GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7664/1
Permit Holder:	Shire of Northam
Duration of Permit:	6 January 2018 – 6 January 2023

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

PART I – CLEARING AUTHORISED

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

2. **Land on which clearing is to be done**
   Lot 16150 on Deposited Plan 217818, Wundowie
   Coates Road reserve (PIN's 1292195, 11738658, 11738655, 1292194, 11738659, 11738654, 1292191 and 11738657), Wundowie

3. **Area of Clearing**
   The Permit Holder must not clear more than 1.98 hectares of native vegetation within the area hatched yellow on attached Plan 7664/1.

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

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

PART II – MANAGEMENT CONDITIONS

6. **Avoid, minimise 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:
   (a) avoid the clearing of native vegetation;
   (b) minimise the amount of native vegetation to be cleared; and
   (c) reduce the impact of clearing on any environmental value.

7. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the 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 *dieback* or *weed*-affected soil, *mulch, fill* or other material is brought into the area to be cleared; and

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

8. Fauna management

(a) Prior to undertaking clearing authorised under this Permit, the area shall be inspected by a *fauna specialist* who shall identify *habitat tree(s)* suitable to be utilised by the below fauna species:
   (i) Carnaby's cockatoo (*Calyptorhynchus latirostris*);
   (ii) Baudin's cockatoo (*Calyptorhynchus baudinii*); and
   (iii) forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*).

(b) Prior to clearing, any habitat/*habitat tree(s)* identified by condition 8(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in condition 8(a).

(c) Where fauna are identified in relation to condition 8(b) of this Permit, the Permit Holder shall ensure that no clearing of the identified *habitat tree(s)* occurs until such time that the fauna listed in condition 8(a) are no longer utilising the *habitat tree(s)*, and that the CEO is notified.

(d) Where *habitat tree(s)* are identified in relation to condition 8(a), the permit holder shall avoid clearing of identified *habitat tree (s)* where appropriate.

PART III - RECORD KEEPING AND REPORTING

9. Records must be kept

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

(a) In relation to fauna management pursuant to condition 8 of this Permit:
   (i) the location of each *habitat tree* identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
   (ii) the species name of fauna reasonably likely to utilise, or that have been observed utilising, the *habitat tree*(s).

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 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 year.

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

(c) Prior to 29 September 2022 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:
dieback means the effect of *Phytophthora* species on native vegetation;
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;*
fill means material used to increase the ground level, or fill a hollow;
habitat tree/s: means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater;
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;
Western Australia Herbarium 1998-). ***weed/s*** means any plant -

