



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6800/1
Permit Holder:	Commissioner of Main Roads Western Australia
Duration of Permit:	(30 July 2016 – 30 July 2021)

ADVICE NOTE

The funds referred to in condition 8 of this permit are intended for contributing towards the purchase of 261 hectares of native vegetation with similar environmental values containing Carnaby's cockatoo, red-tailed phascogale and threatened ecological community habitat within the Avon Wheatbelt Bioregion.

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

PART I – CLEARING AUTHORISED

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

- 2. Land on which clearing is to be done**
LOT 30 ON PLAN 228706, EAST BEVERLEY
LOT 300 ON PLAN 61669, KAURING
LOT 29 ON PLAN 228706, EAST BEVERLEY
LOT 29644 ON PLAN 253933, KAURING
LOT 28 ON PLAN 228706, EAST BEVERLEY
LOT 2877 ON PLAN 101729, EAST BEVERLEY
LOT 27 ON PLAN 228706, EAST BEVERLEY
LOT 27 ON PLAN 184274, KAURING
LOT 25369 ON PLAN 83561, DULBELLING
LOT 2533 ON PLAN 100222, EAST BEVERLEY
LOT 23 ON PLAN 228706, EAST BEVERLEY
LOT 22 ON PLAN 228706, EAST BEVERLEY
LOT 22321 ON PLAN 142981, KAURING
LOT 22037 ON PLAN 142634, GILGERING
LOT 21 ON PLAN 228706, EAST BEVERLEY
LOT 21112 ON PLAN 253113, EAST BEVERLEY
LOT 20 ON PLAN 228706, EAST BEVERLEY
LOT 1 ON PLAN 12731, EAST BEVERLEY
LOT 1 ON DIAGRAM 2738, GREENHILLS
LOT 19 ON PLAN 228706, EAST BEVERLEY
LOT 1971 ON PLAN 251700, GREENHILLS
LOT 1793 ON PLAN 248792, KAURING
LOT 10991 ON PLAN 252293, KAURING
LOT 10635 ON PLAN 251715, KAURING
LOT 10586 ON PLAN 128235, EAST BEVERLEY
LOT 10439 ON PLAN 126759, EAST BEVERLEY
LOT 10375 ON PLAN 126755, KAURING
LOT 101 ON PLAN 300265, DULBELLING

LOT 101 ON PLAN 300173, KAURING
LOT 101 ON DIAGRAM 68429, KAURING
LOT 100 ON PLAN 300173, KAURING
ROAD RESERVE (PIN 11661058), DULBELLING
UNALLOCATED CROWN LAND, DULBELLING
ROAD RESERVE (PIN 1359684), DULBELLING
ROAD RESERVE (PIN 1359824), EAST BEVERLEY
ROAD RESERVE (PIN 1359823), EAST BEVERLEY
ROAD RESERVE (PIN 1290747), EAST BEVERLEY
RAILWAY RESERVE, DULBELLING
ROAD RESERVE (PIN 1359775), EAST BEVERLEY
ROAD RESERVE (PIN 1290742), EAST BEVERLEY
ROAD RESERVE (PIN 1359776), EAST BEVERLEY
ROAD RESERVE (PIN 1359771), EAST BEVERLEY
ROAD RESERVE (PIN 1290743), EAST BEVERLEY
ROAD RESERVE (PIN 1290746), EAST BEVERLEY
ROAD RESERVE (PIN 1290745), EAST BEVERLEY
ROAD RESERVE (PIN 11744714), EAST BEVERLEY
ROAD RESERVE (PIN 1359774), EAST BEVERLEY
ROAD RESERVE (PIN 1359772), EAST BEVERLEY
ROAD RESERVE (PIN 1359773), EAST BEVERLEY
ROAD RESERVE (PIN 1359767), EAST BEVERLEY
ROAD RESERVE (PIN 1359778), BALKULING
ROAD RESERVE (PIN 1359766), EAST BEVERLEY
ROAD RESERVE (PIN 1359764), EAST BEVERLEY
ROAD RESERVE (PIN 1359765), EAST BEVERLEY
ROAD RESERVE (PIN 1359763), EAST BEVERLEY
ROAD RESERVE (PIN 1359760), EAST BEVERLEY
ROAD RESERVE (PIN 1359762), EAST BEVERLEY
ROAD RESERVE (PIN 1359751), EAST BEVERLEY
RAILWAY RESERVE, BALKULING
ROAD RESERVE (PIN 1359750), EAST BEVERLEY
ROAD RESERVE (PIN 1359745), KAURING
ROAD RESERVE (PIN 1359744), KAURING
ROAD RESERVE (PIN 1359742), KAURING
ROAD RESERVE (PIN 1255099), KAURING
ROAD RESERVE (PIN 1359743), KAURING
ROAD RESERVE (PIN 1255098), KAURING
ROAD RESERVE (PIN 1255096), KAURING
ROAD RESERVE (PIN 1359696), KAURING
ROAD RESERVE (PIN 1359697), KAURING
UNALLOCATED CROWN LAND, KAURING
ROAD RESERVE (PIN 1359687), KAURING
ROAD RESERVE (PIN 1359695), KAURING
ROAD RESERVE (PIN 11406903), KAURING
ROAD RESERVE (PIN 1359685), KAURING
ROAD RESERVE (PIN 11406902), GREENHILLS
RAILWAY RESERVE, KAURING
ROAD RESERVE (PIN 1359838), GREENHILLS
ROAD RESERVE (PIN 11427181), GREENHILLS
ROAD RESERVE (PIN 11427179), GREENHILLS
ROAD RESERVE (PIN 11427182), KAURING
LOT 90 ON PLAN 32332, KAURING
LOT 8 ON PLAN 228706, EAST BEVERLEY
LOT 8965 ON PLAN 123514, EAST BEVERLEY
LOT 8524 ON PLAN 126755, KAURING
LOT 8344 ON PLAN 121672, EAST BEVERLEY
LOT 7 ON PLAN 228706, EAST BEVERLEY

