



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7184/1
Permit Holder:	B & J Catalano Pty Ltd
Duration of Permit:	24 June 2017 – 24 June 2032

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

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of gravel extraction.

2. Land on which clearing is to be done

Lot 2683 on Deposited Plan 203057, Koorup
Lot 2682 on Deposited Plan 203057, Koorup

3. Area of Clearing

The Permit Holder must not clear more than 1.8 hectares of native vegetation within the area hatched yellow on attached Plan 7184/1a.

4. Application

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

5. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 24 June 2022.

PART II – MANAGEMENT CONDITIONS

6. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

7. Fauna management

- (a) Prior to clearing, any hollow bearing *habitat tree(s)* identified within ‘Black Cockatoo Habitat Assessment of Proposed Clearing Areas – Lot 2682 and Lot 2683 Gale Road, Koorup, January 2017 Version 1’ shall be inspected by a *fauna specialist* for the presence of forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*);
- (b) Where fauna are identified in relation to condition 7(a) of this Permit, the Permit Holder shall ensure that no clearing of the identified hollow bearing habitat tree(s) occurs, unless approved by the CEO; and
- (c) The permit holder shall construct, install and maintain three artificial nesting hollows within remnant vegetation within Lots 2682 and 2683 on Deposited Plan 203057, Koorup, in accordance with the Department of Parks and Wildlife’s ‘How to design and place artificial hollows for Carnaby’s cockatoo’ 28 April 2015.

8. Revegetation and Rehabilitation

- (a) The Permit Holder shall *revegetate* and *rehabilitate* an area of at least 1.8 hectares within the area cross-hatched red on attached Plan 7184/1b;
- (b) *Revegetation* and *rehabilitation* identified under conditions 8(a) shall commence within 12 months of completion of gravel extraction activities and no later than 26 April 2022;
- (c) The Permit Holder shall monitor annually for a period of 10 years, the areas *revegetated* and *rehabilitated* to determine vegetation cover, density, diversity, structure and weed cover and to assess areas *revegetated* and *rehabilitated* under this Permit against the completion criteria identified at condition 8(d);
- (d) The Permit Holder shall achieve the following completion criteria after the 10 year monitoring period for areas *revegetated* and *rehabilitated* under this Permit:

Completion criteria	Minimum to be achieved
Species richness	six native species
Foraging species for <i>Calyptorhynchus baudinii</i> , <i>Calyptorhynchus latirostris</i> and <i>Calyptorhynchus banksii</i> subsp. <i>naso</i>	60%
Overstorey density	1200 stems per hectare
Overstorey species	Known to have the potential to develop suitable nesting hollows for <i>Calyptorhynchus baudinii</i> , <i>Calyptorhynchus latirostris</i> and <i>Calyptorhynchus banksii</i> subsp. <i>naso</i>
Structure - overstorey	>70%
Structure – midstorey	>20%
Structure - understorey	>10%
Weeds	<20 %

- (e) The Permit Holder shall undertake the following remedial actions for areas *revegetated* and *rehabilitated* where remedial triggers are met during the 10 year monitoring period:

Contingency trigger	Contingency action
Mean weed foliage cover >20%	<ul style="list-style-type: none"> • Implement revised hygiene control measures
Mean number of stems per hectare <1200 Species diversity <6 Structure – overstorey <70% Structure – midstorey <20% Structure – understorey <10%	<ul style="list-style-type: none"> • Re-treat the area <i>revegetated</i> and <i>rehabilitated</i> with stockpiled topsoil from the area hatched yellow on attached Plan 7184/1 (a); • Undertake direct seeding; and • Procure or propagate additional seedlings and undertake infill planting.