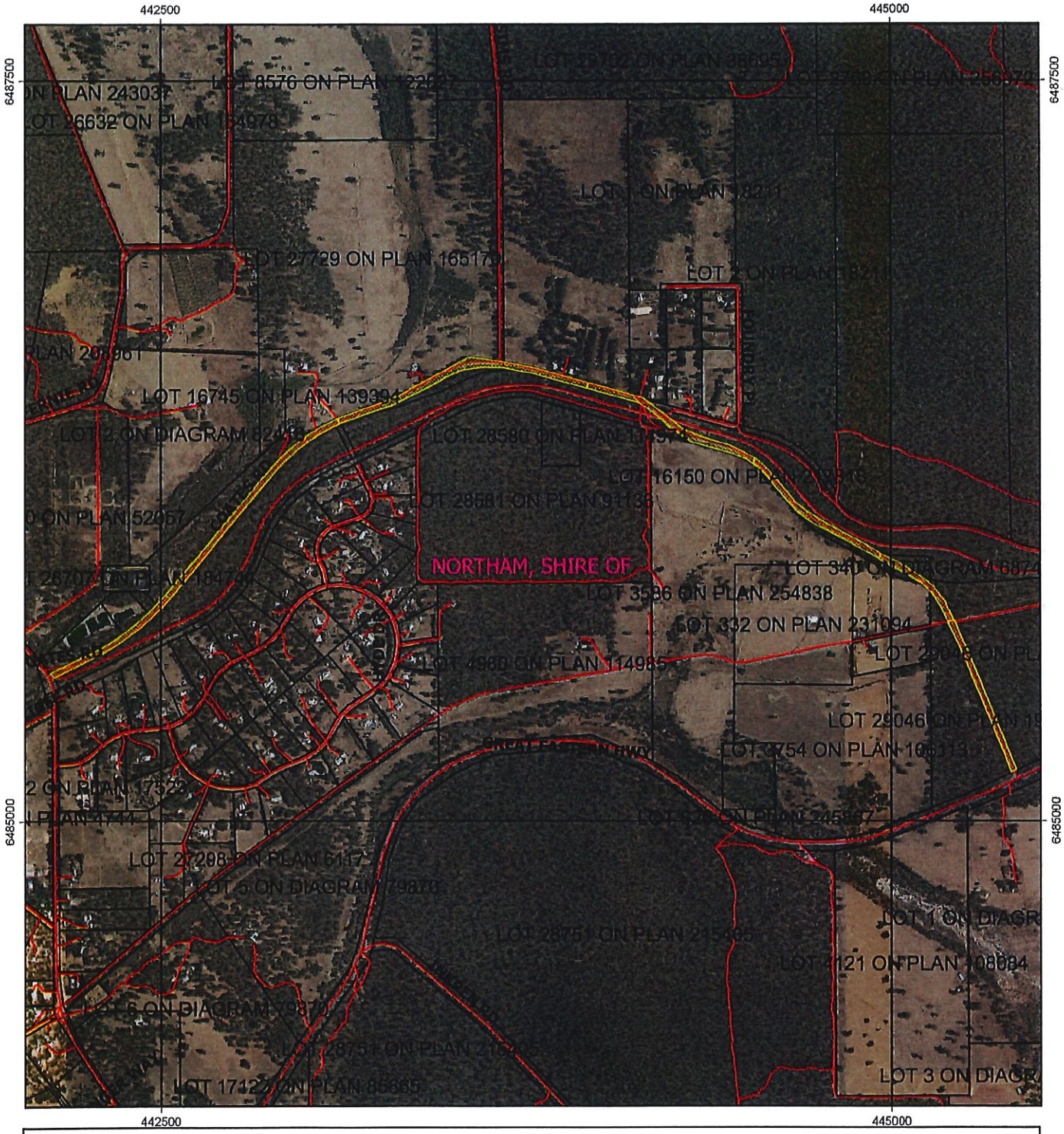
(a) that is a declared pest under section 22 of the Biosecurity and Agriculture Management Act 2007; or
(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
(c) not indigenous to the area concerned.

Mathew Gannaway
MANAGER
CLEARING REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

7 December 2017

Plan 7664/1



Legend

- Areas approved to clear
- Roads
- LGA
- Cadastre

Virtual Mosaic (LGATE-V001)

N

1:18,880

MGA 94
Geocentric Datum of Australia 1994

Date 7/12/2017

Matthew Greenway

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

GOVERNMENT OF
WESTERN AUSTRALIA

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7664/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Northam

1.3. Property details

Property: Coates Road Reserve – (PIN's 1292195, 11738658, 11738655, 1292194, 11738659, 11738654, 1292191 and 11738657), Wundowie and Bakers Hill
Lot 16150 on Deposited Plan 217818, Wundowie
Local Government Authority: Shire of Northam
Localities: Bakers Hill and Wundowie

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.98		Mechanical Removal	Road widening and maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 December 2017
Reasons for Decision: The clearing permit application was received on 27 June 2017 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*, and it has been concluded that the proposed clearing may be at variance to Principles (b) and (h) and is not likely to be at variance to any of the remaining clearing principles.

During the assessment of the application, the Delegated Officer determined that the application area may contain habitat for the conservation signficant black cockatoo species, and that the proposed clearing may impact the environmental values of Woondowing Nature Reserve through clearing and the introduction or spread of weeds and dieback.

To minimise impacts to black cockatoos, the clearing permit contains conditions requiring the applicant to:

- identify habitat tree(s) suitable to be utilised by black cockatoos for breeding;
- avoid habitat tree(s) where possible;
- inspect suitable habitat trees required to be cleared for the presence of black cockatoos; and
- retain habitat tree(s) where black cockatoos are identified until such time that they are no longer utilising the habitat tree for breeding.

