Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3307/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: Mark Bradley Muir

1.3. Property details

Property: LOT 5 ON PLAN 232768 (CROOKED BROOK 6236)
LOT 6 ON PLAN 232768 (CROOKED BROOK 6236)

Local Government Area:

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
11		Mechanical Removal	Extractive Industry

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
Beard vegetation association 1000 - Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; teatree (Melaleuca spp.) (Shepherd, 2007) Heddle vegetation complex - Southern River Complex: Open woodland of Corymbia calophylla (Marri) - Eucalyptus marginata (Jarrah) - Banksia species with fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca rhaphiophylla (Swamp Paperbark) along creek beds (Heddle et al., 1980).	The vegetation under application occurs on a sandy ridge and is predominately a Peppermint woodland over an open understorey of pasture grasses (DEC, 2009). Other species comprising the overstorey include Banskia attenuata, and the occasionally Xylomelum occidentale, Eucalyptus marginata and Nuytsia floribunda (DEC, 2009). The area has been subject in the past to grazing and as a result is devoid of understorey or mid storey native vegetation. There are however, some juvenile peppermint trees (DEC, 2009).	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	The vegetation condition was assessed through a site inspection and aerial photography (DEC,2009).

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

The purpose of the proposed clearing is for sand extraction. The application has been modified, reducing the amount of clearing of native vegetation (from 11.5ha to 8.5ha), leaving an interrupted strip (two breaks of approximately 40m width) of native vegetation connecting the western boundary of Lot 6 to a remnant patch in the middle of Lot 5.

All of the vegetation under application occurs on a sandy ridge and is in a degraded (Keighery 1994) condition. The application area consists of predominantly a Peppermint woodland over an open understorey of pasture grasses (DEC 2009). Other species comprising the overstorey include Banskia attenuata, and occasionally Xylomelum occidentale, Eucalyptus marginata and Nuytsia floribunda (DEC 2009). The area has been subject in the past to grazing and as a result is largely devoid of understorey or mid storey native vegetation. There are however, some juvenile peppermint trees (DEC 2009).

The remnant vegetation under application is representative of Beard vegetation association 1000, of which 26.04% of the pre-European extent remains within the Swan Coastal Plain bioregion (Shepherd 2007). The local area (10km radius) has approximately 25% native vegetation remaining.

A large number of priority flora species have been recorded within the local area (10km radius), many of which are within the same soil and vegetation types. However, as the application area is currently grazed, these flora species are unlikely to be present.

The vegetation of the application area possess attributes that are suitable for possum habitat, and evidence (scats) of possums utilising the trees within the application area was observed (DEC 2009). It is therefore likely that the vegetation supports low density populations of possums, potentially including Western Ringtail Possums (DEC 2009).

The Greater Bunbury Regional Scheme (EPA 2003) identifies a regionally significant ecological linkage, the Dalyellup / Gelorup / Crooked Brook Ecological Linkage, extending east - west from Dardanup Conservation Park to the west coast, including the vegetation under application, and has also been identified as a part of a core regionally significant east - west linkage recognised under the South West Regional Ecological Linkages Project (EPA 2009). The proposed clearing is likely to impair the ecological function of these ecological linkages (DEC, 2009a).

This proposal will impact on a 1a core linkage as identified by the Molloy et al. (2009) in the SWREL technical report, which recommends retention of these linkages. The removal of the vegetation would take a 40m gap in an east, west linkage and open it up to a 500m gap (DEC2009a). Clearing of this native vegetation will sever ecological linkages and reduce efficacy and dispersal of flora and fauna, leading to a decrease in biodiversity.

The southern (approximately 5ha) section of the application area may also contribute to an ecological linkage to Regional Open Space and the Preston River via a block of vegetation that occurs from Preston River to the western boundaries of the application area. This connectivity appears to continue in a north-west direction through remnant vegetation that may also possess fauna habitat trails (DEC 2009).

