Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1989/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Jeffery Thomas & Caroline Helena Jennings**

1.3. Property details

Property: LOT 4 ON DIAGRAM 95992 (Lot No. 0 WRAGG MOUNT BARKER 6324)
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Local Government Area: Shire Of Plantagenet

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
12		Mechanical Removal	Miscellaneous

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 vegetation within the area proposed for clearing can be broadly described as Medium Forest; jarrah/marri (Beard 1979). More specifically, the northern area proposed to be cleared consists of open forest of Eucalyptus marginata subsp. marginate, Corymbia calophylla, Banksia grandis on undulating uplands in humid and subhumid zones and a woodland of Eucalyptus marginata subsp. marginate, Nuytsia floribunda on slopes and woodland of Melaleuca preissiana, Banksia littoralis on lower slopes in humid and subhumid zones (Mattiske, 1998), Vegetation complexes BEy2 and SC respectively). The southern area proposed to be cleared consists of low woodland of Eucalyptus marginata subsp. marginata on slopes and low open woodland of Banksia	The general condition of the vegetation is Excellent, with no obvious evidence of weed encroachment or livestock grazing damage (DEC site visit).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	

littoralis, Melaleuca preissiana on broad depressions in perhumid and humid zones and a woodland of Eucalyptus marginata subsp. marginate, Nuytsia floribunda on slopes and woodland of Melaleuca preissiana, Banksia littoralis on lower slopes in humid and subhumid zones (Mattiske, 1998), Vegetation complexes QN and SC respectively).

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 is at variance to this Principle

Clearing of the areas under application would increase the edge effect of the remnant which would increase the potential degradation of the remnant, through weed invasion, spray drift, fertiliser etc.

This remnant is likely to act as a 'stepping stone' in a landscape that is highly cleared (there is approximately 20% of native vegetation remaining in the local area, 10km radius). This 'stepping stone' may be utilised by Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo, that have been recorded in the local area, travelling between Ongerup Lagoon Nature Reserve 2km to the north and Mt Lindesay National Park 4.6km to the south.

Within the local area (10km radius) of the area under application thirty one Declared Rare and Priority listed flora specimens have been recorded. This includes two Declared Rare Flora (DRF), one Priority 1 (P1), three P2, one P3 and four P4 species. Due to the similarities in soil types, vegetation complexes and spatial distribution in the landscape, the area under application may support the above mentioned DRF and Priority listed species and does support Dryandra presissii (P4) (DEC 2007).

Methodology

DEC site visit (2007)
GIS database:
- Albany 1.4m Orthomosaic - DLI March 03
- CALM Managed Lands and Waters - CALM 01/06/05
- SAC Biodatasets - accessed 11 Feb 08

(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 is at variance to this Principle

Within the local area (10km radius) of the area under application, the following Threatened and Priority fauna species have been recorded:

Baudins Black Cockatoo (Calyptorhynchus baudinii),
Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso),
Western Brush Wallaby (Macropus lma),
Crested billbird, southern (Orecoica gutturalis gutturalis).

The current conservation status of Baudin's Black-Cockatoo under Australian and State/Territory Government legislation and international conventions, is as follows:
National: Listed as vulnerable under the Environment Protection and Biodiversity Conservation Act 1999.
Western Australia: Listed as 'rare or likely to become extinct' under the Wildlife Conservation Act 1950 (Templeman 2008) and listed as Endangered using IUCN criteria and allocated rankings.
This species is a seasonal visitor to the northern forests and adjacent eastern edge of the coastal plain, feeding on the seeds of eucalypts and various proteaceous species. It breeds in spring/summer in the southern forests, nesting in tree hollows (primarily in marri). This sighting was made in 1991.

The current conservation status of the Forest Red-tailed Black Cockatoo under Australian and State/Territory Government legislation and international conventions, is as follows:
Western Australia: Listed as 'rare or likely to become extinct' under the Wildlife Conservation Act 1950 (Templeman 2008) and listed as Vulnerable using IUCN criteria and allocated rankings.
This subspecies of the Red-tailed Black Cockatoo is restricted to the forests of the south-west. It requires tree hollows to nest and breed and is totally dependent on jarrah-marri forest. This sighting was made in 1999.