PART III - RECORD KEEPING AND REPORTING

9. Records must be kept

- (a) In relation to the construction, installation and maintenance of three artificial nesting hollows pursuant to condition 7 of this permit:
 - (i) the location of each artificial hollow recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
 - (ii) the date the artificial nesting hollows were installed.
- (b) In relation to the revegetation of areas pursuant to condition 8 of this Permit:
 - (i) the location of any area *revegetated* and *rehabilitated* recorded as a *shapefile*;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the date that the area was *revegetated* and *rehabilitated*; and
 - (v) a copy of a report(s), prepared by an *environmental specialist*, detailing the *revegetation* and *rehabilitation* activities undertaken and results for the monitoring of vegetation cover, density, diversity, structure and weed cover.

10. 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 9 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar, 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 24 March 2032, the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit where these records have not already been provided under condition 10(a) of this Permit.

DEFINITIONS

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

environmental specialist: means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.

fauna specialist: means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Wildlife Conservation Act 1950*.

habitat tree means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater, that contains or has the potential to develop hollows or roosts suitable for native fauna;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.



Mathew Gannaway
MANAGER
CLEARING REGULATION



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

30 May 2017

Plan 7184/1a



Legend

-  Areas approved to clear
 -  Roads
 -  LGA
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:1,973

MGA 94
Geocentric Datum of Australia 1994


Date: 30/05/2017
Matthew Gannaway

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 7184/1b



Legend

-  Clearing Instruments Conditions
 -  LGA
 -  Roads
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:1,973

MGA 94
Geocentric Datum of Australia 1994

 Date: 30/05/2017
Matthew Gannaway

Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 7184/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: B & J Catalano Pty Ltd

1.3. Property details

Property: Lot 2683 on Deposited Plan 203057, Koorup
Lot 2682 on Deposited Plan 203057, Koorup

Colloquial name:
Local Government Authority: Busselton, City of
DER Region: Greater Swan
DPaW District: Blackwood
LCDC:
Localities: Koorup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.8		Mechanical Removal	Extractive industry

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 30 May 2017

Reasons for Decision: The clearing permit application was received on 18 July 2016, and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to Principle (b), and is not likely to be at variance to any of the remaining clearing principles.

Through assessment it has been determined that the vegetation within the application area contains suitable nesting and foraging habitat for the forest red-tailed black cockatoo, Baudin's cockatoo and Carnaby's cockatoo (collectively known as black cockatoos), which are listed as 'rare or likely to become extinct' under the *Wildlife Conservation Act 1950*.

To mitigate potential impacts to the black cockatoo species, conditions have been placed on the permit requiring the applicant to erect three artificial hollows and revegetate 1.8 hectares of Lot 2683 and Lot 2682 to a very good (Keighery 1994) condition, containing native species known to have the potential to develop suitable nesting hollows and suitable for foraging for black cockatoo species once extraction activities cease.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Mattiske vegetation complex Yw consists of woodland of <i>Allocasuarina fraseriana</i> – <i>Nuytsia floribunda</i> - <i>Agonis flexuosa</i> - <i>Banksia attenuata</i> on slopes and open forest of <i>Corymbia calophylla</i> - <i>Eucalyptus patens</i> - <i>Eucalyptus marginata</i> subsp. <i>marginata</i> on the lower slopes and woodland of <i>Eucalyptus rudis</i> - <i>Melaleuca raphiophylla</i> on valley floors in the humid zone (Mattiske and Havel, 1998).	The applicant proposes to clear 1.8 hectares of native vegetation within Lots 2682 and 2683 on Deposited Plan 203057, Koorup, for the purpose of gravel extraction.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994) To: Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).	The condition and description of the application was determined by a site inspection undertaken by officers of the Department of Environment Regulation (DER) (DER, 2016). The vegetation within the application area is very open, consisting predominantly of <i>Corymbia calophylla</i> (marri) and <i>Eucalyptus marginata</i> (jarrah). The ground cover layer is predominantly weeds with a

Mattiske vegetation complex Y consists of woodland of *Eucalyptus marginata* subsp. *marginata* - *Corymbia calophylla* - *Allocasuarina fraseriana* - *Agonis flexuosa* and open woodland of *Corymbia calophylla* on low undulating uplands in the humid zone (Mattiske and Havel, 1998).

