



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 8925/1
File Number: DWERVT5845
Duration of Permit: From 10 December 2022 to 10 December 2030

PERMIT HOLDER

Wespine Industries Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 15032 on Deposited Plan 206299, Boddington

AUTHORISED ACTIVITY

The permit holder must not clear more than 224.32 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 09 December 2025.

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 in Figure 1 of Schedule 1:

- (a) thinning of *Eucalyptus marginata* (jarrah), *Eucalyptus wandoo* (wandoo), *Corymbia calophylla* (marri), *Casuarina* spp. (sheoak), and *Eucalyptus accedens* (powderbark wandoo) trees;
- (b) *culling* and burning of unsaleable trees;
- (c) clearing of *understorey* where undertaken in association with the activities described under conditions 2(a) and (b); and
- (d) *prescribed burning* of *understorey*.

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. **Directional clearing**

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

6. **Vegetation management - thinning**

- (a) *Thinning* activities undertaken in accordance with condition 2(a) of this permit must be performed by a *forestry operator*.
- (b) Operation of logging machinery used to undertake activities authorised under this permit must only be performed during *dry conditions*.
- (c) Prior to undertaking any clearing authorised under this permit, an *environmental specialist* must determine the species composition, structure and density of the *understorey* of areas proposed to be *thinned*.
- (d) Prior to undertaking any clearing authorised under this permit, a *forestry technician* must inspect all *habitat trees* within the area cross-hatched yellow in Figure 1 of Schedule 1 and demarcate any *habitat trees* containing hollows suitable for use by *black cockatoo species*.
- (e) The permit holder must not clear any *habitat trees* containing hollows suitable for use by *black cockatoo species* identified in accordance with condition 6(d) of this permit.

- (f) The permit holder must retain a minimum of five (5) *habitat trees* per hectare within the area cross-hatched yellow in Figure 1 of Schedule 1, where present.
- (g) Where five (5) *habitat trees* per hectare are not present within the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must retain a minimum of five of the largest trees with the potential to become *habitat trees* per hectare within the area cross-hatched yellow in Figure 1 of Schedule 1.
- (h) Prior to undertaking any clearing authorised under this permit, the permit holder must provide the location of all *habitat trees* and potential *habitat trees* to be retained in accordance with conditions 6(d), (f) and (g) of this permit to the CEO, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees.
- (i) The permit holder is required to maintain a minimum retention rate of:
 - (i) 16m²/ha *basal area* for jarrah dominated stands; and
 - (ii) 10m²/ha *basal area* for wandoo dominated stands.
- (j) A minimum of one 30 metre diameter patch of *healthy representative understorey*, on average, per hectare authorised to be cleared under this permit, is required to be retained, within which clearing of *understorey* described under condition 2(c) is not permitted.
- (k) The permit holder must retain all *ground habitat logs* within the area cross-hatched yellow in Figure 1 of Schedule 1.
- (l) The permit holder must remove all *woody fuels* present within a 1 metre radius of each *habitat tree* and potential *habitat tree* retained in accordance with conditions 6(d), 6(f), and 6(g) of this permit and each *ground habitat log* retained in accordance with condition 6(j) of this permit.
- (m) The permit holder must, by no later than 09 March 2026, during *dry conditions*, rehabilitate any established *log landings* and *extraction tracks* by scarifying the soil surface to reduce compaction and facilitate natural regeneration
- (n) Within two years of 09 December 2025, 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*;
 - (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 6(c) of this permit, 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.

7. Vegetation management – prescribed burning

The permit holder must ensure that any *prescribed burning* undertaken in accordance with condition 2(d) of this permit shall only occur during *suitable conditions*.

8. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to 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 <i>weeds</i> and <i>dieback</i> in accordance with condition 4; and (g) actions taken to undertake directional clearing in accordance with condition 5.
2.	In relation to vegetation management pursuant to condition 6	<ul style="list-style-type: none"> (a) the <i>environmental specialist's</i> report documenting the species composition, structure and density of the <i>understorey</i> in accordance with condition 6(c); (b) for <i>habitat trees</i> and potential <i>habitat trees</i> retained in accordance with conditions 6(d), 6(f) and 6(g): <ul style="list-style-type: none"> i) the species of each tree; ii) the location of each <i>habitat tree</i> and potential <i>habitat tree</i>, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), expressing the geographical coordinates in Eastings and Northings; iii) a photograph of each <i>habitat tree</i> and potential <i>habitat tree</i>; and

No.	Relevant matter	Specifications
		<ul style="list-style-type: none"> <li data-bbox="842 219 1353 327">iv) the number of <i>habitat trees</i> and potential <i>habitat trees</i> retained per hectare. <li data-bbox="778 344 1374 488">(c) monitoring undertaken to ensure that the specified minimum <i>basal area</i> is retained in accordance with condition 6(i); <li data-bbox="778 506 1294 577">(d) for <i>ground habitat logs</i> retained in accordance with condition 6(k): <ul style="list-style-type: none"> <li data-bbox="842 595 1385 891">(i) the location of each <i>ground habitat log</i> recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), expressing the geographical coordinates in Eastings and Northings; and <li data-bbox="842 909 1334 981">(ii) the number of <i>ground habitat logs</i> retained. <li data-bbox="778 999 1358 1137">(e) actions taken to remove <i>woody fuels</i> surrounding retained <i>habitat trees</i> and <i>ground habitat logs</i> in accordance with condition 6(l); <li data-bbox="778 1155 1385 1411">(f) number of <i>log landings</i> established and their location, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), expressing the geographical coordinates in Eastings and Northings; <li data-bbox="778 1429 1385 1536">(g) the date(s) the <i>log landings</i> and <i>extraction tracks</i> were rehabilitated in accordance with condition 6(m); <li data-bbox="778 1554 1385 1697">(h) photographs of the <i>understorey</i> taken at one year, two years and three years after completing clearing authorised under this permit; <li data-bbox="778 1715 1353 1859">(i) a detailed description of the nature and extent of any <i>remedial actions</i> undertaken in accordance within condition 6(n)(ii).
	In relation to vegetation management pursuant to condition 7	<ul style="list-style-type: none"> <li data-bbox="778 1883 1321 1955">(a) date(s) when the <i>prescribed burning</i> activities were undertaken.

9. Reporting

- (a) The permit holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 8 of this permit; and
 - (ii) concerning activities done by the permit holder under this permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this permit was undertaken between 1 January and 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 09 September 2030, the permit holder must provide to the *CEO* a written report of records required under condition 8 of this Permit where these records have not already been provided under condition 9(a) of this Permit.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
basal area	is the method of expression of tree cover density in an area where the total area of tree trunk, whose diameter over bark is measured at 1.3 metres above the ground, is expressed as square metres per hectares of land area.
black cockatoo species	means one or more of the following species: (a) <i>Calyptorhynchus lateriosis</i> (Carnaby's cockatoo); (b) <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo); and/or (c) <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
culled/ing	means the selective removal and/or killing of unsaleable trees for <i>thinning</i> , using methods including notching, felling or machine puching.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.
dry conditions	means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches.

Term	Definition
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (2) years work 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 <i>CEO</i> as a suitable environmental specialist.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
extraction tracks	means formally established temporary tracks in which understorey has been cleared and topsoil has been disturbed, along which trees felled by logging machinery are moved from the cutting site to a landing or roadside.
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.
forestry technician	means an external person with a minimum of 5 years of experience in conducting forestry activities relevant to forest ecology in native forest operations including habitat tree identification and tree marking.
ground habitat log	means a log with a minimum length of 3 metres and a minimum internal hollow diameter of 10 centimetres.
habitat tree/s	means trees that have a diameter, measured over bark at 1.3 meters from the base of the tree, of at least 70 centimetres for marri (<i>Corymbia calophylla</i>), of at least 50 centimetres for jarrah (<i>Eucalyptus marginata</i>), and of at least 30 centimetres of wandoo (<i>Eucalyptus wandoo</i>), that contain or have the potential to develop hollows or roosts suitable for native fauna.
healthy representative understorey	means native <i>understorey</i> vegetation that is vigorous, free of disease, and has a similar species composition to typical pre-clearing <i>understorey</i> vegetation present within the area in which clearing is authorised.
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
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 <i>direct seeding</i> , and the period from May to July for undertaking <i>planting</i> .
planting	means the re-establishment of vegetation by creating soil conditions and planting seedlings of the desired species.
prescribed burning	is the process of planning and applying fire to a predetermined area, under specific environmental conditions, to minimise the size and intensity of fire on life, property and critical infrastructure.

Term	Definition
remedial action	means, for the purpose of this permit, any activity that is required to ensure successful re-establishment of <i>understorey</i> to its pre-clearing composition, structure and density, and may include a combination of soil treatments and <i>revegetation</i> .
regenerated/ing/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetated/ing/ion	means the re-establishment of a cover of <i>local provenance</i> native vegetation in an area using methods such as natural <i>regeneration</i> , <i>direct seeding</i> and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
suitable conditions	means conditions that have been determined by a Bush Fire Officer appointed under the <i>Bush Fires Act 1954</i> to be suitable to allow the burning of vegetation within the area authorised under this permit to occur.
thinned/ing	describes a silvicultural activity to promote the growth of selected trees by reducing competition through the removal of smaller stems with consideration of tree spacing to maintain the overall structure and composition of the dominant overstorey species.
understorey	means, for the purpose of this Permit, all native vegetation that does not include trees to be <i>culled</i> or subject to harvest.
weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
woody fuels	means woody vegetative materials that have a diameter of 75 mm or greater and a length of 1 metre or greater.

