GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 5678/1
File Number: 2013/003851
Duration of Permit: 12 October 2013 to 12 October 2015

PERMIT HOLDER

Dennis Gordon Bedford

LAND ON WHICH CLEARING IS TO BE DONE

Lot 25 on Plan 20942, Brookhampton

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 17.4 hectares of native vegetation within the areas cross hatched yellow on attached Plan 5678/1.

CONDITIONS

1. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

2. Fauna management

The Permit Holder shall not clear within 10 metres of *Black Cockatoo habitat trees* found within the areas cross hatched yellow on attached Plan 5678/1.

DEFINITIONS

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

black cockatoo habitat tree(s): means trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater.

dieback means the effect of *Phytophthora* species on native vegetation;

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;

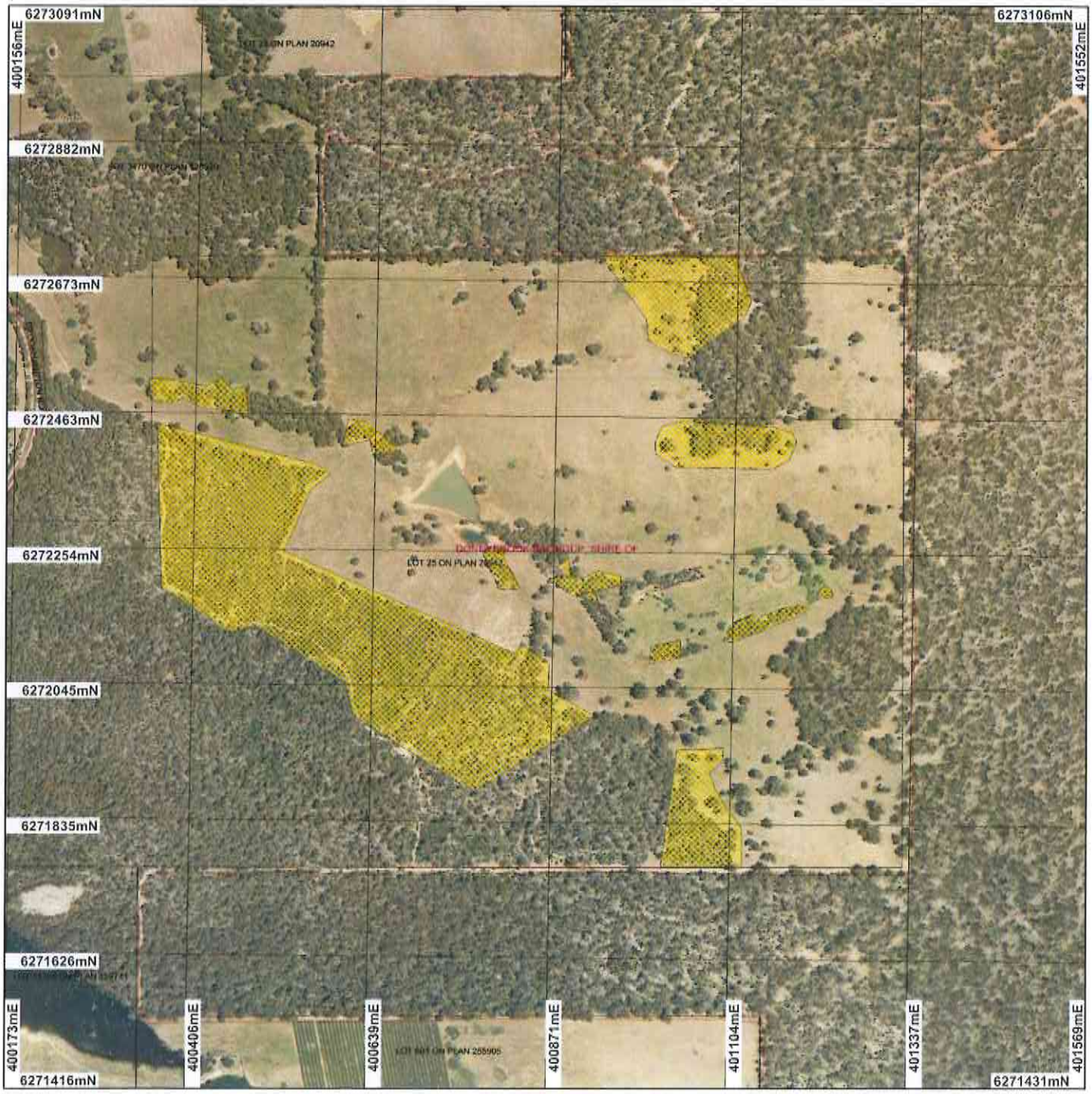
weed/s means any plant -

(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
(b) published in the former Department of Environment and Conservation Regional Weed Assessments, regardless of ranking; or
(c) not indigenous to the area concerned.

M Warnock
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH
Officer delegated under Section 20
of the Environmental Protection Act 1986

12 September 2013

Plan 5678/1



LEGEND

Road Centrelines
Cadastre
Local Government Authorities
Clearing Instruments

Areas Approved to Clear

Donnybrook 50cm Orthomosaic - Landgate 2004

N

0 200 m

Scale 1:7945
(Approximate when reproduced at Letter)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

M.Warnock

Date 12/9/13

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

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.

Government of Western Australia
Department of Environment Regulation

* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.

Clearing Permit Decision Report

Government of Western Australia
Department of Environment Regulation

1. Application details

1.1. Permit application details

Permit application No.: 5678/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Dennis Gordon and Valerie Faye Bedford**

1.3. Property details

Property: LOT 25 ON PLAN 20942 (BROOKHAMPTON 6239)
Local Government Area: Shire of Donnybrook - Balingup

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
17.4		Mechanical Removal	Dam construction or maintenance
		Mechanical Removal	Hazard reduction or fire control
		Mechanical Removal	Grazing & Pasture

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 12 September 2013

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