Beard Vegetation Association 1181 is described as medium woodland, jarrah & *Eucalyptus haematoxylon* (Whicher Range) (Shepherd et al., 2001).

middle storey of scattered *Kingia* sp., *Xanthorrhoea* sp., *Allocasuarina* sp. and *Nuytsia floribunda* (DER, 2016).

The proposed clearing area is highly degraded and lacks any significant amount of native groundcover, primarily as a consequence of long term grazing by livestock and possibly frequent fires (Harewood, 2017).

3. Assessment of application against clearing principles

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

Comments

Proposed clearing not likely to be at variance to this Principle

The applicant proposes to clear 1.8 hectares of native vegetation within Lots 2682 and 2683 on Deposited Plan 203057, Koorup, for the purpose of gravel extraction.

The vegetation within the application area is very open, consisting predominantly of *Corymbia calophylla* (marri) and *Eucalyptus marginata* (jarrah). The ground cover layer is predominantly weeds with a middle storey of scattered *Kingia* sp., *Xanthorrhoea* sp., *Allocasuarina* sp. and *Nuytsia floribunda* (DER, 2016).

The proposed clearing area is highly degraded and lacks any significant amount of native groundcover, primarily as a consequence of long term grazing by livestock and possibly frequent fires (Harewood, 2017).

Ten rare flora and 36 priority flora have been recorded within the local area (10 kilometre radius). A site inspection undertaken by DER officers found the vegetation within the application to be in a completely degraded to degraded (Keighery, 1994) condition and that the proposed clearing is not likely to impact on the conservation status of priority flora species (DER, 2016). The Department of Parks and Wildlife (Parks and Wildlife) has advised that the application area will be jarrah and marri trees over what is highly likely to be a degraded/cleared understorey. It is unlikely that any flora currently listed as threatened will be present (Parks and Wildlife, 2016).

Five fauna species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* (WC Act) have been recorded within the local area (Parks and Wildlife, 2007-). As assessed under Principle (b) the vegetation within the application area contains foraging and potential breeding habitat for the forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*).

An ecological linkage identified in the South West Regional Ecological Linkage Technical Report (Molloy et al., 2009) is located approximately 1.8 kilometres from the application area. These linkages are recognised for their significance in facilitating indigenous fauna movement across the landscape (Molloy et al., 2009). The application area is classed as 2c in the report, which represents native vegetation with an edge touching, or less than 500 metres from a natural area selected in 2b (Molloy et al., 2009). The landscape function of an ecological linkage will be considered impaired where the proposed development causes the proximity value of a level 2 patch greater than four hectares in an area of remnant vegetation to change to a level 3 (Molloy et al., 2009). Open canopies over a highly disturbed understorey may be of little value except for highly mobile species (Molloy et al., 2009). The application area is an isolated remnant of native vegetation, 1.8 hectares in size. Given the relatively small size of the application area and it's completely degraded to degraded (Keighery, 1994) condition, the proposed clearing is not likely to have a significant impact on fauna dispersal capabilities between remnant vegetation located within the local area. Larger remnants located within the local area including Blackwood State Forest located approximately 433 metres south from the application area will contribute to fauna movement across the landscape.

The application area contains suitable foraging habitat and may provide nesting habitat for black cockatoos, however the vegetation is in completely degraded to degraded (Keighery, 1994) condition, is not likely to impact rare or priority flora and the proposed clearing is not likely to significantly impact fauna movement across the landscape. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
DER (2016)
Keighery (1994)
Molloy et al. (2009)
Parks and Wildlife (2007-)
Parks and Wildlife (2016)

(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 indigenous to Western Australia.

Comments Proposed clearing is at variance to this Principle

Five fauna species listed as rare or likely to become extinct under the WC Act have been recorded within the local area being: forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), chuditch (*Dasyurus geoffroii*) and western ringtail possum (*Pseudocheirus occidentalis*) (Parks and Wildlife, 2007-).

Carnaby's cockatoo is listed as endangered and Baudin's cockatoo and forest red-tailed cockatoo are listed as vulnerable under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). A site inspection identified a number of trees within the application area that fit the criteria for black cockatoo breeding habitat, having a diameter at breast height (DBH) of more than 50 centimetres. A number of these contained hollows that may provide suitable nesting habitat for the black cockatoos (DER, 2016).

Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012). The application area predominantly consists of jarrah and marri and provides suitable foraging habitat for black cockatoos (DER, 2016). Four black cockatoos were observed foraging within the application area (DER, 2016).

Parks and Wildlife advised that the jarrah and marri trees are likely to be providing black cockatoo foraging habitat and may also provide breeding and roosting habitat. The nearby location of pine trees (pine cone food supply) and the dam water may result in the applied bushland area being more heavily used than other such areas, as such it is recommended that surveys for black cockatoo habitat, nesting trees and other field observations are undertaken (Parks and Wildlife, 2016).

A black cockatoo habitat assessment undertaken within the application area by Harewood in January 2017 identified 50 potential 'black cockatoo breeding trees' (DBH of more than 50 centimetres) with two of these trees appearing to contain hollows of a size suitable for black cockatoos to utilise for nesting. Seventeen trees were identified as containing small hollows not suitable for nesting by black cockatoo species. No evidence of actual use for breeding by black cockatoo species (past or present) was observed (Harewood, 2017).

Harewood advised that the 1.8 hectares of native vegetation within the application area represents black cockatoo foraging habitat given the dominance of marri and jarrah. Evidence of all three species of black cockatoos foraging on site was observed during the field assessment. This evidence was in the form of chewed marri fruits at several locations (Harewood, 2017). No roosting trees were positively identified during the survey (Harewood, 2017).

Given the application area contains suitable nesting and foraging habitat for black cockatoos and evidence of foraging by the black cockatoos was observed within the application area, the application area contains significant habitat for black cockatoos.

The chuditch currently inhabits most kinds of wooded habitat within its current range including eucalypt forest. In jarrah forest, chuditch populations occur in both moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest (Department of the Environment and Energy, 2016a). One record of this species has been recorded within the local area dated 1986. Noting the limited historical records found within the local area, and condition of vegetation, the vegetation is unlikely to provide significant habitat for this species.

The western ringtail possum is listed as vulnerable under the EPBC Act. This species has a preference for near coastal *Agonis flexuosa* forest and *Eucalyptus gomphocephala* dominated forest with an *Agonis flexuosa* understorey (Department of the Environment and Energy, 2016b). The western ringtail possum is usually associated with stands of myrtaceous trees growing near swamps, water courses or floodplains (Department of the Environment and Energy, 2016b). Based on the finding of the site inspection it is unlikely that the application provides significant habitat for this species.

As assessed under Principle (a) the proposed clearing is not likely to have a significant impact on fauna dispersal capabilities between remnant vegetation located within the local area. Larger remnants located within the local area including Blackwood State Forest located approximately 433 metres south from the application area will contribute to fauna movement across the landscape.

Noting the above, the application area provides significant habitat for conservation significant black cockatoo species. Therefore, the proposed clearing is at variance to this Principle.

The requirement to erect three artificial hollows and revegetate 1.8 hectares of Lot 2683 and Lot 2682 to a very good (Keighery 1994) condition, containing native species known to have the potential to develop suitable nesting hollows and suitable for foraging for the black cockatoo species once extraction activities cease, will help mitigate impacts to black cockatoo species.

Methodology References:
Commonwealth of Australia (2012)
Department of the Environment and Energy (2016a)
Department of the Environment and Energy (2016b)
DER (2016)
Harewood (2017)
Molloy et al. (2009)
Parks and Wildlife (2007-)
Parks and Wildlife (2016)

GIS Datasets:
SAC Bio Datasets – accessed September 2016

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

Comments Proposed clearing is not likely to be at variance to this Principle

Ten rare flora species have been recorded within the local area. The closest record of two rare flora species is located approximately 1.2 kilometres from the application area. The first rare flora species is confined to orange clay loam over laterite and sandy areas within winter-wet southern ironstones (Department of the Environment and Energy, 2016c). The second rare flora species occurs in winter-wet clay over ironstone in open to dense tall shrubland (Department of the Environment and Energy, 2016d).

