Department of Environment and Conservation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 1735/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: **TD & DV & TD & QT Trinh & Tran & Tran & Tran**

1.3. Property details

Property: LOT 2 ON DIAGRAM 61278 (House No. 235 OLD WEST BULLSBROOK 6084)

Local Government Area: City Of Swan

Colloquial name:

1.4. Application

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

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: 949- Low woodland; banksia. (SAC Bio Datasets 04/07/2008; Shepherd, 2007) Heddle Vegetation Complex: Bassendean Complex-North: Vegetation ranges from a low open forest and low open woodland of Banksia species E. todtiana to low woodland of Melaleuca species and sedgelands which occupy the moister sites (Heddle et al. 1980).	The proposed clearing previously consisted of 10 ha of native vegetation; following amendment the current proposed clearing consists of 7.6 ha of native vegetation for the purpose of horticulture on Lot 2 Old West Road, Bullsbrook. The vegetation under application comprises two areas; an area of 5.7 ha extending to the southern boundary of the property and an area immediately north of 1.9 ha. Currently approximately 11 ha of the 38 ha property remains vegetated with 7.6 ha of this under application. The 5.7 ha area is in good condition, the vegetation structure in this area appears to be altered although basic vegetation structure remains. This area shows signs of historical clearing. The area is heavily dominated by Adenanthos cygnorum with Nuytsia floribunda, Eucalyptus todtiana, Allocasuarina fraseriana, Banksia menziesii, B. attenuata and B. ilicifolia. Lower storey vegetation includes Xanthorrhoea preissii, Acacia pulchella, Patersonia occidentalis, Jacksonia floribunda, Stirlingia latifolia, Petrophile linearis, Mesomelaena tetragona, Calytrix sp. and Alexgeorgea sp. with native herbs, sedges and small shrubs. Perennial Veldt grass (Ehrharta calycina) is also present at moderate to low density. The 1.9 hectare area under application can be divided into two areas. The northern portion which is in good condition and the southern portion which is completely degraded. Vegetation structure in the northern portion appears to be altered although basic vegetation structure remains. This area supports Banksia attenuata, B. menziesii, Allocasuarina fraseriana and Adenanthos cygnorum with scattered under storey shrubs and herbs.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Description and condition of the vegetation under application was determined from the site inspection (DEC, 2007). The vegetation under application ranges in condition from good to completely degraded, with the majority in good condition.

	These areas show signs of historical clearing and are heavily infested with perennial veldt grass (Ehrharta calycina). The area rated completely degraded supports solely Xanthorrhoea preisii.		
	Approximately 6.5 ha of the area under application is in good condition.		
As above	Approximately 1.1 ha of the area under application is in completely degraded condition.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	As above

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 not likely to be at variance to this Principle

The 7.6 ha of vegetation under application is predominantly in good condition (DEC, 2007) with alterations to vegetation structure due to multiple disturbances including grazing, clearing and fire (Submission 2008). Although the majority of the area under application may have reduced floristic diversity and invasive weeds such as perennial veldt grass (DEC, 2007) the vegetation may provide significant habitat for a range of native fauna.

Despite the area providing significant habitat for native fauna, the area is not considered to support high floristic diversity and is not considered to be an area of high biological diversity. Therefore, the proposed clearing is not considered likely to be at variance to this principle.

Methodology

References:
- DEC (2007)
- Submission (2008)

GIS Databases:
- Swan Coastal Plain North 20cm Orthomosaic - DLI 06
- BushForever
- CALM Managed Lands and Waters

(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

Ten fauna species of significance are recorded within the local area (10 km radius), including Carnaby's Black Cockatoos (Calyptorhynchus latirostris) (Threatened), which is likely to utilise the area under application.

Shah (2006) identifies that Banksia species account for over 50% of the native plant diet of Carnaby's Cockatoos on the Swan Coastal Plain and clearing of vegetation that supports food resources for this species will result in cockatoos travelling further in search of food resulting in reduced fat reserves, reduced fitness and greater exposure to predators. Considering the degree of clearing that has already occurred on the Swan Coastal Plain and other threats including the progressive removal of pine plantations (a significant non-native food source for the species) any vegetation that provides a food source for Carnaby's is considered as significant habitat.