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

16 November 2022

SCCHEDULE 1

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

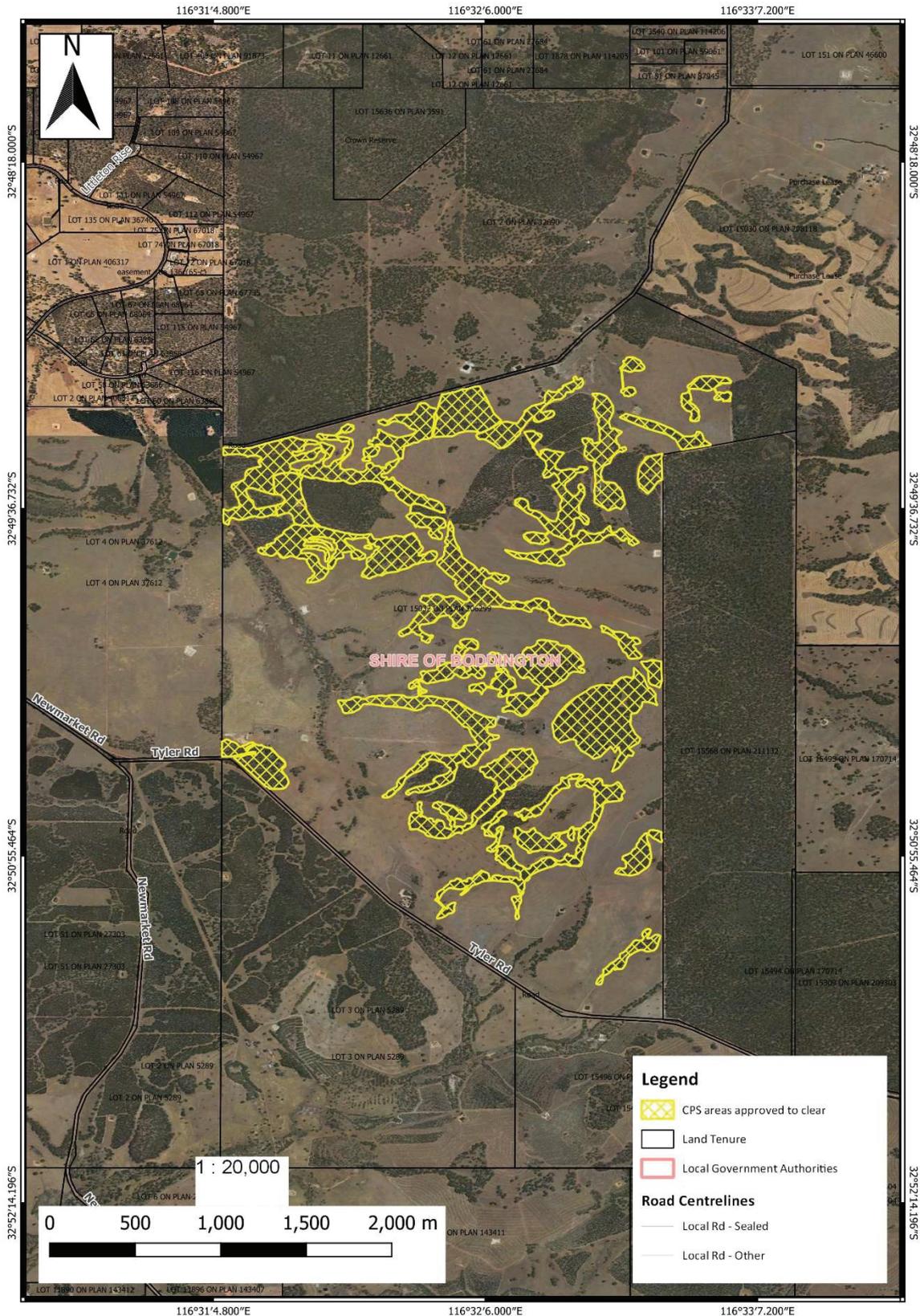


Figure 1: Map of the boundary of the area within which clearing may occur.



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 8925/1
Permit type:	Area permit
Applicant name:	Wespine Industries Pty Ltd
Application received:	27 May 2020
Application area:	224.32 (revised) hectares of native vegetation
Purpose of clearing:	Ecological thinning to promote forest health improvement, encouragement of regeneration and bushfire risk management.
Method of clearing:	Mechanical and prescribed burning
Property:	Lot 15032 on Deposited Plan 206299, Boddington
Location (LGA area/s):	Shire of Boddington
Localities (suburb/s):	Boddington

1.2. Description of clearing activities

The vegetation applied to be cleared consists of several interconnected remnants of vegetation separated by grazed land, access tracks and pine plantation (see Figure 1, Section 1.5). The application is to selectively clear trees through ecological thinning to improve forest health and undertake prescribed burning to reduce fuel load and mitigate potential risks from bushfire.

The application was revised during the assessment process in response to a preliminary assessment by the department that identified that the areas of Very Good (Keighery, 1994) condition vegetation may provide significant habitat for conservation significant flora. The changes included:

- The removal of vegetation in Very Good (Keighery, 1994) condition from the proposed clearing area, and
- A reduction in the amount of clearing from 276 hectares to 224.32 hectares to avoid and minimise the clearing impacts (see Section 3.1 for further details).

1.3. Decision on application

Decision:	Granted
Decision date:	16 November 2022
Decision area:	224.32 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.1), the findings of a site inspection (see Appendix E), 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 Delegated Officer also took into consideration that the proposed clearing relates only to activities associated with the thinning of *Eucalyptus marginata* (jarrah), *Eucalyptus wandoo* (wandoo), *Corymbia calophylla* (marri), *Casuarina* spp. (sheoak), and *Eucalyptus accedens* (powderbark wandoo) trees within the application area and prescribed burning to promote forest health and reduce fire risk.

The assessment identified that:

- The proposed clearing will result in the loss of foraging and potential roosting habitat for Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo. However, impacts to these species are not likely to be significant given the nature of the proposed clearing and the context of the local area,
- While the application area contains potential breeding habitat for all three black cockatoo species, the applicant has committed to retaining all habitat trees (diameter at breast height of greater than 50 centimetres) containing hollows suitable for use by black cockatoo species and at least five potential habitat trees per hectare. Therefore, impacts to breeding habitat are not likely to be significant,
- The application area contains suitable habitat for six conservation significant arboreal and ground-dwelling fauna species. However, impacts to these species are not likely to be significant given the nature of the proposed clearing and the context of the local area,
- The application area is not likely to contain significant habitat for threatened or priority flora species, given the application area was revised to exclude 51.68 hectares of Very Good (Keighery, 1994) condition vegetation,
- The vegetation within the application area may be growing in association with an environment associated with a watercourse but is unlikely to cause deterioration in the quality of surface or underground water or to result in any long-term impacts to riparian vegetation communities, given the nature of the proposed clearing and the absence of characteristic riparian vegetation observed within the application area during the site inspection, and
- The proposed clearing may result in the introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have long-term adverse impacts on the environmental values listed above. The Delegated Officer considered that the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values subject to permit conditioning.

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

- avoid, minimise, and reduce the impacts and extent of clearing,
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity,
- operate logging machinery used to undertake clearing activities only during dry conditions,
- engage an environmental specialist to determine the species composition, structure, and density of the understorey of areas proposed to be thinned prior to clearing. Where there is evidence that understorey will not recover and develop towards its pre-clearing composition, structure, and density post-thinning, undertake remedial measures to ensure re-establishment of understorey,
- engage a forestry technician to inspect all habitat trees for the presence of hollows prior to clearing and demarcate habitat trees containing hollows suitable for use by black cockatoo species,
- retain all habitat trees containing hollows suitable for use by black cockatoo species and a minimum of five habitat trees per hectare, where present,
- where five habitat trees per hectare are not present, retain five of the largest trees with the potential to become habitat trees per hectare,
- retain a minimum of one 30 metre diameter patch of healthy representative understorey, on average, per hectare,
- retain all ground habitat logs with a minimum length of three metres and a minimum internal hollow diameter of 10 centimetres,
- remove all woody fuels within a one-metre radius of each habitat tree and ground habitat log retained,
- rehabilitate established log landings and extraction tracks by scarifying the soil surface to reduce compaction and facilitate natural regeneration of vegetation, and
- undertake prescribed burning only during suitable conditions that have been determined by a Bush Fire Officer appointed under the *Bush Fires Act 1954*.