Five other rare flora species recorded within the local area have been found associated with gullies, edges of flats, winter-wet low lying areas, or seasonally inundated plains (Western Australia Herbarium, 1998-). Based on the site inspection findings (DER, 2016), the application area is unlikely to provide suitable habitat for the abovementioned species.

The eighth rare flora species grows in low forest over heath with jarrah, dark dryandra and blueboy (Brown et al., 1998). The ninth rare flora species inhabits infertile grey sands in common sheoak and jarrah woodland or forest (Brown et al. 1998). The tenth rare flora species grows on brown lateritic clay loam soils in marri woodland, in an area infested with the weeds Bugle Lily (*Watsonia bulbifera*) and Rush (*Juncus microcephalus*) (Department of the Environment and Energy, 2016e). The application area is unlikely to provide suitable habitat for these species, based on the site inspection findings (DER, 2016).

A site inspection undertaken by DER officers found the vegetation within the application area to be in a completely degraded to degraded (Keighery, 1994) condition and consists predominantly of *Corymbia calophylla* (marri) and *Eucalyptus marginata* (jarrah). The ground cover layer is predominantly weeds with a middle storey of scattered *Kingia* sp., *Xanthorrhoea* sp., *Allocasuarina* sp. and *Nuytsia floribunda* (DER, 2016).

Parks and Wildlife has advised that the application will be jarrah and marri trees over what is highly likely to be a degraded/cleared understorey. It is unlikely that any flora currently listed as threatened will be present (Parks and Wildlife, 2016).

Given the above and the completely degraded to degraded (Keighery, 1994) condition of the vegetation, the application area is not likely to include or be necessary for the continued existence of rare flora.

The proposed clearing is not likely to be at variance to this Principle.

Methodology References:
Brown et al. (1998)
Department of the Environment and Energy (2016c)
Department of the Environment and Energy (2016d)
Department of the Environment and Energy (2016e)
DER (2016)
Parks and Wildlife (2016)
Western Australia Herbarium (1998-)

GIS Datasets:
SAC Bio Datasets – accessed September 2016

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposed clearing is not likely to be at variance to this Principle

Three Threatened Ecological Communities (TECs) have been recorded within the local area, the closest being 'Shrublands on southern Swan Coastal Plain Ironstones (Busselton area)' located approximately 1.1 kilometres from the application area.

The vegetation within the application area is not representative of any TEC and given the distance to the closest TEC and the application areas completely degraded to degraded (Keighery 1994) condition, the application area is not likely to be necessary for the maintenance of a TEC.

The proposed clearing is not likely to be at variance to this Principle.

Methodology References:
Keighery (1994)

GIS Datasets:
SAC Bio Datasets – accessed September 2016

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

Comments Proposed clearing is not likely to be at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent 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 Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 54 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2016).

The application area is located within City of Busselton, within which there is approximately 35 per cent pre-European vegetation extent remaining (Government of Western Australia, 2016). The local area retains approximately 45 per cent vegetation.

The application area is mapped as Beard vegetation association 118 and Matisse vegetation complexes 'Y' and 'Yw', of which there is approximately 53, 37 and 28 per cent respectively of the pre-European vegetation extents remaining within the Jarrah Forest bioregion (Government of Western Australia, 2016). Mapped Matisse vegetation complex 'Yw' retains less than the recommended 30 per cent threshold, a small portion of the application area (0.4 hectares) is mapped as this vegetation complex. The remaining application area (1.4 hectares) is mapped within vegetation complexes that retain above the recommended threshold.