LOT 71 ON PLAN 300187, GREENHILLS
LOT 70 ON PLAN 5921, KAURING
LOT 70 ON PLAN 5921, GREENHILLS
LOT 704 ON PLAN 245304, KAURING
LOT 6 ON PLAN 228706, EAST BEVERLEY
LOT 6735 ON PLAN 118591, EAST BEVERLEY
LOT 6680 ON PLAN 253121, EAST BEVERLEY
LOT 64 ON PLAN 220216, EAST BEVERLEY
LOT 6163 ON PLAN 114146, EAST BEVERLEY
LOT 5 ON PLAN 228706, EAST BEVERLEY
LOT 59 ON PLAN 228706, EAST BEVERLEY
LOT 57 ON PLAN 228706, EAST BEVERLEY
LOT 56 ON PLAN 228706, EAST BEVERLEY
LOT 55 ON PLAN 228706, EAST BEVERLEY
LOT 556 ON DIAGRAM 95114, KAURING
LOT 555 ON DIAGRAM 95114, KAURING
LOT 54 ON PLAN 228706, EAST BEVERLEY
LOT 53 ON PLAN 228706, EAST BEVERLEY
LOT 52 ON PLAN 19318, KAURING
LOT 51 ON PLAN 19318, KAURING
LOT 50 ON PLAN 19318, KAURING
LOT 4900 ON PLAN 111085, KAURING
LOT 48 ON PLAN 228706, EAST BEVERLEY
LOT 47 ON PLAN 228706, EAST BEVERLEY
LOT 46 ON PLAN 228706, EAST BEVERLEY
LOT 45 ON PLAN 228706, EAST BEVERLEY
LOT 44 ON PLAN 228706, EAST BEVERLEY
LOT 43 ON PLAN 228706, EAST BEVERLEY
LOT 42 ON PLAN 228706, EAST BEVERLEY
LOT 41 ON PLAN 228706, EAST BEVERLEY
LOT 4149 ON PLAN 111093, DULBELLING
LOT 40 ON PLAN 228706, EAST BEVERLEY
LOT 3 ON PLAN 60263, EAST BEVERLEY
LOT 38 ON PLAN 228706, EAST BEVERLEY
LOT 37 ON PLAN 228706, EAST BEVERLEY
LOT 36 ON PLAN 228706, EAST BEVERLEY
LOT 351 ON PLAN 66254, KAURING
LOT 350 ON PLAN 66254, KAURING
LOT 33 ON PLAN 228706, EAST BEVERLEY
LOT 3392 ON PLAN 103463, EAST BEVERLEY
LOT 32 ON PLAN 228706, EAST BEVERLEY
LOT 3235 ON PLAN 102572, EAST BEVERLEY
LOT 31 ON PLAN 228706, EAST BEVERLEY
LOT 17361 ON PLAN 252291, KAURING
LOT 17309 ON PLAN 83558, DULBELLING
LOT 16908 ON PLAN 253330, KAURING
LOT 150 ON DIAGRAM 95848, KAURING

3. Area of Clearing

The Permit Holder must not clear more than 38.85 hectares of native vegetation within the area shaded yellow on attached Plan 6800/1a, Plan 6800/1b and Plan 6800/1c.

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 project 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 project activities under the *Main Roads Act 1930* 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. 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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *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. Monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation (offset)

Prior to undertaking any clearing authorised under this Permit and no later than 30 October 2016, the Permit Holder shall provide documentary evidence to the CEO that funding of \$368,271 has been transferred to the Department of Environment Regulation for the purpose of establishing or maintaining native vegetation.

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 the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;
 - (ii) the date that the area was cleared; and
 - (iii) the size of the area cleared (in hectares).
- (b) In relation to condition 9 of this Permit the Permit Holder must maintain records of activities undertaken in accordance with the approved Revegetation Offset Plan.

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 30 June 2021, 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:

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

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

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 Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Kelly Faulkner
EXECUTIVE DIRECTOR
LICENSING AND APPROVALS

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

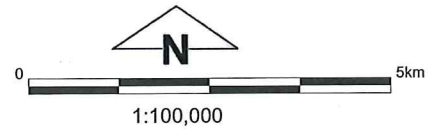
30 June 2016

Plan 6800/1a



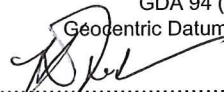
Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



(Approximate when reproduced at A4)
GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994


Date 30/6/2016
Kelly Faulkner

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



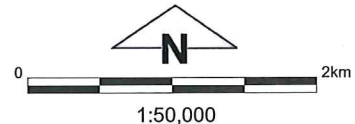
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Plan 6800/1b



Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



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Date 30/6/16
Kelly Faulkner

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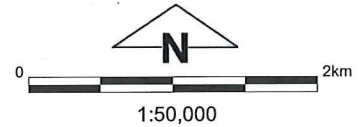
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Plan 6800/1c



Legend

- Imagery
- Clearing Instruments Activities
- Roads
- Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

Date 30/6/16
Kelly Faulkner

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This report has been prepared to fulfil the requirements of an accredited environmental assessment process between the Commonwealth and State governments, pursuant to a bilateral agreement established under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report is set out in three parts:

- Part 1: Application and site details;
- Part 2: Assessment against matters of national environmental significance (pursuant to the EPBC Act); and
- Part 3: Assessment against the clearing principles (pursuant to the *Environmental Protection Act 1986* (EP Act)). Appeal rights pursuant to section 101A of the EP Act are relevant to this section of the report.

Part 1: Application and site details

1. Application details

1.1. Permit application details

Permit application No.: 6800/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Main Roads Western Australia

1.3. Property details

Property:

- LOT 30 ON PLAN 228706, EAST BEVERLEY
- LOT 300 ON PLAN 61669, KAURING
- LOT 29 ON PLAN 228706, EAST BEVERLEY
- LOT 29644 ON PLAN 253933, KAURING
- LOT 28 ON PLAN 228706, EAST BEVERLEY
- LOT 2877 ON PLAN 101729, EAST BEVERLEY
- LOT 27 ON PLAN 228706, EAST BEVERLEY
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- LOT 1 ON DIAGRAM 2738, GREENHILLS
- LOT 19 ON PLAN 228706, EAST BEVERLEY
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- LOT 10991 ON PLAN 252293, KAURING
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- LOT 10586 ON PLAN 128235, EAST BEVERLEY
- LOT 10439 ON PLAN 126759, EAST BEVERLEY
- LOT 10375 ON PLAN 126755, KAURING
- LOT 101 ON PLAN 300265, DULBELLING
- LOT 101 ON PLAN 300173, KAURING
- LOT 101 ON DIAGRAM 68429, KAURING
- LOT 100 ON PLAN 300173, KAURING
- ROAD RESERVE - 11661058, DULBELLING
- UNALLOCATED CROWN LAND, DULBELLING
- ROAD RESERVE - 1359684, DULBELLING
- ROAD RESERVE - 1359824, EAST BEVERLEY
- ROAD RESERVE - 1359823, EAST BEVERLEY
- ROAD RESERVE - 1290747, EAST BEVERLEY
- RAILWAY RESERVE, DULBELLING
- ROAD RESERVE - 1359775, EAST BEVERLEY
- ROAD RESERVE - 1290742, EAST BEVERLEY
- ROAD RESERVE - 1359776, EAST BEVERLEY
- ROAD RESERVE - 1359771, EAST BEVERLEY
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ROAD RESERVE - 11406903, KAURING
ROAD RESERVE - 1359685, KAURING
ROAD RESERVE - 11406902, GREENHILLS
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ROAD RESERVE - 1359838, GREENHILLS
ROAD RESERVE - 11427181, GREENHILLS
ROAD RESERVE - 11427179, GREENHILLS
ROAD RESERVE - 11427182, KAURING
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 LOT 31 ON PLAN 228706, EAST BEVERLEY
 LOT 17361 ON PLAN 252291, KAURING
 LOT 17309 ON PLAN 83558, DULBELLING
 LOT 16908 ON PLAN 253330, KAURING
 LOT 150 ON DIAGRAM 95848, KAURING
 SHIRE OF BEVERLEY, SHIRE OF QUAIRADING, and SHIRE OF YORK
 Greater Swan
 CENTRAL WHEATBELT
 BEVERLEY and QUAIRADING and YORK
 GILGERING and EAST BEVERLEY and KAURING and GREENHILLS and DULBELLING

Local Government Authority:
DER Region:
DPaW District:
LCDC:
Localities:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
38.85		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 June 2016
Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986* (EP Act), and it has been concluded that the proposed clearing is at variance to clearing principles (a), (b), (d), (e) and (f), may be at variance to clearing principles (c), (h) and (g) and is not likely to be at variance to the remaining clearing principles.

