GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8761/1

File Number: DWERVT5019

Duration of Permit: From 2 April 2021 to 2 April 2028

PERMIT HOLDER

Mr Peter Robert Beebe

LAND ON WHICH CLEARING IS TO BE DONE

Lot 9882 on Plan 203117, Boorara Brook

Lot 9883 on Plan 203117, Boorara Brook

AUTHORISED ACTIVITY

The permit holder must not clear more than 33.8 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1) Period in which clearing is authorized

The Permit Holder shall not clear any native vegetation after 2 April 2023.

2) Type of clearing authorised

To the extent authorised under this Permit, the Permit Holder may undertake the following activities within the area cross-hatched yellow on Figure 1 of Schedule 1:

a) *thinning* of Karri (*Eucalyptus diversicolor*), Marri (*Corymbia calophylla*), Blackbutt (*Eucalyptus patens*) and Jarrah (*Eucalyptus marginata*) trees;

b) *culling* and burning of unsaleable trees;

c) clearing for the establishment of a *log landing* no larger than 0.3 hectares in size; and

d) clearing and burning of *understorey* where undertaken in association with the activities described under conditions 2(a), (b) or (c).

3) Avoid, minimise, and reduce impacts and extent of clearing

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

a) avoid the clearing of native vegetation;

b) minimise the amount of native vegetation to be cleared; and

c) reduce the impact of clearing on any environmental value.

4) Weed and dieback management

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

a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

b) ensure that no known dieback or weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared;

c) only move soils in *dry conditions;* and

d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

5) Vegetation management – thinning

a) Thinning activities undertaken in accordance with condition 2(a) of this Permit must be performed by a *forestry operator*.

b) Prior to undertaking any clearing authorised under this Permit, an *environmental specialist* must determine the species composition, structure and density of the *understorey* of areas proposed to be *thinned*.

c) The Permit Holder shall not clear native vegetation within 30 metres of the *riparian vegetation* of any *watercourse* or *wetland* within and/or adjacent to the area cross-hatched yellow on Figure 1 of Schedule 1.

d) The Permit Holder must retain a minimum of 2 *habitat trees* per hectare.

e) A minimum retention rate of 15 m^2/hectare basal area is required within the area of clearing authorised under this Permit.

f) The Permit Holder must, by no later than 1 July 2023, rehabilitate *log landings* established by scarifying the soil surface to reduce compaction and facilitate natural regeneration.

g) Within two years of 1 April 2023, the Permit Holder must:

   i) engage an *environmental specialist* to determine the species composition, structure and density of the *understorey* of areas subject to *thinning*; and

   ii) where, in the opinion of an *environmental specialist*, there is evidence that *understorey* will not recover and develop towards its pre-clearing composition, structure and density determined under condition 5(b), the Permit Holder must undertake *remedial action* at an *optimal time* within the next 12 months to ensure re-establishment of *understorey* prior to expiry of this Permit.

6) Directional clearing

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

7) Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	a) the species composition, structure, and density of the cleared area; b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; c) the date that the area was cleared; d) the size of the area cleared (in hectares); e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 3; f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 4.
2.	In relation to vegetation management pursuant to condition 5	a) actions taken to avoid clearing native vegetation within 30 metres of the *riparian vegetation* of any *watercourses* or *wetland;* b) the species and number per hectare of *habitat trees* retained; c) the location of *habitat trees* retained, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; d) monitoring undertaken to ensure that the specified minimum *basal area* is retained; e) number of *log landings* established and their location, recorded using a Global

No.	Relevant matter	Specifications
		Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; f) the date the *log landings* were rehabilitated; g) the *environmental specialist*'s report documenting the species composition, structure and density of the *understorey*; and h) photographs of the *understorey* taken at one year, two years and three years after completing clearing authorised under this Permit; and i) A detailed description of the nature and extent of any *remedial actions* undertaken.

8) Reporting

a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:

(i) of records required under condition 7 of this Permit; and

(ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.

b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.

c) Prior to 2 January 2028, the Permit Holder must provide to the *CEO* a written report of records required under condition 7 of this Permit where these records have not already been provided under condition 8(a) of this Permit.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
basal area	is the method of expression of tree cover density in an area where the total area of tree trunk, whose diameter over bark is measured at 1.3 metres above the ground, is expressed as square metres per hectares of land area.
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
culled/ing	means the selective removal and/or killing of unsaleable trees for *thinning*, using methods including notching, felling or machine puching.
dieback	means the effect of *Phytophthora* species on native vegetation.
dry conditions	means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches.
environmental specialist	means an external person with experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.
EP Act	*Environmental Protection Act 1986* (WA)
fill	means material used to increase the ground level, or to fill a depression.
forestry operator	means an external person with a minimum of 5 years of experience in conducting forestry activities to meet harvest and silvicultural standards required for native forest operations on lands managed by Department of Biodiversity, Conservation and Attractions.
habitat tree	means trees that have a diameter, measured over bark at 1.5 meters from the base of the tree, of at least 70 centimetres for karri (*Eucalyptus diversicolor*) or marri (*Corymbia calophylla*) and of at least 50 centimetres for jarrah (*Eucalyptus marginata*) or blackbutt (*Eucalyptus patens*) , that contain or have the potential to develop hollows or roosts suitable for native fauna.
log landing	means an area established for the purpose of stockpiling commercially harvested trees, to enable loading for collection.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from April to June for undertaking direct seeding, and the period from May to July for undertaking planting.
remedial action	means for the purpose of this Permit, any activity that is required to ensure successful re-establishment of *understorey* to its pre-clearing composition, structure and density, and may include a combination of soil treatments and revegetation.