The vegetation contains suitable foraging habitat and nesting habitat for black cockatoos. However, the application area is in completely degraded to degraded (Keighery, 1994) condition, is not likely to impact rare or priority flora and the proposed clearing is not likely to significantly impact fauna movement across the landscape. The local area contains approximately 14,137 hectares of native vegetation; the removal of 1.8 hectares (0.01 per cent) will leave approximately 14,135 hectares of native vegetation remaining in the local area. Therefore, the application area is not considered to be significant as a remnant of native vegetation.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Jarrah Forest	4,506,660	2,416,018	54	69
Shire*				
City of Busselton	146,478	60,015	41	69
Beard vegetation association in Bioregion*				
1181	9,978	5,317	53	69
Matisse vegetation complex in Bioregion**				
Y	9,050	3,331	37	56
Yw	4,219	1,192	28	32

Methodology References:
Commonwealth of Australia (2001)
DER (2016)
Keighery (1994)
*Government of Western Australia (2016)
**Parks and Wildlife (2015)

GIS Datasets:
Pre-European Vegetation

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

Comments

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

No watercourses or wetlands have been recorded within the application area. The closest watercourse is located approximately 77 metres from the application area.

A site inspection undertaken by DER officers did not identify any riparian vegetation within the application area (DER, 2016).

The Department of Water (DoW) advised that "the proposed clearing is of a single hillside stand of vegetation situated to the northwest corner of Lot 2682, and the southwest corner of adjoining Lot 2683 to the north. Both Lots contain a separate tributary of the Buayanyup River that flow towards a north easterly direction. The land slopes towards the Buayanyup River, that is about 50 metres to the north of the proposed clearing of Lot 2683, and the land surrounding the waterway at this location appears to have a high water table due to the dark coloration shown on our GIS imagery. About 350 metres to the south east of the proposed clearing on Lot 2682 is another tributary of the Buayanyup River that is surrounded by a large darkened area as shown on our GIS" (DoW, 2016).

Given the distance to the closest watercourse, the application area is not likely to be growing in, or in association with a watercourse or wetland. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
DoW (2016)
DER (2016)

GIS Databases:
Hydrology, linear

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

Comments

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

The application area is mapped as soil type Tc5 which is described as "dissected plateau at low elevation of gently undulating to low hilly relief and characterized by extensive block laterite and lateritic (ironstone) gravels; some swamps: chief soils on slopes and undulating areas generally are hard acidic yellow mottled soils containing small to very large amounts of ironstone gravels" (Northcote et al., 1960-68).

Given the soil type present within the application area, the proposed clearing is not likely to cause appreciable land degradation in the form of wind or water erosion.

Groundwater salinity is mapped less than 500 total dissolved solids (milligrams per litres). Given the completely degraded to degraded (Keighery, 1994) condition and the relatively small size of the application area (1.8 hectares) the proposed clearing is not likely to contribute to the rise of groundwater causing land degradation due to increased salinity at the surface.

A requirement to revegetate the application area post extraction would help mitigate any risks associated with erosion.

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

Methodology

References:
Keighery (1994)
Northcote, et al. (1960-68)

GIS Datasets:
Groundwater Salinity Statewide
Soils, statewide
Topographic Countours, Statewide

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

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

No conservation areas have been recorded within the application area. The closest conservation area is 'Blackwood State Forest' located approximately 433 metres from the application area.

No threatened ecological linkages are likely to be impacted as a result of the proposed clearing.

The application area is an isolated remnant of native vegetation, 1.8 hectares in size. Given the relatively small size of the application area and it's completely degraded to degraded (Keighery, 1994) condition, the proposed clearing is not likely to have a significant impact on fauna dispersal capabilities between conservation areas

located within the local area. Larger remnants located within the local area, including Blackwood State Forest, will contribute to fauna movement across the landscape.

Given the distance to the closest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any conservation areas. Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology References:
Keighery (1994)

GIS Databases:
Parks and Wildlife, Tenure

(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.

Comments Proposed clearing is not likely to be at variance to this Principle

No watercourses or wetlands have been recorded within the application area. The closest watercourse is located approximately 77 metres from the application area.

As discussed in Principle (f), DoW advised that “the proposed clearing is of a single hillside stand of vegetation situated to the northwest corner of Lot 2682, and the southwest corner of adjoining Lot 2683 to the north. Both lots contain a separate tributary of the Buayanyup River that flow towards a north easterly direction” (DoW, 2016).