An assessment determined that the proposed clearing will lead to the loss of 38.85 hectares of native vegetation that includes:

- 15.33 hectares of critically endangered threatened ecological community Eucalypt Woodlands of Western Australian Wheatbelt;
- 35.59 hectares of foraging habitat and 592 potential nesting trees for Carnaby's cockatoo;
- 38.2 hectares of foraging and breeding habitat for red-tailed phascogale;
- 38.85 hectares of native vegetation considered to be a significant remnant of native vegetation in an area that has been extensively cleared.

On 25 September 2015 the project was determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the following controlling provision: Listed Threatened Species and Communities. The controlled action is likely to have a significant impact on Carnaby's cockatoo (*Calyptorhynchus latirostris*) and on red-tailed phascogale (*Phascogale calura*), both of which are listed as endangered under the EPBC Act.

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 51I(2)(b) of the EP Act, in order to mitigate the significant environment impacts described above the Permit Holder is required to provide an offset that comprises of documented evidence that a monetary contribution towards the purchase of 261 hectares of remnant vegetation that includes 261 hectares of critically endangered Threatened Ecological Community Eucalypt Woodlands of Western Australian Wheatbelt, 261 hectares of habitat for Carnaby's cockatoo and red-tailed phascogale and 216 hectares of native vegetation that is considered to be a significant remnant in an area that has been extensively cleared, has been transferred to the Department of Environment Regulation.

The proposed offset described above is consistent with the EPBC Act Environmental Offsets Policy (October 2012) and Offsets Assessment Guide.

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
The application area has been CPS 6800/1, 30 June 2016	The proposed	Excellent; Vegetation structure	The vegetation description and Page 3 of 18

mapped as the following Beard vegetation associations:
- 1049: Medium woodland; wandoo, York gum, salmon gum, morrell and gimlet;
- 352: Medium woodland; York gum; and
- 947: Medium woodland; powderbark and mallet (Shepherd et al, 2001).

clearing of 38.85 hectares is for the purpose of widening York Merredin Road.

intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).
to

Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).

condition was determined from a site inspection conducted by Department of Environment Regulation (DER) officers on 22 December 2015 (DER, 2015) and from a biological assessment by GHD (2014) which contained a Level 1 flora and fauna field assessment from September 2014.

Part 2: Assessment against matters of national environmental significance

3. Assessment of application against Matters of National Environmental Significance

Background

Main Roads Western Australia (MRWA; the applicant) proposes to clear 38.85 hectares of native vegetation within various road reserves and properties for the purpose of widening the York Merredin Road between SLK 1.95 to SLK 51.

The proposed clearing includes 592 potential breeding trees for Carnaby's cockatoos. Potential breeding trees are trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres. For salmon gum and wandoo, suitable DBH is 300 millimetres.

GHD (2014) advised that there have been gradual and steady increases in traffic levels along the York Merredin Road which have occurred as a result of increased grain freight movements in the area. The increased volume of vehicles using the York Merredin road is a result of increased access to the Co-operative Bulk Handling (CBH) bins in the area. The applicant advised that the width of the existing road is unsuitable for the increased traffic and the works are required to improve the road geometry and general road safety attributes along this section of road (GHD 2015a).

The application area is situated within the Avon Wheatbelt IBRA region, Shire of Beverley, Shire of Quairading and Shire of York, approximately two kilometres south-east of the York town site.

A biological assessment was completed by GHD (2014), including a desktop assessment and a level 1 flora and vegetation assessment undertaken at the site in September 2014. The biological assessment (GHD 2014) identified eight vegetation communities within the application area. These included york gum and jam woodland; york and salmon gum woodland; york, wandoo and jam woodland; wandoo woodland, salt sheok woodland, samphire shrubland; scattered eucalypt trees; wandoo and salmon gum woodland and mixed heath (GHD 2014 and 2015a). The vegetation under application occurs in an excellent to degraded (Keighery 1994) condition (DER 2015 and GHD 2015a).

Methodology References:
DER (2015)
GHD (2014)
GHD (2015a)
Keighery (1994)

Description of controlling provision

On 25 September 2015 the application was determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the following controlling provisions: Listed threatened species and communities. The controlled action is considered likely to have a significant impact on Carnaby's cockatoo (*Calyptorhynchus latirostris*) listed as endangered under the EPBC Act, and on red-tailed phascogale (*Phascogale calura*) listed as endangered under the EPBC Act.

Carnaby's cockatoo

Currently, the overall population trend for the Carnaby's cockatoo is one of decline due to the loss and fragmentation of habitat as a result of clearing of native vegetation (Saunders 1990; Johnstone and Storr 1998; Saunders and Ingram 1998; Garnett et al. 2011). Carnaby's cockatoo is endemic to the south-west of Western Australia. Breeding takes place between late July and December and occurs mostly in the inland wheatbelt region of its distribution, in areas receiving between 300 and 750 millimetres of annual average rainfall (Saunders 1974). During the non-breeding season (January to July) the majority of the birds move to the higher rainfall coastal regions of their range including the midwest coast, Swan Coastal Plain and south coast (Saunders 1980, 1990; Berry 2008; Saunders et al. 2011; Johnstone et al. 2011). There has been an apparent expansion in the breeding range to include areas further west and south since the middle of last century with a more rapid increase into the Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) forests of the south west (Johnstone and Storr 1998; Johnstone et al. 2011). This expansion in breeding range is due to threatening processes such as clearing of breeding habitat and competition for suitable breeding hollows.

Carnaby's cockatoo preferred habitat is remnant native eucalypt woodlands, especially those of salmon gum (*Eucalyptus salmonophloia*) and wandoo (*Eucalyptus wandoo*), and in shrubland or kwongan heathland dominated by plants of the Proteaceae family. It also occurs in forests containing marri, jarrah, karri (*Eucalyptus diversicolor*) and tuart (*Eucalyptus gomphocephala*) (Parks and Wildlife 2013).

Carnaby's cockatoo nests in large hollows in tall, living or dead eucalypts. It nests most commonly in smooth-barked wandoo and salmon gum, but birds have also been recorded breeding in red morrell (*Eucalyptus longicornis*), York gum (*Eucalyptus loxophleba*), tuart, flooded gum (*Eucalyptus rudis*), swamp yate (*Eucalyptus occidentalis*), gimlet (*Eucalyptus salubris*) and marri, and are said to nest in any species of eucalypt with a suitable hollow (Parks and Wildlife 2013).

The Carnaby's cockatoo recovery plan (Parks and Wildlife 2013) summarises habitat critical to the survival of Carnaby's cockatoos as:

- the eucalypt woodlands that provide nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
- in the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The recovery plan also states that success in breeding is dependent on the quality and proximity of feeding habitat within 12 kilometres of nesting sites (Parks and Wildlife 2013). Along with the trees that provide nest hollows, the protection, management and increase of this feeding habitat that supports the breeding of Carnaby's cockatoo is a critical requirement for the conservation of the species (Parks and Wildlife 2013).

Red-tailed phascogale

The red-tailed phascogale inhabits wandoo and sheoak (*Allocasuarina huegeliana*) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which they line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead sheoaks, skirts of live (or stumps of dead) grass trees (*Xanthorrhoea* spp.) (DEC 2012).

Prior to agricultural expansion in the 1800s, the red-tailed phascogale was widespread throughout Western Australia (Department of the Environment, 2016). It was previously found in most arid and semi-arid regions of Australia. However, it suffered a significant range contraction following European settlement and is now known to occur only in the central and southern wheatbelt areas of Western Australia an area which receives an annual rainfall of between 350 and 600 mm (Department of the Environment 2016).