Therefore, the majority of the vegetation under application is likely to be important for the biological diversity of the local area (10km radius) and bioregion, given the extent of remaining vegetation. The clearing as proposed is likely to further fragment a highly cleared landscape and is therefore at variance to this principle.

Methodology

DEC (2009)
DEC (2009a)
Molloy et al. (2009)
Keighery (1994)
EPA (2003)
EPA (2009)
GIS Database:
-Bunbury 1m Orthomosaic - DOLA 11/00
- SAC Biodatasets (25/09/09)
- CALM Managed Lands

(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

The purpose of the proposed clearing is for sand extraction. The application has been modified, reducing the amount of clearing of native vegetation (from 11.5ha to 8.5ha), leaving an interrupted strip (two breaks of approximately 40m width) of native vegetation connecting the western boundary of Lot 6 to a remnant patch in the middle of Lot 5. This amendment was proposed by the applicant to ensure fauna movement through the northern portion of the property.

The area under application is in degraded (Keighery 1994) condition and consists predominantly of an overstorey of Peppermint trees, with an understorey consisting mainly of introduced pasture grasses. The application area has been highly modified due to grazing (DEC 2009). The local area (10km radius) contains approximately 25% native vegetation remaining.

There are 17 known records of Western Ringtail Possum (Pseudocheirus occidentalis - classified as Vulnerable) within a 10km radius of the application area. The main habitat and food source of the Western Ringtail Possum is peppermint tree. The vegetation of the application area does possess attributes that are suitable for possum habitat, and evidence (scats) of possums utilising the trees within the application area was observed (DEC 2009). It is therefore likely that the vegetation supports low density populations of possums, potentially including Western Ringtail Possums (DEC 2009).

There was one record of Baudin's Black Cockatoo (Calyptorhynchus baundinii - classified as endangered) within the local area. A number of senescing trees were observed within that application area, which are potential habitat trees for black cockatoos (DEC 2009). Additionally, a few Marri trees (habitat and food source

for cockatoos) are present along the southern boundary of the vegetation within Lot 5. The applicant has advised that he intends to retain these Marri's (DEC 2009).

The Greater Bunbury Regional Scheme (EPA 2003) identifies a regionally significant ecological linkage, the Dalyellup / Gelorup / Crooked Brook Ecological Linkage, extending east - west from Dardanup Conservation Park to the west coast, including the vegetation under application, and has also been identified as a part of a core regionally significant east - west linkage recognised under the South West Regional Ecological Linkages Project (EPA 2009).

This proposal will impact on a 1a core linkage as identified by the Molloy et al. (2009) in the SWREL technical report, which recommends retention of these linkages. The removal of the vegetation would take a 40m gap in an east, west linkage and open it up to a 500m gap (DEC2009a). Clearing of this native vegetation will sever ecological linkages and reduce efficacy and dispersal of fauna.

The position of the application area in the landscape indicates that it may also contribute to an ecological linkage to Regional Open Space and the Preston River via a block of vegetation that occurs from Preston River to the western boundary of Lots 5 and 6. This connectivity appears to continue in a north-west direction through remnant vegetation that may also possess fauna habitat trails (DEC 2009).

The removal of the north west section of the applied area is not likely to impact on fauna movement throughout the local area, however the removal of the southern (approximately 5ha) section is likely to impair the ecological function of these ecological linkages (DEC, 2009a).

The majority of the vegetation under application is therefore considered to be both locally significant habitat for fauna, and necessary for the maintenance of other nearby habitats and facilitation of fauna movement throughout the landscape. The clearing as proposed is therefore likely to impact on significant fauna habitat and is at variance to this principle.

