



1. Application details

1.1. Permit application details

Permit application No.: 2567/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Dawnlake Enterprises Pty Ltd

1.3. Property details

Property: LOT 1627 ON PLAN 203418 (BOW BRIDGE 6333)
 Local Government Area: Shire Of Denmark
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
20		Mechanical Removal	Dam construction or maintenance

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: 3 - Medium forest, jarrah-marri, and; 27 - Low woodland, paperbark (<i>Melaleuca</i> sp.) (Shepherd et al. 2006)	The proposal is to clear 20 ha of native vegetation for the construction of a dam and establishment of summer pasture.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Description and condition of the vegetation under application was determined from Site Inspection (2008).
Mattiske Vegetation Complex: 303 - Fernley Vegetation Complex, Mixture of woodland of <i>Eucalyptus megacarpa</i> , woodland of <i>Eucalyptus patens</i> , tall shrubland of <i>Myrtaceae</i> spp. with some sedgeland of <i>Anarthria</i> spp. on broad plains in hyperhumid and perhumid zones (Mattiske Consulting 1998).	The area under application occupies the site of two perennial swamps and associated marshland (Site Inspection 2008) and forms part of an Environmentally Sensitive Area of Regional Nature Estate. Vegetation within the area under application can be described as closed heath. The area under application supports an upper storey of very sparse <i>Melaleuca preissiana</i> with a middle storey of <i>Kunzea sulphurea</i> , <i>Leucopogon australis</i> , <i>Beaufortia sparsa</i> , <i>Rhadinothamnus anceps</i> , <i>Taxandria juniperina</i> , <i>T. parviceps</i> , <i>T. linearifolia</i> , <i>Holalosperrum firmum</i> and <i>Callistemon glauca</i> , and ground cover vegetation including <i>Anarthria proliferata</i> , <i>Boronia stricta</i> , <i>Sphenotoma gracile</i> and an unidentified rush species (Site Inspection 2008). The wetland of which the area under application forms a part has been subject to altered hydrology with the construction of a		

drain along the sites northern boundary. The area under application does however still flood annually. No weeds were observed within the area under application and no grazing has occurred within the area applied to clear (Site Inspection 2008).

The area under application is considered to be in excellent (Keighery 1994) condition (Site Inspection 2008).

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

During Site Inspection (2008) the entire area under application was observed to be occupied by two perennial swamps with associated marshland. Vegetation on site can be described as closed heath in excellent (Keighery 1994) condition and supporting high floral diversity (Site Inspection 2008).

The area under application supports the second largest of four wetlands (perennial swamps) within a 10 km radius of the area under application and is one of only three large perennial swamps in which the vegetation is continuous with surrounding native vegetation in secure tenure.

In consideration of the vegetation condition, habitat and linkage values associated with the wetlands on Lot 1627 these wetlands are considered to be commensurate with Conservation category values. Wetlands classified as Conservation category support a high level of attributes and functions and are the highest priority wetlands for protection (DEC 2008b).

Given the condition and high floral diversity associated with vegetation in the wetlands under application the site is considered to provide high quality habitat for indigenous fauna.

A number of priority listed flora species occur in similar vegetation within 500m of the proposed clearing area (site inspection 2008). These include *Boronia virgata* (P3) and *Sphenotoma parviflora* (P3) and there is a high probability that these species may be present within the proposed clearing area. Related species were observed during the site visit (2008), however, the above mentioned species were unlikely to have been flowering.

Given the high level of attributes and functions associated with the wetland under application, rarity of similar wetlands within the local area, presence of suitable habitat for two priority species in, high floral diversity in and provision of high quality habitat for fauna in the area under application the site is considered to constitute an area of high biological diversity and clearing as proposed is considered to be at variance to this principle.

Methodology

References:

- Site Inspection (2008)
 - Keighery (1994)
 - DEC (2008b)
- ##### GIS Databases:
- CALM Managed Lands and Waters
 - Deep River 50cm Orthomosaic - Landgate 2004
 - Denmark 1.4m Orthomosaic - Landgate 2001
 - Hydrography, linear_1
 - Hydrography, linear (hierarchy)
 - Cadastre for labelling

(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

During Site Inspection (2008) the entire area under application was observed to occupy the site of two perennial swamps and associated marshland. Vegetation on site can be described as closed heath with a very sparse upper storey of *Melaleuca preissiana* and a diverse shrubby middle storey over rushes and sedges. Vegetation is considered to be in excellent (Keighery 1994) condition.

Sixteen indigenous fauna species of conservation significance have been recorded within a 10 km radius of the area under application.

During Site Inspection (2008) the area under application was observed to support suitable habitat for the Quokka (VU) and Quenda (P5) evidenced by the presence of runnels between surrounding woodland and the vegetation under application suggesting that this site may be used as summer habitat for these species.