Mapped Beard Vegetation Association 1184 is described as Medium woodland, fringing consisting of jarrah, marri, Eucalyptus rudis & Agonis flexuosa (Shepherd et al, 2001). Mapped Beard Vegetation Association 3 is described as medium forest consisting of jarrah and marri (Shepherd et al, 2001). Mapped Mattiske Vegetation Hester Complex (HR) consists of tall open forest to open forest of Eucalyptus marginata subsp. marginata, Corymbia calophylla on lateritic uplands in perhumid and humid zones (Mattiske and Havel, 1998). Mapped Mattiske Vegetation Balingup Complex (BL) consists of open forest of Eucalyptus marginata subsp. marginata, Corymbia calophylla on slopes and woodland of Eucalyptus rudis on the valley floor in the humid zone (Mattiske and Havel, 1998). Mapped Heddle Vegetation Lowdon Complex consists of open forest of Corymbia calophylla, Eucalyptus marginata subsp. marginata, Agonis flexuosa with some Eucalyptus wandoo and occasional Corymbia haematoxylon on slopes, and woodland of Eucalyptus rudis, Melaleuca rhaphiophylla on valley floors in the humid zone (Heddle et al, 1980).	The applicant proposes to clear 17.4 hectares of native vegetation within Lot 25 on Plan 20942, Brookhampton, for the purpose of cropping, pasture, fire hazard reduction and dam construction.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994) To Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation under application ranges from very good to degraded condition (Keighery, 1994), with the majority of the vegetation in a very good (Keighery, 1994) condition. The degraded areas are largely associated with the two most northern sections under application and the small areas proposed for dams within the mid portion of the application area. The application area was previously cleared in 2000, with all but several very large mature Eucalyptus marginata and Corymbia calophylla cleared. Significant regrowth has since occurred to form a juvenile woodland comprising Eucalyptus marginata, Corymbia calophylla and Eucalyptus todtiana over Gastrolobium bilobum and Xanthorrhoea preissii over Hibbertia hypericoides and Pteridium esculentum. The southern portion of the largest area under application has a greater number of large mature Corymbia calophylla. The two areas under application in the northern portion of Lot 25 show the greatest signs of disturbance and are dominated by an understorey of Pteridium aquilinum (braken fern). Most of the areas under application are not fenced and have been subject to some grazing disturbance. The description and condition of the vegetation was established via a site inspection by Department of Environment Regulation (DER) Officers undertaken 15 August 2013.