Vegetation mapping of the area under application indicates that the vegetation would be suitable habitat for the

above mentioned cockatoo species which may still occur in the area. The northern area under application consists of open forest of Eucalyptus marginata subsp. marginate (jarrah), Corymbia calophylla (marri) and Banksia grandis (Mattiske 1998). The southern area under application consists of low woodland of Eucalyptus marginata subsp. marginata and woodland of Banksia littoralis (Mattiske 1998). A site visit (2007) confirmed this desktop information and recorded the condition of the vegetation as Excellent (Keighery 1994) which indicates that the presence of hollows is likely given the vegetation has not been disturbed.

The area under application is part of a larger remnant that would be further reduced and degraded by the increased edge effects if the area under application were to be cleared. Furthermore, this remnant may be a 'stepping stone' for the above mentioned cockatoo species between Ongerup Lagoon Nature Reserve 2km to the north and Mt Lindesay National Park 4.6km to the south. Much of the surrounding vegetation is plantation (ie it is not native). Degradation of this remnant would cause further fragmentation in this landscape.

Both the Crested billbird and the Western Brush Wallaby are listed as Priority 4 fauna using IUCN criteria and allocated rankings.

The Western Brush Wallaby occurs in areas of forest and woodland supporting a dense shrub layer. A site visit (2007) recorded the vegetation condition to be Excellent (Keighery 1994) and site photos confirmed the presence of a dense shrub layer. There are vegetated links along riparian zones from the National Park where the sighting was made to the area under application, however, the vegetation is sparse and degraded in parts and the sighting was made in 1982. Given that the Western Brush Wallaby favours dense shrub layers it is unlikely to have moved to the area under application due to these sparse links. As no current fauna survey has been undertaken, the presence or absence of this species within the area under application has not been confirmed.

The Crested billbird is a sedentary and solitary species inhabits the drier mallee woodlands and heaths of the southern parts of the State. There are vegetated links along riparian zones from the National Park where the sighting was made to the area under application, however, the vegetation is sparse and degraded in parts and this sighting was made in 1984. As no current fauna survey has been undertaken, the presence or absence of this species within the area under application has not been confirmed.

The area under application is part of a large remnant in a landscape that is highly cleared and is likely to act as a 'stepping stone' for local fauna, particularly avifauna. This remnant is likely to provide feeding and breeding habitat for local fauna species. The proposed clearing compromises the environmental values of this remnant which would further fragment the landscape. As the two cockatoo species mentioned may utilise the area under application, and due to the status of these two species with Commonwealth statutes (EPBC Act, 1999) and Internationally on the IUCN Red List, the proposed clearing is at variance with this principle.

Methodology

DEC site visit (2007)
EPBC Act (1999)
Templeman (2008)
GIS database:
- Albany 1.4m Orthomosaic - DLI March 03
- CALM Managed Lands and Waters - CALM 01/08/04
- Keighery 1994
- Mattiske 1998
- Threatened and Priority fauna 2005

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

Comments

Proposal may be at variance to this Principle

Within the local area (10km radius) of the area under application thirty one Declared Rare and Priority listed flora specimens have been recorded. This includes two Declared Rare Flora (DRF), one Priority 1 (P1), three P2, one P3 and four P4 species.

The area under application is part of a larger remnant. Other remnants in the local area of similar or smaller size support some of the above mentioned Declared Rare and Priority listed flora. Considering the area under application is in Excellent condition (site visit 2007) it is possible that DRF and Priority list flora may be present.

All but one of the species recorded occurs on the same soil type as the area under application. This soil type (Tf6) is described as undulating to hilly portions of dissected lateritic plateau at moderate elevation. Chief soils are hard acidic and neutral yellow mottled soils containing small to large amounts of ironstone gravels. Associated are leached sands.

Species found within the local area which have been recorded in soils similar to the above described Tf6 soil type include:
Caladenia plicata (P4) - Sand, gravel
Caladenia christineae (DRF) - Clayey loam, laterite
Leucopogon tamariscinus (P4) - Deep grey sands, lateritic gravely sand.