In addition given the area is seasonally inundated, supports wetland dependent vegetation and is connected to minor perennial watercourses the area under application may support suitable habitat for the Trout Minnow (EN) and Western Mud Minnow (VU) (Allen G.R., 1989), Australasian Bittern (VU) (Garnett and Crowley 2000) and Pouched Lamprey (P1) (Water and Rivers Commission 2000). Given that the property under application and surrounding area supports large areas of remnant vegetation the site may also provide habitat for the White-Browed Babbler (P4).

During Site Inspection (2008) several fauna species were observed using habitat within the area under application. These species include large numbers of Western Grey Kangaroos, an array of native frogs including Quacking Frog (*Crinia Georgiana*) and large numbers of Motorbike Frog (*Littoria adelaidensis*) and Glauert's Froglet (*Crinia glauerti*), a range of native birds including Splendid Wrens, White-browed Scrub Wrens, New Holland Honey-eaters and Grey Fantails and several bird species that were unable to be identified.

Two known populations of Sunset Frog (*Spicospina flammorcaerulea* (VU) occur in similar vegetation within 2 km of the proposed clearing area. The area under application could be potential habitat for the frogs. Sightings of *Calyptorhynchus banksii naso* (Red Tailed Black Cockatoo) have been recorded within 1.2 km of the proposed clearing area. The swamp system may be significant feeding habitat, given its proximity of large jarrah and marri trees to the west.

Given the area under application supports the second largest of four perennial swamps within a 10 km radius of the area under application and is one of only three perennial swamps in which the vegetation is continuous with surrounding native vegetation the site is considered to be significant habitat for several species of conservation significance as well as providing habitat for species not of conservation significance. Given this clearing as proposed is considered to be at variance to this principle.

- Methodology** **References:**
- Site Inspection (2008)
 - Garnett and Crowley (2000)
 - Water and Rivers Commission (2000)
 - Allen, G.R. (1989)
 - DEC (2006a)
 - DEC (2006b)
 - DEC (2006c)
 - DEC (2008a)
 - Keighery (1994)
- GIS Databases:**
- SAC Bio datasets 19/08/2008
 - Hydrography, linear_1
 - Hydrography, linear (hierarchy)
 - Deep River 50cm Orthomosaic - Landgate 2004
 - NLWRA, Current Extent of Native Vegetation

(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**
- Five species of rare flora are known to occur within a 10 km radius of the area under application. The closest known record of rare flora is *Drakaea micrantha*, located ~ 7.5 km from the area under application.
- During Site Inspection (2008) the entire area under application was observed to support two perennial swamps with associated marshland and the vegetation on site can be described as closed heath with a very sparse upper storey of *Melaleuca preissiana* and a diverse shrubby middle storey over rushes and sedges.
- Given the vegetation associations, vegetation composition, landform type and soils within the area under application, the area is not considered likely to support suitable habitat for rare flora (Site Inspection 2008; Western Australian Herbarium 1998; Brown et. al. 1998). Given this clearing as proposed is not considered likely to be at variance to this principle.

- Methodology** **References:**
- Site Inspection (2008)
 - Brown et.al (1998)
 - Western Australian Herbarium (1998)
- GIS Databases:**
- Mattiske Vegetation

- Pre-European Vegetation
- Soils, Statewide
- SAC Bio datasets 19/08/2008

(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**
 No Threatened Ecological Communities are recorded within a 10 km radius of the area under application.

It is therefore unlikely that the vegetation proposed to be cleared comprises the whole, or a part of, or is necessary for the maintenance of a TEC and is thus considered not likely to be at variance to this principle.

Methodology GIS Databases:
 - SAC Bio datasets 19/08/2008

(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 area of vegetation under application is associated with Mattiske Vegetation Complex 303 (Fernley) and Beard Vegetation Associations 3 and 27, which have 71.1%, 69.4% and 72.3% pre-European vegetation extent remaining respectively (Shepherd 2006; Mattiske Consulting 1998).

Vegetation present on site is partly consistent with Mattiske's Fernley vegetation complex being, ...tail shrubland of Myrtaceae spp. with some sedgeland of Anarthria spp. on broad plains' (Site Inspection 2008) and the vegetation structure and composition indicates the site may also be consistent with Beard vegetation association 27, 'low woodland - paperbark (Melaleuca sp.)'.

The State government is committed to the National Objectives and Targets for Biodiversity Conservation, which includes targets that prevent the clearing of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia 2001).

Both vegetation associations mapped within the area under application are above the State Government's biodiversity conservation target, with greater than 30% of their pre-European extent remaining.

As all three vegetation associations present within the area under application are above the minimum 30% pre-European extent, the clearing as proposed is not considered likely to be at variance to this principle.