Term	Definition
riparian vegetation	has the meaning given to it in Regulation 3 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*
thinned/ing	describes a silvicultural activity to promote the growth of selected trees by removing competing trees.
understorey	means, for the purpose of this Permit, all native vegetation that does not include trees to be *culled* or subject to harvest.
watercourse	has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914.*
weeds	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.
wetland	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

END OF CONDITIONS

Meenu Vitarana
A/Manager
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

10 March 2021

SCHEDULE 1

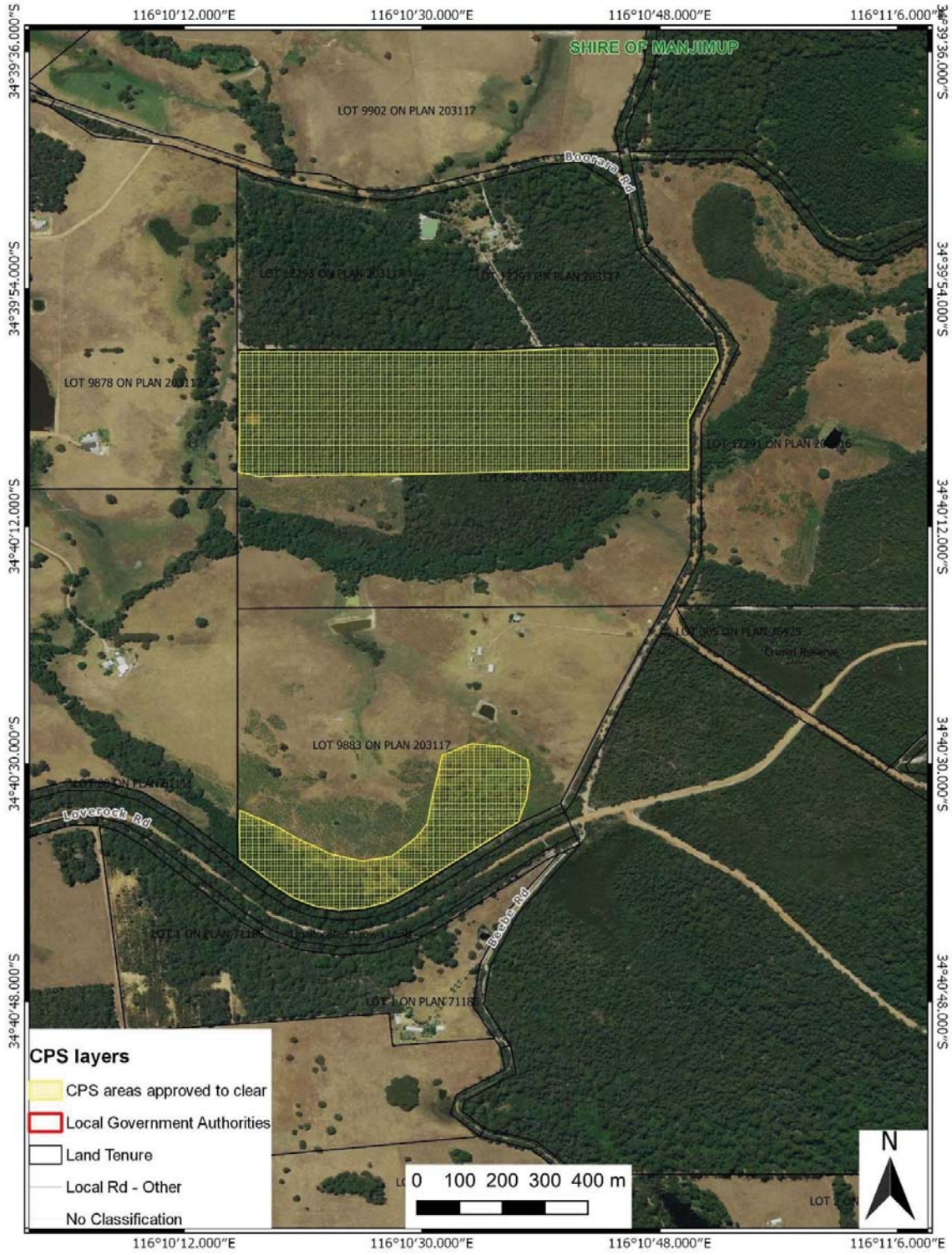

Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 8761/1
Permit type:	Area permit
Applicant name:	Mr Peter Robert Beebe
Application received:	12 December 2019
Application area:	33.8 hectares of native vegetation
Purpose of clearing:	Timber harvesting
Method of clearing:	Mechanical
Property:	Lot 9882 on Plan 203117 Lot 9883 on Plan 203117
Location (LGA area/s):	Shire of Manjimup
Localities (suburb/s):	Boorara Brook

1.2. Description of clearing activities

The proposed clearing consists of thinning of native vegetation within two separate areas (see Figure 1, Section 1.5). Thinning is proposed to be undertaken by an experienced and qualified local harvesting contractor using a tree harvester to fell trees and cut boles into appropriate lengths and a rubber-tyred skidder or forwarder to extract logs. Extraction tracks will be created by the tree harvester where necessary. Harvesting slash will be removed from around the bases of the retained trees during harvesting. Following harvesting, the thinned areas will be "tops burnt" i.e. harvesting debris will be burnt such that only the recently dried harvesting slash and any rolled understorey vegetation will burn.

The application was revised during the assessment process as follows:

- An 8.2 hectare portion of clearing initially proposed within Lot 12291 on Plan 203116 was removed from the application area at the applicants request, as this property was sold to another landowner after the application was accepted.

1.3. Decision on application

Decision:	Granted
Decision date:	10 March 2021
Decision area:	33.8 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 B), relevant datasets (see Appendix F), the findings of a black cockatoo habitat survey and a site inspection, the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing may result in:

- impacts to foraging, roosting and future breeding habitat for black cockatoo species;
- impacts to habitat for quokka, short-nosed snake, quenda and south-western brush-tailed phascogale;
- impacts to vegetation that may contain the Epiphytic Cryptogams of the karri forest priority ecological community;
- potential land degradation in the form of subsurface compaction.

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 impacts of the proposed clearing on fauna, flora and land degradation are unlikely to be significant subject to appropriate management conditions being placed on the permit and that the applicant has suitably demonstrated avoidance and minimisation measures.