1.5. Site map

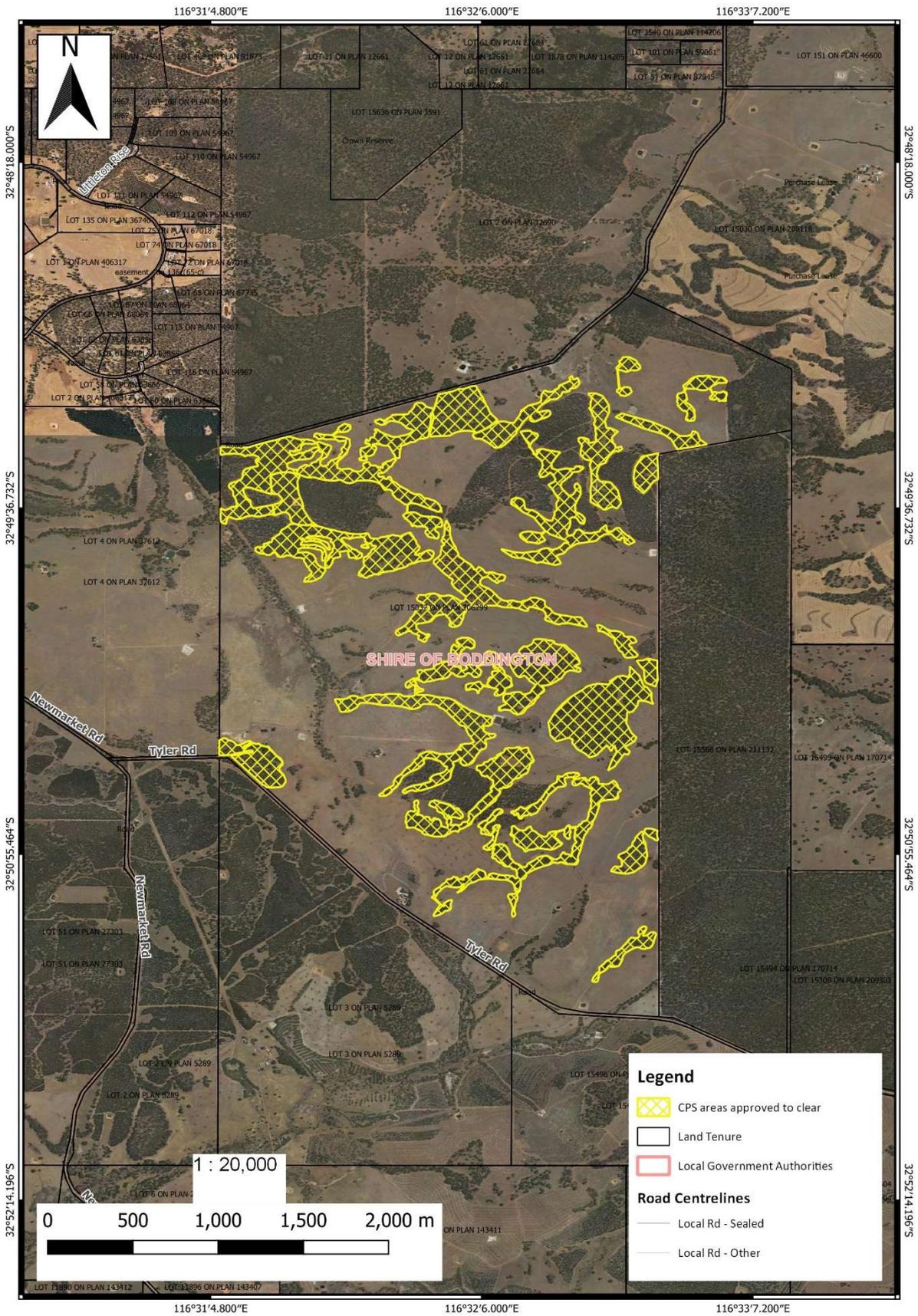


Figure 1 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Rights in Water and Irrigation Act 1914* (WA) (RIWI Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Silviculture Guideline for Jarrah Forest. Sustainable Forest Management Series, FEM Guideline 1* (DPAW, 2014a)
- *Wandoo Silviculture Guideline. Sustainable Forest Management Series, FEM Guideline 2* (DPAW, 2014b)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant considers that uncontrolled stock access, exclusion of fire and absence of regeneration from overstocking have resulted in an ongoing decline in the forest health and ecological function of vegetation within the proposed clearing area (Wespine Industries Pty Ltd, 2020a). The applicant submitted that the proposed clearing through selective thinning and fire hazard reduction burning was a last resort to improve the quality and ecological function of the vegetation within the proposed clearing area (Wespine Industries Pty Ltd, 2020a).

The applicant originally applied to selectively clear via ecological thinning within a total area of 276 hectares of native vegetation within Lot 15032 on Deposited Plan 206299, Boddington, for the purpose of improving forest health, encouraging regeneration, and undertaking fire hazard reduction. During the assessment, the applicant agreed to modify the application area to reduce the total area applied to clear to 224.32 hectares, to exclude areas of better-quality vegetation from the proposed clearing area, in order to mitigate potential impacts to conservation significant flora species (Figure 2; Wespine Industries Pty Ltd, 2021).

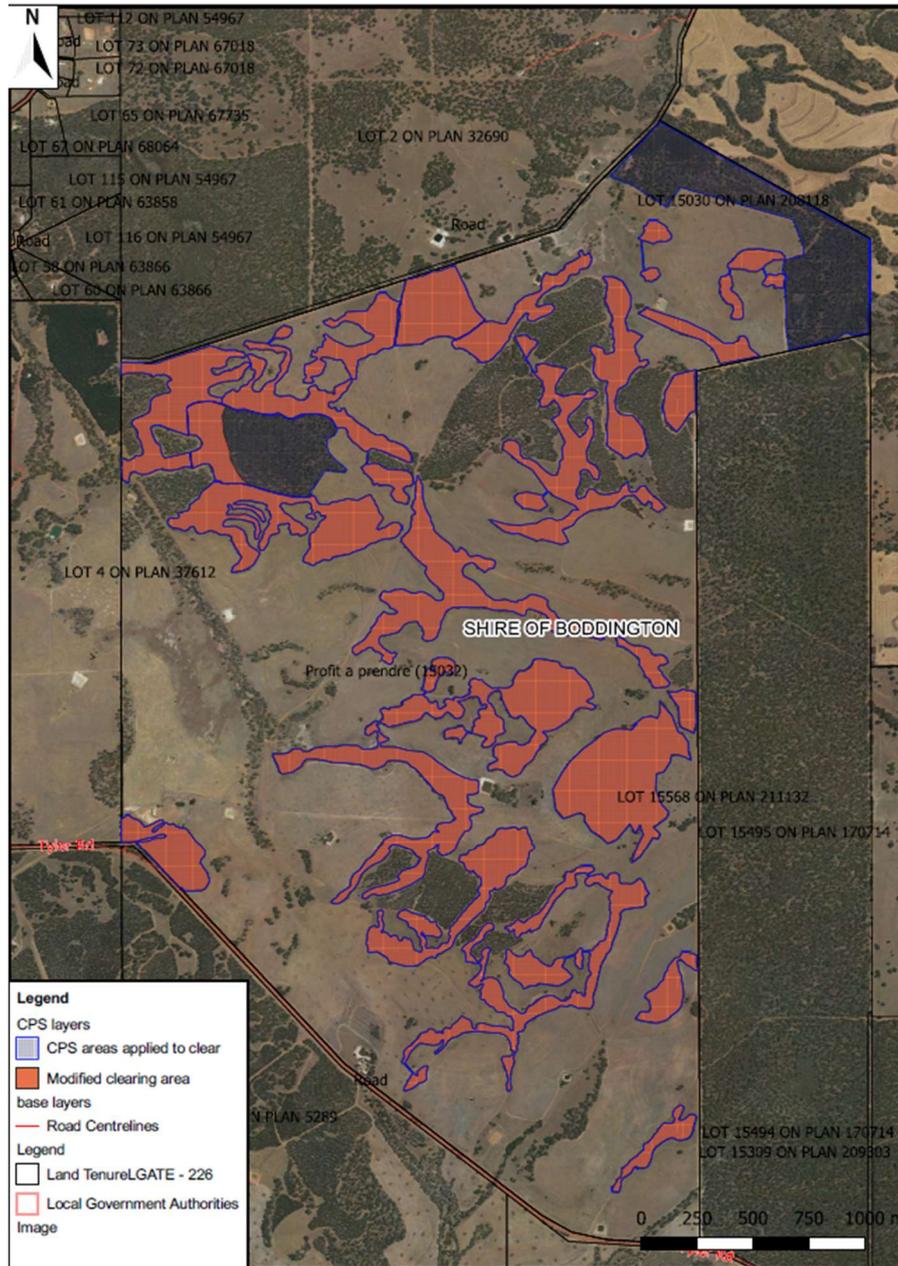


Figure 2. Comparison of the original clearing area for CPS 8925/1 and modified clearing area excluding areas of Very Good (Keighery, 1994) condition vegetation. Original clearing area is outlined in blue, modified clearing area is shaded orange.

An Ecological Thinning and Fire Mitigation Plan was submitted by the applicant, outlining the objectives of the proposed clearing in regard to restoring forest health and ecological function, and how this would be achieved through selective thinning and fire mitigation, as well as the measures in place to conserve habitat and enhance the productive capacity of the site (Wespine Industries Pty Ltd, 2020b). The Ecological Thinning and Fire Mitigation Plan submitted is consistent with the Department of Biodiversity Conservation and Attractions' (DBCA's) silviculture guidelines for jarrah and wandoo forests (DPAW, 2014a; DPAW, 2014b). DBCA have also provided endorsement of the silvicultural intent of the Ecological Thinning and Fire Mitigation Plan (DBCA, 2020).

The Ecological Thinning and Fire Mitigation Plan separated the application area into three zones, based on the intended management actions, with the following specified objectives:

- Fire Mitigation Zone:
 - Thin from below to reduce crown density and remove ladder fuels that allow fire to transition from ground fire to crown fire:
 - Target retained basal area of 16m² per hectare for jarrah (*Eucalyptus marginata*) stands;
 - Retention of large marri (*Corymbia calophylla*) where they occur; and
 - Retention of trees with a moderate to high probability of hollow production.

- Avoid increasing surface fuels by employing high utilisation harvesting systems:
 - Removal of coarse woody debris within 20 metres of the Fire Mitigation Zone boundary; and
 - Transferral of coarse woody debris to the Regeneration Zone to enhance habitat, where practicable.
- Conduct prescribed burning to reduce surface fuels, with a target return interval of four years.
- Treat coppice through the application of herbicides to prevent re-sprouting and rapid diminution of fire mitigation.
- Water Management Zone:
 - Thin from below to reduce crown density and reduce foliar transpiration:
 - Target retained basal area of 12m² per hectare; and
 - Thinning will target malformed and sub-dominant trees for removal.
 - Treat coppice through the application of herbicides to prevent re-sprouting and rapid diminution of water yield improvements.
- Regeneration Zone:
 - Thin from below to remove less vigorous and or suppressed trees (mimicking the natural thinning process):
 - Target retained basal area of 10m² per hectare for wandoo (*Eucalyptus wandoo*) stands, with a maximum distance of 40 metres between trees; and
 - Target retained basal area of 16m² per hectare for jarrah (*Eucalyptus marginata*) stands, with a minimum of five habitat trees per hectare where present.
 - Deliberately utilise less than 100 per cent of harvested trees, to ensure that material capable of forming ash beds remains;
 - Harvest residue in wandoo stands will be returned to the forest in heaps and placed more than 10 metres from retained trees, to facilitate formation of ash beds; and
 - Heaps shall be driven over by forestry equipment to crush down and facilitate complete burning of the wood to ash.
 - Time the reintroduction of fire to coincide with high seed production year, which will find seed beds among the fresh ashes;
 - Burning will not be carried out in wandoo stands until the presence of sufficient seed sources is confirmed; and
 - If twelve months have elapsed since burning, and there is insufficient evidence of recruitment of seedlings, then nursery grown seedlings shall be manually planted and fertilised, at a rate of ten seedlings per ash bed.
 - Improve habitat for threatened species:
 - Retention of coarse woody debris for fauna habitat, with emphasis placed on retaining hollow logs;
 - Relocation of coarse woody debris from other management zones to increase fauna habitat, where practicable;
 - Establish low fuel buffers on surrounds;
 - Limit prescribed burning interval in Regeneration Zone to promote litter layer;
 - Retain hollow-bearing trees; and
 - Undertake feral predator trapping and baiting, where budget allows.

In addition to the mitigation and management actions specified above, the applicant committed to the retention of all habitat trees containing suitable hollows for black cockatoo species within the proposed clearing area and a retention rate of at least five habitat trees per hectare (see section 3.2.1).