	Pre-European area (ha)	Current extent (ha)	Remaining %	% in reserves/DEC-managed land
Bioregion:				
Warren *	833,981	663,141	79.5	67.9
Shire of Denmark *	190,142	145,216	76.4	60.4
Mattiske vegetation complex **				
303 - Fernley	216,582	154,024	71.1	-
Beard vegetation association *				
3	2,661,403	1,846,588	69.4	58.2
27	130,385	94,298	72.3	60.1

* (Shepherd 2006)
 ** (Mattiske Consulting 1998)

Methodology References:
 - Site Inspection (2008)
 - Mattiske Consulting (1998)
 - Shepherd (2006)
 - Commonwealth of Australia (2001)
 GIS Databases:
 - Interim Biogeographic Regionalisation of Australia_1
 - Local Government Authorities
 - Mattiske Vegetation
 - Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments Proposal is at variance to this Principle

The entire area under application occupies the site of two perennial swamps and associated marshland. The swamps and marshland located within the area under application form part (20 ha) of a continuous wetland system the majority of which (~79 ha or 74%) is located within the Mount Roe National Park. A major drain is located along the site's northern boundary with a second drain located ~150 m east of the area under application. Both these drains are continuous with a minor perennial watercourse that forms part of a tributary of the Kent River which is located ~3.2 km east of the area under application.

During Site Inspection (2008) vegetation on site was observed to be closed heath with a very sparse upper storey of *Melaleuca preissiana* and a diverse shrubby middle storey over rushes and sedges. At the time of the Site Inspection (2008) the area supported fresh water to a depth of ~0.5 -0.8 m.

Vegetation under application is in excellent (Keighery 1994) condition (Site Inspection 2008).

In consideration of the vegetation condition, habitat and linkage values wetlands within Lot 1627 are commensurate with Conservation category values (DEC 2008b). Wetlands classified as Conservation category support a high level of attributes and functions and are the highest priority wetlands for protection (DEC 2008b).

Given that the area under application supports vegetation growing in a wetland consistent with Conservation category values clearing as proposed is considered to be at variance to this principle.

Methodology

References:

- Site Inspection (2008)
- Keighery (1994)
- DEC (2008b)

GIS Databases:

- Hydrography, linear_1
- Hydrography, linear (hierarchy)

(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 area under application lies within soils associated with plains supporting a succession of swampy flats broken by low sandy, or ironstone gravelly, knolls and hillocks, the chief soils are leached sands, some of which have thin peaty surface horizons.

During Site Inspection (2008) the area under application was observed to support sandy soils on gently undulating terrain. Two perennial swamps and associated marshland are located within the area under application.

Given the scale of clearing proposed and its location within a wetland system it is considered that clearing may expose soils prone to water erosion. Given this clearing may be at variance to this principle.

Methodology

References:

- Site Inspection (2008)
- Northcote et al. (1960-68)

GIS Databases:

- Soils, Statewide
- Hydrography, linear_1
- Hydrography, linear (hierarchy)

(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 at variance to this Principle

The western boundary of the area under application borders Mount Roe National Park. In addition the Frankland State Forest which is continuous with Mount Roe National Park on its eastern side and Frankland National Park on its western side is located ~3 km west of the area under application.

During Site Inspection (2008) the area under application was observed to support two swamp systems with associated marsh in excellent (Keighery 1994) condition.

The swamps and marshland located within the area under application form part (20 ha) of a continuous wetland system the majority of which ~79 ha or 74% is located within the Mount Roe National Park.

In consideration of the vegetation condition, habitat and linkage values, wetlands within Lot 1627 are commensurate with Conservation category values. Wetlands classified as Conservation category support a high level of attributes and functions and are the highest priority wetlands for protection (DEC 2008b).

The area under application supports the second largest of four wetlands (perennial swamps) within a 10 km radius of the area under application and is one of only three large perennial swamps in which the vegetation is continuous with surrounding native vegetation in secure tenure.

Given that the area under application forms part of a wetland system the majority of which is located on conservation estate and which has values consistent with Conservation category wetland systems, that wetlands of comparable type, size and health are rare within the local area and that Conservation category wetlands are considered to have a high level of ecological attributes and functions, the area under application is considered to be an area of high environmental value.

It is considered that clearing as proposed will impact on the environmental values of the adjacent conservation area, thus clearing is considered to be at variance to this principle.

Methodology

References:

- Keighery (1994)
- Site Inspection (2008)
- DEC (2008b)

GIS Databases:

- CALM Managed Lands and Waters
- Deep River 50cm Orthomosaic - Landgate 2004
- Denmark 1.4m Orthomosaic - Landgate 2001
- Hydrography, linear_1
- Hydrography, linear (hierarchy)

(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 entire area under application occupies the site of two perennial swamps and associated marshland. A major drain is located along the sites northern boundary with a second drain located ~150 m east of the area under application. Both these drains are continuous with a minor perennial watercourse that forms part of a tributary of the Kent River which is located ~ 3.2 km east of the area under application.