Pimelea rosea subsp. annelsii (P3) - Sandy soils with gravel laterite. Upper slopes.
Andersonia jamesii (P1) - Gravel

Three species occur on the same Mattiske vegetation complex, BEy2, as the area under application. They are Caladenia plicata (P4), Leucopogon tamariscinus (P4) and Verticordia endlicheriana var. angustifolia (P2).

Two species, Verticordia endlicheriana var. angustifolia (P2) and Pimelea rosea subsp. annelsii (P3), occur both to the north east and south west of the area under application. It is therefore likely that these species may occur within the area under application if the natural colonisation of this species occurred before the landscape was fragmented.

Two specimens of Dryandra presissii (P4) were noted during a site visit (2007).

Due to the similarities in soil types, vegetation complexes and spatial distribution in the landscape, the area under application may support the above mentioned DRF and Priority listed species and does support Dryandra presissii. A flora survey by a qualified botanist at an appropriate time of year is required to determine the presence of DRF and further Priority species.

Therefore, the area under application may be at variance to this Principle.

Methodology

DEC site visit (2007)
Florabase (2008)
Mattiske Consulting (1998)
GIS database:
- Albany 1.4m Orthomosaic - DLI March 03
- Declared Rare and Priority Flora List - CALM 13/08/03
- Mattiske Vegetation - CALM 24/03/98
- SAC Biodatasets - accessed 11 Feb 08
- Soils, Statewide DA 11/99

(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 at variance to this Principle

There are no Threatened Ecological Communities (TECs) in the local area (10km radius). The proposed clearing is not at variance to this Principle.

Methodology

GIS Database:
- SAC Biodatasets - accessed 11 Feb 08

(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 may be at variance to this Principle

There is approximately 20% of native vegetation remaining in a 10km radius of the area under application and this is largely with National Parks and reserves. Aerial photography shows that there are a number of non native plantations within the local area. The area under application is part of a larger remnant. This remnant is significant on a local level due to its large intact size and Excellent condition (DEC 2007) in a highly cleared and fragmented landscape.

There is approximately 44ha (44%) of vegetation remaining on the property in question. After the proposed clearing there would be approximately 29ha or 31% of vegetation remaining on the property.

The vegetation under application consists of two areas. The northern area is largely mapped as Mattiske vegetation complex Bevan 2 (BEy2) with some Sidcup (SC) on the western edge. The southern western area under application is mapped as Mattiske vegetation complexes Bevan 2 BEy2, Quindabellup (QN) and Sidcup SC.

Bevan 2 (BEy2) is described as 'open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla-Banksia grandis on undulating uplands in humid and subhumid zones'.
Sidcup (SC) is described as 'woodland of Eucalyptus marginata subsp. marginata-Nuytsia floribunda on slopes and woodland of Melaleuca preissiana-Banksia littoralis on lower slopes in humid and subhumid zones'.
Quindabella (QN) is described as 'low woodland of Eucalyptus marginata subsp. marginata on slopes and low open woodland of Banksia littoralis-Melaleuca preissiana on broad depressions in perhumid and humid zones'.

A DEC site visit (2007) confirmed that the vegetation is representative of the above mentioned vegetation types.

	Pre-European (ha)	Current extent (ha)	Remaining (%)

IBRA Bioregions***			
Jarah Forest^	2 390 590	1 642 606	68.7
Shire*			
Plantagenet	252 228	94 490	37.5
Mattiske Vegetation Complex**			
BEy2	783 045	285 693	36.5
QN	90 724	67 364	74.3
SC	31 470	11 912	37.9
Beard Vegetation Complex****			
3	2 661 403	1 846 588	69.4

* (Shepherd et al. 2006)
** (Mattiske Consulting 1998)
*** (Hopkins et al 2001, Shepherd et al. 2001)
^ Area within Intensive Land Use Zone

The vegetation complexes BEy2 and SC have 36.5 and 37.9% remaining respectively. At the time the Mattiske mapping was carried out these vegetation complexes were above the 30% threshold level on a statewide basis. The vegetation under application is part of a larger remnant that is in Excellent condition (DEC site visit) and is therefore representative of the above mentioned vegetation complexes. The proposed clearing is for the purpose of grazing and cuts into this remnant producing a greater edge to volume ratio which increases edge effects that is likely to degrade the vegetation.