To mitigate impacts to Woondowing Nature Reserve, the clearing permit is subject to dieback and weed management control actions, which will assist in mitigating the risk of weeds and dieback spreading into adjacent vegetation within this conservation area.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is unlikely to have any significant environmental impacts.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Two mapped heddle vegetation complexes are mapped within the application area (Heddle et al. 1998):

- 'Pindalup' (Pn) is described as: open forest of *Eucalyptus marginata* subsp. *thalassica* - *Corymbia calophylla* on slopes and open woodland of *Eucalyptus wandoo* with some *Eucalyptus patens* on the lower slopes in semiarid and arid zones; and
- 'Yalanbee' (Y5) is described as: mixture of open forest of *Eucalyptus marginata* subsp. *thalassica* - *Corymbia calophylla* and woodland of *Eucalyptus wandoo* on

lateritic uplands in semiarid to perarid zones.

Clearing Description	The application is to clear 1.98 hectares of native vegetation within the abovementioned localities for the purpose of road widening and maintenance.
Vegetation Condition	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery,1994) To Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
Comment	The vegetation condition was determined via aerial imagery and a site inspection undertaken by Department of Water and Environmental Regulation (DWER) Officer's (DWER, 2017).

3. Minimisation and mitigation measures

To reduce the amount of native vegetation to be cleared, the applicant has amended the total size of clearing from five hectares to 1.98 hectares of proposed clearing.

The applicant has advised that they intend to widen approximately 1.2 kilometres of the road reserve within the most south eastern portion by approximately three metres either side (0.72 hectares). The remainder of the road reserve within the application area will be widened by approximately two metres either side of the road (1.26 hectares).

4. 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 is not likely to be at variance to this Principle

The application is to clear 1.98 hectares of native vegetation within the abovementioned localities for the purpose of road widening and maintenance. The proposed clearing occurs along approximately 4.5 kilometres of the existing Coates Road.

The application area is in a degraded to very good (Keighery, 1994) condition (DWER, 2017). The application area has been considered as two distinct areas based on differences in the vegetation condition and composition:

Area A (approximately 1.00 hectare) comprises of approximately two kilometres of the application area from the most south eastern edge and consists predominantly of *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri) within the overstorey with *Banksia* sp. throughout the midstorey. Associated vegetation includes *Allocasuarina* sp., *Macrozamia* sp., *Xanthorrhoea* sp., *Hibbertia* sp. and other native shrubs (DWER, 2017).

Area B (approximately 0.98 hectares) comprises of approximately 2.5 kilometres of the application area from the most western edge and consists predominantly of *Eucalyptus wandoo* (wandoo) and *Allocasuarina* sp. within the overstorey with some scattered marri and jarrah throughout. The midstorey comprised of scattered *Banksia* sp., *Macrozamia* sp. and *Xanthorrhoea* sp. and other native shrubs scattered throughout (DWER, 2017).

According to available databases, no rare flora and 19 priority flora species have been recorded within the local area (10 kilometre radius). As discussed under Principle (c), the proposed clearing area is not likely to contain suitable habitat for rare flora species.

Of the priority flora species recorded within the local area, nine species are listed as Priority 4 and six species are listed as Priority 3. Priority 3 species are known from several locations, and do not appear to be under imminent threat, and Priority 4 species are considered to have been adequately surveyed, and are considered not currently threatened or in need of special protection, but could be if present circumstances change. Given the above and the linear nature of the application area, the proposed clearing is not likely to impact on the conservation status of any Priority 3 or Priority 4 flora species.

One Priority 1 flora species, *Senecio gilbertii,* and three Priority 2 flora species, *Grevillea candolleana, Lasiopetalum trichanthera* and *Verticordia citrella* have been recorded within the local area. *Senecio gilbertii* is found on peaty sand, swamps and slopes. *Verticordia citrella* is known from low-lying damp areas and swamps. *Grevillea candolleana* is found on laterite, lateritic loam on hill sides (Western Australia Herbarium 1998-). Suitable habitat for these species is not likely to be located within the application area.

