and Conservation, Perth, Western Australia.
Western Australian Herbarium (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/. Accessed May 2018

5. GIS Datasets

- Aboriginal Heritage Places (DPLH-001)
- Carnaby's Cockatoo Areas requiring investigation as feeding habitat in the Swan Coastal Plain (SCP) IBRA Region (DBCA-057)
- Carnaby's cockatoo: breeding, roosting, feeding
- Clearing Regulations - Environmentally Sensitive Areas
- Contours (DPIRD-073)
- DBCA Legislated Lands and Waters (DBCA-011)
- Department of Biodiversity Conservation and Attractions, Tenure
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Flood Risk (DPIRD-007)
- Geomorphic Wetlands, Swan Coastal Plain
- Groundwater salinity, statewide
- Hydrology, linear
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- PDWSA, CAWSA, RIWI Act Areas
- Regional Parks (DBCA-026)
- Remnant Vegetation
- SAC Biodatasets
- Soil and Landscape Mapping – Best Available
- South coast significant wetlands
- South west forest vegetation complexes
- TECs and PECs
- Threatened Fauna
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Town Planning Scheme Zones
- SCP Vegetation Complex Statistics