During the site inspection (DEC, 2007) the area under application was observed to support Banksia Woodland vegetation in good to completely degraded condition. The vegetation has reduced floristic diversity and the vegetation structure has been altered with the removal of canopy species and some shrub species resulting in the dominance of some native shrubs such as Adenanthos cygnorum. The vegetation was not observed to support hollows.

The area under application lacks dense ground cover vegetation preferred by Quenda, lacks flora in the family Goodeniaceae making the area unsuitable for the native bee Leioproctus contrarius, the canopy vegetation is largely removed and where present is sparse making the area unsuitable for Chuditch, and the area lacks seasonally wet flats with low grasses and open scrubby thickets preferred by the Western Brush Wallaby. Given this the area under application is unlikely to present significant habitat for these species.

The area under application was observed to support large stands of Adenanthos cygnorum making the area suitable habitat for the native bee species Hylaeus globuliferus and the area was observed to support stands of Banksia species namely Banksia menziesii making the area suitable foraging habitat for the Carnaby's Cockatoo (Calyptorhynchus latirostris).

The area was observed (DEC, 2007) to support a variety of native birds including the Red-capped Parrot, Elegant Parrot, Varied Sittella, Grey Fantail, Inland Thornbill and Crested Pigeon.

Given that the area under application is considered to support significant habitat for two species of native fauna of conservation significance and a range of avifauna the clearing is at variance to this principle.

Methodology References:
- DEC (2007)
- DEC (2007a)
- Shah (2006)

GIS Databases:
- Swan Coastal Plain North 20cm Orthomosaic - DLI 06
- BushForever
- CALM Managed Lands and Waters
- SAC Bio datasets 20/04/2007

(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**

There are eight taxa of rare flora recorded within the local area (10 km radius) with the closest rare species being, Grevillea curviloba subsp. curviloba located 5.4 km east and Caladenia huegelii located 5.9 km south southwest of the area under application.

During the site inspection (DEC, 2007) the soils on site were observed to be grey Bassendean sands supporting Banksia Woodland vegetation, with no areas of permanent or seasonal inundation. These characteristics make the site suitable for one species of rare flora, being Caladenia huegelii. The proponent amended the area under application to remove 2.4 hectares of native vegetation in good to very good condition as it may have provided habitat for this species. DEC (2008) Species and Communities advised that Caladenia huegelii is 'unlikely to have survived in the highly disturbed' area considered to be in a degraded condition.

Considering the vegetation, soils and landform type present on site; the area under application would not meet the habitat requirements for the rare flora recorded within the local area (10 km radius).

Given that Caladenia huegelii is unlikely to occur within the area under application clearing is not considered likely to be at variance to this principle.

Methodology References:
- Western Australian Herbarium (1998-)
- DEC (2007)
- DEC (2008)

GIS Databases:
- SAC Bio datasets 20/04/2007

(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**

Within the local area (10 km radius) there are occurrences of five Threatened Ecological Communities (TECs). These TECs are:
- Herb rich saline shrublands in clay pans;
- Communities of Tumulus Springs;
- Shrublands and woodlands on Muchea limestone;
- Eucalyptus calophylla - Xanthorrhoea preisii woodlands and shrublands, and;
- Forests and woodlands of deep seasonal wetlands.

When floristic composition, soil and landform types observed during the site inspection (DEC, 2007) are compared with those in Gibson et al (1994) none of the above TECs have similar species compositions or occur on the same soil or landform types to the vegetation under application. Therefore, it is considered unlikely that the vegetation present on site is representative of any of these TECs.

DEC (2007b) advises that although TEC: Banksia attenuata woodlands over species rich dense shrublands (SCP 20a), the area under application does not represent an occurrence of this TEC despite sharing some species in common with this TEC.

Given the area under application is not considered to support an occurrence of a TEC clearing is not considered likely to be at variance to this principle.

Methodology References:
- DEC (2007)

- DEC (2007b)
- Gibson et al (1994)

GIS Databases:
- SAC Bio datasets 20/04/2007

(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

The vegetation within the area under application is identified as a component of Beard Vegetation Association 949 and Heddle Vegetation Complex, Bassendean Complex-North. These vegetation communities are identified as having 58.4% and 72.0% remaining of their pre-European extent, respectively (Shepherd 2007; EPA 2006).

