



1. Application details

1.1. Permit application details

Permit application No.: 1163/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: CR & BE & KM Williams

1.3. Property details

Property: LOT 5442 ON PLAN 206479

Local Government Area: Shire Of Gingin

Colloquial name:

1.4. Application

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

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.	The four areas under application (176.8ha) are located within Lot 5442 which is a 1796ha property zoned Rural, 10km south-west of the Mogumber town site. The clearing is to establish a plantation with approximately 90ha of Pinaster Pine (<i>Pinus pineaster</i>) and 80ha of Sandalwood (<i>Santalum</i> spp.) (DAFWA 2006).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Overall, the vegetation condition of the area under application ranges from good to very good, with an overall condition of good. Some areas lack understorey species, indicating past grazing, and the density of vegetation in other areas ranges from sparse to dense (DEC Site visit 2006).
Beard Vegetation Association 1015: Mosaic: Shrublands, scrub heath on Swan Coastal Plain/Shrublands, dryandra heath. (Shepherd et al 2001, Hopkins et al 2001)			
Hedde Vegetation Complexes: Cullula Complex: Mixture of low open forest of <i>Banksia</i> spp., <i>Eucalyptus todtiana</i> and open woodland of <i>Eucalyptus calophylla</i> with second storey of <i>Eucalyptus todtiana</i> , <i>Banksia attenuata</i> , <i>Banksia menziesii</i> and <i>Banksia ilicifolia</i> .	The vegetation proposed to be cleared is described as predominantly Balga (<i>Xanthorrhoea preissii</i>) and an overstorey consisting of scattered banksias and eucalypts with no understorey species (DEC Site visit 2006).		
Mogumber Complex North: Open to closed heath of <i>Banksia</i> spp. and <i>Casuarina humilis</i> . (Hedde et al 1980)			

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 areas under application are considered to be in good condition with predominantly Balga (*Xanthorrhoea preissii*) and an overstorey consisting of scattered banksias (*Banksia* spp.), eucalypts (*Eucalyptus* spp.), with no understorey species (DEC Site visit 2006).

Based on the site inspection which shows limited native species diversity it is unlikely that the areas under application comprise a high level of biological diversity.

Methodology DEC Site visit (2006) (TRIM Ref DOC1871)
GIS Databases:
- CALM Managed Lands and Water - CALM 01/07/05
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DoE 21/10/04
- Gingin 1m Orthomosaic - DLI 03

(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 areas under application are considered to be in good condition with predominantly Balga (*Xanthorrhoea preissii*) and an overstorey consisting of scattered banksias (*Banksia* spp.), Eucalyptus (*Eucalyptus* spp.) with no understorey species (DEC Site visit 2006).

As there are approximately 900ha of native vegetation remaining within Lot 5442 (DAFWA 2006), the majority of which is in better condition than that under application, the vegetation proposed to be cleared is unlikely to comprise of significant habitat for fauna indigenous to Western Australia.

Methodology DEC Site visit (2006) (TRIM Ref DOC1871)
DAFWA (2006) (TRIM Ref CRN220195)
GIS Databases:
- Gingin 1m Orthomosaic - DLI 03
- Cadastre - DLI 1/12/05

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

Comments **Proposal may be at variance to this Principle**
There are 12 records of Declared Rare Flora (DRF) in the local area (10km radius) including *Dryandra mimica*, *Darwinia acerosa* and *Eleocharis keigheryi*.

Dryandra mimica is a low shrub which grows in grey-white sand, in open low banksia woodland with a heath understorey (Brown et al 1998).

Darwinia acerosa is a heath-like shrub which grows in rocky soil on or near granite outcrops (Brown et al 1998).
Eleocharis keigheryi is a tufted perennial herb which occurs in winter-wet claypans, normally on the Swan Coastal Plain (Brown et al 1998).

The following Priority species are known to occur in the local area (10km radius):

- *Verticordia linleyi* subsp. *linleyi* (Priority 4),
- *Lasiopetalum exiguum* (Priority 1),
- *Anigozanthos humilis* subsp. *chrysanthus* (Priority 4),
- *Petrophile plumosa* (Priority 3),
- *Isopogon drummondii* (Priority 3),
- *Verticordia paludosa* (Priority 4), and
- *Synaphea panhesya* (Priority 1).

Given the above information, and that at least one of the four areas under application has the same vegetation complex as that where rare flora has been identified, it is considered likely that DRF may occur within the areas under application. It is therefore recommended that a flora survey, undertaken in accordance with EPA Guidance Statement No. 51, be conducted to determine the presence or absence of the declared rare species.

Methodology GIS databases:
- Declared Rare and Priority Flora List - CALM 01/07/05

(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 (TECs) within 20km of the area under application. These TECs are associated with a Conservation Category wetland and a Resource Enhancement Wetland. As the vegetation under application does not contain any wetland areas or wetland dependant vegetation, it is unlikely that the vegetation proposed to be cleared comprises the whole or part of or is necessary for the maintenance of such a TEC.