Methodology

Keighery (1994)
EPA (2003)
EPA (2009)
DEC (2009a)
Molloy et al. (2009)
DEC (2009)
SAC Bio Datasets (25/09/09)
GIS Database:
-Bunbury 1m Orthomosaic - DOLA 11/00

(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 area under application is in degraded (Keighery 1994) condition and consists of an overstorey of predominantly Peppermint trees, with an understorey consisting mainly of introduced pasture grasses. The application area has been highly modified due to historical grazing (DEC 2009).

A number of rare flora species have been recorded within the local area (10km radius). These are Diuris drummondii, Drakaea elastica, Synaphea sp. Fairbridge Farm (D. Papenfus 696) and Eleocharis keigheryi.

The closest known rare flora is E. keigheryi which is located approximately 1.3 km east on the Boyanup-Picton road reserve and known to share the same soil type (Wd6) as the area under application.

Given the modified and degraded (Keighery 1994) condition of the area under application and lack of understorey vegetation due to grazing, it is unlikely the proposed clearing will be at variance to this principle.

Methodology

Keighery (1994)
DEC (2009)
SAC Bio Datasets (25/09/09)
GIS Database:
-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 likely to be at variance to this Principle

The area under application is in degraded (Keighery 1994) condition and consists of an overstorey of predominantly Peppermint trees, with an understorey of introduced pasture grasses. The application area has been highly modified due to historical grazing (DEC 2009).

There are four known threatened ecological communities (TECs), three P1 priority ecological communities (PECs) and five P3 priority ecological communities within the local area (10 km radius). The closest record is a TEC situated approximately 2 km from the area under application. None of the TECs and PECs share the soil type or vegetation complexes found in the area under application.

Given, the modified, degraded (Keighery 1994) condition and lack of understorey vegetation within the application area, it is unlikely the clearing will be at variance to this principle.

Methodology

Keighery (1994)
DEC (2009)
SAC Bio Datasets (25/09/09)
GIS Database:
-Soils, Statewide - DA 11/99
-Heddle Vegetation Complexes - DEP 21/06/95
-Pre-European Vegetation - DA 01/01

(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

The vegetation under application occurs on a sandy ridge and is in degraded (Keighery 1994) condition. The application area consists predominantly of Peppermint woodland over an open understorey of pasture grasses (DEC 2009). Other species comprising the overstorey include Banskia attenuata, and the occasionally Xylomelum occidentale, Eucalyptus marginata and Nuytsia floribunda (DEC 2009). The area has been subject in the past to grazing and as a result is devoid of understorey or mid storey native vegetation. There are however, some juvenile peppermint trees (DEC 2009).

The application lies within the Shire of Dardanup and the Swan Coastal Plain IBRA bioregion, which retains 48.57% and 34.84% native vegetation respectively (Shepherd 2007). Orthomosaic imagery suggests the local area (10km radius) is approximately 25% vegetated.

The application area is mapped as consisting Beard Vegetation Association 1000, of which 26.04% of the pre-European extent remains within the Swan Coastal Plain bioregion (Shepherd 2007). The vegetation also consists of Heddle Vegetation Complex Southern River, of which 19.8% remains within the Swan Coastal Plain bioregion (Heddle et al., 1980). The vegetation within the overstorey is representative of the mapped vegetation complexes.

The area under application is part of a larger remnant within an extensively cleared landscape. The removal of 8.5 ha of native vegetation will reduce the size of this remnant and therefore may be at variance to this principle.

Methodology

Keighery (1994)
DEC (2009)
Heddle et al (1980)
Shepherd et al. (2007)
EPA (2003)
EPA (2000)
GIS Database:
-Heddle Vegetation Complexes - DEP 21/06/95
-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 likely to be at variance to this Principle

There is a major drain (which falls within a palusplain) running adjacent to the south of the application area, however these do not support riparian vegetation (DEC 2009). Three damplands are located adjacent and within the north west and north east sections of the application area (~1 ha).

Approximately 200m south of the application area is Crook Brook, and Preston River is approximately 1km south west. There is a suite of EPP wetlands located south west of the application area, the closest of which occurs approx. 750 m from the proposed clearing area.