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

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix 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 present a risk to biological values (fauna, flora, and vegetation), significant remnant vegetation, and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (fauna) - Clearing Principle (b)

Assessment

Noting the site characteristics (see Appendix B) and the habitat preferences of the conservation significant fauna species recorded in the local area, the application area was considered to contain suitable habitat for the following species:

- *Bettongia penicillata ogilbyi* (woylie) (listed as Critically Endangered under the BC Act and as Endangered under the EPBC Act),
- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (listed as Vulnerable under the BC Act and EPBC Act),
- *Dasyurus geoffroyi* (chuditch) (listed as Vulnerable under the BC Act and EPBC Act),
- *Falsistrellus mackenziei* (western false pipistrelle) (listed as Priority 4 by DBCA),
- *Isoodon fusciventer* (quenda) (listed as Priority 4 by DBCA),
- *Myrmecobius fasciatus* (numbat) (listed as Endangered under the BC Act and EPBC Act),
- *Notamacropus Irma* (western brush wallaby) (listed as Priority 4 by DBCA),
- *Phascogale calura* (red-tailed phascogale) (listed as a species of special conservation interest (conservation dependent fauna) by DBCA and as Endangered under the EPBC Act),
- *Phascogale tapoatafa wambenger* (south-western brush-tailed phascogale) (listed as a conservation dependent fauna species by DBCA),
- *Zanda baudinii* (previously *Calyptorhynchus baudinii*) (Baudin's cockatoo) (listed as Endangered under the BC Act and EPBC Act), and
- *Zanda latirostris* (previously *Calyptorhynchus latirostris*) (Carnaby's cockatoo) (listed as Endangered under the BC Act and EPBC Act).

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

Black Cockatoo Species

The proposed clearing area occurs within the known distribution of all three black cockatoo species (Carnaby's cockatoo, Baudin's cockatoo, and forest red-tailed black cockatoo) and within the predicted breeding range of both Carnaby's cockatoo and the forest red-tailed black cockatoo (Commonwealth of Australia, 2022). DBCA records confirm that all three species have been recorded within the local area (10-kilometre radius). A site inspection undertaken by DWER officers also observed several Carnaby's cockatoos resting in jarrah and marri trees within the proposed clearing area at the time of inspection (DWER, 2020).

Breeding and roosting habitat

Black cockatoo species are known to nest in hollows of live or dead trees, including marri, jarrah, karri (*Eucalyptus diversicolor*), wandoo, tuart (*Eucalyptus gomphocephala*), flooded gum (*Eucalyptus rudis*), and other *Eucalyptus* spp. (Commonwealth of Australia, 2022). 'Breeding habitat' for black cockatoos is defined as trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow (Commonwealth of Australia, 2022). Suitable DBH for nest hollows is 500 millimetres for most tree species but is reduced to 300 millimetres for wandoo and salmon gum (*Eucalyptus salmonophloia*) (Commonwealth of Australia, 2012). While breeding, black cockatoos also generally forage within a 12-kilometre radius of their nesting site (Commonwealth of Australia, 2022). According to available datasets, mapped potential black cockatoo feeding habitat is recorded within 12 kilometres of the application area, making it a suitable location for breeding if appropriate hollows are present. Given the above, and that the application area includes mature jarrah and wandoo with sparsely distributed mature marri and occurs within the predicted breeding range of Carnaby's cockatoo and the forest red-tailed black cockatoo, the proposed clearing area may provide suitable breeding habitat for these species, if suitable breeding hollows are present.

Mature habitat trees of suitable size to provide breeding habitat for Carnaby's cockatoo may also represent suitable roosting habitat for the species (Commonwealth of Australia, 2022). Within 12 kilometres of the application area, DBCA (2007-) records indicate the presence of five confirmed black cockatoo roosts and one unconfirmed roost. It has been demonstrated that the proximity of foraging habitat and water is critical to support roosting and breeding sites, where individual night roosts for black cockatoo species require food and water resources within six kilometres (Le Roux, 2017). Noting that the proposed clearing area includes mature jarrah and wandoo and is in close proximity to suitable foraging and water resources, the proposed clearing area is likely to represent suitable roosting habitat for black cockatoo species.

The Ecological Thinning and Fire Mitigation Plan submitted in support of this application, identified the primary thinning method to be “thinning from below”, which involves the removal of immature and sub-dominant trees to promote growth and maturation of the forest (Wespine Industries Pty Ltd, 2020b). Accordingly, the applicant has committed to retaining all habitat trees that contain hollows of suitable size for use by black cockatoo species and ensuring that a minimum of five habitat trees of suitable DBH to develop nest hollows are retained per hectare, where present (Wespine Industries Pty Ltd, 2021). The applicant has also advised that, where five habitat trees are not present per hectare, five of the largest trees with the potential to become habitat trees will be retained (Wespine Industries Pty Ltd, 2021). A permit condition to ensure the retention of all potential breeding trees and a minimum of five habitat trees per hectare is considered suitable to mitigate potential impacts to significant breeding and roosting habitat for black cockatoo species.

Foraging habitat

Black cockatoo species are noted to forage on a range of plant species, with the primary foraging resources varying between species (Commonwealth of Australia, 2022). Carnaby’s cockatoos forage on the seeds, nuts, and flowers of a variety of plants, including Proteaceous species (*Banksia* spp., *Hakea* spp., and *Grevillea* spp.), as well as *Allocasuarina* and *Eucalyptus* species, marri and a range of introduced species (Valentine and Stock, 2008). Forest red-tailed black cockatoos feed predominantly on the seeds of marri and jarrah, which comprise approximately 90 per cent of their diet (DEC, 2008). Baudin’s cockatoos primarily feed on the seeds of marri, but may also forage on the seeds of jarrah and Proteaceous species (DEC, 2008). Within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion, jarrah and marri are considered important foraging species for all three species of black cockatoo.

Noting that the application area is dominated by jarrah and includes other potential foraging species such as marri, *Allocasuarina* sp., and wandoo, is located within the known foraging range for Baudin’s cockatoo and known occurrence range of all three black cockatoo species, the application area is likely to comprise 224.32 hectares of suitable foraging habitat for black cockatoo species. A DWER site inspection also identified several chewed marri nuts within the proposed clearing area that exhibited evidence of foraging by black cockatoos and other small parrot species (DWER, 2020). The referral guidelines for black cockatoo species also acknowledges that foraging habitat within 12 kilometres of a breeding site and within six kilometres of a night roost are of particular importance for black cockatoo species (Commonwealth of Australia, 2022). According to available databases, there are 10 confirmed roost sites and three confirmed breeding sites within 12 kilometres of the application area, meaning the application area may support foraging by breeding and roosting individuals in the local area.

It is noted that black cockatoo foraging habitat has been mapped for the Jarrah Forest IBRA bioregion and implies that approximately 13,820 hectares of foraging habitat for black cockatoo species persists in the local area, of which the application area comprises 1.6 per cent. Approximately 15 per cent (2077 hectares) of mapped black cockatoo foraging habitat in the local area is located within the conservation estate. However, it is acknowledged that the purpose of the proposed clearing relates only to thinning and fire mitigation activities and will not involve complete clearing of the application area, with the requirement to maintain a basal area of between 10m² and 12m² per hectare in wandoo stands and a basal area of 16m² per hectare in jarrah stands across the 224.32-hectare application area. The applicant has also committed to excluding 51.68 hectares of better-quality vegetation from the proposed clearing area, as well as retaining all habitat trees that contain hollows of suitable size for use by black cockatoo species and at least five habitat trees per hectare, which are also expected to provide ongoing foraging habitat for black cockatoo species. Given suitable foraging habitat for black cockatoo species will be maintained throughout the application area, it is not considered likely that the proposed clearing will significantly reduce available foraging habitat for black cockatoo species in the local area or significantly impact foraging by local populations.

Arboreal Fauna

In regard to arboreal fauna, the red-tailed phascogale is known from 16 records within the local area, with the nearest occurring 2.5 kilometres from the application area (DBCA, 2007-), and is largely confined to woodlands with old-growth hollow-producing eucalypts, particularly wandoo and York gum (*Eucalyptus loxophleba*), often with associated rock sheoak (*Allocasuarina huegeliana*) (TSSC, 2016). The south-western brush-tailed phascogale is known from three records in the local area, with the nearest record is located 6.2 kilometres from the application area (DBCA, 2007-) and is typically associated with woodlands dominated by a variety of canopy species, but often characterised by the presence of hollow-bearing trees, as well as high canopy cover and connectivity (DEC, 2012b). The western false pipistrelle is known from seven records in the local area, with the nearest occurring 5.5 kilometres from the application area (DBCA, 2007-), and is associated with wet sclerophyll forests of karri, jarrah, and tuart eucalypts, roosting in hollows in old trees, branches, and stumps (Australian Museum, 2019).

Given the application area comprises woodland dominated by jarrah with wandoo, *Allocasuarina* sp., and sparsely distributed mature marri, and may include mature hollow-bearing trees, the proposed clearing area may provide

suitable habitat for these species. However, as discussed above, the applicant has committed to retaining hollow-bearing trees and five trees per hectare of suitable DBH to develop hollows, and will maintain a basal area of between 10m² and 12m² per hectare in wandoo stands, and 16m² per hectare in jarrah stands (Wespine Industries Pty Ltd, 2021). The applicant has also committed to excluding 51.68 hectares of better-quality vegetation from the proposed clearing area, which are likely to provide a denser canopy and more suitable habitat for arboreal fauna. Noting that the proposed clearing will not include the removal of hollow-bearing trees and that canopy connectivity will be maintained throughout retained stands, it is not considered likely that the proposed clearing will impact significant habitat for the red-tailed phascogale, south-western brush-tailed phascogale, and western false pipistrelle. A permit condition ensuring directional clearing is undertaken is considered sufficient to mitigate direct impacts to individuals if present at the time of clearing, allowing individuals to disperse into suitable habitat adjacent to the proposed clearing area or within other management zones.

Ground Fauna

Given the application area comprises jarrah, wandoo, and *Allocasuarina* sp. woodland, it is considered that the vegetation within the proposed clearing area may include suitable habitat for ground-dwelling fauna, including:

- Chuditch, known from 23 records within the local area, occurring approximately 6.1 kilometres from the application area (DBCA, 2007-). Chuditch is a carnivorous marsupial, typically associated with riparian jarrah forest or other forest, woodland or shrubland habitats that contain suitable den sites, including hollow logs and tree hollows, and sufficient prey biomass (DEC, 2012a),
- Western brush wallaby, known from 19 records within the local area, with the nearest record being 7.3 kilometres from the application area (DBCA, 2007-). Western brush wallaby prefer open forest or woodland habitat, particularly favouring open, seasonally wet flats with low grasses and open scrubby, and is found in areas of mallee and heath-land (DEC, 2012d),
- Woylie, known from one record within the local area, occurring approximately 9.1 kilometres from the application area (DBCA, 2007-) is primarily restricted to dry sclerophyll forests and woodlands dominated by jarrah and wandoo, with an understorey of scrub or tussock grass and well drained, deep, sandy soils (DBCA, 2017b),
- Quenda, known from three records within the local area, occurring approximately 9.5 kilometres from the application area (DBCA, 2007-), is associated with forest or woodlands near watercourses, where understorey consists of dense scrub and leaf litter is abundant (DEC, 2012c), and
- Numbat, known from one record within the local area, occurring approximately 4.9 kilometres from the application area (DBCA, 2007-), are only known to be surviving in a small area of jarrah forest and the Wheatbelt in Western Australia (DEC, 2017a). Numbat habitat in Western Australia is generally woodland dominated by eucalyptus species, with abundant hollow logs and branches for shelter and termites for food (DEC, 2017a).