3. Assessment of application against clearing principles

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

Comments

Proposal may be at variance to this Principle

The applicant proposes to clear 17.4 hectares of native vegetation within Lot 25 on Plan 20942, Brookhampton, for the purpose of cropping, pasture, fire hazard reduction and dam construction. The vegetation under application ranges from degraded to very good condition (Keighery, 1994), with the majority of the vegetation in a very good (Keighery, 1994) condition (DER, 2013).

The application area was previously cleared in 2000, with all but several large mature Eucalyptus marginata (jarrah) and Corymbia calophylla (marri) cleared. Significant regrowth has since occurred to form a juvenile woodland comprising Eucalyptus marginata, Corymbia calophylla and Eucalyptus todtiana over dense areas of Gastrolobium bilobum and scattered Xanthorrhoea preissii over Hibbertia hypericoides and Pteridium esculentum (DER, 2013).

The southern portion of the largest area under application has a greater number of large mature Corymbia calophylla, some with significant hollows.
The two areas under application in the northern portion of Lot 25, and those areas within the mid portion proposed for dams show the greatest signs of disturbance and are dominated by an understorey of Pteridium esculentum. Most of the areas under application are not fenced and have been subject to some grazing disturbance (DER, 2013).

Several Priority flora species have been recorded in the local area (10 kilometre radius). The closest of these, a priority 2 species, has been mapped approximately four kilometres south east of the application area. This species is a slender open shrub with a preference for red-grey sandy clay over quartzite on steep westerly slopes (Western Australian Herbarium, 1998 -). Given that the soils within the application area consist of loamy earths, duplexes and gravels (Commissioner of soil and land conservation, 2013) it is unlikely that this species occurs within the application area.

There are no priority or threatened ecological communities mapped within the local area (10 kilometre radius).

The application area may provide foraging habitat for three species of black cockatoo, all of which are listed as 'rare or likely to become extinct' under the Wildlife Conservation Act 1950, however given that large areas of better quality vegetation occur within the adjacent East Kirrup State Forest (comprises approximately 2100 hectares), it is not likely that the vegetation under application comprises significant foraging habitat for these species.

There are several large mature Eucalyptus marginata and Corymbia calophylla within the application area (DER, 2013), some with large hollows capable of providing habitat for southern brush-tailed phascogale and black cockatoo's, all classified as 'rare or likely to become extinct' under the Wildlife Conservation Act 1950. The proponent has advised that large mature trees will be retained, and it is the regrowth that is intended for clearing.

There is approximately 55 per cent of native vegetation remaining in the local area (10 kilometre radius).

The vegetation under application is located adjacent to a mapped South West Regional Ecological Linkage. These linkages are recognised for their significance in facilitating indigenous fauna movement across the landscape (Molly et al, 2009). Given the presence of extensively vegetated conservation areas adjacent to the application area, the proposed clearing will not result in fragmentation, and is unlikely to significantly impact fauna movement associated with this linkage.

The proposed clearing will increase the risk of weeds and dieback spreading into East Kirrup State Forest. Weed and dieback mitigation measures will help to reduce the risk of spreading weeds and dieback into this extensive conservation estate.

The application area includes vegetation in a very good (Keighery, 1994) condition (DER, 2013), is located along a mapped ecological linkage and has the potential to provide nesting habitat for black cockatoo's species and southern brush-tailed phascogale, therefore the proposed clearing may be at variance to this Principle.

