



1. Application details

1.1. Permit application details

Permit application No.: 1897/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: R.R & M.Y Haynes

1.3. Property details

Property: LOT 43 ON DIAGRAM 77055 (House No. 67 CARABOODA CARABOODA 6033)
 LOT 43 ON DIAGRAM 77055 (House No. 67 CARABOODA CARABOODA 6033)
 Local Government Area: City Of Wanneroo

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3		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
Heddlle Vegetation Complex: 52: Cottesloe Complex-Central And/South (Heddlle et al. 1980). Beard Vegetation Association: 1948: Low woodland; banksia on limestone. 998: Medium woodland; tuart. (Hopkins et al. 2001, Shepherd et al. 2001)	The application is to clear 3ha of vegetation on Lot 43 Carabooda Rd, Carabooda for a market garden. The property is zoned Rural under the local Town Planning Scheme and is surrounded by horticultural activities on adjacent lots. Vegetation in the area under application can be described as 'Good' (Keighery 1994). There is a distinct vegetation transition from the southern boundaries to the north-east corner of the applied area. The majority (~2ha) of the area under application is predominantly Woodland, dominated by <i>Corymbia calophylla</i> (marrî) over storey. There is a distinct <i>Xanthorrhoea</i> and <i>Macrozamia</i> understorey; however, there is limited middle storey present. Invasive grasses dominated the groundcover. Common plant species recognised in the southern area of application included: <i>Acacia saligna</i> , <i>Banksia grandis</i> , <i>Hardenbergia comptoniana</i> , <i>Hibbertia hypericoides</i> , <i>Jacksonia</i> sp., <i>Macrozamia</i> sp. (<i>Zamia</i> Palm) and <i>Xanthorrhoea</i> sp.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation clearing description based on Site Inspection 17/07/2007. (TRIM Ref: DOC29607)

The vegetation structure of the NE corner is very Open Banksia Woodland to Low Shrubland dominated by Hibbertia sp. Vegetation in this corner of the area under application has little to no over storey. Native species observed in this area included: Acacia willdenowiana, Banksia grandis, Calothamnus sp., Conostylis sp., Drosera sp., Dryandra nivea, Eucalyptus marginata, Hardenbergia comptoniana, Hibbertia hypericoides, Isopogon sp., Jacksonia sp., Macrozamia sp. (Zamia Palm), Mesomelaena sp. (Semaphore Sedge) and Xanthorrhoea sp. Weed invasion was less prolific in this area.

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 vegetation under application can be described as being in good condition with two distinct vegetation areas across the property (Site Inspection, 2007). The applied area is considered to have low flora species diversity with the majority of the area under application consisting of thin stands of Marri with a sparse understorey dominated by grassy weeds (Site Inspection, 2007).

Due to a lack of mature trees and density of understorey the vegetation under application is not considered to provide significant habitat for ground dwelling fauna.

Given extensive weed invasion at this site and low flora species density and lack of habitat, it is considered unlikely the area under application will comprise a high level of biodiversity.

Methodology **References:**

- Site Inspection (2007)

GIS Databases:

- Bushforever - MFP 07/01
- CALM Managed Lands and Waters - CALM 1/07/05
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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**

There are four fauna species of conservation significance known to occur within the local area (~5km radius), including the 'Vulnerable' Carnaby's Black Cockatoo. DEC Fauna Habitat Notes (2007) indicate this species moves around seasonally in flocks and feeds in areas of proteaceous scrubs and heaths and eucalypt woodlands as well as pine plantations and breed in mature hollow trees. Many trees within the area under application are immature Marri or Jarrah and not considered to be of hollow bearing age with only one mature Tuart observed within the area under application. Although the Tuart may contain hollows suitable for nesting it is unlikely to be considered significant habitat when compared the State Forest and Bush Forever sites in the local area. (Site Inspection, 2007)

Other species known to occur in the local area include Carpet Python (P4), Western Brush Wallaby (P4) and Quenda (P5). The vegetation under application consists of sparse understorey with grassy weeds and is not considered to provide significant habitat for ground dwelling fauna.

Given the habitat in nearby State Forest and Bush Forever sites and the lack of suitable understorey, the vegetation under application is not considered likely to comprise significant habitat for fauna indigenous to Western Australia.

Methodology **References:**

- DEC Fauna Habitat Notes.xls February (2007)
- Site Inspection (2007)

GIS Databases:

- Bushforever - MFP 07/01
- CALM Managed Lands and Waters - CALM 1/07/05
- SAC bio datasets 24/07/2007
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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 is one known Declared Rare Flora (DRF) Species and two Priority 3 flora species known to occur in a 5km radius of the area under application. Three populations of the 'Rare' Eucalyptus argutifolia species have been identified, the closest occurring approximately 4.5km south of the applied area. This species prefers shallow soils over limestone, slopes or gullies of limestone ridges, and outcrops (WA Herbarium, 1998). Although database searches indicate similar soil types and vegetation associations, there was no evidence of limestone ridges and outcrops in the area under application (Site Inspection, 2007), therefore the occurrence of Eucalyptus argutifolia within the area is considered unlikely.