It should be noted that while the application area may provide suitable habitat for woylie and numbat, it is unlikely that these species occur within the proposed clearing area. The record of a woylie within the local area is associated with a translocated population, and the application area occurs approximately 25 kilometres from the closest known natural occurrence of the species (DBCA, 2007-). Further, woylie are typically associated with areas in which extensively feral predator control has been undertaken (DBCA, 2017b). The record of numbat within the local area is a historic record from 1960 (DBCA, 2007-). The closest known natural occurrence of the species is in Dryandra Woodland, approximately 25 kilometres from the application area (DBCA, 2017a). Noting the above, it is highly unlikely that these species occur naturally within the proposed clearing area.

The Ecological Thinning and Fire Mitigation Plan submitted in support of this application, identified a number of objectives to improve habitat for ground-dwelling fauna within the Regeneration Zone, including retaining and relocating coarse woody debris, retaining hollow-bearing trees and hollows within coarse woody debris, limiting prescribed burning interval and conducting feral predator control (Wespine Industries Pty Ltd, 2020b; see section 3.1). It is also noted that 51.68 hectares of higher quality vegetation with suitable ground cover for fauna has been excluded from the proposed clearing area (Wespine Industries Pty Ltd, 2021). Given the above and that the proposed clearing relates only to ecological thinning and fire hazard reduction activities, which are likely to present short-term impacts to habitat resources at ground level, it is not considered likely that the proposed clearing will significantly impact habitat for ground-dwelling fauna. It is considered that directional clearing and conditions to retain ground habitat logs and patches of healthy understorey will allow any ground-dwelling fauna present at the time of clearing to disperse into adjacent suitable habitat and is sufficient to mitigate impacts to ground-dwelling fauna.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of foraging and potential roosting habitat for Baudin's cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo, as well as the loss of suitable habitat for several conservation significant arboreal and ground-dwelling fauna species. However, for the reasons set out

above, it is considered that the impacts of the proposed clearing on these fauna species are unlikely to represent a significant residual impact subject to the below conditions being imposed on the permit.

Conditions

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

- Directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing, and
- Vegetation management – thinning, which includes requirements to:
 - Inspect all trees of suitable DBH for the presence of hollows suitable for use by black cockatoo species and retaining all habitat trees with suitable hollows,
 - Retain a minimum of five habitat trees per hectare, where present, or five of the largest trees with the potential to become habitat trees per hectare, where five habitat trees are not present,
 - Remove all woody fuels present within a one-metre radius of each retained habitat tree,
 - Maintain a minimum retention rate of 12m² per hectare basal area in wandoo stands and 16m² per hectare basal area in jarrah stands,
 - Retain a minimum of one 30 metre diameter patch of healthy representative understorey, on average, per hectare, and
 - Retain a minimum of one ground habitat log per hectare, on average, and remove all woody fuels present within a one-metre radius of these logs.

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

Assessment

Noting the site characteristics (see Appendix B), habitat preferences and conservation statuses of the conservation significant flora species recorded in the local area, extent of known records, distribution and representation within secure conservation estate, the application area was considered to contain suitable and potentially significant habitat for the following species:

- *Caladenia hopperiana* (Quindanning spider orchid) (listed as Endangered under the BC Act and EPBC Act),
- *Banksia subpinnatifida* var. *imberbis* (listed as Priority 3 by DBCA),
- *Calytrix simplex* subsp. *simplex* (listed as Priority 1 by DBCA),
- *Gastrolobium* sp. Prostrate Boddington (listed as Priority 1 by DBCA),
- *Hibbertia ambita* (listed as Priority 1 by DBCA), and
- *Pultenaea pauciflora* (Narrogin pea) (listed as Vulnerable under the BC Act and EPBC Act).

Quindanning spider orchid is a herbaceous perennial geophyte with cream-yellow flowers occurring in September and October and is associated with moist margins of winter-wet creek lines in wandoo dominated woodlands (TSSC, 2018). The species is known from a total of 282 mature plants at two locations across a range of 10 kilometres from north to northwest of Quindanning, with the closest record noted 5 kilometres from the application area (TSSC, 2018). Quindanning spider orchid has been extensively surveyed in the local area, including surveys from the Western Australian Native Orchid Study & Conservation Group (WANOSCG) and DBCA, with no new subpopulations identified (TSSC, 2018).

Narrogin pea is a dense, much-branched shrub with yellow flowers occurring between October and November and is associated with open woodlands dominated by wandoo, marri, and parrot bush (*Banksia sessilis*) in white sandy soils over laterite (Western Australian Herbarium, 1998-). The species is known from a total of nine populations from Brookton to Williams, and is well-represented in conservation tenure, with two large populations located within the Mooradung Nature Reserve and Lupton Conservation Park (DEWHA, 2008).

Regarding priority flora species, *Banksia subpinnatifida* var. *imberbis* is a non-lignotuberous shrub with yellow flowers occurring between September and October and is associated with low woodland dominated by jarrah and wandoo, over mixed heath or shrubland in brown gravelly clay soils (Western Australian Herbarium, 1998-). *Calytrix simplex* subsp. *simplex* is a shrub with purple flowers occurring between October and November and is known to occur in brown to grey loam soils in jarrah woodland (Western Australian Herbarium, 1998-). *Gastrolobium* sp. Prostrate Boddington is a prostrate, mat-like shrub with yellow and red flowers in October and occurs within woodland over heath dominated by jarrah, wandoo and *Acacia* spp., in red to brown sandy loam or clay soils (Western Australian Herbarium, 1998-). *Hibbertia ambita* is a perennial shrub with yellow flowers between May and September and is associated with jarrah and marri woodland, often with *Allocasuarina* spp., *Acacia* spp., and *Banksia* spp. over mixed shrubs and herbs, in red-brown gravelly loam soils (Western Australian Herbarium, 1998-).

Given the application area comprises predominantly wandoo and jarrah woodland, with areas of *Allocasuarina* sp. and *Banksia* spp. shrubland, the application area is likely to provide suitable habitat for these six conservation

significant flora species. A site inspection undertaken by DWER officers did not observe any occurrences of threatened or priority flora within the proposed clearing area or adjacent vegetation (DWER, 2020). However, the DWER site inspection identified two areas totalling approximately 51.68 hectares in which the vegetation is in Very Good (Keighery, 1994) condition and includes a moderate to dense native mid- and understorey that has the potential to provide suitable habitat for the aforementioned species and where threatened or priority flora may not have been observable during the inspection (DWER, 2020). The applicant has subsequently excluded these better-quality areas from the application and has committed to ensuring ecological thinning and bushfire mitigation activities are not undertaken in these areas, to avoid potential impacts to significant habitat for conservation significant flora species (Wespine Industries Pty Ltd, 2021). It is also acknowledged that the area that has been excluded from the application includes vegetation immediately adjacent to a man-made dam, which is the primary area of concern for the Quindanning spider orchid, given it may provide moist margins in wandoo woodland. The DWER site inspection identified no intact riparian vegetation or evidence of inundation within the proposed clearing area, and it was also noted that the banks of the dam are eroded and contain no distinctive riparian vegetation or intact communities (DWER, 2020).

The remaining 224.32 hectares of the proposed clearing area has been subject to disturbance through previous harvesting activities and grazing (Wespine Industries Pty Ltd, 2020b), is almost entirely devoid of native mid-storey species, and includes sparsely distributed understorey species (DWER, 2020). It is also acknowledged that the primary method of clearing is thinning of jarrah and wandoo stands, which will not target mid- or understorey species. The extent of impacts to mid- and understorey species are likely to be indirect through incidental clearing during thinning activities or through altered environmental conditions resulting from the clearing of canopy species and fire hazard reduction burning. Given the nature of the proposed clearing, a vegetation management condition will be placed on the permit, requiring the applicant to monitor understorey species composition, structure, and density within the application area during thinning and bushfire mitigation activities and to undertake remedial action where there is evidence that understorey will not recover and develop towards its pre-clearing condition. Therefore, while it is unlikely that conservation significant flora species occur within the application area due to the degraded nature of its understorey, it is also not expected that the proposed clearing will significantly alter the condition of the vegetation or the potential for these species to occur in the future. Given the nature of the proposed clearing, the vegetation management conditions applied to the permit, and the exclusion of areas of Very Good (Keighery, 1994) condition vegetation from the application area, the proposed clearing is considered unlikely to impact significant habitat for conservation significant flora or to affect the ongoing maintenance of these species.

Conclusion

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

Conditions

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

- Vegetation management – thinning, which includes requirements to:
 - Engage an environmental specialist to determine the species composition, structure, and density of the understorey of areas proposed to be thinned,
 - Within two years of completing thinning, engage an environmental specialist to determine the species composition, structure, and density of the understorey of areas subject to thinning, and
 - Where there is evidence that understorey will not recover and develop towards its pre-clearing composition, structure, and density, undertake remedial action to ensure re-establishment of understorey.

3.2.3. Significant remnant vegetation - Clearing Principle (e)

Assessment

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 located within the Jarrah Forest IBRA Bioregion which retains approximately 53.3 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). While the vegetation extent in the local area is consistent with the national objectives, one of the mapped vegetation complexes (Michibin) is underrepresented, retaining approximately 25.5 per cent of pre-European vegetation extent (see Appendix B.2).

Noting that the proposed clearing area may include suitable habitat for conservation significant fauna species, the application area may be considered significant as a remnant of native vegetation.