During Site Inspection (2008) vegetation on site was observed to support deep rooted perennial vegetation in excellent (Keighery 1994) condition. At the time of the Site Inspection (2008) the area supported fresh water to a depth of ~0.5 -0.8 m.

The swamps and marshland located within the area under application form part (20 ha) of a continuous wetland system the majority of which (~79 ha or 74%) is located within the secure tenure of Mount Roe National Park.

Given that the proposal involves clearing of high quality deep rooted vegetation growing in a wetland and may involve changes to wetland hydrology it is considered that clearing is likely to result in increased turbidity, sedimentation and eutrophication within and hydrological changes to the wetland system of which the site forms a part. Given this clearing is considered to be at variance to this principle.

Methodology

References:

- Site Inspection (2008)
- Keighery (1994)

GIS Databases:

- Deep River 50cm Orthomosaic - Landgate 2004
- Denmark 1.4m Orthomosaic - Landgate 2001
- South Coast Significant Wetlands
- Hydrography, linear_1
- Hydrography, linear (hierarchy)
- CALM Managed Lands and Waters

(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 may be at variance to this Principle

The entire area under application occupies the site of two perennial swamps and associated marshland.

During Site Inspection (2008) vegetation on site was observed to support deep rooted perennial vegetation in excellent (Keighery 1994) condition. At the time of the Site Inspection (2008) the area supported fresh water to a depth of ~0.5 -0.8 m.

Considering the level of flooding the area under application currently supports, the size of the area under application and the high quality and deep rooted nature of the vegetation on site it is considered that clearing may exacerbate the incidence and intensity of flooding within the area under application and clearing may be at variance to this principle.

Methodology References:
- Site Inspection (2008)
- Keighery (1994)
GIS Databases:
- Hydrography, linear_1
- Hydrography, linear (hierarchy)

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

Comments

The area under application occupies the site of two wetlands and associated marshland. The proposed works involves modifying the wetland hydrology and excavation of soils, therefore, the proposed works may expose acid sulfate soils.

Development Approval may be required from the Shire of Denmark for the proposed construction of two dams within the area under application. Currently comment has not been received from the Shire regarding this application.

Methodology References:
- Site Inspection (2008)
- Department of Indigenous Affairs (2008)
GIS Databases:
- RIWI Act, Areas

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 is considered to be at variance to principles (a), (b), (f), (h) and (i) and maybe at variance to principles (g) and (j).

5. References

- Allen, G.R., 1989. Freshwater fishes of Australia. T.F.H. Publications, Inc., Neptune City, New Jersey.
- Brown A., Thomson-Dans C. and Marchant N.(1998). Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DEC. (2006a). NatureBase - Fauna Species Profile: Brush-tailed Phascogale. Accessed at <http://www.naturebase.net/content/view/840/1288/>. Accessed 19/08/2008. Department of Environment and Conservation, Western Australia.
- DEC. (2006b). NatureBase - Fauna Species Profile: Chuditch. Accessed at <http://www.naturebase.net/content/view/840/1288/>. Accessed 19/08/2008. Department of Environment and Conservation, Western Australia.
- DEC. (2006c). NatureBase - Fauna Species Profile: Woylie. Accessed at <http://www.naturebase.net/content/view/840/1288/>. Accessed 19/08/2008. Department of Environment and Conservation, Western Australia.
- DEC. (2008a). Dunsborough Burrowing Crayfish (*Engaewa reducta*), Margaret River Burrowing Crayfish (*Engaewa pseudoreducta*) and Walpole Burrowing Crayfish (*Engaewa walpolea*) Recovery Plan 2007 - 2016, Western Australian Wildlife Management Program No.XX, unpublished report as at 23 January 2008.
- DEC. (2008b). Wetlands Advice for Native Vegetation Conservation Branch. Dated 21/08/2008. Species and Communities Branch, Department of Environment and Conservation, Western Australia. TRIM Ref. DOC60782.
- Department of Indigenous Affairs. (2008). Aboriginal Heritage Inquiry System. Perth, Western Australia. <http://www.dia.wa.gov.au/Heritage/Inquiry/>. Accessed 25 August 2008. TRIM Ref. DOC61031.
- Garnett, S.T. and Crowley G.M. (2000). The Action Plan for Australian Birds 2000. Canberra, Environment 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.
- 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. (2006). 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.

Site Inspection. (2008). Regional Advice Report, clearing permit application CPS2567/1. Perth, Western Australia, Department of Environment and Conservation. TRIM Ref. DOC60279.

Water and Rivers Commission. (2000). Water Notes: Advisory note for land managers on river and wetland restoration. Perth Western Australia.

Western Australian Herbarium (1998-). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 25 August 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)