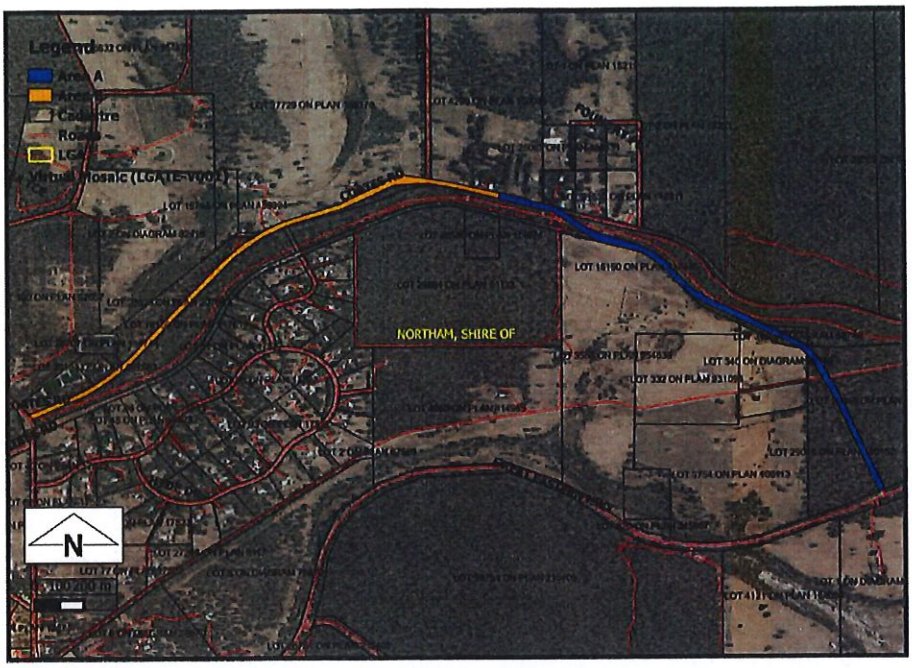


Figure 1: Two Areas identified within the application area.

Lasiopetalum trichanthera has been recorded approximately 9.6 kilometres from the application area. There are nine known occurrences of this species distributed across five kilometres. The majority of the known records occur within nature reserves. Given this, the proposed clearing is not likely to impact upon the conservation status of this species.

As assessed in Principle (b), Area A provides good quality foraging and potential breeding habitat and Area B provides low quality foraging habitat and potential breeding habitat for the conservation significant forest red-tailed black-cockatoo (*Calyptorhynchus banks*ii subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and Carnaby's cockatoo (*Calyptorhynchus latirostris*). The local area retains approximately 35 per cent native vegetation with the application area located within close proximity to two conservation areas and is comprised of vegetation in very good to degraded (Keighery, 1994) condition . The proposed clearing will involve clearing of up to three metres either side of the existing road. The road reserve predominantly retains approximately 10 – 20 metres of vegetation either side of the road and therefore suitable foraging and potential breeding habitat will remain within the road reserve and is located elsewhere in the local area in similar or better condition. Fauna management practices such as identifying and checking habitat trees prior to clearing will assist in mitigating impacts to black cockatoo species.

As assessed under Principle (d), the proposed clearing is not likely to contain vegetation consistent with a threatened ecological community (TEC).

Given the above, the application area is not likely to comprise a high biological diversity and the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
DWER (2017)
Keighery (1994)
Western Australia Herbarium (1998-)

GIS Datasets:
SAC Biodata sets accessed November 2017

(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 may be at variance to this Principle

Seven 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, being: woylie (*Bettongia penicillata* subsp. *ogilbyi*), forest red-tailed black-cockatoo, Baudin's cockatoo, Carnaby's cockatoo, chuditch (*Dasyurus geoffroii*), shield-backed trapdoor Spider (*Idiosoma nigrum*) and bilby (*Macrotis lagotis*) (Department of Biodiversity, Conservation and Attractions [DBCA], 2007-).

Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black-cockatoo have been given the status of endangered and vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). These species forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous

species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008). The application area provides foraging habitat for the three black cockatoo species due to the presence of jarrah, marri and *Banksia* species. The forest red-tailed black-cockatoo is also known to forage on wandoo, however it is not preferred foraging habitat for this species (Commonwealth of Australia, 2012).

According to available databases, the application area is mapped within a known breeding area. The recovery plan for Carnaby's cockatoo defines breeding habitat as including nesting sites, and the foraging habitat and water sources within foraging distance of nesting sites (Department of Parks and Wildlife, 2013). These areas are considered to be habitat critical to the survival for Carnaby's cockatoo (Department of Parks and Wildlife, 2013). The loss or degradation of feeding habitat within 12 kilometres of nesting sites is considered to pose the greatest risk to Carnaby's cockatoo (Saunders and Ingram, 1998; Department of Parks and Wildlife, 2013). As the applicaton area contains foraging habitat within a known nesting site, the application area may comprise of significant foraging habitat for black cockatoos.