The area proposed to be cleared is located on the Swan Coastal Plain within the constrained area of the Perth Metropolitan Region. EPA (2006) recognises that within the constrained area a reduction of vegetation complexes to a minimum of 10% of Pre-European extent may be applied.

In addition there are significant amounts of remnant vegetation in the local area, located within Bush Forever sites and State Forest 65 (Gnangara-Moore River State Forest).

Given the vegetation associations under assessment (Heddle and Beard) are greater than 10% and there are a number of other remnants in the local area, the vegetation under application is not likely to be considered significant as a remnant in an area that has been extensively cleared; therefore, the proposal is considered not likely to be at variance to this principle.

	Pre-European area (ha)	Current extent (ha)	Remaining %	% in reserves/DEC-managed land	
Swan Coastal Plain (SCP)*	1,501,208	583,140	38.8	-	
City of Swan*	104,215	46,051	44.2	-	
Heddle vegetation complex**					
- Bassendean Complex- North		74,147	53,384	72.0	27.5
Beard vegetation association*					
- 949 (within SCP)	209,983	122,677	58.4	49.3	

* (Shepherd 2007)
** (EPA, 2006)

Methodology

References:
- EPA (2006)
- Shepherd (2007)

GIS Databases:
- Pre-European Vegetation
- Heddle Vegetation Complexes
- Interim Biogeographic Regionalisation of Australia
- SAC Bio Datasets 29/07/2009

(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

Wetland mapping of the areas under application identified numerous wetlands within close proximity to the applied vegetation, with the closest being a relatively large palusplain Multiple Use Wetland (MUW). This large MUW extends down the entire western side of both areas under application, abutting the 1.9 ha northern area, and running approximately 50 m from the western edge of the southern area under application.

In addition, a Resource Enhancement Wetland (REW) is located approximately 120m to the east, and two Conservation Category Wetlands (CCW), one approximately 760 m west and the other approximately 480 m east of the applied area. This eastern CCW is also a recognised EPP Lake.

The nearest watercourse is located 1.3 km south east of the areas under application and flows east to drain into the Ellen Brook.

Vegetation under application observed during a site inspection (DEC, 2007) was not consistent with wetland dependent vegetation. Therefore the proposed clearing is not considered to be within or associated with a wetland or watercourse and is not likely to be at variance to this principle.

Methodology Reference:
- DEC (2007)
GIS Databases:
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain
- Hydrography, linear
- Hydrography, linear (hierarchy)
- EPP, Lakes

(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 vegetation under application lies within soils associated with a subdued dune-swale terrain with chief soils being leached sands (Northcote et al. 1960-68). An inspection of the applied areas (Site Inspection 2007) identified the areas under application to be dominated by grey Bassendean sands.

During a site inspection (DEC, 2007) the soils within the area under application were observed to be grey Bassendean sands typical of the Bassendean dune system. Soils of this dune system have a high wind erosion risk (State of Western Australia 2005) and DAFWA (2007a) advised that post clearing the risk of wind erosion of soils causing land degradation is very high.

In addition phosphorous loss is generally high in sands of the Bassendean dune system and the Phosphorous Retention Index (PRI) is generally low. Although the Bassendean Sands - Jandakot phase do have a thin band of yellow sand, which does allow some phosphorus retention, the overall phosphorus retention is considered low (State of Western Australia 2005; DAFWA 2007b). Furthermore the loss of nitrogen through these soil would be high given the permeability of the soil and because PRI does not influence nitrogen retention.

Given the sandy soils, it is considered that the proposed clearing of approximately 7.6 ha of native vegetation is likely to cause appreciable land degradation in the form of wind erosion and eutrophication; however, the proponent has provided information relating to management of these issues that if implemented would limit these impacts (Bodycoat Consultancy, 2009). Therefore, it is considered that clearing as proposed may be at variance to this Principle.

Methodology References:
- Bodycoat Consultancy (2009)
- DAFWA (2007a)
- DAFWA (2007b)
- DEC (2007)
- Northcote et al. (1960-68)
GIS Database:
- Soils, Statewide - DA 11/99

(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 is not likely to be at variance to this Principle**

The areas under application are located within relatively close proximity to numerous Bush Forever Sites, with Sites 399 (~4000 ha), 462 (~1,700 ha), 97 (~441 ha) and 6 (~114 ha) all located within 2.4 km of the applied area. In addition, sections of Bush Forever Site 399 are mapped as State Forest 65 (Gnangara-Moore River State Forest).