Red-tailed phascogales occur in isolated patches of remnant vegetation which are not contiguous and do not allow for recolonisation or movement between populations. They are threatened by habitat loss and fragmentation, frequent burning of remaining habitat and predation by foxes and cats (Foster et al 2006).

Methodology References:
Berry (2008)
DEC (2012)
Department of the Environment (2016)
Foster et al (2006)
Garnett et al (2011)
Johnstone and Kirkby (1999)
Johnstone and Storr (1998)
Johnstone et al (2011)

Parks and Wildlife (2013)
Saunders (1974)
Saunders (1980)
Saunders (1990)
Saunders and Ingram (1998)

Summary of Impacts

Carnaby's cockatoo

According to the Commonwealth Department of the Environment's EPBC Act referral guidelines for Western Australia's three threatened black cockatoo species, the proposed clearing falls within the known breeding range for Carnaby's cockatoo (SEWPAC 2012).

Black cockatoos generally forage within six kilometres of a night roost site and, while nesting, within a 12 kilometre radius of their nest site (SEWPAC 2012). Confirmed Carnaby's cockatoo breeding sites and known roost sites have been recorded within 10 kilometres of the application area.

The proposed clearing of 38.85 hectares includes at least 592 potential breeding trees, of which more than 20 currently contain hollows that provide nesting opportunities for the Carnaby's cockatoo. The vegetation proposed to be cleared also consists of 35.59 hectares of foraging habitat for Carnaby's cockatoo (GHD 2014 and 2015a).

A site visit of the application area conducted by Department of Environment Regulation officers in December 2015 observed numerous potential breeding trees containing large hollows suitable for black cockatoo species and the red-tailed phascogale (DER 2015).

The Carnaby's Cockatoo Recovery Plan notes that there are multiple reasons for the decline of Carnaby's cockatoo, however the decline to-date has primarily been brought about by the extensive clearing of nesting and feeding habitat (Parks and Wildlife 2013). Loss of nesting habitat, together with foraging areas and watering sites within foraging distance of breeding sites is one of the key threatening processes contributing towards the decline of the species. A further significant threat is the clearing, fragmentation and degradation of foraging and night roosting habitat in the non-breeding parts of Carnaby's cockatoo range in the southwest of Western Australia and particularly on the Swan Coastal Plain (Parks and Wildlife 2013). The long-term survival of Carnaby's cockatoo depends on the availability of suitable breeding habitat and foraging habitat capable of providing enough food to sustain the population (Parks and Wildlife 2013).

Given the application area contains 35.59 hectares of foraging habitat, 592 potential nesting trees and is located within ten kilometres of known breeding sites, it is considered that the application area contains critical habitat for Carnaby's cockatoo.

Red-tailed phascogale

Threatening processes for the red-tailed phascogale include fragmentation and loss of habitat (in the Wheat belt) and frequent burning which can remove mature-age vegetation which the species occupies (DEC 2012).

The proposed clearing is likely to impact on 38.15 hectares of suitable habitat including potential breeding habitat (i.e. hollow bearing trees) for the red-tailed phascogale. It is considered that clearing of this habitat, in particular the potential breeding habitat is likely to result in a shortage of nesting resources and breeding hollows in the local area, thus reducing the availability of breeding habitat in the future for the red-tailed phascogale.

Given the vegetation proposed to be cleared contains habitat for the red-tailed phascogale and may provide nesting and significant breeding habitat, the application is likely to contain critical habitat for the red-tailed phascogale.

Methodology References:
DER (2015)
GHD (2014)
GHD (2015a)
Parks and Wildlife (2013)
DSEWPac (2012)

GIS Databases:
- SAC bio datasets (December 2015)

Public consultation

The clearing application was advertised for public comment in *The West Australian* newspaper on 9 November 2015. The public comment period ended on 30 November 2015.

Three public submissions were received regarding potential impacts on breeding and foraging habitat of Carnaby's cockatoo; loss of significant vegetation in an extensively cleared area; suitable habitat for red-tailed phascogale; and the inadequacy of flora and vegetation survey.

On 18 December 2015 DER wrote to the applicant, requesting a response to the three public submissions. On 1 February 2016 the applicant provided a response to the public submissions, which is available to view online at [ftp://ftp.dec.wa.gov.au/Permit](http://ftp.dec.wa.gov.au/Permit) (reference CPS 6800/1).

Avoidance, mitigation and offset

Avoidance and Mitigation

The referral information (MRWA 2015) provided to the Department of the Environment (DotE) states that there are no practical alternatives to the proposed clearing available.

The applicant advises that the two key objectives of the avoidance and mitigation management measures are to:

1. Avoid, then minimise the clearing of Carnaby's cockatoo and red-tailed phascogale habitats; and
2. Avoid direct impacts (e.g. injury or death) to individual Carnaby's cockatoos and red-tailed phascogale during the construction process.

Offset

The applicant identified the following significant residual environmental impacts associated with the proposed clearing:

- 15.33 hectares of critically endangered Threatened Ecological Community Eucalypt Woodlands of Western Australian Wheatbelt;
- 35.59 hectares of foraging habitat and 592 potential nesting trees for Carnaby's cockatoo;
- 38.2 hectares of foraging and breeding habitat for red-tailed phascogale;
- 38.85 hectares of native vegetation considered to be a significant remnant of native vegetation in an area that has been extensively cleared.

To counterbalance the above impacts associated with matters of national environmental significance (Carnaby's cockatoo and red-tailed phascogale) the applicant proposed an offsets package that consists of a monetary contribution of \$368,271 towards the purchase of 261 hectares of remnant vegetation to offset the significant residual impacts. These figures are based on land values and the Commonwealth's Offsets Assessment Guide (2012).

DER considered the adequacy of the proposed offset in conjunction with the Commonwealth's Offsets Assessment Guide (2012) and the WA Offset Policy (2011):

- In respect to the impacts to Carnaby's cockatoo and red-tailed phascogale, DER determined that the proposed offset for Carnaby's cockatoo is adequate to offset the loss of 35.59 hectares of foraging habitat and 592 potential nesting trees and 38.2 hectares of foraging and breeding habitat for red-tailed phascogale. DER's determination is based on the assumption that the proposed offset site is in a very good (Keighery 1994) condition and will be transferred to the conservation estate.
- In respect to the state impacts to critically endangered Threatened Ecological Community Eucalypt Woodlands of Western Australian Wheatbelt and a significant remnant in an extensively cleared area, DER determined that the proposed offset is adequate to offset the loss of 15.33 hectares of TEC and 38.85 hectares of a significant remnant. DER's determination is based on the assumption that the proposed offset site is in a very good (Keighery 1994) condition and will be transferred to the conservation estate.

Methodology References:
Keighery (1994)

Other relevant considerations

The following advice has been provided by the applicant in the referral documentation (MRWA 2015) provided to the Commonwealth.

Economic and Social Matters

The applicant has advised that there has been an increase in the grain freight movements along the York Merredin Road to access the Co-operative Bulk Handling bins in the area. The applicant advised the existing width of the current road does not support the increased traffic and these proposed works are required to improve the road geometry and general road safety attributes along this section of road. The construction of the road will create a safer environment for local users as well as reducing wear and tear on grain trucks and saving time for grain freight movement (GHD 2015a). The project will cost approximately \$32 million and will employ 35-55 people, many from the local area, depending on whether it is constructed over several years or all at once (GHD 2015a).