Methodology

References:
-Keighery (1994)
-DER (2013)
-Western Australian Herbarium (1998-)
-Commissioner of Soil and Land Conservation (2013)

GIS Databases:
-NLWRA, Current Extent of Native Vegetation
-SAC Bio Datasets (Accessed August 2013)
-DEC Tenure
-SWREL-AL

(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

Proposal may be at variance to this Principle

There are several conservation significant fauna species mapped within the local area (10 kilometre radius), including, Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black-Cockatoo), Calyptorhynchus baudinii (Baudin's Cockatoo), Calyptorhynchus latirostris (Carnaby's Cockatoo), Dasyurus geoffroii (Chuditch), Phascogale tapoatafa subsp. tapoatafa (Southern Brush-tailed Phascogale), Pseudocheirus occidentalis (Western Ringtail Possum) and Isoodonobesulus subsp. fusciventer (Quenda) (DPaW, 2007-).

Black cockatoo's forage on the seeds, nuts and flowers of proteaceous species (banksia, hakea, grevillea), as well as allocasuarina and eucalyptus species (Valentine and Stock, 2008). Foraging habitat for these species is present on site and forest red-tailed black cockatoos were seen flying overhead during a site inspection of the application area (DER, 2013). However, given that large areas of better quality vegetation occur within the adjacent East Kirrup State Forest (comprising approximately 2100 hectares), it is not likely that the vegetation under application comprises significant foraging habitat for these species.
There are several large mature Eucalyptus marginata and Corymbia calophylla within the application area, some with large hollows capable of providing habitat for southern brush-tailed phascogale and black cockatoo's. Trees large enough to contain hollows suitable for breeding for black cockatoo's are often only found in trees greater than 200 years old (Commonwealth of Australia, 2012). The proponent has advised that large mature trees will be retained on site, and there will be the requirement for any trees with a diameter at breast height of greater than 500 millimetres to be retained to ensure that potentially significant nesting habitat is not impacted.

Several fauna diggings (possibly quenda) were observed on site (DER, 2013), and the vegetation under application includes areas of dense understorey which may provide habitat for ground dwelling indigenous fauna, such as quenda, listed as priority 5 under the Wildlife Conservation Act 1950. Given that there is an extensive conservation area containing vegetation in a better condition adjacent to the application area, it is unlikely that the proposed clearing will impact upon significant habitat for ground dwelling indigenous fauna.

The vegetation under application is located adjacent to a mapped South West Regional Ecological Linkage. These linkages are recognised for their significance in facilitating indigenous fauna movement across the landscape (Molly et al, 2009). Given the presence of extensively vegetated conservation areas adjacent to the application area, the proposed clearing will not result in fragmentation, and is unlikely to significantly impact fauna movement associated with this linkage.

Given that the vegetation under application contains trees suitable to be utilised by black cockatoos as nesting habitat, the proposed clearing may be at variance to this Principle.

Methodology

References:
-DPaW (2007-)
-DER (2013)
-Commonwealth of Australia (2012)
-Molly et al (2009)

GIS Databases:
-DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

The closest mapped rare flora to the application area is a caespitose shrub with a preference for sandy clay soils and winter wet flats (Western Australian Herbarium, 2008-). This species has been mapped approximately eight kilometres north west of the application area.

Given the distance to this mapped occurrence and the presence of brown loamy earths, loamy duplexes and loamy gravels on site, it is unlikely that the proposed clearing includes, or is necessary for the continued existence of rare flora.

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

Methodology

References:
-Western Australian Herbarium (1998-)

GIS Databases:
-SAC Bio Datasets (Accessed July 2013)

(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

Proposal is not likely to be at variance to this Principle

There are no threatened ecological communities mapped within the local area (10 kilometre radius), therefore the application area is not likely to comprise the whole or part of, or be necessary for the maintenance of a threatened ecological community.

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

Methodology

GIS Databases:
-SAC Bio Datasets (Accessed August 2013)

(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

Proposal is not likely to be at variance to this Principle

There is approximately 55 per cent of native vegetation remaining in the local area (10 kilometre radius).

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).

Beard Vegetation Associations 3 and 1184 retain approximately 68 and 41 per cent pre-European vegetation respectively. Mattiske Vegetation Complexes (Balingup and Hester) and Heddle Vegetation Complex (Lowdon) retain approximately 32, 76, and 42 per cent pre-European vegetation within the Jarrah Forest Bioregion. The Shire of Donnybrook and the Jarrah Forest Bioregion retain greater than 50 per cent of pre-European vegetation.

