GOVERNMENT OF WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 7103/1
File Number: DER2016/000862-1
Duration of Permit: From 24 September 2016 to 24 September 2018

PERMIT HOLDERS

Mrs Audrey Francis Robins
Mr Eric Mepham

LAND ON WHICH CLEARING IS TO BE DONE

Lot 1820 on Deposited Plan 122746, Catterick

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 7.83 hectares of native vegetation within the area cross hatched yellow on attached Plan 7103/1.

CONDITIONS

1. **Fauna management**
   The Permit Holder shall retain *habitat trees* found within the area cross hatched yellow on attached Plan 7103/1.

2. **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 clearing 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.

DEFINITIONS

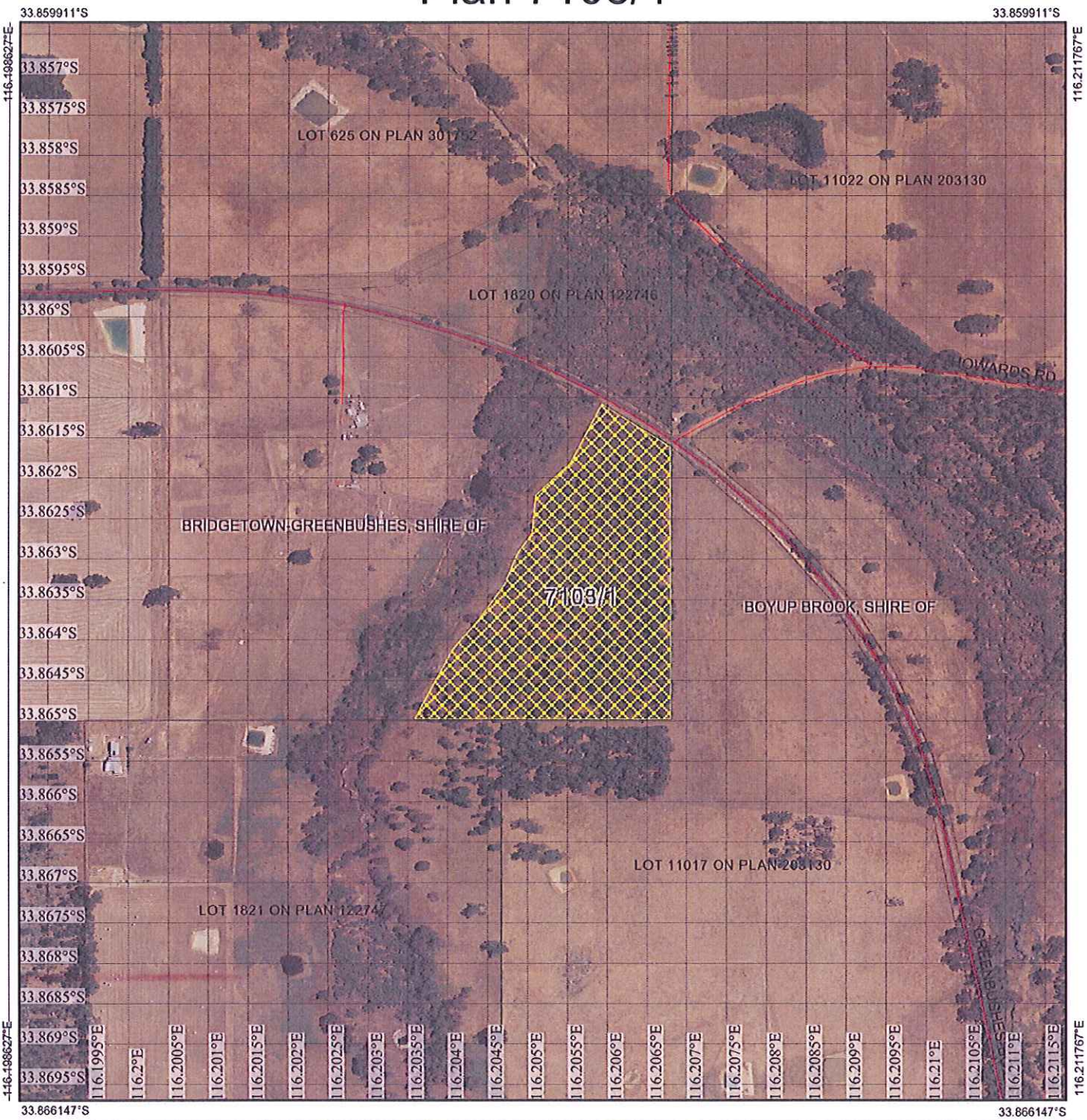
The following meanings are given to terms used in this Permit:
dieback means the effect of *Phytophthora* species on native vegetation;
fill means material used to increase the ground level, or fill a hollow;
habitat tree(s): means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 500 millimetres 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; and
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.