Applicant's Environmental History

The applicant is a State agency and have a sound record of responsible environmental management and environmental management systems.

The applicant seeks to achieve balanced and sustainable outcomes for the community with responsible environmental stewardship in developing and maintaining the road network critical to its success. The applicant is committed to:

- protecting and enhancing the environmental values of road reserves;
- minimising the impact on the natural environment of roads and road use; and
- conserving natural resources and minimising energy consumption and waste.

A corporate Environmental Management System facilitates management of environmental risks and performance improvement. The independently certified and audited system is integrated into all key processes including planning, delivery, maintenance, network operations and supporting services.

The applicant holds Certificate No. EMS 530437 and operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the following scope: Main Roads Total Management System comprising Planning, Delivery, Maintenance, Network Operations and Supporting Services. Officially registered since 14 July 2005 under Certificate 149459.

Part 3: Assessment against the clearing principles

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 at variance to this Principle

Main Roads Western Australia (MRWA; the applicant) proposes to clear 38.85 hectares of native vegetation within various road reserves and properties for the purpose of widening the York Merredin Road between SLK 1.95 to SLK 51.

The vegetation within the application area ranges in condition from degraded to excellent (Keighery, 1994).

A biological assessment of the application area undertaken in September 2014, which included a desktop assessment and a level 1 flora and fauna field assessment, identified 208 flora taxa from 142 genera within the early design area (GHD, 2014). Design alterations were made after the field survey which included the addition of areas, which resulted in a slightly different clearing area to the original area surveyed. A site investigation was conducted in June 2015 by GHD to capture additional biological data (GHD, 2015a). The biological assessments found 145 (70 per cent) locally native species, and 63 (30 per cent) introduced (exotic) or naturalised weed species in the area proposed to be cleared (GHD, 2014 and 2015a). No rare flora listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the *Wildlife Conservation Act 1950* (WC Act) were identified, however two priority flora were found within the application area, being *Eremophila glabra* subsp. York (P.G. Wilson 12172 B) (P1) and *Hemigenia platyphylla* (P4).

Eremophila glabra subsp. York is a prostrate shrub spreading up to two metres across and up to 10 centimetres high. It has been recorded flowering between July and early September and it is thought to be a disturbance opportunist. This taxon is known from two locations in proximity to the application area, Crown Reserve R2570 (St Andrew's Church Reserve) and R15812 (Kauring). The population within Kauring was previously observed in close proximity to the road in 2004; however the GHD (2014) survey only recorded the population at St Andrew's Church Reserve, and not the population at Kauring. The flora survey (GHD, 2014) report indicates that eighteen plants were recorded, with a couple of these occurrences forming clumps up to two metres across. There are discrepancies between the GHD reports (2014 and 2015a) on the number of plants recorded within the application area, however no individuals of *Eremophila glabra* subsp. York will be cleared as the project design has been modified to avoid this important population (GHD, 2015a). Management practices such as demarcating known locations in proximity to the application area will be required for avoidance as indirect impacts to this taxon also have the potential to be significant to its conservation status (Parks and Wildlife, 2015).

Hemigenia platyphylla is a spreading shrub, growing to 0.2-1.5 metres high. It has blue-purple flowers and flowers from September to November. It has been recorded in sandy and loamy soils and granite rocks and slopes. This species is known from approximately 11 locations and has a broad range of approximately 320 kilometres east-west and 345 kilometres north-south. The frequency data associated with the WA Herbarium records would suggest that it is locally common / plentiful at some of the locations where it has been recorded. The application area falls within the known range of the species. 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. The GHD report (2014) indicates that the proposed clearing will not directly impact on this species, and any potential indirect impacts are unlikely to be significant to the conservation of the species (Parks and Wildlife, 2015).

The vegetation types identified in the application area are considered to be representative of the nationally listed threatened ecological community 'Eucalypt Woodlands of Western Australian Wheatbelt' (WA Wheatbelt Woodlands). Review of the GHD reports (GHD, 2014 and 2015a) indicates that approximately six to seven hectares of the previously listed Priority 3 priority ecological community (PEC) 'Eucalypt Woodlands of the Western Australian Wheatbelt' occurs in the application area. It is understood that this PEC is the same ecological community as the nationally listed WA Wheatbelt Woodlands TEC, although it was not listed as critically endangered at the time the GHD reports were completed. Based on the descriptions of the vegetation present in the application area and photographs taken on site, it is likely the TEC occurs within the application area. However, the information required to accurately determine the presence of the TEC is not available based on the current GHD reports (GHD, 2014 and 2015a). Therefore an assessment against the key diagnostic factors is required to accurately determine the amount of hectares of this TEC that will be impacted by the proposed clearing (Parks and Wildlife, 2016). Considering the likelihood of the TEC occurring within the application area, it is likely that the proposed clearing will impact on this TEC. Given the TEC has been extensively cleared overall, any additional clearing of this TEC will impact on the community (Parks and Wildlife 2016).

Carnaby's cockatoo (*Calyptorhynchus latirostris*) is listed as endangered under the EPBC Act and as rare or likely to become extinct under the WC Act. The application area contains an estimated 35.59 (GHD, 2015a) hectares of foraging habitat for Carnaby's cockatoo, which includes 15.77 hectares of eucalypt woodlands and 19.82 hectares of scattered roadside eucalypt trees. The application area also contains an estimated 592 potential breeding trees (trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres. For salmon gum and wandoo, suitable DBH is 300 millimetres), of which at least 20 have hollows that provide nesting opportunities for Carnaby's cockatoo (GHD,

2014). In addition, one Carnaby's cockatoo roost site has been recorded within twelve kilometres of the application area. A site visit of the application area conducted by DER officers in December 2015 observed numerous potential breeding trees containing large hollows suitable for black cockatoo species (DER, 2015). Given the proximity of the proposed clearing to a known roost site, the foraging and breeding habitat within the application area, it is considered important for the long term protection of Carnaby's cockatoo. In addition, as the application area may provide suitable nest hollows for breeding the application is likely to contain critical habitat for Carnaby's cockatoo.

The red-tailed phascogale (*Phascogale calura*) inhabits wandoo (*Eucalyptus wandoo*) and sheoak (*Allocasuarina huegeliana*) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which they line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead sheoaks, skirts of live (or stumps of dead) grass trees (*Xanthorrhoea* spp.) (DEC 2012). The proposed clearing is likely to impact on 38.15 hectares of suitable habitat including potential breeding habitat (i.e. hollow bearing trees) for the red-tailed phascogale. It is considered that clearing of this habitat, in particular the potential breeding habitat is likely to result in a shortage of nesting resources and breeding hollows in the local area, thus reducing the availability of breeding habitat in the future for the red-tailed phascogale.

The local area (10 kilometre radius) has been highly cleared, retaining approximately eight per cent pre-European vegetation. In addition, all three of the mapped Beard vegetation associations (352, 947 and 1049) retain less than the recommended 30 per cent threshold level, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Therefore, the application area provides an important ecological linkage, facilitates landscape connectivity and contributes to fauna dispersal between larger isolated bushland fragments in an extensively cleared area.

On the basis that the application area contains priority flora and significant habitat for Carnaby's cockatoo and red-tailed phascogale, is likely to contain a critically endangered TEC, and occurs within an area that has been extensively cleared, it is considered that the vegetation under application comprises a high level of biodiversity.

Given the above, the proposed clearing is at variance to this principle.