There are two known Priority 3 species, Stylidium maritimum and Comesperma acerosum that occur within 1.5-2km of the applied area. Database searches indicate both species occur in similar soil types but only Stylidium maritimum occurs in the same Beard Vegetation Association (998) as the area under application.

Although it is considered that Stylidium maritimum may occur in the applied area, this species is Priority flora and not considered DRF. Priority 3 species are known from several populations and the taxa are not believed to be under immediate threat, either due to the number of known populations or the size of known populations. Given the above, it is considered that the proposed clearing is not likely to significantly impact the conservation status of this less significant species.

Methodology References:

- Site Inspection (2007)
- WA Herbarium (1998)

GIS Databases:

- Pre-European Vegetation - DA 01/01
- SAC Bio datasets (20/07/2007)
- Soils, Statewide - DA 11/99

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

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

Database searches indicate that there no records of Threatened Ecological Communities (TEC) within the area under application. In the local area (5km radius), there are 19 known occurrences of the TEC Floristic Community Type 26a, known as 'Melaleuca huegelii-Melaleuca systema shrublands of limestone ridges' (Gibson et al. 1994) and one occurrence of the TEC Floristic Community Type 19, known as 'Sedgeland in the Holocene dune swales of the southern Swan Coastal Plain' (Gibson et al. 1994). While database searches indicate the mapped soil types and vegetation complexes for the floristic communities 26a and 19b are similar to that present within the applied area, the soil type observed in the area under application is best described as brown sand with a yellow sand subsurface and the vegetation under application is best described as Corymbia calophylla woodland (Site Inspection 2007). Given the vegetation under application is not considered to comprise whole or part of the TEC's listed in the local area.

Three occurrences of the critically endangered TEC 'Aquatic root mat community of caves on the Swan Coastal Plain' (Government of Western Australia 2000) occur approximately 3.8km north of the applied area in Yanchep National Park. Whilst these communities are known to be particularly susceptible to hydrological changes, given the distance of the applied area to the TEC (~3.8km north) and the predominant south-westerly flow of groundwater, is it considered unlikely that the clearing of vegetation under application will impact this community.

Methodology References:

- Gibson et al. (1994)
- Government of Western Australia (2000)
- Site Inspection (2007)

GIS Datasets:

- CALM Managed Lands and Waters - CALM 1/07/05
- Heddle Vegetation Complexes - DEP 21/06/95
- Pre-European Vegetation - DA 01/01
- SAC Bio datasets 13/07/2007

(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 Heddle vegetation complex identified in the area under application is the Cottesloe Complex-Central and South which has a representation level of 41.1% remaining (Heddle et al 1980). Beard Vegetation Associations 998 and 1948 (Hopkins et al. 2001) are identified within the applied area, which have a current representation level of 41.5% and 21.4% respectively (Shepherd 2006).

The State Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-1750 (Commonwealth of Australia, 2001).

The majority (~2ha) of the area under application is representative of the Beard Vegetation Association 998 (Site Inspection 2007). Approximately 0.89ha in the north east corner of the applied area is considered to be representative of Beard Vegetation Association 1948 which has a remaining extent of 21.4%. Although this vegetation association has less than the recommended 30% minimum of Pre-European extent remaining, the applied area is considered to be within a constrained area. The EPA (2006) recognises the Perth Metropolitan Region as a {constrained area}, providing for the reduction of vegetation complexes to a minimum of 10% of the Pre-European extent. The native vegetation associations under assessment (Heddle and Beard) are all greater than 10%.

Given the above, the vegetation under application is not considered to be significant as a remnant and the proposed clearing is considered unlikely to be at variance to this principle.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	In secure tenure (%)
IBRA Bioregion: Swan Coastal Plain**	1,501,456	571,758	38.1	10.4
City of Wanneroo*	78,809	45,361	57.6	NA
Vegetation type:				
Beard: 998**	51,017	21,178	41.5	35.2
Beard: 1948**	81,022	17,315	21.4	15.6
Heddle: 52***	44,995	18,474	41.1	8.8

* (Shepherd et al. 2001)

** (Shepherd 2006)

***(EPA, 2006)

Methodology

References:

- Commonwealth of Australia (2001)
- EPA (2000)
- EPA (2006)
- Heddle et al (1980)
- Hopkins et al (2001)
- Shepherd et al (2001)
- Shepherd (2006)

GIS Databases:

- Heddle Vegetation Complexes - DEP 21/06/95
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Pre-European Vegetation - DA 01/01
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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 at variance to this Principle

There are no wetlands or watercourses mapped within the area of vegetation under application. The closest wetland is Lake Carabooda, a Resource Enhancement Category Wetland (REW) and EPP Lake located approximately 600 meters south-west from the applied area.