The local area (10km radius) has approximately 20% of vegetation remaining and may be considered to be within an extensively cleared area. Further, the remnant in question is large and in Excellent condition and may be a 'stepping stone' for fauna. The retention of large remnants in this highly cleared landscape is favourable to smaller remnants retain ecological function within the local area. Therefore, the proposed clearing may compromise this significant remnant within an extensively cleared area and may be at variance to this Principle.

Methodology DEC site visit (2007)
Hopkins et al (2001)
Mattiske Consulting (1998)
Shepherd et al (2001)

GIS Databases:
- Albany 1.4m Orthomosaic - DLI March 03
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Local Government Authorities - DLI 8/07/04
- Mattiske Vegetation - CALM 23/3/98
- Pre European Vegetation - DA 01/01

(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 not at variance to this Principle

A second order perennial tributary of the Hay River (4km to the east and north) separates the two areas under application. The proponent advised that this watercourse was turning saline (DEC 2007). A further tributary on the property, to the east has been substantially cleared and is accessible to grazing sheep.

A small wetland occurs in uncleared bushland on the adjoining property located about 170m west of the southernmost block proposed for clearing.

The recommended buffer for watercourses of this order is 20m (DEC 2005). Buffers measured from aerial photography suggest that this 20m buffer requirement is met by the area proposed for clearing.

The proponent intends to revegetate and fence these watercourses as part of the Upper Hay project with the Wilson Inlet Catchment Committee.

There are adequate buffers from the proposed clearing and is therefore the proposed clearing is not at variance to this Principle.

Methodology DEC site visit (2007)
DoW Water Quality Protection Note (2005)
GIS Databases:

- Hydrography, linear - DOW 13/7/06

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

Comments

Proposal is at variance to this Principle

Department of Food and Agriculture (DAFWA) advice (2008):

Land clearing in this catchment is likely to contribute to salinity, and will increase baseflow salinity of creeklines.

This area has a local scale groundwater system; characteristically the hillsides are recharge areas and the lower landscapes are discharge areas. Any areas that are cleared will become recharge areas. Clearing will contribute to salinity and will increase baseflow salinities of the creeklines. Groundwater salinities are at 1200mS/m with baseflow salinities estimated at 575 to 727mS/m in the creeklines of this property (these readings are from 1993). Although the landholder has suggested planting perennials to compensate for removing natural vegetation, perennial plants will not be able to fully utilise the rainfall thus allowing for some recharge, contributing to groundwater tables and further discharge on the lower landscape.

Clearing of vegetation in this catchment would likely contribute to waterlogging on and offsite. Removal of deep rooted perennial vegetation is likely to increase recharge to subsurface and groundwater increasing surface and groundwater flows.

Wind erosion is unlikely to a risk on this clearing proposal.

Water erosion may be a potential risk during the phase of land clearing, due to the sandy soils and the slopes which are up to 8%. Intense rainfall events have the potential to cause water erosion on this site due to the slope of the land.

Methodology DAFWA (2008)

(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

Mt Lindesay National Park is 4.6km south of the area proposed to be cleared.

Ongerup Lagoon Nature Reserve (Purpose of Conservation of Flora and Fauna) which contains a wetland is 2km north and Lake Barnes Road Nature Reserve (Purpose of Conservation of Flora and Fauna) is 8km east of the area proposed to be cleared.

Denmark Catchment State Forest is 9km south west of the area proposed to be cleared.

The area under application in question is large, in Excellent condition and is part of a larger remnant that may be a 'stepping stone' for fauna between Ongerup Lagoon Nature Reserve 2km to the north and Mt Lindesay National Park 4.6 to the south. There are vegetated linkages between these three areas, particularly along watercourse. This may be of significant for flora and fauna, however, some sections are sparsely vegetated. The retention of large remnants in this highly cleared landscape is favourable to smaller remnants retain ecological function within the local area.

The proposed clearing does not directly impact on nearby conservation areas, however, it is part of a larger remnant that may provide connectivity to them, thereby supporting the ecological functioning of these areas. Therefore, the proposal may be at variance to this Principle.

Methodology GIS Databases:
- Albany 1.4m Orthomosaic - DLI March 03
- CALM Managed Lands and Waters - CALM 01/06/05
- Hydrography, linear - DOW 13/7/06

(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 is at variance to this Principle

The proposed clearing is part of the largest remnant in a highly cleared subcatchment of the Wilson Inlet/ Hay River catchment.