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

- Undertake clearing in a slow, directional manner to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals;
- Prohibit clearing of native vegetation within 30 metres of the riparian vegetation of any watercourse or wetland to prevent impacts to fauna and flora potentially utilising riparian habitats and minimise impacts to waterbodies and water quality;
- Retain a minimum of two habitat trees per hectare to ensure breeding and roosting habitat for black cockatoos is present in the future;
- Where there is evidence that understorey will not recover and develop towards its pre-clearing composition, structure and density, undertake remedial actions to ensure re-establishment of understorey vegetation; and
- Rehabilitate log landings established by scarifying the soil surface to reduce compaction and facilitate natural regeneration.

1.5. Site map

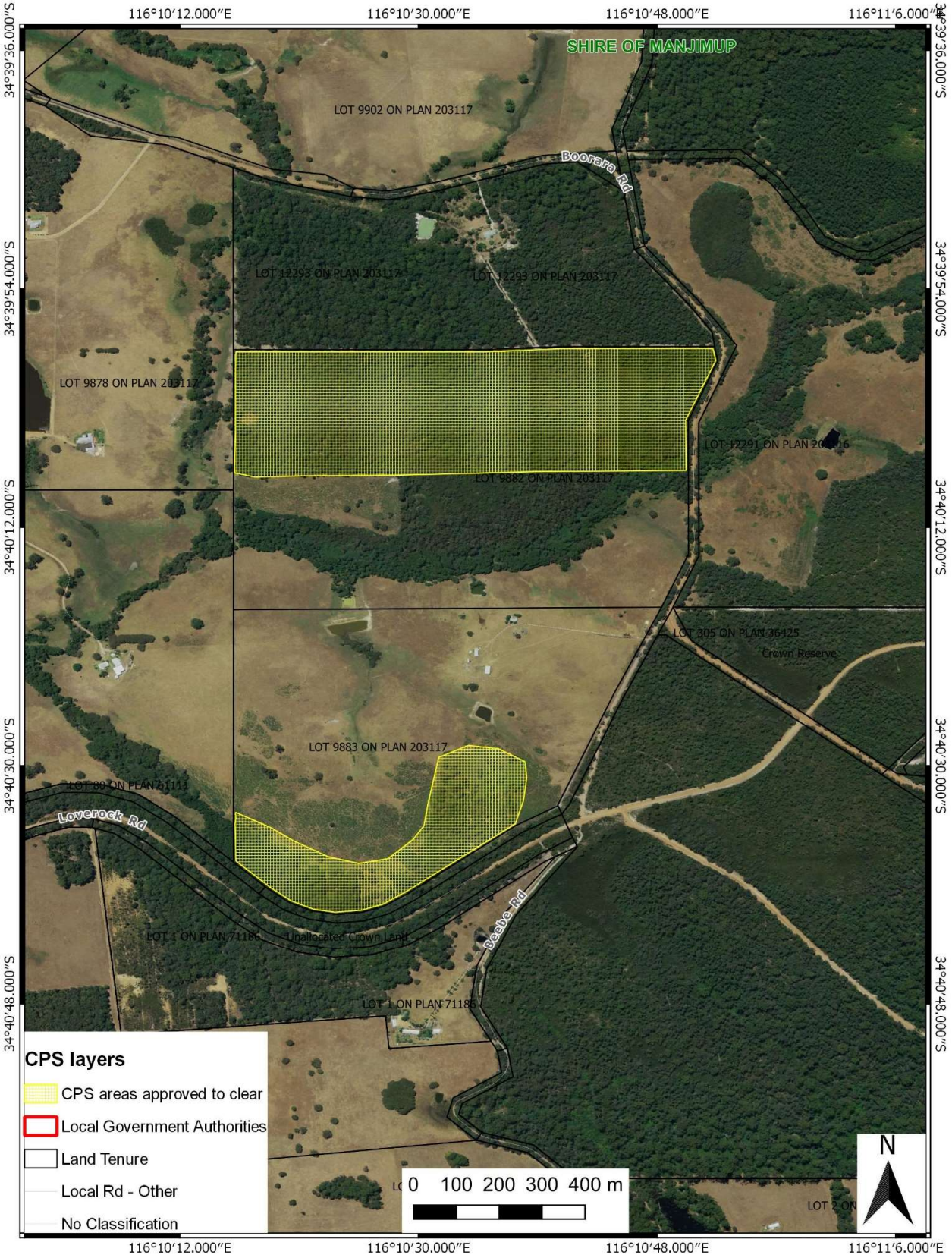

Figure 1. Map of the application area. The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)
- Forest management plan 2014–2023 (Conservation Commission of Western Australia, 2013)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has provided a forest management plan (Clarke, 2019) in support of this clearing permit application, detailing measures that will be taken during the thinning. These include the following:

- At least two habitat trees per hectare, on average, will be retained. Habitat trees will be generally sound, older trees with hollows or potential hollows for fauna;
- Harvesting machinery will be cleaned of any soil and plant matter before entering the property to minimise any risk of introducing dieback disease or undesirable weeds;
- Harvesting will be carried out by an experienced and qualified local harvesting contractor using machinery suitable for the harvesting of regrowth karri/marri forest;
- Extraction tracks will, where necessary, be created by the tree harvester and will maximise use of natural gaps between trees;
- Harvesting slash will be removed from around the bases of retained trees during harvesting;
- All harvesting activity will be conducted in accordance with the WA timber industry Codes of Practice;
- Following harvesting, the thinned areas will be “tops burnt” that is harvesting debris will be burnt under cool conditions in autumn or winter such that only recently dried harvesting slash and any rolled understorey vegetation will burn.

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 B) 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 C) identified that the impacts of the proposed clearing to biological values (fauna and flora) and land and water resources required further consideration. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

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

Assessment: Threatened black cockatoo species *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), *Calyptorhynchus baudinii* (Baudin's cockatoo) and *Calyptorhynchus latirostris* (Carnaby's cockatoo) have been

recorded within the local area, and the application area is within the recorded range of all three of these species (Commonwealth of Australia, 2012). Although the application area is within the breeding range of Baudin's cockatoo (Commonwealth of Australia 2012) and possibly also the forest red-tailed tailed cockatoo (Department of Environment and Conservation, 2008), and Baudins and red-tailed black cockatoos nest within suitable hollows of karri, marri, jarrah and blackbutt trees (Commonwealth of Australia, 2012), a black cockatoo habitat survey (Harewood) did not find any hollows suitable for black cockatoo breeding within the application area. As such, it is considered that the application area is unlikely to provide current breeding habitat for black cockatoo species. However, as suitable tree species are present, these trees may provide suitable breeding habitat in the future as they mature. A condition requiring the permit holder to retain a minimum of two habitat trees per hectare will mitigate impacts to future black cockatoo breeding habitat.