Mapping indicates that the area under application lies partially within a multiple use wetland. Under the 2001 Wetlands Position Statement a multiple use wetland is defined as a wetland with few important ecological attributes and functions remaining (EPA 2001).

The native vegetation within the application is degraded (Keighery 1994), however peppermint trees can be associated with wetland habitat.

Although the application area falls within mapped wetlands, the proposed clearing is unlikely to have significant impact on wetland values or hydrological function and therefore, clearing is not likely to be at variance to this principle.

Methodology References:
DEC (2009)
Keighery (1994)
EPA (2001)
GIS Databases:
-ANCA, Wetlands - CALM 08/01
-Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
-RAMSAR, Wetlands - CALM 14/02/03
-Hydrography, linear - DOE 1/2/04

(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**
The application area is mapped as having a moderate to low Acid Sulphate Soils risk, no salinity risk and a moderate groundwater salinity level (1000-3000 mg/L TDS).

The soil types mapped within the application area are Wd6, chief soils of sandy acidic yellow mottled soils, and Cb38, sandy dunes with intervening sandy and clayey swamp flats and chief soils of leached sands (Northcote et al 1968). The application area is situated on a sandy ridge (DEC 2009) and therefore consistent with this mapping. The above soils are considered to have a high risk of wind erosion and low risk of waterlogging.

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

Methodology Reference:
DEC (2009)
Northcote et al (1968)
GIS Databases:
-Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
-Salinity Risk LM 25m - DOLA 00

(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 application area lies 4.2km south east of Boyanup State Forest, and 4km east of Dardanup Conservation Park.

The Greater Bunbury Regional Scheme (EPA 2003) identifies a regionally significant ecological linkage, the Dalyellup / Gelorup / Crooked Brook Ecological Linkage, extending east - west from Dardanup Conservation Park to the west coast, including the vegetation under application, and has also been identified as a part of a core regionally significant east - west linkage recognised under the South West Regional Ecological Linkages Project (EPA 2009).

The position of the application area in the landscape indicates that it may also contribute to an ecological linkage to Regional Open Space and the Preston River via a block of vegetation that occurs from Preston River to the western boundary of Lots 5 and 6. This connectivity appears to continue in a north-west direction through remnant vegetation that may also possess fauna habitat trails (DEC 2009).

The removal of the north west section of the applied area is not likely to impact on fauna movement throughout the local area, however the removal of the southern (approximately 5ha) section may contribute to further degradation or disruption of these ecological linkages and impact on fauna movement.

Therefore, the clearing as proposed may be at variance to this principle.

Methodology EPA (2003)
EPA (2009)
GIS Databases:
-CALM Managed Lands and Waters - CALM 1/07/05
-Cadastre - DLI

(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 application area lies 200m north of Crook Brook and Preston River is located approximately 1km south west. There is a suite of EPP wetlands located south west of the application area, the closest of which occurs approx. 750 m from the proposed clearing area.

Parts of the application area are mapped as part of a multi use wetland (area subject to inundation). A paulisplain lies slightly within the southern section of the proposed clearing, and damplands surround the north east and northwest sections of the application area.

The clearing as proposed may incrementally impact on quality of surface water due to the increased recharge and as such may be at variance to this principle.

Methodology

GIS Databases:
-Hydrographic Catchments - Catchments - DOW
-Hydrographic Catchments - Basins - DOW
-ANCA, Wetlands - CALM 08/01
-Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC
-RAMSAR, Wetlands - CALM 14/02/03
-Hydrography, linear - DOE 1/2/04
-Groundwater Salinity, Statewide - DOW
-Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
-Salinity Risk LM 25m - DOLA 00

(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

Given the size and sandy soils of the application area, the clearing as proposed is not likely to have a significant impact on the incidence or intensity of flooding. The proposal is therefore not likely to be at variance to this principle.