However, the Michibin vegetation complex is described as open woodland of *Eucalyptus wandoo* over *Acacia acuminata* with some *Eucalyptus loxophleba* on valley slopes, with low woodland of *Allocasuarina huegeliana* on or near shallow granite outcrops in arid and perarid zones (Mattiske and Havel, 1998). Noting that the proposed clearing area consists of woodland dominated by jarrah with sparsely distributed mature marri in the upper slopes, and a mixture of jarrah and wandoo open forest in the low slopes and gully depressions, it is considered that the application area is more representative of the Cooke vegetation complex (Mattiske and Havel, 1998), which is highly represented in the local area (see Appendix B.2). Further, it is noted that the proposed clearing relates only to ecological thinning and fire hazard reduction activities, and that the applicant has committed to retaining all hollow-bearing trees and minimum of five habitat trees per hectare, excluding 51.68 hectares of better-quality vegetation from the proposed clearing area, and maintaining a basal area of between 10m² and 12m² per hectare in wandoo stands, and 16m² per hectare in jarrah stands within the application area (Wespine Industries Pty Ltd, 2021). Therefore, it is not expected that the proposed clearing will result in a reduction in the extent of vegetation within the Michibin complex or impacts to significant vegetation within this complex.

It is noted that as the application area has been subject to disturbance, the proposed clearing may facilitate the spread of weeds and dieback into remnant vegetation in the local area, including adjacent retained vegetation. Weed and dieback management measures will minimise this risk.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in the loss of vegetation representative of an extensively cleared vegetation association or to result in the loss of vegetation within an extensively cleared landscape. The proposed clearing may facilitate the spread of weeds and dieback into adjacent remnant vegetation. For the reasons set out above, it is considered that the impacts of the proposed clearing on significant remnant vegetation can be managed to be environmentally acceptable subject to relevant conditions and does not constitute a significant residual impact.

Conditions

To address the above impacts, the following condition will be added to the permit:

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

3.2.4. Land and water resources - Clearing Principles (f) and (i)

Assessment

According to available databases, the application area intersects several non-perennial tributaries of the Hotham River, and is mapped within the Murray River System, a proclaimed surface water area under the RIWI Act. Given the above, the vegetation within the application area is considered to be growing in association with an environment associated with a watercourse.

The site inspection undertaken by DWER officers identified no distinct riparian vegetation, evidence of inundation or occurrence of riparian communities within the proposed clearing area (DWER, 2020). It is also noted the vegetation surrounding the non-perennial tributaries has been disturbed through previous harvesting activities and grazing, and that areas of higher quality vegetation surrounding the non-perennial tributaries and man-made dam has been excluded from the proposed clearing area. The applicant has also committed to maintaining a basal area of 12m² per hectare within the Water Management Zone (Wespine Industries Pty Ltd, 2020), which will provide a buffer around the existing waterlines. Further, the Ecological Thinning and Fire Mitigation Plan submitted in support of this application stated a clear objective to increase water yield (Wespine Industries Pty Ltd, 2020b), and is consistent with the *Guiding principles for soil and water* outlined in DBCA's silviculture guidelines for jarrah and wandoo forests (DPAW, 2014a; DPAW, 2014b).

Conclusion

Based on the above assessment, the proposed clearing is not anticipated to cause deterioration in the quality of surface or underground water, or to result in any long-term impacts to the ecological values of the riparian vegetation communities associated with the watercourses within the application area. The Delegated Officer determined that the impacts of the proposed clearing on land and water resources can be considered environmentally acceptable and does not constitute a significant residual impact.

Conditions

No management conditions required.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on DWER's website on 4 June 2020, inviting submissions from the public within a 21-day period. No submissions were received.

The Shire of Boddington (the Shire) did not provide comments to DWER regarding this application. However, correspondence between the Shire and the applicant was provided in support of this application, within which the Shire advised that the proposal was likely to aid in vital bush fire hazard reduction in the local area and was supported by the Shire (Wespine Industries Pty Ltd, 2020a).

The application area intersects a previous Wespine Industries clearing permit application (CPS 8678/1). In correspondence dated 15 January 2020, the department declined the application at the Validation stage of the application, due to insufficient information.

Under Regulation 63 of the *Biodiversity Conservation Regulations 2018*, a person who possesses any flora taken from private land with the intent to supply (including a person who is an owner or occupier of the land) must be the holder of a Private Land Supplier's Licence (and must continue to hold such a licence until the flora is supplied to another person). The applicant has advised that a Private Land Supplier's License will not be necessary under the proposal, as the intent of the proposed clearing is to enhance forest heath, encourage regeneration, and reduce bush fire risk, and that harvested wood will not be sold (Wespine Industries Pty Ltd, 2020a).

The application area intersects Registered Aboriginal Site 27935: Hotham River. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
In response to a request by the department on 10 July 2020, additional photographs of the vegetation proposed to be cleared were provided by the applicant on 4 August 2020 (Wespine Industries Pty Ltd, 2020c).	The photographs provided were considered in describing the key characteristics of the area proposed to be cleared and used to undertake flora, fauna, and ecosystem analyses (see Appendix B).
<p>On 4 November 2020 and 25 May 2021, the department wrote to the applicant requesting additional avoidance and minimisation measures for impacts to black cockatoo breeding habitat and conservation significant flora species.</p> <p>On 8 February 2021 and 19 November 2021, the applicant provided responses to these requests and committed to additional avoidance and minimisation measures, including:</p> <ul style="list-style-type: none"> Inspecting all trees of suitable DBH for the presence of hollows suitable for use by black cockatoo species and retaining all habitat trees with suitable hollows, Retaining a minimum of five habitat trees per hectare and providing GPS coordinates of these trees to the Department prior to clearing, Maintaining a minimum retention rate of 10m² per hectare basal area in wandoo stands and 16m² per hectare basal area in jarrah stands, and Modifying the proposed clearing area to exclude 51.68 hectares of Very Good (Keighery, 1994) condition vegetation (Wespine Industries Pty Ltd, 2021). 	<p>The additional information was considered as follows:</p> <ul style="list-style-type: none"> Additional avoidance and minimisation measures were summarised in the detailed assessment of the application (see section 3.1); Modifications to the clearing area were considered in the assessment of impacts to environmental values (refer to section 3.2); and Retention of black cockatoo habitat trees was considered in the assessment of impacts to environmental values (refer to section 3.2.1).

Appendix B. Site characteristics

B.1. Site characteristics

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

Characteristic	Details
Local context	The area proposed to be cleared is a 224.32-hectare patch of native vegetation, comprising numerous vegetated patches of between 0.95 and 47.55 hectares in area, separated by grazed land. It is within the intensive land use zone of Western Australia, abuts Tyler Road to the south and is surrounded by a combination of previously cleared agricultural land and remnant vegetation. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 31.76 per cent of the original native vegetation cover.
Ecological linkage	The application area does not comprise part of any mapped ecological linkages. While the application area is likely to contribute to vegetation connectivity in the local area, the application area is not considered to comprise a significant ecological linkage.

Characteristic	Details
Conservation areas	The closest conservation area is Mooradung Nature Reserve, approximately 4.7 kilometres to the south of the application area. There are also two Timber Reserves within 10 kilometres of the proposed clearing area; 4.4 kilometres to the west and 8 kilometres to the northeast.
Vegetation description	<p>Photographs supplied by the applicant and a DWER site inspection indicate the vegetation within the proposed clearing area consists of five distinct vegetation associations:</p> <ul style="list-style-type: none"> • Vegetation Type 1: <i>Eucalyptus wandoo</i> (wandoo) and/or <i>Eucalyptus marginata</i> (jarrah) woodland with scattered <i>Corymbia calophylla</i> (marri) over native annual herbs and grasses. This area was in predominantly Degraded to Good (Keighery, 1994) condition, with little to no native mid-storey, but an annual understorey including <i>Caladenia flava</i> (cowslip orchid), <i>Drosera</i> sp., <i>Boronia</i> sp., <i>Hibbertia</i> sp., and native daisies. • Vegetation Type 2: Wandoo woodland over a mid-storey of <i>Trymalium</i> sp., <i>Xanthorrhoea</i> spp., and <i>Macrozamia</i> spp., over native annual herbs and grasses (as above). • Vegetation Type 3: <i>Allocasuarina</i> sp. woodland, with sparse <i>Banksia grandis</i> (bull banksia) over native annual herbs and grasses (as above). • Vegetation Type 4: Wandoo woodland over a moderately dense mid-storey of primarily <i>Banksia sessilis</i> (parrot bush) with scattered <i>Trymalium</i> sp., and <i>Xanthorrhoea</i> spp., over native annual herbs and grasses (as above); and • Vegetation Type 5: Wandoo woodland with scattered marri, over <i>Banksia</i> sp., and <i>Xanthorrhoea</i> spp., with an understorey of native annual herbs and grasses (as above) (DWER, 2020). <p>The DWER inspection identified that the vegetation types varied between management zones, where the Regeneration Management Zone predominantly consists of Vegetation Type 1, the Water Management Zone consists of Vegetation Type 2 and the Fire Mitigation Zone includes Vegetation Types 3, 4 and 5 (DWER, 2020). Following DWER's inspection and preliminary assessment, the applicant modified the clearing area to exclude better-quality vegetation consistent with Vegetation Types 3, 4 and 5. Representative photos and the distribution of management zones are available in Appendix E.</p> <p>This is consistent with the mapped South West vegetation types:</p> <ul style="list-style-type: none"> • Yalanbee (Y6) - Woodland of <i>Eucalyptus wandoo</i>-<i>Eucalyptus accedens</i>, less consistently open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i>-<i>Corymbia calophylla</i> on lateritic uplands and breakaway landscapes in arid and perarid zones; • Coolakin (Ck) - Woodland of <i>Eucalyptus wandoo</i> with mixtures of <i>Eucalyptus patens</i>, <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and <i>Corymbia calophylla</i> on the valley slopes in arid and perarid zones; • Cooke (Ce) - Mosaic of open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i>-<i>Corymbia calophylla</i> (subhumid zone) and open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i>-<i>Corymbia calophylla</i> (semiarid and arid zones) and on deeper soils adjacent to outcrops, closed heath of Myrtaceae-Proteaceae species and lithic complex on granite rocks and associated soils in all climate zones, with some <i>Eucalyptus laeliae</i> (semiarid), and <i>Allocasuarina huegeliana</i> and <i>Eucalyptus wandoo</i> (mainly semiarid to perarid zones); and • Michibin (Mi) - Open woodland of <i>Eucalyptus wandoo</i> over <i>Acacia acuminata</i> with some <i>Eucalyptus loxophleba</i> on valley slopes, with low woodland of <i>Allocasuarina huegeliana</i> on or near shallow granite outcrops in arid and perarid zones (Mattiske and Havel, 1998).
Vegetation condition	Photographs supplied by the applicant, a review of aerial imagery and a site inspection undertaken by DWER officers indicates the vegetation within the proposed clearing area ranges from Very Good to Degraded (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix D.