Eucalypt species present within the application area, particularly marri, are also likely to provide foraging habitat for all three black cockatoo species (Commonwealth of Australia, 2012). It is noted that although no confirmed breeding locations are located within 12 kilometres of the application area, two roosting locations have been recorded 7.7 kilometres and 12 kilometres from the application area, and dams providing drinking water are present within a 1 kilometre radius of the application area, increasing the significance of the application area for foraging. However, given that the clearing comprises thinning and therefore some foraging trees will remain within the application area, as well as the extensive remnant vegetation within the local area and proximity to Boorara-Gardner National Park and Gardner State Forest, it is considered that the proposed clearing is unlikely to have a significant impact upon black cockatoo foraging habitat. Similarly, while larger eucalypt trees within the application area may provide roosting habitat for all three black cockatoo species (Commonwealth of Australia, 2012), it is considered that the proposed clearing is unlikely to have a significant impact upon black cockatoo foraging habitat, particularly given a condition will be placed on the permit requiring the permit holder to retain a minimum of two habitat trees per hectare.

The application area may also provide suitable habitat for *Setonix brachyurus* (quokka) (VU), *Elapognathus minor* (short-nosed snake) (P2) and *Isoodon fusciventer* (quenda, southwestern brown bandicoot) (P4), with the quokka found in jarrah, marri and karri forest or riparian habitats with sedge understorey (Department of Environment and Conservation, 2013), short-nosed snake found in heaths near swamps and wet sclerophyll forests in south-west Western Australia (Shea et al, 1993) and the quenda in dense scrubby, often swampy, vegetation with dense cover and adjacent forest and woodland (Department of Biodiversity, Conservation and Attractions, 2017). Given that a condition will be placed on the permit requiring the permit holder to retain riparian vegetation, preferred by these three species, and the applicant will be thinning rather than clearing all vegetation, the proposed clearing is not likely to have a significant impact upon the conservation status of these species. Furthermore, a condition requiring directional clearing will minimise impacts to individuals of these species that may be present within the application area.

It is noted that while the application area contains forest with high canopy continuity and *Agonis flexuosa* i.e. suitable habitat for *Pseudocheirus occidentalis* (western ringtail possum), the application area is outside of the three key management zones for western ringtail possums where individuals are abundant (Department of Parks and Wildlife, 2017, and the only two records of this species present within the local area both pertain to fossils. As such, it is considered unlikely that the application area would provide significant habitat for the western ringtail possum and individuals are unlikely to be present.

Phascogale tapoatafa wambenger (south-western brush-tailed phascogale) has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover, with records less common from wetter forests. Given that no hollows suitable for black cockatoos were found within the application area (Harewood, 2021), it is considered unlikely that suitable hollows for the south-western brush-tailed phascogale would be present within the application area, and therefore while this species may occasionally utilise the application area as habitat the application area is not likely to provide significant habitat. A condition requiring directional clearing will minimise impacts to individuals of these species that may be present within the application area.

In addition to the above, multiple species were recorded within the local area that are associated exclusively with waterbodies and adjacent riparian areas (refer to Table B.4.). Given that a condition will be placed on the permit requiring the permit to retain riparian vegetation, preferred by these three species, and the applicant will be thinning rather than clearing all vegetation, the proposed clearing is not likely to have a significant impact upon these species.

Conclusion: Based on the above assessment, the proposed clearing will result in loss of foraging and roosting habitat for forest red-tailed black cockatoo, Baudin's cockatoo and Carnaby's cockatoo, and habitat for quokka, short-nosed snake, quenda and south-western brush-tailed phascogale. However, the proposed clearing is unlikely to have significant impacts on the above species subject to the conditions below.

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

- Slow, directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals;

- Clearing of native vegetation within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted; and
- A minimum of two habitat trees per hectare must be retained to ensure breeding and roosting habitat for black cockatoos is present in the future.

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

Assessment: The following conservation significant flora species have been recorded within the local area in similar soil and or/vegetation types to the application area:

- *Actinotus repens* (P3)
- *Gonocarpus simplex* (P4)
- *Kennedia glabrata* (T)
- *Lomandra ordii* (P4)
- *Myriophyllum trifidum* (P4)
- *Schizaea rupestris* (P2)

Kennedia glabrata is associated with granite outcrops (Western Australian Herbarium, 2007-), which are not present within the application area. Furthermore, records of this species within the local area are found within different soil types to that present within the application area. As such, this species is not likely to be present within the application area. *Actinotus repens, Gonocarpus simplex, Lomandra ordii*, *Myriophyllum trifidum and Schizaea rupestris* are generally found within drainage lines/creeks, swamps and seasonally inundated areas, along rivers, submerged in water and along gullies and creek banks respectively (Western Australian Herbarium, 2007-). Given that a condition will be placed on the permit requiring that clearing within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted, it is considered unlikely that these species will be impacted by the clearing.

The state listed Priority 3 Ecological Community (PEC) 'Epiphytic Cryptogams of the karri forest' is considered to be possibly present within the application area, given the presence of karri forest. This PEC is described as comprising "liverworts, mosses and lichens found on the bark of mature (plants greater than 15 years old and prior to senescence at about age 50) of *Trymalium odoratissimum* subsp. odoratissimum and *Chorilaena quercifolia* in the karri forest of south-west Western Australia" (DBCA, 2017). Given the dynamic nature of this community and that the main purpose of the clearing is to selectively remove karri, marri and blackbutt trees and not understorey species, and noting that a minimum of two habitat trees per hectare will be retained, which will ensure a mosaic of mature trees will remain that will support habitat for this PEC, the proposed clearing is unlikely to impact on the conservation status of this PEC, should it be present. A condition requiring the permit holder to rehabilitate understorey vegetation that is not developing towards its pre-clearing composition, structure and density will further assist in the mitigation of any impacts to this PEC, should it be present.