Methodology

GIS Database:
-Topographic Contours, Statewide - DOLA 12/09/02_1
-Spot Heights

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

Comments

The applicant has modified the application area to allow for fauna movement through the northern portion of native vegetation on Lot 6. The application area has been reduced from 11.5ha to 8.5 hectares.

The property is zoned General Farming under the Shire of Dardanup Town Planning Scheme No.3 and Rural under the Greater Bunbury Region Scheme (GBRS).

As the application area is partly within a multiple use wetland it is likely that the associated land use, of sand extraction, will cause irreparable damage to any remaining functions that the areas of wetland within the application area have. Given that the area is already listed as multiple use many of these functions have already been lost.

The Western Australian Local Government Association South West Biodiversity Project in collaboration with DEC's Swan Bioplan Project has recognised a network of regionally significant ecological linkages across the south west region referred to as the South West Regional Ecological Linkages (SWREL). The EPA's Environmental Protect Bulletin No. 8 - South West Regional Ecological Linkages states that the EPA supports the SWREL and their methodology, and:

"expects that future planning and development proposals should consider and support the retention and enhancement of the regional ecological linkages and linkage function as one of the key considerations in environmental planning."

This proposal will impact on a 1a core linkage as identified by the Molloy et al. (2009) in the SWREL technical report, which recommends retention of these linkages. Clearing of this native vegetation will sever ecological linkages and reduce efficacy.

An extractive Industry licence from the shire of Dardanup is required. An application was submitted to the shire on 23 November 2009 (DEC TRIM Ref: DOC108283).

No public submissions have been received by the Department to date for this proposal.

The applicant provided the following additional information in response to DEC letter dated 30 October 2009:
* Modification of the application area so fauna can utilise the northern portion of the vegetation within Lot 6. Far eastern patch of vegetation has been removed from the application and a 40m buffer to the western boundary created.
* The clearing on Lot 6 is required to allow vehicle access to the proposed quarry. The area will not be deeply excavated, to ensure future land use is not compromised.
* There are large patches of native vegetation north and south of the application area in fairly good condition
* Livestock will be still allowed to roam the application area if permit is not granted
* Would like to rehabilitate the site once mining has ceased to a better condition than curent. This should enhance the ecological linkages in the future.

Where possible the above advice has been incorporated into the assessment report.

Methodology

Reference:
Molloy et al. (2009)
GIS Databases:
-Public Drinking Water Source Areas (PDWSAs) - DOW
-RIWI Act, Groundwater Areas - DOW
-RIWI Act, Surface Water Areas - DOW
-RIWI Act, Areas - DOW
-RIWI Act, Irrigation Districts - DOW
-RIWI Act, Rivers - DOW
-WRL Properties
-Cadastre - DLI
- Town Planning Scheme Zones - MFP 8/98_1

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the proposed clearing may be at variance to Principle (a), (b), (g), (h) and (i) and is not likely to be at variance to the remaining clearing Principles.

5. References

DEC (2009). Site Inspection Report for Clearing Permit Application CPS 3307/1, Lot 5 and 6 on Plan 232768, Boyanup-Picton Road, Crooked Brook. Site inspection undertaken 13/10/2009. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC101536).

DEC (2009a). Ecological Linkage Advice. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC109595).

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.

EPA (2001) Environmental Protection of Wetlands. Preliminary Position Statement No.4. Perth, Western Australia.

EPA (2003) Greater Bunbury Region Scheme. Bulletin 1108. Environmental Protection Authority, Western Australia.

EPA (2009) South West Regional Ecological Linkages. Bulletin 8. Environmental Protection Authority, Western Australia. October 2009.

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.

Molloy et al. (2009). South West Regional Ecological Linkages Technical Report. Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. September 2009. A report for Department of Environment and Conservation and Western Australian Local Government Association.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.

Shepherd, D.P. (2007). Adapted from: 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

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)