To counterbalance the significant residual impacts the proposed clearing will have on the WA Wheatbelt Woodlands TEC, Carnaby's cockatoo and red-tailed phascogale an offset which consists of providing a monetary contribution towards the purchase of 261 hectares of land within the Shires of York, Beverley and Quairading. A suitable offset site will include vegetation in a very good (Keighery 1994) condition and underrepresented vegetation types (GHD 2015b).

Methodology

References:

Commonwealth of Australia (2001)
DEC (2012)
DER (2015)
GHD (2014)
GHD (2015a)
GHD (2015b)
Keighery (1994)
Parks and Wildlife (2015)
Parks and Wildlife (2016)

GIS Databases:

- SAC Bio datasets (December 2015)

(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

The vegetation under application is mapped as medium woodlands of wandoo (*Eucalyptus wandoo*), York gum (*Eucalyptus loxophleba*), salmon gum (*Eucalyptus salmonophloia*), morrell (*Eucalyptus longicomis*), gimlet (*Eucalyptus salubris*), powderbark wandoo (*Eucalyptus accedens*) and mallet (Shepherd et al, 2001) in excellent to degraded (Keighery, 1994) condition (DER, 2015). The application area provides an ecological linkage that is considered to facilitate landscape connectivity and contribute to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape that retains approximately eight per cent of its pre-European native vegetation cover.

A search of NatureMap recorded two species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* (WC Act) within a 20 kilometre radius of the application area, being; Carnaby's cockatoo (*Calyptorhynchus latirostris*) and red-tailed phascogale (*Phascogale calura*) (Parks and Wildlife, 2007-). The rainbow bee-eater (*Merops ornatus*) is protected under international agreement and has also been recorded within a 20 kilometre radius of the application area (Parks and Wildlife, 2007-).

GHD conducted a level 1 fauna survey over the application area and identified six fauna habitats:

- Eucalypt woodlands;

- Saline areas along drainage lines;
- Salt sheoak (*Casuarina obesa*) in lower lying areas;
- Mixed heathland;
- Scattered roadside trees; and
- Highly modified areas dominated by weeds (GHD, 2014).

Carnaby's cockatoo is listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Carnaby's cockatoo preferred habitat is remnant native eucalypt woodlands, especially those of salmon gum and wandoo, and in shrubland or kwongan heathland dominated by plants of the Proteaceae family. It also occurs in forests containing marri, jarrah, karri (*Eucalyptus diversicolor*) and tuart (*Eucalyptus gomphocephala*) (Parks and Wildlife, 2013). The Recovery Plan for the Carnaby's cockatoo notes that there are multiple reasons for the decline of Carnaby's cockatoo, however the decline to-date has primarily been brought about by the extensive clearing of nesting and feeding habitat. Loss of breeding habitat, together with feeding areas and watering sites within 12 kilometres of breeding sites is one of the key threatening processes contributing towards the decline of the species. In particular, the loss or degradation of feeding habitat adjacent to breeding sites is considered to pose the greatest risk to Carnaby's cockatoos (Parks and Wildlife 2013).

Carnaby's cockatoo feed on seeds, nuts and flowers of a large variety of plants including Proteaceous species (e.g. *Banksia*, *Dryandra* and *Grevillea* species), marri (*Corymbia calophylla*) nuts, and a range of introduced species, notably seeds from cones of *Pinus* spp. GHD estimated that the application area contains 35.59 hectares of foraging habitat for Carnaby's cockatoo, including 15.77 hectares of eucalypt woodlands and 19.82 hectares of scattered roadside eucalypt trees (GHD, 2015a).

Carnaby's cockatoo nests in large hollows in tall, living or dead eucalypts. It nests most commonly in smooth-barked wandoo and salmon gum, but birds have also been recorded breeding in red morrell, York gum, tuart, flooded gum (*Eucalyptus rudis*), swamp yate (*Eucalyptus occidentalis*), gimlet and marri, and are said to nest in any species of eucalypt with a suitable hollow (Parks and Wildlife, 2013). GHD identified that the application area also contains an estimated 592 potential breeding trees, of which at least 20 have hollows that provide nesting opportunities for Carnaby's cockatoo (GHD, 2014). Potential breeding trees are trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres. For salmon gum and wandoo, suitable DBH is 300 millimetres. In addition, one Carnaby's cockatoo roost site has been recorded within twelve kilometres of the application area. A site inspection conducted by DER officers in December 2015 confirmed the presence of numerous potential breeding trees containing large hollows suitable for black cockatoo species (DER, 2015).

Given the proximity to a known roost site, it is considered that the foraging and breeding habitat within the application area is important for the long term protection of Carnaby's cockatoo. In addition, as the vegetation under application may include suitable nest hollows for breeding, it is considered that the application area is likely to include critical habitat for Carnaby's cockatoo.

The red-tailed phascogale is listed as endangered under the EPBC Act. The red-tailed phascogale inhabits wandoo and sheoak (*Allocasuarina huegeliana*) woodland associations, with populations being most dense in the latter vegetation type. They show a preference for long unburnt habitat with a continuous canopy, as well as tree hollows. Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs, which they line with grass and feathers. Nest sites occur in highly flammable areas, and may often be in dead sheoaks, skirts of live (or stumps of dead) grass trees (*Xanthorrhoea* spp.) (DEC, 2012). GHD identified that the proposed clearing is likely to impact on 38.15 hectares of suitable habitat including potential breeding habitat (i.e. hollow bearing trees) for the red-tailed phascogale (GHD, 2015a). The clearing of this habitat, in particular the potential breeding habitat is likely to result in a shortage of nesting resources and breeding hollows in the local area, thus reducing the availability of breeding habitat in the future for the red-tailed phascogale.

Given that the vegetation under application includes suitable nesting and breeding habitat for the red-tailed phascogale, it is considered likely that the red-tailed phascogale occur within the application area and that the application area is likely to include significant habitat for the red-tailed phascogale.

The rainbow bee-eater occurs in numerous habitats including open forests and woodlands, shrublands, in cleared or semi-cleared habitats such as areas of human habitation and farmland. It prefers open, cleared or lightly-timbered areas that are often, but not always in close proximity to permanent water (DotE, 2015). The application area may include suitable habitat for this species given the vegetation type and its close proximity to watercourses, however noting the highly mobile nature of this species it is considered that the proposed clearing is unlikely to significantly impact upon the conservation status of this species.

On the basis that the application provides an important ecological linkage facilitating landscape connectivity and contributing to fauna dispersal between larger isolated bushland fragments in an extensively cleared area, and includes significant habitat for Carnaby's cockatoo and the red-tailed phascogale, it is considered that the vegetation under application comprises significant habitat for indigenous fauna.

Given the above, the proposed clearing is at variance to this principle.

To counterbalance the significant residual impacts the proposed clearing will have on Carnaby's cockatoo and red-tailed phascogale an offset which consists of providing a monetary contribution towards the purchase of

261 hectares of land within the Shires of York, Beverley and Quairading. A suitable offset site will include vegetation in a very good (Keighery 1994) condition and underrepresented vegetation types (GHD 2015b).

Methodology References:
DEC (2012)
DER (2015)
DotE (2015)
GHD (2014)
GHD (2015a)
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2013)
Shepherd et al (2001)

GIS Databases:
- SAC Bio datasets (December 2015)

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

Comments **Proposed clearing may be at variance to this Principle**
According to available databases, 13 rare flora species have been recorded within a 10 kilometre radius of the application area. One of these, being *Thomasia glabripetala*, occurs within similar vegetation and soil types as found within the application area.