DoW advised that a potential risk associated with the native vegetation clearing is soil mobilisation via erosion into the Buayanyup River (and associated turbidity and sedimentation downstream of the clearing), either through sheet flow during major storm events; or disturbances directly over or in the vicinity of the waterway by heavy machinery (DoW, 2016).

Groundwater salinity is mapped less than 500 total dissolved solids (milligrams per litres). DoW advised that there is the potential risk for the intersection of groundwater and the potential for contamination of the water resource with hydrocarbons/chemicals associated with heavy machinery use and maintenance (DoW, 2016).

Given the above, the proposed clearing may be at variance to this Principle.

A requirement to revegetate the application area post extraction would help mitigate any risks associated with water erosion. Operational procedures approved by DoW during extraction activities will help mitigate any impacts to waterways and groundwater by heavy machinery.

Methodology References:
DoW (2016)
Keighery (1994)

GIS Datasets:
Groundwater Salinity Statewide
Hydrography linear

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

Comments Proposed clearing is not likely to be at variance to this Principle

As discussed in Principle (g), the application area is mapped as soil type Tc5. The application area is not likely to become inundated given that no watercourses or wetlands occur within the application area and the land slopes towards Buayanyup River. Given this and the soil types present within the application area, the proposed clearing is not expected to cause or exacerbate the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance to this Principle.

Methodology References:
Keighery (1994)
Northcote et al. (1960-68)

GIS Datasets:
Soils, statewide

Planning instruments and other relevant matters.

Comments No Aboriginal Sites of Significance have been recorded within the application area.

The application was advertised in *The West Australian* newspaper on 8 August 2016 for a 21 day submission period. No submissions have been received in relation to this application.

Lots 2682 and 2683 are zoned 'Agriculture' under the local town planning scheme.

The City of Busselton issued Development Approval to undertake extractive industry (gravel) on 26 April 2017 (City of Busselton, 2017)

DoW has advised the subject Lot is located within the Busselton-Capel Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* and a licence would be required to construct bores or take groundwater (DoW, 2016). There is a groundwater license for the northern Lot 2683, but the applicant would be required to amend their license. However, no applications have been received by DoW to date for groundwater licenses (DoW, 2016).

DoW also advised that "no details have been provided as to the extraction depth and areas, maximum groundwater levels, method of extraction, transport routes (including proposed routes on the property), proposed activities (including storage of chemicals and onsite servicing of mechanical equipment), rehabilitation, surface water and groundwater management. In view of the above situation, DoW cannot fully ascertain the risk associated with the proposed extractive landuse, but deems that the proposed clearing and landuse may pose a significant risk to water quality due to the proximity to the waterway, unknown proposal details (as described above) and potentially high water table. Therefore DoW recommends that DER advise the City of Busselton to refer the extractive proposal (when submitted) to us for our comment to ensure that water resource risks can be adequately addressed" (DoW, 2016).

DoW has advised the main potential risks associated with the clearing is:

- soil mobilisation via erosion into the Buayanyup River (and associated turbidity & sedimentation downstream of the clearing), either through sheet flow during major storm events; or disturbances directly over or in the vicinity of the waterway by heavy machinery; and
- should the clearing be approved prior to the extractive license being granted, there is the potential for unnecessary clearing to occur if the extraction is not approved or is restricted" (DoW, 2016).

DoW has further advised the potential landuse risks associated with this proposal may include:

- intersection of groundwater and the potential for contamination of the water resource with hydrocarbons/chemicals associated with heavy machinery use and maintenance;
- fuel and chemical spills with hydrocarbons/chemicals entering the Buayanyup River;
- erosion and stormwater run-off, resulting in turbidity in the waterway; if heavy vehicles traverse vulnerable areas;
- litter;
- weed control and potential herbicide contamination; and
- sufficient water to meet the needs of the extractive operation (DoW, 2016).

Methodology References:
City of Busselton (2017)
DoW (2016)

GIS Datasets:
Aboriginal Sites of Significance

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