Conclusion: Based on the above assessment, the proposed clearing is not likely to impact on conservation significant flora subject to the condition below being placed on the permit. While the Epiphytic Cryptogams of the karri forest PEC may be present within the application area, the proposed thinning activities area not considered likely to significantly impact this PEC should it be present.

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

- Clearing of native vegetation within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted;
- Where there is evidence that understorey will not recover and develop towards its pre-clearing composition, structure and density, the Permit Holder must undertake remedial to ensure re-establishment of understorey.

3.2.3. Land and water resources - Clearing Principles (f), (g) and (i)

Assessment: Several minor-non-perennial watercourses are present within or adjacent to the application area and may be associated with adjacent seasonally flooded areas. Clearing adjacent to watercourses and wetlands can impact upon water quality in the short term through erosion and sedimentation generated by clearing, or in the long term by removing vegetative buffers that may otherwise prevent soil particles and nutrients from entering waterways during rainfall events. Impacts to water quality can subsequently have effects on aquatic biota. However, it is noted that thinning of trees is likely to have lesser impacts on waterbodies than the removal of all vegetation. A condition placed on the clearing permit prohibiting clearing within 30 metres of the riparian vegetation of any watercourse or wetland will further limit the effects of clearing on water quality and aquatic biota. As such, it is considered unlikely

that the proposed clearing will impact upon wetlands or watercourses present within or adjacent to the application area.

Soil types present within the application area have a moderate risk of subsurface compaction. A condition requiring the Permit Holder to rehabilitate log landings established by scarifying the soil surface will assist in the mitigation of any compaction resulting from stockpiling logs on log landings.

Conclusion: Based on the above assessment, the proposed clearing is not likely to impact on land or water resources subject to the below conditions being placed on the permit. significant flora subject to the condition below being placed on the permit.

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

- Clearing of native vegetation within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted;
- The Permit Holder must rehabilitate log landings established by scarifying the soil surface to reduce compaction and facilitate natural regeneration.

3.3. Relevant planning instruments and other matters

The Shire of Manjimup advised DWER that the land is zoned by Local Planning Scheme No. 4 as "Priority Agriculture" and planning approval for clearing of vegetation is not required, and that silviculture thinning does not require local government planning approval (Shire of Manjimup, 2020). The Shire did not have any objections to the proposed clearing.

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.

The applicant may have notification responsibilities under the EPBC Act for impacts to Baudin's black cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo and their habitats, as set out in the EPBC Act (Commonwealth of Australia, 2012). The applicant has been advised to contact the federal Department of Water, Agriculture and the Environment (DAWE) to discuss EPBC Act referral requirements.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
A black cockatoo habitat assessment was requested by DWER and provided by the applicant (Harewood, 2021). The survey found the following: • The vast majority of the trees present within the application area were found to be relatively young and most do not contain hollows, or if present, what appeared to be only small hollows that would be unsuitable for black cockatoos to use for nesting. • Two trees were identified within the application area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. Upon closer inspection with a drone both were assessed as not having hollows suitable for black cockatoos to use for nesting.	The application area is not likely to currently provide breeding habitat for black cockatoo species, although may do so in the future as the trees mature.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The northern area proposed to be cleared is part of an approximately 70 hectare isolated patch of native vegetation is surrounded by native vegetation to the north and south-east, and largely cleared land to the west, south-west and east. The southern area proposed to be cleared is contiguous with a tract of native vegetation associated with Loverock Road to the south, which connects to an extensive tract of native vegetation (although separated by tracks and roads) to the east of Lot 9883 on Plan 203117. The southern clearing area is surrounded by cleared land to the north and native vegetation and Loverock Road to the south. Both proposed clearing areas area in the intensive land use zone of Western Australia. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 61 per cent of the original native vegetation cover.
Ecological linkage	The application area falls between two mapped South West Ecological Linkages, located approximately 1.2 km north-east and 2.3 km south-west of the application area. The application area does not appear to form part of either of these ecological linkages. The southern portion of the application area contributes to local ecological linkages associated with a minor non-perennial watercourse in the Shannon River catchment and Loverock Road, however doesn't sever this linkage.
Conservation areas	The closest conservation areas to the application area are Boorara-Gardner National Park, located approximately 120 m east of the southern portion of the application area, and Gardner State Forest, located approximately 340 m northeast of the northern portion of the application area.
Vegetation description	A site inspection undertaken by DWER (2020) and black cockatoo habitat tree survey (Harewood, 2021) indicates the vegetation within the proposed clearing areas consists of: • Northern clearing area: Woodland consisting of jarrah (*Eucalyptus marginata*) and marri (*Corumbia calophylla*) woodland, with some karri (*Eucalyptus diversicolor)* present to the west and blackbutt (*Eucalyptus patens*) to the east. Middle storey of *Melaleuca* spp., *Agonis flexuosa* and *Allocasuarina* spp.

