



## 1. Application details

### 1.1. Permit application details

Permit application No.: 832/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Andrew Bruce & Sandra Yvonne Knight

### 1.3. Property details

Property: LOT 7356 ON PLAN 213833 (KENTDALE 6333)  
Local Government Area: Shire Of Denmark  
Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
11.4		Mechanical Removal	Grazing & Pasture

## 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 969 - Mosaic: Medium forest; jarrah-marri / Low forest; jarrah (Hopkins et al., 2001; Shepherd et al., 2001).	The vegetation at each of the areas covered by this application as identified during the site visit (DoE TRIM ref AD223):  The area in the north of the property (site 1) consists of a mixed eucalyptus woodland with some Nyutsia and Allocasurina spp. present, the understorey is predominantly Agonis sp. with some Acacia sp., Beufortia sparsa, Adenanthos and Kunzea spp.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	Condition ratings as identified during the site visit (DoE TRIM ref AD223): Site 1- excellent to very good Site 2- excellent to very good Site 3- poor to very good; cattle ran through this area 5 years ago, pasture weed invasion and compaction evident Site 4- very good Site 5- excellent
Mattiske vegetation complex - Dempster 1 (Dc1) Woodland of Eucalyptus marginata subsp. marginata-Corymbia calophylla-Allocasuarina fraseriana with Eucalyptus staeri on low hills formed by dissection of siltstone plateau in the perhumid zone (Mattiske Consulting, 1998).	The area in the west of the property (site 2) has mixed Eucalyptus marginata and Corymbia calophylla woodland with a similar understorey to site 1. This site runs back to the boundary of Reserve 17925.		An overall condition rating of 'Very Good' is assigned as representative of all five areas.
Mattiske vegetation complex - Dempster (Ds) Low woodland of Eucalyptus marginata subsp. marginata-Corymbia calophylla-Eucalyptus staeri on small hills of siltstone plateau in the perhumid zone (Mattiske Consulting, 1998).	The area in the southwestern corner of the property (site 3) has a mixed eucalyptus woodland with an agonis sp. and riparian vegetation, predominantly Baumea juncea, understorey.		
Mattiske vegetation complex - Fernley (F) Mixture of woodland of Eucalyptus megacarpa, woodland of Eucalyptus patens, tall shrubland of Myrtaceae spp. with some sedgeland of Anarthria spp. on broad plains in hyperhumid and perhumid	The area in the south east of the property (site 4) has a similar composition as sites 1&2 but with Allocasurina fraseriana dominating the canopy where the gradient is steeper. Near the stream headwaters in the south of this site Agonis sp. and		

zones (Mattiske Consulting, 1998).

rushes dominate.

The area in the central east of the property (site 5) has a *Eucalyptus marginata*, *Corymbia calophylla* and *Allocasuarina fraseriana* woodland with *Banksia grandis* also present.

### 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 area under application demonstrate a high level of biological diversity, particularly with respect to the excellent condition of the flora and high number of species present at some of the sites (DoE site visit). However, it is unlikely to be outstanding or of special significance when compared to the locality and region in which there are a number of large Conservation and Land Management (CALM) Reserves designated for the protection of Flora and Fauna. Additionally, if a smaller area was cleared than that proposed, the impacts on biodiversity would be reduced.

**Methodology** Site visit (DoE TRIM ref AD223)  
GIS Database:  
- CALM Managed Lands and Water - CALM 01/07/05

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

The vegetation covered in this proposal is likely to provide a wide range of habitat for fauna from mature intact woodlands to wetland and waterlogged areas (DoE site visit). Local residents claim that the property provides habitat for significant species such as the Red-Tailed Cockatoo, Quenda (southern brown bandicoot) and other fauna including emu and native quail (TRIM AI853). A fauna survey has not been conducted to confirm and quantify this claim.

The maps associated with the draft South Coast Macro Corridor Project identifies the property under application as being part of Strategic Zone A: Contains areas of woody vegetation were polygons >30 hectares in size are spaced <1km apart and potentially form the most strategic link between major protected areas (CALM, 2002). This suggests that the remnant vegetation on this property plays a role in the connectivity of vegetation across the landscape, particularly between the Reserve on its western boundary with vegetation on neighbouring properties to the east and the retention of uncleared areas as fauna refuge should be encouraged.

It is likely that the removal of some of the native vegetation on the property would not significantly impact the overall value for fauna, provided the sites adjoining the Reserve and closest to the Kent River are retained.