JAMES WISEMAN
MANAGER
CLEARING REGULATION

Officer delegated under section 20
of the Environmental Protection Act 1986

25 August 2016

Plan 7103/1



Legend

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

N

0 200m

1:6,440

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 25/8/16.

James Widenbar

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

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Environment Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 7103/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mr Eric Mepham
Mrs Audrey Mepham (Robins)

1.3. Property details

Property: LOT 1820 ON PLAN 122746, CATTERICK
Local Government Authority: BRIDGETOWN-GREENBUSHES, SHIRE OF
DER Region: Greater Swan
DPaW District: BLACKWOOD
Localities: CATTERICK

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
7.83	0	Mechanical Removal	Grazing & pasture

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 25 August 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*, and has concluded that the proposed clearing may be at variance to Principles (b), (g) and (i) and is not likely to be at variance to the remaining clearing principles.

The Delegated Officer determined that the application area contains jarrah and marri trees with hollows that may provide suitable habitat for, and be utilised by, the southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*). To minimise impacts to this species, the clearing permit will include a condition requiring the Permit Holder to retain trees (habitat trees) with a diameter at breast height of greater than 500 millimetres.

The Delegated Officer determined that the proposed clearing will lead to increased groundwater recharge, which has the potential to be expressed as salinity down gradient. The above-mentioned requirement to retain habitat trees will assist in minimising groundwater recharge and the associated downgradient expression of salinity.

State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Mattiske vegetation CC1 complex consists of open forest of *Eucalyptus marginata* (jarrah) and *Corymbia calophylla* (marri) mixed with *Eucalyptus patens* on slopes, and *Eucalyptus rudis* and *Banksia littoralis* on valley floors in the humid zone (Mattiske and Havel, 1998). Mattiske vegetation D1 complex consists of open forest of *Eucalyptus marginata* and *Corymbia calophylla* on lateritic uplands in mainly humid and subhumid zones (Mattiske and Havel, 1998).	The applicant proposes to clear 7.83 hectares of native vegetation within Lot 1820 on Deposited Plan 122746, Catterick, for the purpose of creating paddocks for grazing.	Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). To Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation condition and description was determined via a site inspection undertaken by officers of the Department of Environment Regulation (DER, 2016). The application area largely comprises mixed open regrowth woodland of jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*), with jarrah the dominant overstorey species.

Beard vegetation association 3 is described as medium forest comprising jarrah and marri (Shepherd et al., 2001).

The midstorey is dominated by *Xanthorrhoea preissii*, with areas of *Macrozamia riedlei* and *Hakea* sp., over a mixture of native understorey species. Exotic grasses occur within the recently cleared portion and encroach all boundaries of the application area (DER, 2016).

3. Assessment of application against clearing principles

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

Comments

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

The applicant proposes to clear 7.83 hectares of native vegetation within Lot 1820 on Deposited Plan 122746, Catterick, for the purpose of creating paddocks for grazing.