Characteristic	Details
	<p>The DWER site inspection identified that vegetation condition varies between management zones and vegetation types (DWER, 2020). The Regeneration Management Zone is predominantly in Good to Degraded (Keighery, 1994) condition, the Water Management Zone is predominantly in Very Good condition, and the Fire Mitigation Zone is predominantly Good to Very Good (Keighery, 1994) condition. Following DWER's inspection and preliminary assessment, the applicant modified the clearing area to exclude areas of Very Good (Keighery, 1994) condition vegetation in the Water Management and Fire Mitigation Zones. Representative photos and the distribution of management zones are available in Appendix E.</p>
Climate and landform	<p>The proposed clearing area is situated within the 'Temperate – dry hot summer' Köppen climate class (Commonwealth of Australia, 2005). The proposed clearing area is situated within the 'Eastern Darling Range Zone', described as "moderately to strongly dissected lateritic plateau on granite with eastward-flowing streams in broad shallow valleys, some surficial Eocene sediments. Soils are formed in laterite colluvium or weathered in-situ granite."</p> <p>A site inspection undertaken by DWER officers identified that the application area occurs in undulating topography and includes granitic rock formations on moderately steep slopes (DWER, 2020).</p> <p>The application area has a mean annual maximum temperature of 23.8°C and a mean annual minimum temperature of 8.6°C. The mean annual rainfall is 700 millimetres, and the mean annual evapotranspiration rate is 600 millimetres.</p>
Soil description and land degradation risk	<p>Soil landscape mapping indicates that the application area is within Marradong and Quindanning systems, which comprise of the following subsystems:</p> <ul style="list-style-type: none"> • Coolakin subsystem (Marradong), described as minor valleys bounded by Dwellingup or Norrine units with moderate slopes with gravelly and sandy and yellow duplex soils, a minor valley floor with sandy alluvium, and occasional rock outcrops and laterite spur, • Dwellingup subsystem (Murradong), described as duplex sandy gravels and loamy gravels with minor areas of shallow gravels, deep gravels, deep sandy gravels, yellow deep sands and yellow and pale deep sands, often gravelly, • Michibin subsystem (Quindanning), described as hillslopes containing soils formed by the weathering of fresh rock, where rock outcrop is common, and • Dwellingup (Murradong) rock outcrop Phase, described as granite rock outcrop with stony soils and shallow gravels (DPIRD, 2022). <p>A site inspection undertaken by DWER officers identified that the soil throughout the clearing area predominantly consists of grey to brown gravelly sandy soils (DWER, 2020). Representative photos are available in Appendix E.</p> <p>The soil types within the application area are mapped as having a low risk of land degradation resulting from water erosion, salinity, flooding, waterlogging, and phosphorus export, but as having a moderate to high risk of wind erosion and subsurface acidification (DPIRD, 2022).</p>
Waterbodies and hydrogeography	<p>The proposed clearing area is intersected by several non-perennial tributaries of the Hotham River, including an area surrounding a pre-existing embankment dam. The closest perennial section of Hotham River is located approximately 2.5 kilometres north of the application area. The application area does not transect any mapped wetlands, with the closest wetland being an inland flat approximately 6.7 kilometres south of the application area.</p> <p>The proposed clearing area is mapped within the Murray River System, a proclaimed surface water area under the RIWI Act. The application area does not transect any proclaimed groundwater areas or any water resources proclaimed under either the <i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> or <i>Country Areas Water Supply Act 1947</i> (CAWS Act).</p>

Characteristic	Details
	Groundwater salinity within the application area is mapped at 1000 to 7000 milligrams per litre total dissolved solids.
Flora	<p>The desktop assessment identified that a total of 12 threatened or priority flora species have been recorded within the local area, comprising three Priority 1 (P1) flora, four Priority 3 (P3) flora, three Priority 4 (P4) flora and two threatened flora (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest record being an occurrence of <i>Lasiopetalum cardiophyllum</i> (P4) approximately 3.4 kilometres from the application area.</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and the habitat preferences of the species, the application area may provide suitable and potentially significant habitat for six threatened or priority flora species and impacts to these species required further consideration (see Appendix B.3).</p>
Ecological communities	<p>The desktop assessment identified that the closest state-listed threatened ecological community (TEC) is an occurrence of SCP08; the Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994)) TEC, located approximately 56 kilometres north-west of the application area.</p> <p>The closest state-listed priority ecological community (PEC) is an occurrence of the Mount Saddleback heath communities PEC, located approximately 8.2 kilometres south-west of the application area.</p>
Fauna	<p>The desktop assessment identified that a total of 19 threatened or priority fauna species have been recorded within the local area, including 10 threatened fauna species, 6 priority fauna species, and three other specially protected fauna species (DBCA, 2007-). None of these records occur within the application area, with the closest record being a Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>) approximately 0.25 kilometres from the application area.</p> <p>With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and the habitat preferences of the species, the application area may provide suitable habitat for 11 conservation significant fauna species and impacts to these species required further consideration (see Appendix B.3).</p>

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**					
Jarrah Forest	4,506,660.25	2,399,838.15	53.25	1,673,614.25	37.14
South West vegetation complex*					
Cooke	36,779.33	30,304.20	82.39	23,022.66	62.60
Coolakin	163,991.68	64,204.65	39.15	33,002.38	20.12
Michibin	168,040.13	42,996.09	25.59	8,512.22	5.07
Yalanbee (Y6)	196,849.01	92,080.88	46.54	41,703.16	21.08
Local area					
10-kilometre radius	45,699.61	14,515.08	31.76	-	-

*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 known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Banksia subpinnatifida</i> var. <i>imberbis</i>	P4	Y	Y	Y	4.9	1	N/A
<i>Caladenia hopperiana</i>	T	Y	Y	Y	4.8	1	N/A
<i>Calytrix simplex</i> subsp. <i>Simplex</i>	P1	Y	Y	Y	7.8	1	N/A
<i>Gastrolobium</i> sp. Prostrate Boddington (M. Hislop 2130)	P1	Y	Y	Y	5.5	3	N/A
<i>Hibbertia ambita</i>	P1	Y	Y	Y	7.9	2	N/A
<i>Pultenaea pauciflora</i>	T	Y	Y	Y	5.5	11	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 and relevant datasets (see Appendix F.1), impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Bettongia penicillata ogilbyi</i> (Woylie)	CR	Y	Y	9.1	1	N/A
<i>Calyptorhynchus banksii naso</i> (Forest red-tailed black cockatoo)	VU	Y	Y	2.4	88	N/A
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Y	Y	4.0	13	N/A
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	0.25	60	N/A
<i>Dasyurus geoffroii</i> (Chuditch)	VU	Y	Y	6.1	23	N/A
<i>Falsistrellus mackenziei</i> (Western false pipstrelle)	P4	Y	Y	5.5	7	N/A
<i>Isoodon fusciventer</i> (Quenda)	P4	Y	Y	9.4	3	N/A
<i>Myrmecobius fasciatus</i> (Numbat)	EN	Y	Y	4.9	1	N/A
<i>Notamacropus Irma</i> (Western brush wallaby)	P4	Y	Y	7.3	19	N/A
<i>Phascogale calura</i> (Red-tailed phascogale)	CD	Y	Y	2.5	16	N/A
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale)	CD	Y	Y	6.2	3	N/A

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p>Principle (a): "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p>Assessment: The area proposed to be cleared may contain locally and regionally significant flora, fauna, and habitats.</p>	May be at variance	Yes <i>Refer to Sections 3.2.1 and 3.2.2, above.</i>
<p>Principle (b): "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p>Assessment: The area proposed to be cleared may contain foraging, roosting, and breeding habitat for conservation significant fauna species.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p>Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p>Assessment: The revised application area is not likely to contain suitable habitat for Threatened flora species.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared does not contain species that can indicate the presence of a threatened ecological community (TEC). Given the distance and separation from the nearest TEC, the proposed clearing is not likely to impact or be necessary for the maintenance of any state-listed TEC.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The overall extent of the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. However, in the local area, one of the mapped vegetation complexes (Michibin) is underrepresented.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> Given the distance to and separation from the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> Given several non-perennial watercourses occur adjacent to the proposed clearing area, the proposed clearing may impact on- or off-site hydrology and water quality. However, noting that the purpose of the proposed clearing is ecological thinning and fire hazard reduction, the proposed clearing is unlikely to result in significant or long-term impacts hydrology or to the environmental values of the associated riparian communities.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped soils are not susceptible to land degradation resulting from water erosion, nutrient export, salinity, flooding, or waterlogging, but are moderately susceptible to wind erosion. However, noting the method of the proposed clearing (selective removal of trees and prescribed burning), that large areas will not be left exposed to weathering, and that mature trees will be retained throughout the application area, the proposed clearing is not considered likely to result in appreciable land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u> Given a number of non-perennial watercourses and a proclaimed surface water area intersect or occur adjacent to the proposed</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.4, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
clearing area, the proposed clearing has the potential to impact surface water quality. However, noting the purpose and method of the proposed clearing (i.e. selective thinning and prescribed burning), these impacts are likely to be minor and short-term.		
<p>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.”</p> <p>Assessment: The mapped soils and topographic contours in the surrounding area do not indicate that the proposed clearing is likely to contribute to increased incidence or intensity of flooding or to contribute to waterlogging.</p>	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 scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

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

Appendix E. Photographs and mapping of the vegetation

E.1. Mapping of the vegetation



Figure 3. Mapping of vegetation management zones identified in the Ecological Thinning and Fire Mitigation Plan (Wespine, 2020b).