A flora survey undertaken by GHD (2014) in September 2014 did not identify any rare flora species within the area and timing was acceptable for identification of the majority of conservation significant flora in the local area. However, from the information provided in the GHD reports (GHD, 2014 and 2015a), it is unclear whether targeted searches for all conservation significant flora known to occur in the local area were undertaken over the entire application area (Parks and Wildlife, 2015).

The GHD (2015a) report indicates that additional areas that were outside of the Study Area surveyed during September 2014 were assessed in July 2015. The timing of this additional assessment would not have been suitable for the identification of many conservation significant taxa. The GHD (2015a) report also indicates only conservation significant flora observed opportunistically during the vegetation mapping were recorded. It is unclear where the additional areas assessed in July 2015 are located and whether these areas would support conservation significant flora. In addition, the GHD (2015a) report advises that additional areas located on private land were not accessed for survey.

Based on the supporting information provided, it appears that surveys for conservation significant flora have not been conducted for the whole of the application area (Parks and Wildlife, 2015).

On the basis that rare flora have been recorded within 10 kilometres of the application area, including one species from a similar habitat as found within the application area, and noting that the application area contains vegetation in excellent (Keighery, 1994) condition and does not appear to have been fully surveyed, it is considered that the vegetation under application may include rare flora.

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

Methodology References:
GHD (2014)
GHD (2015a)
Keighery (1994)
Parks and Wildlife (2015)

(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 at variance to this Principle**
According to available databases, the application area is located within the mapped area within which the nationally listed threatened ecological community (TEC) 'Eucalypt Woodlands of Western Australian Wheatbelt' (WA Wheatbelt Woodlands) is located.

The WA Wheatbelt Woodlands was listed as a critically endangered TEC under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 4 December 2015. The TEC is defined as eucalypt woodlands that formerly were the most common type of vegetation across the wheatbelt landscape of south-western WA, i.e. inland between the Darling Range and western edge of the goldfields. The WA Wheatbelt Woodlands TEC is dominated by a complex mosaic of eucalypt species with a tree or mallet form over an understorey that is highly variable in structure and composition.

The WA Wheatbelt Woodlands TEC is endemic to south-western WA. It occupies a transitional zone between the wetter forests associated with the Darling Range and the southwest coast, and the low woodlands, mallee

and shrublands of the semi-arid to arid interior. The TEC is generally associated with the flatter, undulating relief, including drainage lines and saline areas. It does not typically occur on granite outcrops or hills of lateritic gravel but may extend to the base of outcrops, where they are replaced by non-eucalypt woodlands or shrublands (TSSC, 2015).

The WA Wheatbelt Woodlands TEC occurs in one of the most intensively cleared regions of Australia. Those woodland patches that remain are typically small, highly fragmented and have been disturbed to some extent. Table 3 of the EPBC Act approved conservation advice (including listing advice) for the WA Wheatbelt Woodlands TEC (TSSC, 2015) indicates the condition thresholds for the TEC, and describes key diagnostic factors including structure, remnant size, composition and condition factors to determine if the TEC is present. An assessment against these key diagnostic factors is required to accurately determine the extent of the TEC present within the application area (Parks and Wildlife, 2016).

Review of the GHD reports (GHD, 2014 and 2015a), indicates that approximately six to seven hectares of a Priority 3 priority ecological community (PEC) 'Eucalypt Woodlands of the Western Australian Wheatbelt' occurs in the application area. It is understood that this PEC is the same ecological community as the nationally listed WA Wheatbelt Woodlands TEC, although it was not listed as critically endangered at the time the GHD reports were completed.

Based on the descriptions of the vegetation present in the application area and photographs taken on site, it is considered likely that the WA Wheatbelt Woodlands TEC occurs within the application area. However, the information required to accurately determine the presence of the TEC is not available in the GHD (2014 and 2015a) reports. Therefore an assessment against the key diagnostic factors is required to accurately determine the extent of the TEC impacted by the proposed clearing (Parks and Wildlife, 2016).

Considering the likelihood of the WA Wheatbelt Woodlands TEC occurring in the application area, and noting condition of the vegetation under application and that this TEC has been extensively cleared overall, any additional clearing will impact on the community (Parks and Wildlife 2016).

Given the above, the proposed clearing is at variance to this principle.

To counterbalance the significant residual impacts the proposed clearing will have on the WA Wheatbelt Woodlands TEC an offset which consists of providing a monetary contribution towards the purchase of 261 hectares of land within the Shires of York, Beverley and Quairading. A suitable offset site will include vegetation in a very good (Keighery 1994) condition and underrepresented vegetation types (GHD 2015b).

Methodology

References:

GHD (2014)
GHD (2015a)
Parks and Wildlife (2016)
TSSC (2015)

GIS Databases:

- SAC Bio datasets (December 2015)

(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 at variance to this Principle

The application area is located within the Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 19 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2014).

The application area is mapped as Beard vegetation associations 352, 947 and 1049. These vegetation associations have approximately 17, 12 and 12 per cent respectively of their pre-European extents remaining within the Avon Wheatbelt IBRA bioregion (Government of Western Australia 2014).

The Shire of Beverley, Shire of Quairading and Shire of York and the Shire of Wongan-Ballidu retain approximately 36, nine and 36 per cent respectively of their pre-European extents of native vegetation cover.

Digital aerial imagery indicates that the local area (10 kilometre radius) retains approximately eight per cent of its pre-European native vegetation cover.

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). Noting that the remaining extents of the mapped Beard vegetation associations and vegetation cover within the Avon Wheatbelt IBRA Bioregion, the local area and the Shire of Quairading are less than the threshold of 30 per cent, it is considered that the vegetation under application is located within an extensively cleared area.

The application area provides an ecological linkage that is considered to facilitate landscape connectivity and contribute to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape

that retains approximately eight per cent of its pre-European native vegetation cover. The vegetation under application includes significant habitat for Carnaby's cockatoo and the red-tailed phascogale, and is located within the mapped boundary of a nationally listed threatened ecological community. On this basis the vegetation under application is also considered to be significant as a remnant.

Given the above, the proposed clearing is at variance to this principle.

To counterbalance the significant residual impacts the proposed clearing will have on the WA Wheatbelt Woodlands TEC, Carnaby's cockatoo and red-tailed phascogale an offset which consists of providing a monetary contribution towards the purchase of 261 hectares of land within the Shires of York, Beverley and Quairading. A suitable offset site will include vegetation in a very good (Keighery 1994) condition and underrepresented vegetation types (GHD 2015b).

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Avon Wheatbelt	9,517,110	1,765,881	19	10
Local government*				
Shire of Beverley	236,907	84,450	36	72
Shire of Quairading	201,651	18,905	9	8
Shire of York	213,260	76,102	36	66
Beard Vegetation Association				
352	630,582	109,441	17	9
947	34,017	11,769	12	41
1049	833,385	56,052	12	6

Methodology References:
Commonwealth of Australia (2001)
*Government of Western Australia (2014)

GIS Databases:
- Pre-European vegetation
- 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 at variance to this Principle

The Mackie River intersects York Merredin Road at one location within the application area. There are also approximately 20 minor non-perennial watercourses that intersect the application area.