The majority of the vegetation under application is in a very good (Keighery, 1994) condition (DER, 2013) and supports part of an ecological linkage, however given the vegetation representations outlined above, the area under application is not likely to be a significant remnant in an extensively cleared area.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (per cent)	Extent in DEC Managed Lands (per cent)
IBRA Bioregion*				
Jarrah Forest	4,506,660	2,459,298	55	68
Shire*				
Shire of Donnybrook Balingup	156,003	88,337	57	83
Beard Vegetation Association in Bioregion*				
1184	63,562	25,788	41	56
3	2,390,591	1,631,110	68	80
Mattiske Vegetation Complex**				
Hester Complex	32,250	24,492	76	68
Balingup Complex	59,447	18,823	32	15
Heddle Vegetation Complex***				
Lowdon Complex	63,430	26,550	42	27

Government of Western Australia (2013)*
Mattiske and Havel (1998)**
Heddle et al (1980)***

Methodology

References:
-Commonwealth of Australia (2001)
-Government of Western Australia (2013)
-Mattiske and Havel (1998)
-Heddle et al (1980)
-Keighery (1994)
-DER (2013)

GIS Databases:
-NLWRA, Current Extent of Vegetation Remaining

(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

Proposal is at variance to this Principle

The closest mapped major watercourse to the application area is Thomson Brook South which is mapped approximately 120 metres west. Capel River North occurs approximately 1.5 kilometres south west of the application area and several minor non perennial watercourses associated with Thomson Brook South run through three small areas under application proposed for dams. There was also evidence of a small creek on the mid-eastern border of the largest area under application (DER, 2013).

Given that some of the vegetation under application is growing in association with a minor non perennial watercourse, the proposed clearing is at variance to this Principle.

Methodology

GIS Databases:
-Hydrography, linear
-Hydrography, hierachy

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

Comments

Proposal may be at variance to this Principle

A site inspection undertaken by the Department of Agriculture and Food Western Australia (Commissioner of soil and land conservation, 2013) identified three landform and soil types within the area under application, which are outlined below:

Balingup moderate slopes phase (255LvBL4) consists of moderate valley slopes on colluviums over gneiss and granite. Friable red-brown earths, brown loamy earths, brown deep loamy duplexes and loamy gravels. This landform and soil type comprises the western portion of the application area.

Balingup upper valley phase (255LvBLu) consists of moderate valleys on colluviums over gneiss and granite. Friable red-brown earths, brown loamy earths, loamy gravels and brown deep loamy duplexes. This landform and soil type comprises the southern portion of the application area.

Hester subsystem (55DpHR) consists of undulating ridges and hillcrests on deeply weathered mantle over gneiss. Loamy gravels, duplex sandy gravels and loamy duplexes also occur.

An assessment to determine the potential for land degradation as a result of clearing (Commissioner of soil and land conservation, 2013) revealed that the risk of flooding, waterlogging, wind erosion and salinity causing land degradation is low. However, the proposed clearing is likely to result in some water erosion due to the undulating topography (slopes of greater than 7 to 8 per cent) on site. The landform and soil types were ascribed values based on their potential for soil erosion whereby there was a 41, 33, and 7 per cent likelihood of water erosion for 255LvBL4, 255LvBLu and 55DpHR respectively (Commissioner of soil and land conservation, 2013).

Soil conservation earthworks and the establishment of pasture soon after clearing will help to mitigate the potential for water erosion causing appreciable land degradation (Commissioner of soil and land conservation, 2013).

The proposed clearing may be at variance to this Principle.

Methodology

References:
-Commissioner of soil and land conservation (2013)

GIS Databases:
-Topographic Contours, 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

Proposal may be at variance to this Principle

The closest conservation reserve is East Kirup State Forest which borders the application area on the northern and southern extents. East Kirrup State Forest comprises approximately 2100 hectares and adjoins another large conservation area, Wilga State Forest, approximately 700 metres east.