To be suitable as a black cockatoo breeding site, trees require a suitable nest hollow or be of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). A site inspection undertaken within the application area identified a number of large trees that may contain suitable hollows or have the potential to develop suitable breeding hollows for the black cockatoos. If suitable breeding hollows are present, the application area is likely to comprise significant breeding habitat for the black cockatoo species.

Noting the vegetation identified within the application area, Area A (1.00 hectares) comprises of good quality foraging habitat and potential breeding habitat for the conservation significant black cockatoo species. Area B (0.98 hectares) is likely to comprise of potential breeding and low quality foraging habitat for this species.

The local area retains approximately 35 per cent native vegetation and the application area is located within close proximity to two conservation areas comprising a total of 2075 hectares of native vegetation. The proposed clearing will involve clearing of up to three metres either side for a 1.2 kilometre stretch and up to two metres wide for the remainder of the application area. The road reserve predominantly retains approximately 10 - 20 metres of vegetation either side of the road and therefore suitable foraging and potential breeding habitat will remain within the road reserve and is located elsewhere in the local area in similar or better condition. Therefore the proposed clearing is not likely to impact upon significant habitat for these species.

Fauna management practices such as identifying, checking and avoiding habitat trees prior to clearing will assist in mitigating impacts to black cockatoo species.

The chuditch currently inhabit most kinds of wooded habitat within its current range including eucalypt forest (especially jarrah, dry woodland and mallee shrublands). 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 [DotEE], 2017a). Suitable habitat for this species may occur within the application area, however given clearing is proposed to an extent between 2 – 3 metres either side of a road reserve that predominantly retains approximately 10 – 20 metres vegetation either side, suitable habitat for this species will remain adjacent to the application area.

In the Wheatbelt, the shield-backed trapdoor spider typically inhabits clay soils whereas the arid Midwest populations are associated with rocky habitats, primarily in positions with increased moisture retention properties like gullies and drainage lines on southern facing slopes. In the Wheatbelt, populations are associated with eucalypt woodland and *Acacia* shrubland, and in the arid Midwest they are associated with *Acacia* shrubland (DotEE, 2017b). Suitable habitat for this species is not likely to be located within the application area.

One record of the woylie, in 2002 and two records of the bilby, in 1955 and 1956 have been recorded with the local area. Given the low number and age of records of these species it is unlikely that these species will occur within the application area.

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

Methodology

References:
Commonwealth of Australia (2012)
DBCA (2007-)
Department of Parks and Wildlife (2013)
DotEE (2017a)
DotEE (2017b)
Valentine and Stock (2008)
Saunders and Ingram(1998)

GIS Datasets:
SAC Biodata sets accessed November 2017

(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

According to available databases, no rare flora species were recorded within the local area. The closest known record is located approximately 11 kilometres from the application area. This species is known to grow on and around granite outcrops, often in rock crevices (Brown et al., 1998).

Suitable habitat for this species is not likely to be located within the application area and was not recorded during the site inspection (DWER, 2017).

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

Methodology

References:
Brown et al. (1998)
DWER (2017)

GIS Datasets:
SAC Bio datasets (accessed November 2017)

(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

No TECs have been recorded within the application area. The closest mapped TEC, 'Eucalypt woodlands of the Western Australian Wheatbelt' is located 11 kilometres east of the application area.

The application area is located outside of the Wheatbelt region and the known distribution of the abovementioned TEC and therefore the application area is not likely to be necessary for the maintenance of a TEC.

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

Methodology

GIS Datasets:
SAC Bio datasets (accessed November 2017)

(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 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The local area (10 kilometre radius) retains approximately 35 per cent native vegetation. The application area is located within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion and within the Shire of Northam which retain approximately 54 per cent and 24 per cent of their pre-European vegetation extents respectively (Government of Western Australia, 2017).

The application area is mapped as Beard vegetation associations 3003 and Heddle Vegetation Complexes, Y5 and Pn of which retain 49, 66 and 77 per cent of their pre-European vegetation extents within the Jarrah Forest IBRA bioregion respectively (Government of Western Australia, 2016; Government of Western Australia, 2017).

The application area contains foraging and potential breeding habitat for black cockatoo species and the Shire of Northam retains less than the recommended 30 per cent threshold. However, given the local area and mapped vegetation complexes retain above the recommended threshold and the linear nature of the clearing area that is not likely to comprise a high biological diversity, rare flora or a TEC, the application area is not likely to be considered significant as a remnant of native vegetation in an area that has been extensively cleared.