A site inspection identified that the application area has been historically cleared and livestock grazing appears to have occurred throughout the majority of the area (DER, 2016). Despite the historical disturbance, portions of the application area have regrown to a good (Keighery, 1994) condition (DER, 2016). The vegetation in a good (Keighery, 1994) condition is largely within the northern half of the application area, with the southern half in a degraded (Keighery, 1994) condition (DER, 2016). The southern portion has been subject to recent clearing activities and an investigation into this clearing in the absence of a clearing permit is currently being undertaken by DER. This area would likely have been in a good (Keighery, 1994) condition prior to the recent clearing.

A site inspection identified that the application area comprises mixed open regrowth woodland of jarrah and marri, with jarrah the dominant overstorey species (DER, 2016). The midstorey is dominated by *Xanthorrhoea preissii*, with areas of *Macrozamia riedlei* and *Hakea* sp., over a mixture of native understorey species. Exotic grasses occur within the recently cleared portion and also encroach all boundaries of the application area (DER, 2016). The soils comprise loamy gravels and duplex sandy gravels (Commissioner of Soil and Land Conservation (CSLC) 2016), and the topography slopes downwards from east to west. There is a small gully and a minor watercourse that occurs approximately 50 metres west of the application area (DER, 2016).

According to available datasets, there are no known threatened or priority ecological communities, or rare flora records mapped within the local area (10 kilometre radius).

Two priority flora species, *Acacia parkerae* (Priority 3) and *Grevillea ripicola* (Priority 4), have been recorded within the local area. These species have been recorded approximately five kilometres north east and 5.7 kilometres south west of the application area respectively. 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 presence of nearby remnant vegetation in the same or better condition, the proposed clearing is not likely to impact on the conservation status of any Priority 3 or Priority 4 flora species.

The application area contains jarrah and marri trees with a diameter at breast height of greater than 500 millimetres, whereby some of these trees contain small hollows and may provide suitable habitat for the southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*) (DER, 2016). The requirement to retain trees with a diameter at breast height of greater than 500 millimetres will help to minimise potential impacts to this species.

The hollows identified are not considered to be of a suitable size to provide breeding habitat for the forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*) or Carnaby's cockatoo (*Calyptorhynchus latirostris*) (collectively known as black cockatoos). A site inspection identified that the application area provides suitable foraging habitat for black cockatoos (DER, 2016), however given the presence of nearby remnant vegetation in the same or better condition, the application area is considered unlikely to provide significant foraging habitat for black cockatoos.

The proposed clearing will increase the risk of weeds and dieback spreading into adjacent vegetated areas. Weed and dieback management practices will assist in mitigating this risk.

Given that there are no rare or priority flora or threatened or priority ecological communities mapped within the application area, and presence of nearby remnant vegetation in the same or better condition, it is considered unlikely that the application area provides a high level of biological diversity.

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

Methodology

References:
CSLC (2016)
DER (2016)
Keighery (1994)

GIS Databases:
SAC Bio Datasets (Accessed August 2016)

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposed clearing may be at variance to this Principle

There are records of six fauna species classified as rare or likely to become extinct under the *Wildlife Conservation Act 1950* within the local area, these being, the forest red-tailed black cockatoo, Baudin's cockatoo, Carnaby's cockatoo, chuditch (*Dasyurus geoffroii*), bilby (*Macrotis lagotis*), and southern brush-tailed phascogale (Department of Parks and Wildlife (Parks and Wildlife), 2007-).

Black cockatoos forage on the seeds, nuts and flowers of a large variety of plants including proteaceous species (banksia, hakea, grevillea), as well as allocasuarina and eucalyptus species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008).