The application area is located along a mapped South West Regional Ecological Linkage. These linkages act as stepping stones of high quality habitat thereby facilitating the maintenance of ecological processes and the movement of organisms within, and across, a landscape (Molly et al, 2009). The vegetation under application is located adjacent to a mapped South West Regional Ecological Linkage. These linkages are recognised for their significance in facilitating indigenous fauna movement across the landscape (Molly et al, 2009).

Given the presence of extensively vegetated conservation areas adjacent to the application area, the proposed clearing will not result in fragmentation, and is unlikely to significantly impact fauna movement associated with this linkage.

The proposed clearing will increase the risk of weeds and dieback spreading into East Kirrup State Forest. Weed and dieback mitigation measures will help to reduce the risk of spreading weeds and dieback into this extensive conservation area.

The proposed clearing may be at variance to this Principle.

Methodology

Refereences:
-Molly et al (2009)

GIS Databases:
-DEC 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

Proposal may be at variance to this Principle

The closest mapped major watercourse to the application area is Thomson Brook South which is mapped approximately 120 metres west. Capel River North occurs approximately 1.5 kilometres south west of the application area and several minor non perennial watercourses associated with Thomson Brook South run through three small areas proposed for dams. There was also evidence of a small creek on the mid-eastern border of the largest area under application (DER, 2013).

There is the potential for water erosion to occur post clearing, particularly given the undulating topography on site. Water erosion is likely to lead to sedimentation of the minor perennial watercourses within the area under application. The potential for erosion causing sedimentation can be reduced via staged clearing practices and establishing pasture soon after clearing.

Groundwater salinity is mapped at 500 to 1000 milligrams per litre (marginal) on site. Given this low salinity level, and the extensively vegetated areas adjacent to the application area, it is not likely the proposed clearing will lead to a perceptible rise in the watertable and thus an increase in groundwater salinity levels.

The proposed clearing may be at variance to this Principle.

Methodology

References:
-DER (2013)

GIS Databases:
-Topographic Contours, Statewide
-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

Proposal is not likely to be at variance to this Principle

An assessment to determine the potential for land degradation as a result of clearing (Commissioner of soil and land conservation, 2013) revealed that the proposed clearing is unlikely to significantly increase surface water runoff which would contribute to stream flows and flooding.

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

Methodology

GIS Databases:
-Hydrography, linear
-Hydrography, hierarchy

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

No submissions from the public have been received for the proposed clearing.

The application area is zoned 'general farming pastoral' under the Town Planning Scheme Zone.

The applicant proposes to clear 17.4 hectares of native vegetation within Lot 25 on Plan 20942, Brookhampton, for the purpose of cropping and pasture and constructing several small dams in the mid portion of the application area. The proponent has advised that large trees will be retained on site, whereby it is the post 2000 regrowth that is planned to be removed.

The Shire of Donnybrook - Balingup has advised that provided the application area is free from declared rare flora, priority flora and flora otherwise of conservation significance then the Shire does not oppose the proposed clearing (Shire of Donnybrook - Balingup, 2013).

Methodology

References:
-Shire of Donnybrook - Balingup (2013)

GIS Databases:
-Town Planning Scheme Zones

4. References

Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species, Canberra.

Commissioner of Soil and Land Conservation (2013); Land Degradation Advice and Assessment Report for clearing permit application CPS 5678/1 received 21/08/2013; Department of Agriculture and Food Western Australia (Ref. A664735).

DER (2013) Site Inspection Report for Clearing Permit Application CPS 5678/1. Site inspection undertaken 15/08/2013. Department of Environment Regulation, Western Australia (DER Ref A669562).

DPaW (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: http://naturemap.dec.wa.gov.au/. Accessed August 2013.

Government of Western Australia (2013); 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia. Molly, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. South West Regional Ecological Linkages Technical Report. DEC, WALGA and Planning South West.

Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

Shire of Donnybrook – Balingup (2013) Additional information for CPS 5678/1. DER Ref A657811.

Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (Calyptorhyn chuslatirostris) 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.dec.wa.gov.au/ (Accessed August 2013).

5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)