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

	Pre-European	Current Extent	Remaining	Extent in DBCA Managed Lands
	(ha)	(ha)	(%)	(%)
IBRA Bioregion				
Jarrah Forest	4,506,660	2,416,018	54	69
Local government authority				
Shire of Northam	143,131	33,826	24	25
Beard Vegetation Association in Bioregion*				
1006	44,908	21,795	49	46
Heddle Vegetation Complex**				
Y5	126,610	83,707	66	39
Pn	167,151	128,373	77	60

Methodology

References:
Commonwealth of Australia (2001)
*Government of Western Australia (2016)
**Government of Western Australia (2017)

GIS Databases:
NLWRA, Current Extent of Native 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

According to available databases, no watercourses or wetlands have been recorded within the application area. A minor non-perennial watercourse has been mapped approximately 20 metres from the application area.

A site inspection undertaken within the application area did not identify any riparian vegetation (DWER, 2017).

Given the above, the proposed clearing is not likely to be growing in association with a wetland or watercourse and is not likely to be at variance to this Principle.

Methodology

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

Two soils types have been mapped within the application area which are described as (Northcote et al., 1960 – 1968):

- Tf3: low hilly to hilly terrain which comprises valleys that are frequently narrow and have short fairly steep pediments, along with breakaways, mesas, and occasional granite tors. Chief soils are hard acidic yellow mottled soils along with sandy acidic yellow mottled soils all of which contain moderate to large amounts of ironstone gravels in their surface horizons; and
- JZ2: Dissected plateau having a gentle to moderately undulating relief, and with broad swampy drainage-ways and basins. It is characterized by lateritic gravels and block laterite: the chief soils are ironstone gravels with sandy and earthy matrices. They overlie duricrusts of recemented ironstone gravels and/or vesicular laterite, and/or mottled-zone and/or pallid-zone material.

Given the abovementioned mapped soil types, the proposed clearing of 1.98 hectares of native vegetation along a 4.5 kilometre linear stretch of road in a very good to degraded (Keighery, 1994) condition with vegetation to remain within the road corridor, the proposed clearing is not likely to lead to land degradation through water erosion, water logging, wind erosion, salinity or eutrophication.

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

Methodology

References:
Northcote et al. (1960 – 1968)

GIS databases:
Hydrology, linear
Soils, 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 may be at variance to this Principle

The application area is located adjacent to Woondowing Nature Reserve. Kwolyinine Nature Reserve is located approximately one kilometre south of the application area.

Given the close proximity of the Woondowing Road Nature Reserve the proposed clearing may indirectly impact this nature reserve through the spread of weeds and dieback. Weed and dieback management practices will help mitigate this risk.

The application area may provide an ecological linkage allowing fauna to move between conservation areas and remnant vegetation within the local area. However, the proposed clearing will involve clearing of up to three metres either side for a one kilometre stretch and up to two metres wide for the remainder of the application area. The road reserve currently retains predominantly 10 - 20 metres of vegetation either side of the existing road and therefore vegetation will remain within the road reserve that will function as an ecological linkage. Therefore, the proposed clearing is not likely to have a significant impact on the movement of fauna across the landscape.

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

Methodology

GIS Databases:
DBCA, 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

According to available databases, no watercourses or wetlands have been recorded within the application area. A minor non-perennial watercourse has been mapped approximately 20 metres from the application area.

The proposed clearing may increase run-off and sedimentation into the nearby watercourse, however this impact is likely to minimal and short term.

Groundwater salinity is mapped between 3000 - 7000 milligrams per litre total dissolved solids which is considered to be moderately saline to saline. Due to the small size and linear nature of the proposed clearing, the very good to degraded (Keighery, 1994) condition of the application area, and that native vegetation is to remain within the road corridor, the proposed clearing is not likely to cause deterioration in the quality of underground water.

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

Methodology

References:
Keighery (1994)

GIS Databases:
Hydrology, linear
Groundwater salinity

(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

Given the mapped soil types present, size of the proposed clearing and that vegetation remains within the road reserve, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

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

Methodology

GIS databases:
Soils, statewide

Planning instruments and other relevant matters.

Comments

The application was advertised on the DWER's website on 2 August 2017 for a 21 day submission period. No submissions have been received in relation to this application.

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

Methodology

GIS Datatsets:
Aboriginal Sites of Significance

5. References

Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.

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

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

Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: http://naturemap.dpaw.wa.gov.au/. Accessed October2017

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