A site inspection identified that the application area comprises mixed open regrowth woodland of jarrah and marri, with jarrah the dominant overstorey species (DER, 2016). The midstorey is dominated by *Xanthorrhoea preissii*, with areas of *Macrozamia riedlei* and *Hakea* sp., over a mixture of native understorey species (DER, 2016). Therefore, the application area contains suitable foraging habitat for black cockatoos. However, given the presence of extensive areas of nearby remnant vegetation that has undergone lesser disturbance, such as Wilga State Forest (located 2.3 kilometres north) which covers an area of approximately 54,432 hectares, the application area is unlikely to provide significant foraging habitat for black cockatoos

Black cockatoo breeding habitat is defined as 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. Some of the jarrah and marri trees within the application area contain small hollows, and while these hollows may contain suitable habitat for small arboreal fauna, they are not considered to be of a suitable size to provide suitable breeding habitat for black cockatoos.

The southern brush-tailed phascogale has been recorded twice in the local area. In southwest Western Australia the brush-tailed phascogale has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees (DEC 2012). The application area contains several trees with hollows that provide suitable habitat for, and may be utilised by, the southern brush-tailed phascogale. The requirement to retain trees with a diameter at breast height of greater than 500 millimetres will help to minimise potential impacts to this species.

Chuditch have a preference for eucalypt forest (especially *Eucalyptus marginata*), dry woodland and mallee shrublands and utilise horizontal hollow logs or earth burrows as dens or refuge. To be suitable as den sites, logs must have a diameter of at least 30 centimetres but usually greater than 50 centimetres, a hollow diameter of 7 to 20 centimetres and are generally one metre long (DotE, 2014a). A site inspection of the application area identified few scattered horizontal hollow logs, and the chuditch is unlikely to utilise the application area in favor of the extensive vegetation within the nearby Wilga State Forest and Hester Conservation Park, which is located 2.6 kilometers south west of the application area.

The application area is outside of the present known distribution of the bilby, and the single bilby record within the local area was taken in 1932. This species is not likely to have persisted within the landscape and the proposed clearing is not likely to impact on this species.

The closest mapped ecological linkage to the application area is approximately 3.9 kilometres south west. Given the distance and lack of connectivity between this mapped linkage and the application area, the proposed clearing is not likely to impact on the values of this linkage.

The application area contains trees with hollows that provide suitable habitat for, and may be utilised by, the southern brush-tailed phascogale. Therefore, the proposed clearing may be at variance to this Principle. To minimise impacts to this species, the applicant will be required to retain trees with a diameter at breast height of greater than 500 millimetres.

Methodology

References:
Commonwealth of Australia (2012)
DEC (2012)
DER (2016)
DotE (2014)
Parks and Wildlife (2007-)
Valentine and Stock (2008)

GIS Databases:
Parks and Wildlife Tenure

(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 datasets, there are no rare flora records within the local area. The closest rare flora is located approximately 19 kilometres west of the application area. This species is a tuberous, perennial herb that grows from 0.2 to 0.4 metres high on sandy loam within winter-wet flats, creeklines and on the margins of lakes (Western Australian Herbarium, 1998-).

A site inspection identified the application area to be on sloping topography that is not considered to be winter wet (DER, 2016). There is a buffer of approximately 50 metres maintained between the application area and a minor perennial watercourse (creekline) within the property, and the application area is unlikely to provide suitable habitat for this species.

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

Methodology

References:
DER (2016)
Western Australian Herbarium (1998-)

GIS Databases:
SAC Bio Datasets (Accessed August 2016)

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

Comments

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

According to available datasets, there are no threatened ecological communities (TEC's) mapped within the local area. The closest TEC to the application area is the 'shrublands on southern Swan Coastal Plain Ironstones (Busselton Area)' located approximately 71 kilometres north west.

A site inspection of the application area identified mixed open regrowth woodland of jarrah and marri, with jarrah the dominant overstorey species (DER, 2016). This vegetation type is not considered to be representative of the above-mentioned TEC, therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

References:
DER (2016)

GIS Databases:
SAC Bio Datasets (Accessed August 2016)

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

Comments

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

The application area occurs within the Jarrah Forest Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 54 per cent of its pre-European vegetation extent (Government of Western Australia, 2015). The Shire of Bridgetown-Greenbushes also retains approximately 54 per cent of its pre-European vegetation extent, and the local area (10 kilometre radius) retains approximately 40 per cent native vegetation.