Given the completely degraded to good condition of the vegetation under application (DEC, 2007), the applied area is not considered likely to be part of a significant ecological linkage between these reserves.

Methodology Reference:
- DEC (2007)
GIS Databases:
- BushForever
- CALM Managed Lands and Waters
- Swan Coastal Plain North 20cm Orthomosaic - DLI 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 may be at variance to this Principle**

The nearest wetland to the areas under application is a palusplain Multiple Use Wetland (MUW) which extends down the entire western side of both areas under application, abutting the northern area, and running approximately 50 m from the edge of the southern area under application. The nearest watercourse is located

1.3 km south east of the areas under application and flows east to drain into Ellen Brook. A chain of wetlands adjacent to the area under application are expressions of the groundwater table and the above mentioned watercourse drains these wetlands.

The Ellen Brook Catchment is a major contributor to nutrient loading in the Swan-Canning system which is located downstream of Ellen Brook (Swan River Trust 2004). While any additional clearing in the catchment resulting in a change in land-use may lead to further degradation of the catchments groundwater system and further impacts downstream DAFWA (2008a) advise the majority of nutrients entering the Ellen Brook is from surface water flows and there is a low likelihood of surface water flow from the property into the tributaries of the Ellen Brook.

DAFWA (2007a) advise that no signs of salinity were observed on site and that the risk of salinity causing land degradation is low.

Considering the lack of surface water flows and attenuation of nutrients in groundwater through the wetland systems east of the areas under application it is considered that the risk of nutrient export from the property as a result of clearing vegetation would be low. The risk of nutrient loss could be further reduced through the implementation of the management plans provided to minimise leaching of nutrients (Bodycoat Consultancy, 2008 and 2009).

Methodology

References:
- Bodycoat Consultancy (2008)
- Bodycoat Consultancy (2009)
- DAFWA (2007a)
- DAFWA (2007b)
- DAFWA (2008a)

GIS Databases:
- Salinity Risk LM 25m
- Hydrography, linear
- Hydrography, linear (hierarchy)
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain

(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

The nearest wetland to the area under application is a palusplain Multiple Use Wetland (MUW) which extends down the entire western side of both areas under application, abutting the northern area, and running approximately 50 m from the edge of the southern area under application. The nearest watercourse is located 1.3 km south east of the area under application and flows east to drain into Ellen Brook River.

The vegetation under application lies within soils associated with a subdued dune-swale terrain with chief soils being leached sands (Northcote et al. 1960-68). During the site inspection (DEC, 2007) the areas under application were observed to be dominated by grey Bassendean sands.

Despite the close proximity of the MUW, DAFWA (2007a) advise that the proposed clearing is unlikely to cause appreciable land degradation in the form of water logging or flooding.

Methodology

References:
- DAFWA (2007a)
- DEC (2007)
- Northcote et al. (1960-68)

GIS Databases:
- Hydrography, linear
- Hydrography, linear (hierarchy)
- Geomorphic wetlands (Mgt Categories) - Swan Coastal Plain

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

Comments

DEC sent a letter dated 4 December 2008 to the application requesting a copy of the outstanding development approval from the City of Swan. No response was been received from the applicant and an application for development approval has not been submitted to the City of Swan by the owner of Lot 2 Old West Road.

On 18 June 2009 DEC sent a letter inviting the proponents to provide additional advice addressing the issue of the impact on habitat for fauna of conservation significance. A response letter was received from the applicant on 21 July 2009. The applicant's (Bodycoat Consultancy, 2009) response to the identified environmental issues included:

- A farm management plan has been compiled for the property to address the wind erosion risk and to manage the remnant bush.

- A nutrient and irrigation management plan has been compiled to address the eutrophication risk.
- The proponents propose to fence around native vegetation and to exclude stock from these fenced areas.

The assessment of the clearing principles has considered the additional information provided.

The City of Swan confirmed that a completed application for development was lodged on the 24 June 2009.