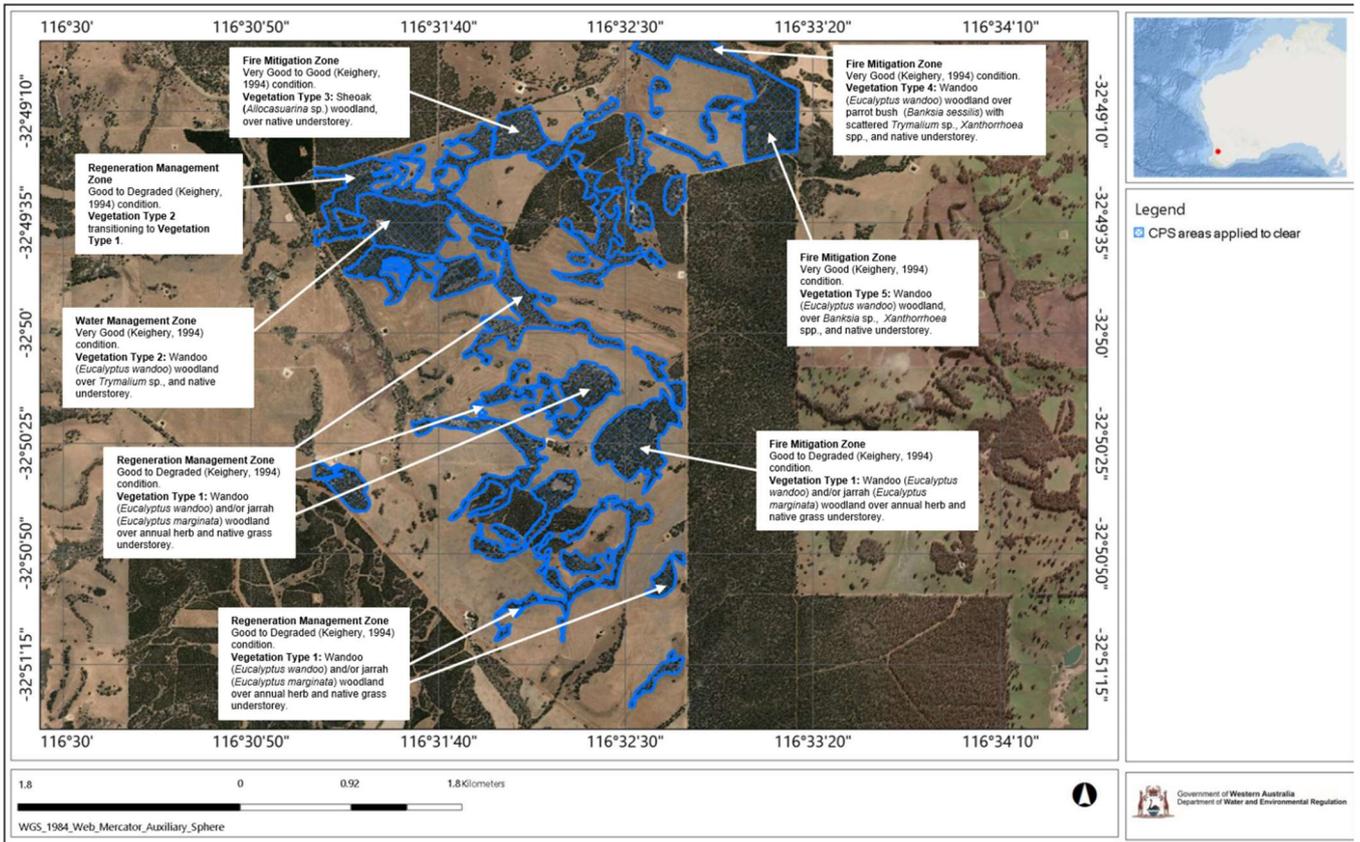


Figure 4. Approximate locations of vegetation types and condition from DWER site inspection (DWER, 2020).

E.2. Photographs of the vegetation



Figure 5. Aerial imagery of the application area for CPS 8925/1 with numbers indicating the location photographs were taken during DWER's site inspection (DWER, 2020). A subset of the photographs are provided in the figures below.



Figure 6. **GPS 57.** Looking south from the centre of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 7. **GPS 56.** Evidence of foraging by Carnaby's cockatoo, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 8. **GPS 59.** Looking west from the centre of the area to be cleared, within a portion of the Regeneration Management Zone. Potential breeding tree pictured (DWER, 2020).



Figure 9. **GPS 49.** Looking west from the centre of the area to be cleared, within a portion of the Regeneration Management Zone. Evidence of previous harvesting pictured (DWER, 2020).



Figure 10. **GPS 47.** Native understorey within a portion of the Regeneration Management Zone, native grasses and *Caladenia flava* (cowslip orchid) pictured (DWER, 2020).



Figure 11. **GPS 55.** Carnaby's cockatoos resting in trees within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 12. **GPS 48.** Looking south-east from the centre of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 13. **GPS 30.** Looking south-west from the centre of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 14. **GPS 33.** Soil type within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 15. **GPS 8.** Looking north-east from the north-western portion of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020).



Figure 16. **GPS 21**. Looking south-east from the north-western portion of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 17. **GPS 80**. Looking south-east from the north-western portion of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 18. **GPS 34**. Looking north-west from the north-western portion of the area to be cleared, within a portion of the Regeneration Management Zone (DWER, 2020).



Figure 19. **GPS 82**. Looking south-east from the northern border of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020).



Figure 20. **GPS 2**. Soil type within a portion of the Fire Mitigation Zone (DWER, 2020).



Figure 21. **GPS 3**. Looking south-west from the northern border of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020).



Figure 22. **GPS 73**. Looking south-east from the north-eastern portion of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020). **Area excluded from clearing area.**



Figure 23. **GPS 60**. Looking north-east from the north-eastern portion of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020). **Area excluded from clearing area.**



Figure 24. **GPS 65**. Looking south from the north-eastern portion of the area to be cleared, within a portion of the Fire Mitigation Zone (DWER, 2020). **Area excluded from clearing area.**



Figure 25. **GPS 27**. Looking south-west from the north-western portion of the area to be cleared, within a portion of the Water Management Zone (DWER, 2020). **Area excluded from clearing area.**



Figure 26. **GPS 20**. Looking south-west from the north-western portion of the area to be cleared, within a portion of the Water Management Zone (DWER, 2020). **Area excluded from clearing area.**



Figure 27. **GPS 15**. Looking north-east from the north-western portion of the area to be cleared, within a portion of the Water Management Zone (DWER, 2020). **Area excluded from clearing area.**

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)
- DBCA Statewide Vegetation Statistics
- 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
- Vegetation Complexes - South West forest region of Western Australia (DBCA-047)

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

Australian Museum (2019) *Western False Pipistrelle (Falsistrellus mackenziei)*. New South Wales.

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

- Commonwealth of Australia (2005) *Climate classification maps: Climate classification of Australia (Köppen – All Classes)*. Available from: http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp?maptype=kpn#maps (accessed June 2020).
- Commonwealth of Australia (2022) *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo*. Department of Agriculture, Water and the Environment, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) *NatureMap: Mapping Western Australia's Biodiversity*. Department of Parks and Wildlife. Available from: <http://naturemap.dpaw.wa.gov.au> (accessed June 2020 and April 2022).
- Department of Biodiversity, Conservation and Attractions (DBCA) (2017a) *Fauna profile - Numbat Myrmecobius fasciatus*. Department of Biodiversity, Conservation and Attractions, Western Australia.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2017b) *Fauna Profile Woylie Bettongia penicillata ogilbyi*. Department of Biodiversity, Conservation and Attractions, Western Australia.
- Department of Biodiversity Conservation and Attractions (DBCA) (2020) *Comments to Wespine Industries Pty Ltd regarding Clearing Permit Application CPS 8925/1*, received 27 May 2020 (DWER Ref: A1897996).
- Department of Conservation and Land Management (CALM) (1985) *Mooradung Nature Reserve Management Plan 1985-1995*. Available from https://www.dpaw.wa.gov.au/images/documents/parks/management-plans/dearchive/mooradung_nr.pdf (accessed June 2020).
- Department of Environment and Conservation (2012a) *Chuditch (Dasyurus geoffroii) National Recovery Plan. Wildlife Management Program No. 54*. Department of Environment and Conservation, Western Australia.
- Department of Environment and Conservation (DEC) (2012b) *Fauna profiles: Brush-tailed phascogale, Phascogale tapoatafa*. Department of Environment and Conservation, Western Australia.
- Department of Environment and Conservation (DEC) (2012c) *Fauna profiles: Quenda, Isoodon obesulus fusciventer*. Department of Environment and Conservation, Western Australia.
- Department of Environment and Conservation (2012d) *Fauna Profiles: Western Brush Wallaby. Macropus irma (Jourdan, 1837)*. Department of Environment and Conservation, Perth, Western Australia.
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008) *Approved Conservation Advice for Pultenaea pauciflora (Narrogin Pea)*. Department of the Environment, Water, Heritage and the Arts, Canberra.
- 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 (DPAW) (2014a) *Silviculture Guideline for Jarrah Forest. Sustainable Forest Management Series, FEM Guideline 1*. Department of Biodiversity Conservation and Attractions, Western Australia.
- Department of Parks and Wildlife (DPAW) (2014b) *Wandoo Silviculture Guideline. Sustainable Forest Management Series, FEM Guideline 2*. Department of Biodiversity Conservation and Attractions, Western Australia.
- 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 June 2020).
- 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 8925/1*, 14 September 2020. Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1939969).

- Government of Western Australia (2019a) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>.
- Government of Western Australia (2019b) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Groom C (2010) *Plants for Carnaby's Search Tool. Version 2.0*. Department of Environment and Conservation, Western Australia. Available from: www.dec.wa.gov.au/plantsforcarnabys (accessed August 2010).
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Le Roux, C. (2017) *Nocturnal roost tree, roost site and landscape characteristics of Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) on the Swan Coastal Plain*. Edith Cowen University, 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.
- 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.
- Threatened Species Scientific Committee (TSSC) (2016) *Conservation Advice: Phascogale calura, red-tailed phascogale*. Department of the Environment and Energy, Canberra.
- Threatened Species Scientific Committee (TSSC) (2018) *Conservation Advice Caladenia hopperiana Quindanning spider orchid*. Department of Environment and Energy, Canberra.
- Wespine Industries Pty Ltd (2020a) *Clearing permit application CPS 8925/1*, received 27 May 2020 (DWER Ref: A1897996).
- Wespine Industries Pty Ltd (2020b) *Ecological Thinning and Fire Mitigation Plan, Lot 15032 on Deposited Plan 206299, 53 Tyler Road, Boddington*, received 27 May 2020 (DWER Ref: A1897996).
- Wespine Industries Pty Ltd (2020c) *Photographs of the vegetation proposed to be cleared under clearing permit application CPS 8925/1*, received 4 August 2020 (DWER Ref: A1921085).
- Wespine Industries Pty Ltd (2021) *Additional supporting information for clearing permit application CPS 8925/1*, received 8 February 2021 and 19 November 2021 (DWER Ref: A1980448 and A2068072).
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. Available from: <https://florabase.dpaw.wa.gov.au/> (accessed June 2020 and April 2022).