Characteristic	Details
	Understorey species include *Persoonia longifolia*, *Lepidosperma* spp, *Kunzea spp.*, bracken (*Pteridium esculentum*) and *Macrozamia riedlei,* • Southern clearing area: Woodland consisting of a mosaic of karri, marri and jarrah trees. Some *Agonis flexuosa*. Western portion has an understorey of sedges. Representative photos are available in Appendix E. This is consistent with the mapped vegetation types: • Majority of both northern and southern areas: o Crowea Crb, which is described as Tall open forest of *Corymbia calophylla-Eucalyptus diversicolor* on upper slopes with *Allocasuarina decussata-Banksia grandis* on upper slopes in hyperhumid and perhumid zones; • Small portions in north-west corner and along eastern boundary of northern area: o Granite valleys S1, which is described as tall open forest of *Eucalyptus diversicolor-Corymbia calophylla* on slopes with some *Eucalyptus patens* and *Eucalyptus megacarpa* on valley floors in hyperhumid and perhumid zones; • Small portions along western boundary of northern area: o Granite Valleys Vh2, which is described as tall open forest of *Eucalyptus diversicolor-Eucalyptus patens* on slopes with *Agonis flexuosa-Allocasuarina decussata -Callistachys lanceolata* on valley floors in hyperhumid and perhumid zones; and • Small portion along eastern boundary of northern area: o Angove A, which is described as open forest of *Eucalyptus marginata subsp. marginata-Banksia ilicifolia-Nuytsia floribunda* with some *Eucalyptus diversicolor* on gently sloping sandy terrain in hyperhumid and perhumid zones (Mattiske, 1998). The mapped vegetation type/s retain approximately 86, 85, 84 and 88 per cent of their original extents respectively (Government of Western Australia, 2019b).
Vegetation condition	A site inspection undertaken by DWER (2020) indicates the vegetation within the proposed clearing area is in Very Good to Excellent (Keighery, 1994) condition, described as: • 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. The full Keighery (1994) condition rating scale is provided in 0. Representative photos are available in 0.
Climate	Rainfall: 1300 mm Evapotranspiration: 900 mm
Topography	The northern application area falls from 85 m AHD in the north to 60 m AHD in the south-western and south-eastern corners. The southern application area falls from 75 m AHD in the east to 60 m AHD to the west.
Soil description	The soil is mapped as: • Majority of both northern and southern areas: o Crowea (Pimelia) 254PvCrb, described as brown gravelly duplex soils and red earths; karri-marri forest; • Small portions in north-west corner and along eastern boundary of northern area:

Characteristic	Details
	○ Minor Valleys S1 Subsystem (Pimelia) 254PvS1, described as valleys in granitic terrain, narrow swampy floor; <20 m relief. Gravelly yellow duplex soils on smooth flanks; Jarrah-Marri-Karri forest. Peaty soils on narrow floor; Wattle low forest; • Small portions along western boundary of northern area: ○ Major Valleys V2 Subsystem (Pimelia) 254PvV2, described as valleys in granitic areas; 20-40 m relief; smooth, moderate slopes; narrow terrace; • Small portion along eastern boundary of northern area: ○ Angove Subsystem (Northcliffe) 254NfAN, described as gently sloping sandy terrain; slight dissections. Humus podzols on broad crests; Kangaroo Grass sedgeland, Teatree heath. Sandy yellow duplex soils in shallow dissections; Jarrah woodland.
Land degradation risk	All soil units mapped within the application area have a high risk of wind erosion and subsurface acidification and a moderate risk of phosphorus export and subsurface compaction. Land degradation risks for mapped soil types are summarised in Table B.6.
Waterbodies	Two minor non-perennial watercourses, both within the Shannon River catchment, intersect the south-eastern corner of the northern application area and western portion of the southern application area. Mutliple other minor non-perennial watercourses are within 50 m of the application area. The closest mapped wetland to the application area is approximately 4.1 km away.
Hydrogeography	Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers (granitoid lithology) Groundwater salinity: 500-1000 mg/L The application area is not mapped within any Public Drinking Water Source Area, Groundwater Area or Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914,* or area proclaimed under the *Country Areas Water Supply Act 1947*.
Flora	There are records of one threatened and nine priority flora within the local area, the closest of which is *Lomandra ordii* (P4), located approximately 1.6 km south-east of the application area.
Ecological communities	There are records of three priority ecological communities within the local area, the closest of which is Epiphytic Cryptogams of the karri forest (P3), the buffer of which is located approximately 4 km north-east of the application area.
Fauna	There are records of 12 threatened fauna species, eight priority fauna species, one conservation dependent fauna species, and one other specially protected fauna species within the local area, the closest of which is *Calyptorhynchus baudinii* (Baudin's cockatoo) (T), located approximately 100 m south of the northern application area.

B.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
Vegetation complex					
Crowea (Crb)**	52,753.26	45,425.07	86.11	43,135.87	81.77
Granite valleys (S1)**	25,606.64	21,661.73	84.59	19,515.81	76.21

	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
Granite Valleys (Vh2)**	9,968.23	8,394.77	84.22	7,310.82	73.34
Angove (A)**	39,698.49	34,737.44	87.50	31,437.22	79.19
Local area (calculation - delete if not required)					
10km radius	33,794.07	20,704.90	61.27	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Flora analysis table

With consideration for the site characteristics set out above and relevant datasets (see Appendix F.1.) 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 records in local area	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Actinotus repens	P3	N	Y	Y	1.9	3	32	N/A
Gonocarpus simplex	P4	N	Y	Y	1.7	1	26	N/A
Kennedia glabrata	T	N	Y	N	5.1	3	36	N/A
Lomandra ordii	P4	Y	Y	Y	1.6	21	35	N/A
Myriophyllum trifidum	P4	N	Y	Y	6.1	20	38	N/A
Schizaea rupestris	P2	N	Y	Y	6.1	1	13	N/A

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

B.4. Fauna analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of records in local area	Most recent record	Are surveys adequate to identify? [Y, N, N/A]
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	5.3	2	2013	N/A
Calyptorhynchus baudinii (Baudin's cockatoo)	EN	Y	0.1	16*	2013	N/A
Calyptorhynchus latirostris (Carnaby's cockatoo)	EN	Y	2.4	14*	2014	N/A
Elapognathus minor (Short-nosed snake)	P2	Y	5.3	2	1900	N/A
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	Y	6.2	2	1984	N/A
Phascogale tapoatafa wambenger (South-western brush-tailed phascogale, wambenger)	CD	Y	5.2	4	1980	N/A