If all the vegetation covered under this application was cleared, this proposal 'may be at variance to this Principle'. However, if a reduced area was cleared it is 'unlikely to be at variance' to this Principle.

**Methodology** Site visit (DoE TRIM ref AD223), submission from local residents (TRIM ref AI853), CALM (2002)  
GIS Database:  
-CALM Managed Lands and Water - CALM 01/07/05

#### (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 nearest recorded Declared Rare Flora (DRF) is approximately 8km south (*Diuris drummondii*) and found in low-lying depressions and swamps (FloraBase) which is similar to the conditions at site 3, see attachment 1, (DoE site visit) but within a different Beard Vegetation Association.

A number of Priority species have been recorded close to the property under application and are listed below:  
-*Meeboldina thysanantha* (P3) approximately 0.5km southwest, found in swampy sands (FloraBase) similar to those present at site 3 (DAWA, 2005) and within the same Beard Vegetation Association,  
-*Meeboldina crassipes* (P3) approximately 0.84km south, found in grey/white or red/brown sand or peat which is permanently inundated (FloraBase), these conditions may be present at site 3 (DAWA, 2005) and within the same Beard Vegetation Association; and  
-*Chamelaucium floriferum* subsp. *diffusum* (P2) approximately 1.6km southwest is found in grey sand or shallow loam on granite hills & outcrops (FloraBase), these conditions are unlikely to be present at any of the sites.

It is not known if the areas under application contain Declared Rare or Priority flora as they have never been

surveyed. Of the Priority and Rare flora known to occur near to the proposed area, only site 3 potentially provides the correct habitat conditions and as such it is recommended that this area is not cleared. The rest of the proposal is unlikely to be at variance with this Principle.

**Methodology** DAWA (2005), FloraBase (2005), site visit (DoE TRIM ref AD223)  
GIS Databases:  
-Declared Rare and Priority Flora List - CALM 01/07/05  
-Pre-European Vegetation - DA 01/01

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments Proposal is not likely to be at variance to this Principle**

There are no records of Threatened Ecological Communities (TEC) in the vicinity of the proposed clearing. The closest is approximately 8.5km southwest, 1251 Showgrounds, and is a coastal grasslands community.

**Methodology** GIS Database:  
-Threatened Ecological Communities - CALM 12/04/05

**(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 State Government is committed to the National Objective and Targets for Biodiversity Conservation 2001-2005 (AGPS, 2001) which includes a target that prevents clearance of ecological communities with an extent below 30% of that pre-European settlement (Department of Natural Resources and Environment, 2002; EPA, 2000). The area under application has above 30% representation for the IBRA Bioregion (Warren), for the Shire (Denmark) (Shepherd et al., 2001) and for the three Mattiske Vegetation associations (Mattiske Consulting, 1998) present. The Beard Vegetation Association 969 (Hopkins et al., 2001) however, has 29.5% of its pre-European extent remaining which classifies it as depleted in terms of conservation status (Shepherd et al., 2001; Department of Natural Resources and Environment, 2002). Additionally the Beard Association 969 has only 0.7% of the pre-European vegetation present in reserves which is well below the 15% benchmark recommended by JANIS (1997). The three Mattiske Vegetation types present do have above 15% in reserve (Mattiske Consulting, 1998).

The total size of the property under application is 90ha, at present almost 50% of this is covered by native vegetation. If the total 28ha of vegetation covered by this application was permitted to be cleared, just over 20% of the property would remain covered by native vegetation. Much of the remaining vegetation would be in isolated pockets and subject to grazing pressure from stock, thus greatly reducing its ecological value.

It is therefore recommended that only 11.4ha of native vegetation be permitted to be cleared and the remaining remnants fenced to exclude stock. Given this, it is unlikely that the proposal would be at variance to this Principle.

**Methodology** Hopkins et al. (2001), Shepherd et al. (2001), Department of Natural Resources and Environment (2002), JANIS (1997), AGPS (2001), EPA (2000), Mattiske Consulting (1998)

**(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**

The Kent River runs within 60m of the southwestern corner of the property covered under this application. Surface water from sites 2, 3 and 5 flow in a southwesterly direction towards the Kent River (DAWA, 2005). The Kent River flows into Owingup Wetland approximately 7km downstream of this property. The Owingup Wetland Group, Owingup Swamp, is registered as a wetland of national significance (ANCA, 1993). Surveys have shown that the Swamp constitutes an important habitat for plant and animal communities including the rare and unique microbiolites (commonly know as 'algal biscuits') (DAWA, 2005).