An existing dam located on the southern tributary to Hay River on Lot 4 was said by the proponent to contain water tested at 600mS/L in February 2006. The riparian vegetation along this creek appeared to be in good condition and generally unaffected by salinity or waterlogging (DEC site visit 2007).

Department of Food and Agriculture (DAFWA) advice (2008):

Land clearing in this catchment is likely to contribute to salinity, and will increase baseflow salinity of creeklines.

This area has a local scale groundwater system. Characteristically the hillsides are recharge areas and the lower landscapes are discharge areas. Any areas that are cleared will become recharge areas. Clearing will contribute to salinity and will increase baseflow salinities of the creeklines. Groundwater salinities are at 1200mS/m with baseflow salinities estimated at 575 to 727mS/m in the creeklines of this property (these readings are from 1993). Although the landholder has suggested planting perennials to compensate for removing natural vegetation, perennial plants will not be able to fully utilise the rainfall thus allowing for some recharge, contributing to groundwater tables and further discharge on the lower landscape.

The risk of eutrophication is medium to high as the soils are likely to have how phosphorus retention indexes. This has not been field tested, however, the soil types for this property together with the low lying wet areas are conducive to nutrients entering the waterways.

Methodology DAFWA advice (2008)
DEC site visit (2007)

(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 at variance to this Principle

The area under application does not occur within an area that is prone to flooding. However, some waterlogging may result from increased water flows, in the watercourse downhill of the area under application, due to increased run-off from the loss of the deep rooted vegetation.

Therefore, the proposed clearing is not at variance to this Principle.

Methodology GIS Databases:
- Hydrography, linear - DOW 13/7/06
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The vegetation under application is part of a larger remnant that is in Excellent (Keighery 1994) condition (DEC 2007). The proponents intend to fence and revegetate watercourses within the property as part of the Hay River project with the Wilson Inlet Catchment Committee and have applied to clear these 12ha as an offset to the lost of pasture. Whilst projects of this kind are encouraged, retention of large intact remnants is favoured over revegetating areas from a biodiversity perspective as remnants of this quality are impossible to replicate and take a long time to establish.

The property Lot 4 on diagram 95992 is zoned rural and is therefore consistent with the proposed landuse of grazing.

A submission was received that supported the revegetation and rehabilitation of the watercourses but did not support the proposed clearing. It stated that it was better to protect the vegetation that is present rather than restore vegetation once it is degraded (DOC37998).

The proponent responded (DOC51309) to some of the concerns raised by DEC (DOC48262) in relation to the above assessment. The response did not adequately address concerns raised in relation to the significance of the remnant in a highly cleared landscape and the adverse impacts the clearing would have on biodiversity and dispersal of fauna and flora to nearby reserves. The proponent was willing to undertake a flora survey to determine the presence or absence of Caladenia christineae (DRF). The proponent did not adequately address the concerns raised with respect to land degradation as a result of the proposed clearing. Replanting with kikuyu and perennial ryes to prevent recharge and waterlogging does not address the biodiversity and salinity issues that are related to the proposed clearing. The proponent was willing to consider parkland clearing of the area under application. Clearing in this way would degrade the remnant that is in Excellent (Keighery 1994) condition (DEC 2007) in a highly cleared landscape.

Methodology Keighery (1994)
GIS database:
- Town Planning Scheme Zones - MFP 31/08/98

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Miscellaneous	Mechanical Removal	12	The assessable criteria have been addressed and the clearing as proposed is at variance to Principles (a), (b), (g) and (i), may be at variance to Principles (c), (e) and (h) and is not likely to be at variance to

Principles (d), (f) and (j).

5. References

DAFWA Land degradation assessment report (2008). Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref DOC47888.

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Department of Environment and Conservation (2007) Site Visit Report. Native Vegetation Conservation CPS 1989/1. DEC TRIM Ref: DOC40727.

Department of Water (2005) Water Quality Protection Note: Vegetation buffers to sensitive water resources.

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Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.

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 Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.

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.

Templeman, D. (2008). Wildlife Conservation (Specially Protected Fauna) Notice 2008

6. 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)