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of records in local area	Most recent record	Are surveys adequate to identify? [Y, N, N/A]
Pseudocheirus occidentalis (western ringtail possum, ngwayir)	CR	Y	3.9	2	-	NA
Setonix brachyurus (Quokka)	VU	Y	6.2	6	2003	N/A
Species exclusively associated with waterbodies						
Calamoecia elongata (a copepod (Northcliffe))	P3	N	5.5	8	1990	NA
Daphnia occidentalis (a water flea (Karri forests))	P3	N	5.5	3	1990	N/A
Fibulacamptus bisetosus (a non-marine Harpacticoid copepod (Muirillup Rock))	P2	N	6.1	1	1987	NA
Galaxiella munda (Mud minnow, western dwarf galaxias)	VU	N	4.7	30	2012	N/A
Galaxiella nigrostriata (Black-stripe minnow, black-striped dwarf galaxias)	EN	N	3.9	70	2014	NA
Geotria australis (pouched lamprey)	P3	N	3.4	1	1996	N/A
Hydromys chrysogaster (Water-rat, rakali)	P4	N	6.4	2	2011	NA
Ixobrychus dubius (Australian little bittern)	P4	N	5.2	1	1998	N/A
Lepidogalaxias salamandroides (Salamanderfish)	EN	N	3.9	50	1989	NA
Nannatherina balstoni (Balston's pygmy perch)	VU	N	9.0	7	2014	N/A
Westralunio carteri (Carter's freshwater mussel)	VU	N	4.7	1	2010	NA

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

* Note an additional 8 records of *Calyptorhynchus* sp. 'white-tailed black cockatoo' are present within the local area, which may comprise either of these two species

B.5. Ecological community analysis table

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

Community 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 (total)	Are surveys adequate to identify? [Y, N, N/A]
Epiphytic Cryptogams of the karri forest	P3	Y	Y	Y	4km (buffer)	4	N/A

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

B.6. Land degradation risk table

Soil mapping unit	Risk categories	Risk
Crowea (Pimelia) 254PvCrb	Wind erosion	H1: 50-70% of map unit has a high to extreme wind erosion risk
	Water erosion	L2: 3-10% of the map unit has a very high to extreme hazard
	Salinity	L1: <3 of the map unit has a moderate or high hazard or is presently saline
	Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
	Flood risk	L1: <3% of the map unit has a moderate to high hazard

	Water logging	L2: 3-10% of the map unit has a moderate to very high to risk
	Phosphorus export risk	M1: 10-30% of map unit has a high to extreme risk
	Subsurface compaction risk	M2: 30-50% of the map unit has a high subsurface compaction risk
Minor Valleys S1 Subsystem (Pimelia) 254PvS1	Wind erosion	H1: 50-70% of map unit has a high to extreme wind erosion risk
	Water erosion	M1: 10-30% of map unit has a high to extreme water erosion risk
	Salinity	L1: <3 of the map unit has a moderate or high hazard or is presently saline
	Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
	Flood risk	L1: <3% of the map unit has a moderate to high hazard
	Water logging	M1: 10-30% of map unit has a moderate to very high waterlogging risk
	Phosphorus export risk	M2: 30-50% of map unit has a high to extreme risk
	Subsurface compaction risk	M1: 10-30% of the map unit has a high subsurface compaction risk
Major Valleys V2 Subsystem (Pimelia) 254PvV2	Wind erosion	H1: 50-70% of map unit has a high to extreme wind erosion risk
	Water erosion	L2: 3-10% of the map unit has a very high to extreme hazard
	Salinity	L1: <3 of the map unit has a moderate or high hazard or is presently saline
	Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
	Flood risk	L1: <3% of the map unit has a moderate to high hazard
	Water logging	L2: 3-10% of the map unit has a moderate to very high to risk
	Phosphorus export risk	M2: 30-50% of map unit has a high to extreme risk
	Subsurface compaction risk	M2: 30-50% of the map unit has a high subsurface compaction risk
Angove Subsystem (Northcliffe) 254NfAN	Wind erosion	H1: 50-70% of map unit has a high to extreme wind erosion risk
	Water erosion	L1: <3% of map unit has a high to extreme water erosion risk
	Salinity	L1: <3 of the map unit has a moderate or high hazard or is presently saline
	Subsurface Acidification	H2: >70% of the map unit has a high susceptibility
	Flood risk	L1: <3% of the map unit has a moderate to high hazard
	Water logging	H1: 50-70% of map unit has a moderate to very high waterlogging risk
	Phosphorus export risk	M2: 30-50% of map unit has a high to extreme risk
	Subsurface compaction risk	M1: 10-30% of the map unit has a high subsurface compaction risk

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared may contain foraging habitat for the conservation significant black cockatoo species, may contain habitat for other conservation significant terrestrial fauna species and may contain habitat for priority flora species and a priority ecological community.	May be at variance	Yes *Refer to Sections 3.2.1 and 3.2.2 above.*
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."* Assessment: The area proposed to be cleared may contain foraging habitat for the conservation significant black cockatoo species.	May be at variance	Yes *Refer to Section 3.2.1, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*
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."* Assessment: The area proposed to be cleared is not likely to contain a threatened ecological community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
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."* Assessment: The extent of the mapped vegetation types and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (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."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	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: Several watercourses are mapped within the application area. However, given that clearing within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted as a condition of this permit, impacts to watercourses or wetlands are not likely to occur as a result of the proposed clearing.	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, however noting the nature of the proposed clearing (thinning), the proposed clearing is not likely to have an appreciable impact on land degradation. A condition to rehabilitate log landings will mitigate subsurface compaction impacts.	Not likely to be at variance	Yes *Refer to Section 3.2.3, above*
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 that clearing within 30 metres of the riparian vegetation of any watercourse or wetland is not permitted as a condition of this permit, that no sensitive groundwater resources are recorded within the application area and that the proposed clearing is thinning and not clearfelling, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No *Refer to Section 3.2.3, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
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: Given the mapped soils and topographic contours in the surrounding area, that no clearing will be undertaken within 30 metres of the riparian vegetation of any watercourse or wetland that the proposed clearing is thinning and not clearfelling, the proposed clearing is not likely to contribute to increased incidence or intensity of flooding or waterlogging.	Not likely to be at variance	No

Appendix D. 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 Keighery (1994) scale described below was used to measure the condition of the vegetation proposed to be cleared.