The proponents have a current groundwater licence for the irrigation of 18.68 ha of horticulture. Currently approximately 24 ha has been cleared for horticulture on the property.

DAFWA (2007a) advises that although the wind erosion risk on site is high that this can be managed by strategic wind breaks and careful land management.

The Swan River Trust (2007) advised that as a general principle, it would not generally support this type of development as it will almost certainly result in increased nutrient inputs to the Ellen Brook, which currently contributes up to 37% of the phosphate load and up to 10% of the nitrogen load to the Swan River from coastal plain catchments.

The Swan River Trust's draft Healthy Rivers Action Plan identifies the Ellen Brook as a priority catchment for nutrient reduction and sets a target of 30% reduction in nutrient inputs to the Swan by 2015 (Swan River Trust, 2007).

In addition, the State Planning Policy 2.10 Swan-Canning River System states in section 7.2.2 that 'Land use changes should not result in further water quality degradation but should, if possible, improve the situation' (Swan River Trust, 2007). The Ellen Brook catchment is just outside the SPP boundary, but the Swan River Trust believes this principle should still apply (Swan River Trust, 2007).

The Swan Canning Cleanup Program recognises the Ellen Brook catchment as a major contributor to nutrient loading in the Swan-Canning system which is located downstream (Swan River Trust 2004). Any additional clearing in the catchment will likely lead to further degradation of the catchments groundwater system and further impacts downstream.

It has been suggested that in order to reduce nutrient export from the Ellen Brook catchment to the Swan Canning Estuary by 50% for nitrogen and 20% for phosphorous, a reduction in the proportion of agricultural land of 20% with well targeted reafforestation of this 20% is necessary (Zammit et al 2005). Considering this, further clearing of the Ellen Brook catchment would require addition reafforestation elsewhere to meet this target.

The areas under application are located on soils with a Class 2 Acid Sulphate Soil (ASS) Risk. This Class is defined as having a moderate to low risk of ASS occurring within 3m of the natural soil surface that could be disturbed by the proposed development activities.

There is no required Works Approval or EP Act Licence that affects the areas under application.

Methodology

References:
- Bodycoat Consultancy (2009)
- Department of Water (2007)
- DAFWA (2007a)
- DAFWA (2008)
- Zammit et al (2005)
- Swan River Trust (2004)
- Swan River Trust (2007)
- Submission (2008)

GIS Databases:
- Cadastre - DLI
- Acid Sulphate Soil risk map, Swan Coastal Plain, DEC

4. Assessor's comments

Comment

The assessable criteria have been addressed and the clearing as proposed is at variance to Principle (b) and may be at variance to Principles (g) and (i).

5. References

Bodycoat Consultancy (2008) Response to DEC letter dated 31 January 2008, outline of the management of land degradation risks. TRIM Ref DOC50677

Bodycoat Consultancy (2009) Response to DEC letter dated 18 June 2009, including outline of Farm Plan. TRIM Ref DOC91045

DEC (2007). Site Inspection Report, Department of Environment and Conservation (DEC). Perth, Western Australia. TRIM Ref. DOC21384.

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DEC (2007b). Nature Conservation Branch personal communication.

DEC (2008). Advice on rare flora, Caladenia huegelii, Species and Communities Branch. TRIM Ref. DOC49169.

Department of Agriculture and Food. (2007). RE: Application for clearing permit CPS 1735/1, Lot 2 on Diagram 61278 - Tran and Trinh. Perth, Western Australia. TRIM Ref. DOC25578.

Department of Agriculture and Food. (2007b). CPS 1735 Lot 235 Old West Rd., Bullsbrook - Additional information on nutrient export. TRIM Ref. DOC41101.

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EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.

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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.

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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.

State of Western Australia (2005) Agmaps Land Manager CD Rom.

Swan River Trust. (2004). Swan-Canning Cleanup Program Action Plan Implementation 2004. Perth, Western Australia. http://portal.environment.wa.gov.au/portal/page?_pageid=973,2910566&_dad=portal&_schema=PORTAL. Accessed Tuesday, 5 June 2007.

Swan River Trust. (2007). Swan River Trust advice on the Ellen Brook Catchment (email), Swan River Trust. DOC56903

Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. http://florabase.calm.wa.gov.au/ (Accessed 11 May 2007).

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)