Methodology GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DoE 21/10/04
- Threatened Ecological Community Database - 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 may be at variance to this Principle

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement (Department of Natural Resources and Environment 2002).

The Vegetation Complexes in the areas under application are above the recommended minimum of 30% representation, except for Beard Unit 1015 (29.8%). Within one of the areas under application, the vegetation is mapped within Beard Unit 1015 (29ha of the 176.8ha applied to be cleared).

	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	Conservation**% status	In reserves/CALM managed land
IBRA Bioregion					
- Swan Coastal Plain	1,529,235	657,450	43.0	Depleted	
Shire of Gingin	181,526	98,552	54.3	Least Concern	
Vegetation type:					
Beard: Unit 949	116,545	96,277	82.6	Least Concern	22.3%
Beard: Unit 1015	21,378	6,368	29.8	Vulnerable	3.8%
Hedde:					
Cullula Complex	25,194	11,931	47.4	Depleted	3.4%
Mogumber Complex North	21,880	9,638	44.0	Depleted	0.1%

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

Given the proposed clearing of 176.8ha is relatively large compared to the area of remnant vegetation remaining within the Region, the vegetation proposed to be cleared may be significant as a remnant of native vegetation in the surrounding area.

Methodology Department of Natural Resources and Environment (2002)
 Shepherd et al. (2001)
 Hedde et al. (1980)
 JANIS Forest Criteria (1997)
 GIS Databases:
 - Pre-European Vegetation - DA 01/01
 - Interim Biogeographic Regionalisation of Australia - EA 18/10/00

(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 may be at variance to this Principle

A Conservation Category Wetland (CCW) is located on an adjoining property approximately 100m from the south-west corner of the western-most area under application. In addition, a number of REWs (Resource Enhancement Wetlands) and CCWs are located on surrounding properties.

There are two watercourses within 10km of the areas under application including Moore River approximately 8km north, Red Gully Creek approximately 4km west and other minor tributaries of Moore River.

The areas under application are not located within the buffer of the wetlands and therefore the native vegetation to be cleared is not considered to be growing in, or in association with, the wetland.

DoW (2006) advised that the proposed plantation is situated upstream of the Red Gully CCW. Due to the size and location of the wetland in relation to the proposed clearing, the proposed plantation may produce significant impacts on wetlands and other groundwater dependent ecosystems (GDE).

Methodology DoW (2006) (TRIM Ref ED1254)
 GIS Databases:
 - Geomorphic Wetlands (Classification), Swan Coastal Plain - DoE 21/10/04
 - Gingin 1m Orthomosaic - DLI 03
 - Rivers 250K - GA

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

Comments Proposal is seriously at variance to this Principle

The landform of the areas under application and the surrounds can be described as broad valleys and undulating interfluvial areas with some discontinuous breakaways and occasional mesas. The chief soils are sandy acidic yellow mottled soils, with lateritic sandy gravels. Associated are leached sands underlain by lateritic gravels and mottled clays that occur at a progressively greater depth down slope (GIS Database).

The Commissioner of Soil and Land Conservation (2006) states the potential land degradation includes a high risk of increased groundwater recharge and associated salinity, eutrophication and wind erosion. The assessment of the proposed clearing of 176.8 hectares of native vegetation on Lot 5442, which is in good condition, considered it likely to cause serious appreciable land degradation.

However, the Commissioner advises that these land degradation impacts are unlikely to occur if the proposed plantation is established within the areas under application (2006).

Methodology DAFWA (2006) (TRIM Ref CRN220195)

GIS Databases:

- 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 at variance to this Principle

There are six conservation reserves within 10km of the areas under application including Boonanarring Nature Reserve approximately 8km south, Betts Nature Reserve approximately 10km south-east, Lake Wannamal Nature Reserve approximately 7km east, Mogumber Nature Reserve approximately 6km north-east, Mogumber West Nature Reserve approximately 7km north-east and an Unnamed Nature Reserve approximately 10km south-west of the areas under application.

The benchmark of 15% representation in conservation reserves (JANIS Forests Criteria 1997) has not been met for Beard Vegetation Association 1015 with only 3.8% of the current extent in secure tenure and Hedde Vegetation Complexes Cullula Complex with only 3.4% and Mogumber Complex North with only 0.1% of the current extent in secure tenure (Hedde et al. 1980, Hopkins et al. 2001 and Shepherd et al. 2001).

Methodology GIS Databases:

- CALM Managed Lands and Water - CALM 01/07/05

(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

A Conservation Category Wetland (CCW) is located approximately 100m from the south-west corner of the western-most area under application, and a number of other REWs and CCWs are located on surrounding properties. Given the distance from these wetlands, it is considered unlikely that the clearing as proposed would have an impact on the surface expression of these wetlands or a deterioration of the quality of the surface water of the adjacent CCW.