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 E. Photographs of the vegetation

Figure E-1: Jarrah and marri dominated forest in northern portion of application area, with understorey including *Melaleuca* spp., bracken and sedges (DWER, 2020)

Figure E-2: Mixed marri and jarrah forest with *Allocasuarina* sp. in the northern portion of application area (DWER, 2020)

Figure E-3: Understorey including sedges and *Lasiopetalum* sp (foreground) and mixture of karri, marri and jarrah forest (background) towards the western extent of the northern portion of application area (DWER, 2020)

Figure E-4: Understorey including sedges, Myrtaceae and *Persoonia longifolia* and overstorey including blackbutt within northeastern extent of northern portion of application area (DWER, 2020)

Figure E-5: Understorey including *Agonis flexuosa*, *Lasiopetalum* sp. and bracken and overstorey including karri within southern portion of application area (DWER, 2020)

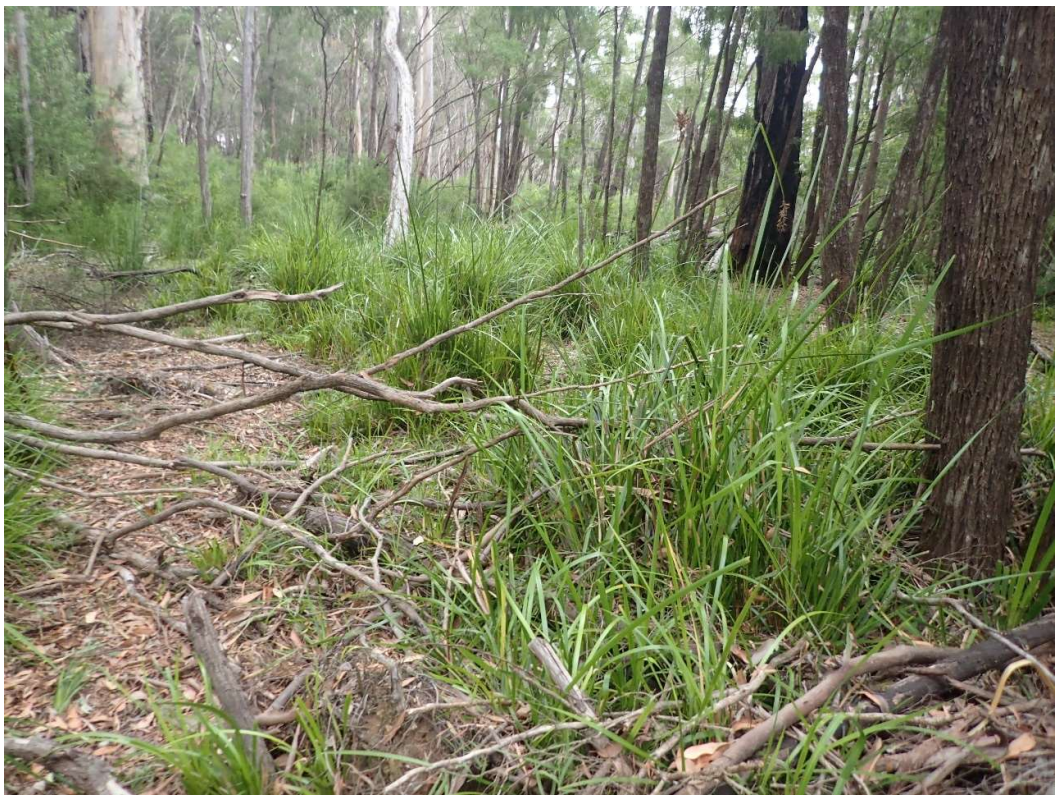

Figure E-6: Understorey of sedges and overstorey including karri, jarrah and marri within southern portion of application area (DWER, 2020)

Appendix F. Sources of information

F.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

F.2. References

Beebe, P. (2020) *Clearing permit application CPS 8761/1*, received 12 December 2019 (DWER Ref: A1851086).

Clarke, J. (2019). *Management plan to accompany application for a clearing permit* (DWER Ref: A1858343).

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.

Commonwealth of Australia (2016a) Modelled distribution for Carnaby's Cockatoo (*Calyptorhynchus latirostris*). Department of Environment and Energy, Canberra.

Commonwealth of Australia (2016b) Modelled distribution for Baudin's Cockatoo (*Calyptorhynchus latirostris*). Department of Environment and Energy, Canberra.

Department of Environment and Conservation (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. Western Australia.

Department of Environment and Conservation. (2012a). *Fauna profiles. Quenda,* Isoodon obesulus *(Shaw, 1797).* Retrieved from https://www.dpaw.wa.gov.au/images/documents/conservation-management/pests-diseases/quenda_2012.pdf

Department of Environment and Conservation. (2012a). *Quokka (*Setonix brachyurus*) Recovery Plan*. Perth. Retrieved from https://www.environment.gov.au/system/files/resources/4581df81-0041-4fc9-ba1b-aca7cb22246d/files/quokka-recovery-plan.pdf

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.

Department of Parks and Wildlife (2017). *Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan*. Perth. Retrieved from https://www.environment.gov.au/system/files/resources/e95bcb47-3db8-45d1-aae7-2cfd360097c9/files/recovery-plan-western-ringtail-possum.pdf

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 9 February 2021)

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.

Department of Water and Environmental Regulation (DWER) (2020) *Site Inspection Report for Clearing Permit Application CPS 8761/1,* 17 February 2020. Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1868605).

Environmental Protection Authority (EPA) (2016). *Technical Guidance – Terrestrial Fauna Surveys.* Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf.

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Harewood, G. (2021). *Black Cockatoo Habitat Tree Assessment, CPS 8761/1.* (DWER ref: A1980698).

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

Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia.* Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

Shea, G., Shine, R and Covacevich , J.C. (1993). Family Elapidae. In C.J. Glasby, P.L. Beesley and G.J.B. Ross (Eds.), *Amphibia & Reptilia*, Volume 2, Part 1 (295-309). Australian Government Publishing Service.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Shire of Manjimup (2020) *Advice for clearing permit application CPS xxx/1*, received 29 January 2020 (DWER Ref: A1862913).

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 9 February 2021)