The application area is mapped as Beard vegetation association 3 and Mattiske vegetation complexes D1 and CC1, which retain approximately 68, 87 and 62 per cent of their pre-European vegetation extents within the IBRA bioregion respectively (Government of Western Australia 2015).

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). None of the remnant vegetation extents outlined above are below the 30 per cent threshold.

Given the above, the application area is not considered to be within an extensively cleared area, and given the extent of nearby native vegetation in conservation estate, and absence of mapped rare and priority flora and threatened and priority ecological community records, the application area is considered unlikely to be a significant remnant.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks & Wildlife Managed Lands (%)
IBRA Bioregion*				
Jarrah Forest	4,506,660	2,425,551	54	69
Shire*				
Bridgetown-Greenbushes, Shire of	133,759	72,693	54	84
Beard Vegetation Association in Bioregion*				
3	2,390,591	1,613,658	68	81
Mattiske Vegetation Complex ***				
D1	208,515	181,201	87	82
CC1	27,385	16,857	62	55

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

GIS Databases:
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

The closest mapped wetland or watercourse to the application area is a minor perennial watercourse located approximately 50 metres west. A minor river called Hester Brook occurs approximately 130 metres north east of the application area.

A site inspection identified wetland species including *Eucalyptus rudis* growing in association with the minor watercourse (DER, 2016), however no riparian species were identified within the application area, which comprises mixed open regrowth woodland of jarrah and marri (DER, 2016).

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

Methodology References:
DER (2016)

GIS Databases:
Hydrography, linear
Hydrography, hierarchy

(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 application area has been mapped at a regional scale by the Department of Food and Agriculture Western Australia (DAFWA) and is shown to comprise two soil landscape map units, being, Pindalup downstream valleys phase (Map Unit 255DpPNd) and Dwellingup subsystem (Map Unit 255DpDW).

Map Unit 255DpPNd is comprised of shallow minor valleys (5 to 10 metres) dominated by broad swampy floors. The soils comprise loamy gravels and deep sands with saline and non-saline wet soils on the valley floors (CSLC, 2016).

Map Unit 255DpDW is comprised of broad undulating lateritic divides, lower to upper slopes and hillcrests on deeply weathered mantle over granitic rocks in the southern Darling Plateau between the Murray and Blackwood Rivers. The soils comprise duplex sandy gravels and loamy gravels with pockets of deep sands, often gravelly, and minor shallow gravels (CSLC, 2016).

A Land Degradation Assessment undertaken by DAFWA identified that the application area is in the transition zone of, and is influenced by, both map units, with Map Unit 255DpDW the best represented. The application area has a moderate to high capability rating for the proposed grazing land use (CSLC, 2016).

The Land Degradation Assessment identified that the risk of eutrophication, water erosion, waterlogging and flooding is low. It was noted that map unit 255 DpPNd is recognised as being prone to salinity (24 per cent currently saline), however no salinity was observed within or immediately surrounding the application area (CSLC, 2016).

The proposed clearing will lead to increased groundwater recharge, which has the potential to be expressed as salinity downgradient. Management measures such as the requirement to retain large trees (diameter at breast height of greater than 500 millimetres), will assist in minimising groundwater recharge and the associated downgradient expression of salinity.

The proposed clearing may be at variance to this Principle.

Methodology References:
CSLC (2016)

GIS Databases:
Groundwater Salinity, Statewide

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
The closest conservation area to the application area is Wilga State Forest located approximately 2.3 kilometres north east. The next closest conservation area is Hester Conservation Park located approximately 2.4 kilometres south west of the application area.