The South Coast Rivercare website lists salinisation, eutrophication and siltation from inflow of Kent River as the current disturbances and threats to Owingup Swamp. Therefore, a vegetated and fenced off buffer of at least 100m in the southwest corner of the property should be left to reduce the nutrient and sediment inputs resulting from the clearing.

Site 4 contains the headwaters of a minor perennial watercourse, which runs into a tributary of the Kent River. Surface flows at this site and the southern portion of site 5 will flow south into this tributary (DAWA, 2005). A small wetland is evident at site 3, characterised by riparian vegetation predominantly *Baumea juncea* (site visit).

Given the above, the proposal is at variance to this Principle. However, if no clearing takes place at site 3 or within 100m of the headwaters at site 4 (see attachment 1) and a 100m buffer is left in the southwestern corner of the property then this proposal would be considered unlikely to be at variance. The smaller areas 11.4ha area recommended for clearing would avoid sites 3 and 4 and given this, the proposal is not likely to be at variance to this Principle.

**Methodology** DAWA (2005), site visit (DoE TRIM ref AD223), Rivercare (2005)  
GIS Databases:  
-Hydrography, linear - DOE 1/2/04  
-ANCA, Wetlands - CALM 08/01

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

**Comments** **Proposal is not likely to be at variance to this Principle**

DAWA advice suggests that land degradation in the form of waterlogging on and off-site is likely to occur if clearing is carried out due to the removal of deep rooted perennial vegetation as it is likely to increase recharge to subsurface and ground water, increasing surface and groundwater flows (DAWA, 2005).  
The property was waterlogged at the time of the site visit in September particularly at sites 2 and 3 and the southern portion of site 4 (DoE site visit).

Site 3 and some parts of sites 2, 4 and 1 have a low Phosphorus Retention Index (PRI), which contributes to this proposal having a high risk of eutrophication (these soil types have been identified as deep grey leached siliceous sands). The remaining vegetation buffer both on and offsite adjacent to the Kent River will reduce the potential of eutrophication from lateral subsurface water flows (sites 2, 3 and 5 will flow towards the Kent River), however low PRI soils may contribute to nutrients in groundwater (DAWA, 2005). It is suggested that a 25m vegetative buffer be retained on each side of the minor creeks on the property (DAWA, 2005).

Two previous applications to clear (NOI) were lodged for this property. The application in 1993 was for a proposed house a shed site, this was granted with a suggested ATR of ~10ha around the house never signed. The application in 1994 was to clear the whole southwester corner of the property, an ATR of 8.1ha was prepared as a condition to the clearing of 5.1ha and was never signed by the landholders so this clearing did not take place. The negotiation for the 1994 NOIC was based on the soils having a low PRI values and concerns about waterlogging (DAWA, 2005).

Thus the proposed clearing 'may be at variance' with this Principle for waterlogging and eutrophication (DAWA, 2005) for sites 1, 2, 3 and the southern part of site 4 (see attachment 1). If the clearing is granted only for 11.4ha of the proposal (site 5 and part of site 4), rather than the whole 28ha as applied for, the clearing is not likely to be at variance to this Principle.

**Methodology** DAWA (2005), site visit (DoE TRIM ref AD223)

**(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 property under application (Lot 7356) is bounded to the west and north by Timber Reserve 17925 (proposed as a Forest Conservation Area within the Walpole Wilderness Area) with site 2 extending right back to the reserve boundary fence.

650m south of Lot 7356 the Timber Reserve connects to the Owingup Nature Reserve which starts as a thin buffer on either side of the Kent River and extends south to surround Owingup Swamp an ANCA Wetland. Mehniup Nature Reserve lies 1.25km south of the property and connects to Owingup Nature Reserve, both are managed for the conservation of Flora and Fauna.

The remnant vegetation on this location plays a reasonably significant role in the connectivity of the vegetation across the landscape, in particular for fauna movement and gene flow between the formal reserve systems to the south and those to the north and east.

The main impacts of the proposed clearing are likely to be reduced buffering to the adjoining Reserve, loss of connectivity for fauna through the landscape and nutrient runoff into the Kent River and ultimately into the Owingup Swamp system.

It is recommended that, with adequate buffering around the Kent River, retention and fencing of 16.8ha of the vegetation under application would make this proposal 'not likely to be at variance' to this Principle, as it would maintain corridor values and provide a buffer to the Reserve.