GHD (2015a) advised that 0.64 hectares of native vegetation within the application area is associated with drainage lines, comprising samphire shrublands with *Juncus* sedgelands with salt sheoak and York gum. A total of 2.56 hectares of salt sheoak woodland occurs within the application area. The applicant advised that the proposed clearing of riparian vegetation will be undertaken in accordance with a 'bed and banks' permit under the *Rights in Water and Irrigation Act 1914* (RIWI Act), and is of the view that the proposed clearing of riparian vegetation is therefore exempt from the requirement for a clearing permit pursuant to Regulation 5, Item 16 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, being clearing that is the result of carrying out works under a permit or other approval under, or referred to in, section 11, 16, 17 and 21A of the RIWI Act.

Based on the presence of watercourses and associated vegetation within the application area, it is considered that the application area includes vegetation that is growing in, or in association with, a watercourse or wetland.

Given the above, the proposed clearing is at variance to this principle.

Although riparian vegetation is located within the application area its removal is not likely to impact on the environmental values of the associated watercourses.

Methodology References:
GHD (2015a)

GIS Databases:
- Hydrography, linear

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

Comments

Proposed clearing may be at variance to this Principle

The soils within the application area have been mapped by Northcote et al (1960-68) as soil types Va63, Uf1, and Oc30. These soil types are described as:

- Va63: Valley plains and terraces. Chief soils are hard alkaline yellow mottled soils. Associated are small areas of a range of soils including, and (Dr5.8) and (Dy5.8), both containing laterite or large amounts of ironstone gravels.
- Uf1: Undulating terrain with ridges, spurs, and lateritic mesas and buttes. Chief soils on the broad undulating ridges and spurs are hard, and also sandy, neutral, and also acidic, yellow mottled soils. Associated are a variety of soils on the shorter pediment slopes, and dissection products of the lateritic mesas and buttes.
- Oc30: River terraces. Chief soils are hard alkaline red soils.

Land degradation mapping indicates that small sections of the application area fall within the category for high to extreme wind erosion risk. Given the linear nature of the clearing and only a small proportion of the application area is mapped with a high risk of land degradation, the proposed clearing is unlikely to result in appreciable land degradation in the form of wind erosion.

The clearing of native vegetation in the wheatbelt region and its replacement with shallow rooted, annual cropping species has resulted in a rise in salinity and associated land degradation (DoW, 2005). Groundwater salinity mapped within application area is 14,000-35,000 milligrams per litre of total dissolved salts which is considered highly saline. Land degradation mapping also indicates a moderate to high salinity risk or presently saline (DAFWA, 2015) within small sections of the application area. Given this and that the local area is extensively cleared (92 per cent), additional clearing has the potential to increase land degradation in the form of salinity.

Although the application area is of a linear nature, small sections of the application area are mapped as moderate to high salinity risk or presently saline. Noting the proposed clearing is located within an extensively cleared area it may contribute to an increase in salinity and may cause appreciable land degradation.

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

Methodology

References:

DAFWA (2015)
DoW (2005)
Northcote et al (1960-68)

GIS Databases:

- Soils, statewide
- Salinity Risk

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

Comments

Proposed clearing may be at variance to this Principle

The application area is adjacent to an unnamed Nature Reserve 46074, and Crown Reserves 22961 and 2570 (without management orders), 15812 (Landscape protection) and 37147 (Parklands). The proposed clearing may impact adjacent conservation areas through the introduction and spread of weeds.

The application area provides an ecological linkage that is considered to facilitate landscape connectivity and contribute to fauna dispersal between larger isolated bushland fragments in an extensively cleared landscape that retains approximately eight per cent of its pre-European native vegetation cover. The vegetation under application is likely to act as ecological linkage for fauna into adjacent conservation reserves.

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

Weed management measures will mitigate the impacts of the introduction and spread of weeds.

Methodology

GIS Databases:

- Parks and Wildlife Tenure (Statewide)

(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

The clearing of native vegetation in the Wheatbelt region and its replacement with shallow rooted, annual cropping species has resulted in a reduction in water use by vegetation (evapotranspiration) (DoW, 2005). This has in turn caused a rise in watertables and mobilisation of salt previously stored deep within the soil profile (DoW, 2005).

The closest watercourse to the proposed clearing is the Mackie River, which intersects York Merredin Road at one location within the application area. There are also approximately 20 minor, non-perennial watercourses that intersect the application area.

GHD (2015a) advised that 0.64 hectares of native vegetation associated with drainage lines occurs throughout the project area, comprising samphire shrublands with *Juncus* sedgelands with salt sheoak and York gum. A total of 2.56 hectares of salt sheoak woodland occurs within the application area. The applicant advised that the proposed clearing of riparian vegetation will be undertaken in accordance with a 'bed and banks' permit under the *Rights in Water and Irrigation Act 1914*, and is of the view that the proposed clearing of riparian vegetation is therefore exempt from the requirement for a clearing permit pursuant to Regulation 5, Item 16 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

The proposed clearing is unlikely to impact surface water as there are already culverts in place and additional clearing of watercourses is unlikely to be necessary.

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

Methodology References:
DoW (2005)
GHD (2015a)

GIS Databases:
- Hydrography, linear
- Groundwater Salinity
- Pre-European vegetation

(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**

The application area is located in a low rainfall area, where the average rainfall is 400 millimetres per year.

Based on the low rainfall and the linear nature of the clearing, it is considered that the proposed clearing is unlikely 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:
- Hydrography, linear

Planning instruments and other relevant matters.

Comments The proposed clearing of 38.85 hectares is for the purpose of widening York Merredin Road between SLK 1.95 to SLK 51.

This clearing permit application was received by the Department of Environment Regulation on 8 September 2015 and was formally accepted on 10 November 2015.

The application area is located within the Avon River Surface Water Area which is an area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The applicant holds a current Permit to Obstruct or Interfere issued under the RIWI Act. This permit authorises the modification of drainage features by upgrading existing culverts and installing new ones, where required, to facilitate the widening and realignment of York Merredin Road SLK 1.95 to 51.

The total clearing associated with this project is 38.85 hectares, including approximately 0.64 hectares of riparian vegetation. The proposed clearing of riparian vegetation was not included in the application as the applicant is of the view that it is exempt from the requirement for a clearing permit pursuant to Regulation 5, Item 16 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, being clearing that is the result of carrying out works under a permit or other approval under, or referred to in, section 11, 16, 17 and 21A of the RIWI Act.

The application area intersects two Aboriginal Sites of Significance: Swan River and Jacobs Well. It is the applicant's responsibility to ensure that these sites are not disturbed during the clearing process.

This application was advertised for public comment in *The West Australian* newspaper on 9 November 2015 with a 21 day submission period. Three public submissions were received in relation to this project, raising concerns regarding impacts to significant habitat for Carnaby's cockatoo and red-tailed phascogale; the adequacy of the Level 1 flora and vegetation survey; and significant environmental impacts that cannot be counterbalanced by an offset. These concerns have been addressed in clearing principles (a), (b), (c), and (e). On 18 December 2015 DER wrote to the applicant, requesting a response to the submissions. On 1 February 2016 the applicant provided a response to the public submissions, which is available to view online at ftp.dec.wa.gov.au/Permit (reference CPS 6800/1).

Direct interest emails were sent to the Shires of Beverley, Quairading and York on 10 and 11 November 2015. To date, no response has been received from any Shire.

Methodology References:
GHD (2015a)
MRWA (2015)

GIS Databases:
- Aboriginal Sites of Significance
- RIWI Areas

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