Given the distance and lack of connectivity between the application area and these conservation areas, the proposed clearing is not likely to impact on the environmental values of these areas and the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Databases:
Parks and Wildlife Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposed clearing may be at variance to this Principle**
The closest mapped wetland or watercourse to the application area is a minor perennial watercourse located approximately 50 metres west. A minor river called Hester Brook occurs approximately 130 metres north east of the application area.

A Land Degradation Assessment undertaken by DAFWA identified that the risk of water erosion and waterlogging is low (CSLC, 2016).

The topography of the application area slopes towards the minor perennial watercourse from east to west, and the proposed clearing may result in some short term sedimentation of this watercourse, prior to the cultivation of pasture for stock. However, the application area has been previously grazed, and with the maintenance of pasture grasses, it is expected that the impact of sedimentation will be minimal.

A portion of the application area is mapped as Map unit 255 DpPNd, which is recognised as being prone to salinity (24 per cent currently saline) (CSLC, 2016).

The proposed clearing will lead to increased groundwater recharge, which has the potential to be expressed as salinity downgradient, and may potentially result in the deterioration of surface water at the site of expression. Management measures such as the requirement to retain large trees (diameter at breast height of greater than 500 millimetres), will assist in minimising groundwater recharge and the associated downgradient expression of salinity.

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

Methodology References:
CSLC (2016)
DER (2016)

GIS Databases:
Groundwater Salinity, Statewide
Hydrography, linear
Hydrography, hierarchy

(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 closest wetland or watercourse to the application area is a minor watercourse located approximately 50 metres west.

A land degradation assessment undertaken by DAFWA identified that the risk of flooding causing land degradation as a result of the proposed clearing is low (CSLC, 2016).

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

Methodology References:
CSLC (2016)

GIS Databases:
Hydrography, linear

Planning instruments and other relevant matters.

Comments The application area is zoned 'Rural 1 – Extensive Farming' under the town planning scheme.

The Shire of Bridgetown-Greenbushes (2016) (the Shire) has advised that while it supports improvements to grazing land, its preference would be to retain any significant remnant understorey and mature habitat trees where practical. The Shire advocates the protection of any creekline vegetation and possible installation of fencing to prevent access by stock.

The applicant will be required to retain trees (habitat trees) with a diameter at breast height of greater than 500 millimetres and a buffer of approximately 50 metres has been maintained to the minor perennial watercourse west of the application area.

The clearing permit application was advertised in *The West Australian* newspaper on 27 June 2016 for a 21 day submission period. No public submissions have been received.

There are no Aboriginal Sites of Significance mapped within the application area.

The southern portion of the application area has been subject to recent clearing activities and an investigation into this clearing in the absence of a clearing permit is currently being undertaken by DER. This matter will be dealt with separately to the clearing permit application.

Methodology Reference:
Shire of Bridgetown-Greenbushes (2016)

GIS Databases:
Town Planning Scheme
Aboriginal Sites of Significance

4. References

Commissioner of Soil and Land Conservation (2016); Land Degradation Advice and Assessment Report for clearing permit application CPS 7103/1 received 27 July 2016; Department of Agriculture and Food Western Australia (DER Ref A1140152).

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, Canberra.

Department of Environment Conservation (2012) Fauna Profile: Brush-tailed Phascogale (*Phascogale tapoatafa*). Department of Environment Conservation, Western Australia.

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Department of Parks and Wildlife (2015) 2015 South West Forest and Swan Coastal Plain Vegetation Complex Statistics: a report prepared for the Department of Environment Regulation. Current as of March 2015. Department of Parks and Wildlife, Perth, Western Australia.

Government of Western Australia (2015) 2015 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2015. WA Department of Parks and Wildlife, Perth.

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

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

Shire of Bridgetown-Greenbushes (2016) Direct Interest Advice received for Clearing Permit Application CPS 7103/1, received 6 July 2016 (DER Ref A1125788).

Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.

Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. http://florabase.dpaw.wa.gov.au/ (Accessed August 2016).