**Methodology** GIS Databases:  
-CALM Managed Lands and Water - CALM 01/07/05  
-Clearing Regulations - Environmentally Sensitive Areas - DOE 30/05/05  
-ANCA, Wetlands - CALM 08/01

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

To the north 4km is the Kent River Water Reserve, which is a Gazetted Surface Water Use Area with no Policy Use assigned. However, the proposed clearing is not within a proclaimed, gazetted or declared area under the Rights in Water and Irrigation Act 1914.

As previously mentioned according to advice received from DAWA (2005) the vegetation buffer remaining (if clearing is granted) both on and offsite adjacent to the Kent River will reduce the potential for eutrophication from lateral subsurface waters flows, however the low PRI soils may contribute nutrients to the groundwater (DAWA, 2005).

The upper Kent became a "focus catchment" in the National Dryland Salinity Program from 1992 to 1997 (Kington and Pannell, 1999).

However, the clearing is unlikely to contribute to salinity (DAWA, 2005) given the properties placement in the catchment.

If the areas with low PRI soils (site 1 and parts of sites 2, 3 and 4) are not cleared than the risk of eutrophication will be reduced and this proposal is unlikely to be at variance to this Principle.

**Methodology** DAWA (2005), Kington and Pannell (1999)  
GIS Databases:  
-Public Drinking Water Source Area (PDWSA)s - DOE 09/08/05  
-Hydrography linear - DOE 1/2/04  
-RIWI Act, Groundwater Areas - WRC 06/06/00

**(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**

As the area under application is significant (28ha) and given its proximity (200m from the southern areas to be cleared) to a major perennial watercourse (the Kent River) and the high rainfall area that this property falls into 1100ml/annum, flooding on and offsite may be exacerbated by the granting of this permit.

Sites 2,3 and part of site 4 were waterlogged and contain or are in close proximity to receiving waterbodies. Provided clearing does not take place in these areas the proposed clearing is unlikely to be at variance to this Principle.

**Methodology** site visit (DoE TRIM ref AD223)  
GIS Databases:  
-Rainfall, Mean Annual - BOM 30/09/01  
-Rivers 250k - GA  
-Hydrography, linear - DOE 1/2/04

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

**Comments**

The Shire of Denmark request that the Knights apply to clear through the Shire as well as this is standard practise.

Objections to the granting of this permit were received from a local environment group and a local resident. Their concerns have been considered in this assessment and incorporated into the recommendation to grant only 11.4ha and fence the remaining 16.8ha.

**Methodology**

**4. Assessor's recommendations**

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Grazing & Pasture	Mechanical Removal	11.4	Grant	The application to clear was for 28ha at five sites (see attachment 1).  Assessment against the Clearing Principles has indicated that sites 1, 2, 3 and the southern portion of site 4 either 'may be' or are 'at variance' to Principles b, e, f, g, h, i and j.  Therefore, it is recommended that 11.4ha of the initial 28ha application be granted with the attached condition of fencing the remaining vegetation.

## 5. References

- Kington, E. A. and Pannell, D. J. (2003) SEA Working Paper 99/09, Dryland Salinity in the Upper Kent River Catchment of Western Australia: Farmer Perceptions and Practices. Faculty of Agriculture, The University of Western Australia.
- AGPS (2001) The national objective and targets for biodiversity conservation 2001-2005. Commonwealth of Australia, Canberra.
- CALM (2002) Draft South Coast Macro Corridor Project, CALM South Coast Region, Western Australia.
- DAWA (2005) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref AI871.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales ; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- 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.
- FloraBase (2005) Flora Descriptions by the Western Australian Herbarium, CALM. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Wednesday, 30 November 2005.
- 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.
- JANIS Forests Criteria (1997) Nationally agreed criteria for the establishment of a comprehensive, Adequate and Representative reserve System for Forests in Australia. A report by the Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee. Regional Forests Agreement process. Commonwealth of Australia, Canberra.
- Keighery, BJ (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.
- Rivercare (2005) The South Coast Rivercare website (<http://www.rivercare.scric.org/infodata/kentc/kentc.html>), Accessed on 30/11/05.
- 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.

## 6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
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 DoE)



Attachment 1



Sites 1, 2, 3, 4 and 5 at Lot 7356 on Plan 213833 Parker Road, Shire of Denmark.

Areas are not exact or to scale, this attachment purely to demonstrate site numbers and position.