With high annual evaporation rates of 2,000mm to 2,200mm and low annual rainfall of 600mm there is little recharge into regional groundwater table, which at this site is between 1,000 mg/l and 7,000 mg/l and is considered to be marginal to low saline. However, the clearing of 176.8ha native vegetation may have an impact on groundwater due to the high risk of groundwater recharge and the associated salinity following clearing (DAFWA 2006).

Methodology DAFWA (2006) (TRIM Ref CRN220195)

GIS Databases:

- Evaporation Isopleths - BOM 09/98

- Isohyets - BOM 09/98

- Groundwater Salinity, Statewide - 22/02/00

- Geomorphic Wetlands (Classification), Swan Coastal Plain - DoE 21/10/04

(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

With an average annual rainfall of 600mm and an annual evaporation rate of 2,000mm to 2,200mm there is little surface flow during normal seasonal rains. It is only during major rainfall events that there is a likelihood of flooding: the river systems and wetlands of the region are designed to compensate and sustain floodwaters in these instances. Given the areas applied to be cleared continue over an extended area it is unlikely that the clearing is likely to cause or exacerbate the incidence or intensity of flooding.

- Methodology** GIS Databases:
- Evaporation Isopleths - BOM 09/98
 - Isohyets - BOM 09/98
 - Hydrography, linear - DOE 01/02/04

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

Comments

A submission (2006a) was received stating the clearing of the four areas under application is not opposed. Recommendation that the application to clear the remaining scattered vegetation on the north western and north eastern parcels be granted as the proposed use of plantation is environmentally a better land use than the present land use. The application to clear the two central parcels of regrowth vegetation is not opposed as the limited conservation value of this vegetation is likely to have less environmental value than the proposed new land use of plantation.

A submission (2006b) was received from the Shire of Gingin advising that the Shire raises no objection to the proposed clearing for plantation as the land use is permitted under Town Planning Scheme No.8.

Development approval is not required for this proposal as Irrigated Horticulture does not form part of the proposed land use of Plantation (Shire of Gingin 2006).

The area under application is within the Proclaimed Groundwater Area of Gingin. Therefore any abstraction of groundwater would require a licence. However, considering this application is only for non irrigated Plantation, no licence will be necessary.

There is no other RIWI Act Licence, Works Approval or EPA Act Licence that affects the area under application.

The DoW (2006) recommended that if a permit is granted, the potential medium and long term impact of the plantation on the groundwater level and GDEs should be evaluated by the proponent and the result reviewed by DEC and DOW.

- Methodology** DoW (2006) (TRIM Ref ED1254)
 Submission (2006a) (TRIM Ref CRN219913)
 Submission (2006b) (TRIM Ref EI5977)
 Shire of Gingin (2006) (TRIM Ref DOC7550)
 GIS databases:
 - RIWI Act, Groundwater Areas - WRC 13/06/00
 - RIWI Act, Surface Water Areas - WRC 18/10/02

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Plantation	Mechanical Removal	176.8	<p>The application has been assessed and the clearing as proposed is seriously at variance to Principle g), is at variance to Principles h) and i), and may be at variance to Principles c), e) and f). In particular:</p> <ul style="list-style-type: none"> - Principle g): DAFWA advised that the potential land degradation risks are a high risk of increased groundwater recharge and associated salinity, eutrophication and wind erosion. - Principle h): the proposed clearing of the vegetation is likely to have an impact on the environmental values on nearby conservation area - Principle i): The clearing of the native vegetation may impact the groundwater quality in the local area due to the high risk of groundwater recharge and the associated salinity. - Principle c): There is a likelihood of rare and priority flora occurring within the area under application. - Principle e): Beard Vegetation Association 1015 has only 29.8% of native vegetation remaining, which is below the 30% target, and the benchmark of 15% representation in conservation reserves has not been met for Beard Vegetation Association 1015 (3.8%) and the two Heddele Vegetation Complexes (3.4% and 0.1%). - Principle f): DoW advised that the proposed plantation is situated upstream of the Red Gully CCW. Due to the size and location of the wetland in relation to the proposed clearing, the proposed plantation may produce significant impacts on wetlands and other groundwater dependent ecosystems (GDE).

Therefore the assessing officer recommends the clearing proposal of 176.8ha be refused.

5. References

- Brown A., Thomson-Dans C. and Marchant N., (1998) Western Australia's Threatened Flora, Department of Conservation and Land Management, Western Australia.
- DAFWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. TRIM Ref CRN220195.
- 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.
- DoW (2006) Hydrogeologist's advice, Department of Water (DoW), Western Australia. TRIM Ref ED1254.
- Hedde, 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.
- 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, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- 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.
- Site visit (2006) Field Inspection Report, Department of Environment and Conservation (DEC), Western Australia. TRIM Ref DOC1871.

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)