The Water and Rivers Commission (2001) recommends a 200m buffer to protect the environmental and hydrological values of wetland areas. Given the distance to the closest wetland (~600m), the proposed vegetation clearing is not considered likely to impact on nearby wetland areas.

Furthermore, the vegetation under application is representative of an upland vegetation community. Observations during a site inspection (2007) confirmed wetland dependant vegetation does not occur in the area under application.

Therefore the vegetation under application is not considered to be growing in, or in association with, an environment associated with a watercourse or wetland.

Methodology Resources:
- Site Inspection (2007)
- Water and Rivers Commission (2001)

GIS Databases:
- EPP, Lakes - DEP 1/12/92
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Hydrography, linear (hierarchy) - DOW

(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**

Soils associated with the area under application are described as undulating dune landscape underlain by aeolianite, small swales of estuarine deposits and chief soils of siliceous sands (Northcote et al. 1960-68).

DAFWA (2007) advise that wind erosion is not likely over most of the proposed area to be cleared. DAFWA (2007) also advise that there is no evidence of salinity occurring on the property or off-site, and the risk of salinity causing land degradation is low.

Acid Sulphate Soil (ASS) mapping of the vegetation under application identifies the area as having a Class 3 risk. These soils are considered to have no known risk of ASS or potential ASS occurring.

Given the above, it is considered that the proposed clearing is unlikely to cause appreciable land degradation.

Methodology References:
- DAFWA (2007) (TRIM Ref: DOC34616)
- Northcote et al. (1960-68)

GIS datasets:
- Acid Sulphate Soil Risk Map, Swan Coastal Plain - DEC
- 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 vegetation under application is ~1.3km east of two Bush Forever sites, 129 (Bernard Road Bushland) and 130 (Link between Yanchep and Neerabup National Parks). Both Bush Forever Sites are recognised as part of a regionally significant contiguous bushland/wetland linkage (Government of Western Australia 2000). There are a further ten Bush Forever sites and four DEC reserves, including State Forest, Yanchep National Park, Neerabup National Park and Neerabup Nature Reserve, in the local area. Given the distance to the nearest conservation area it is considered the proposed clearing is unlikely to directly impact the environmental values of these areas.

The area under application is on the eastern edge of a corridor which provides an ecological linkage to Bush Forever sites 129 and 130 (~1.3km west). However, it is considered that given horticultural activities surround the applied area to the east, the vegetation under application does not provide a linkage to any remnants or conservation reserves to the east.

Given the lack of ecological linkages to the east and the distance to the conservation reserves, it is considered unlikely that the proposed clearing will be at variance to this principle.

Methodology References:
- Government of Western Australia (2000)
- Site Inspection (2007)

GIS Datasets:

- Bushforever - MFP 07/01
- CALM Managed Lands and Waters - CALM 1/07/05
- Swan Coastal Plain North 1m Orthomosaic - DLI 01/04

(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

The area under application is situated between two proclaimed groundwater areas, Gnangara Underground Water Pollution Control Area (a Priority 1 Public Drinking Water Source Area (PDWSA)) and Perth Coastal Underground Water Pollution Control Area (Priority 3 PDWSA). Given the relatively small size (3ha) of proposed area and the distance from the nearest PDWSA (~2km), it is considered that clearing the applied area is not likely to cause deterioration in the quality of groundwater.

In addition, Carabooda Lake, a Resource Enhancement Category Wetland, is located approximately 600m west of the area under application. Given that the vegetation under application is outside the 200m buffer zone recommended by the Water and Rivers Commission (2001) for wetland protection, it is considered that clearing the applied area is unlikely to impact the surface water quality of the Lake.

Methodology Resources:
- Water and Rivers Commission (2001)

GIS Databases:
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain - DEC
- Groundwater Salinity, Statewide - DOW
- Hydrography, linear (hierarchy) - DOW
- Rainfall, Mean Annual - BOM 30/09/01

(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 applied area is not associated with a watercourse or wetland. The nearest wetland is approximately 600m west. The property has chief soils of siliceous sands (DAWA 2004) and the landscape is relatively flat with a gentle slope toward the south. Given distance to the nearest wetland and the applied area has free draining soils, the clearing is unlikely to exacerbate or cause any incidence of flooding.

Methodology References:
- DAWA (2004)

GIS Databases:
- Hydrography, linear (hierarchy) - DOW
- Soils, Statewide - DA 11/99
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The proposal requires a groundwater extraction licence and development approval from the City of Wanneroo.

A submission letter was received from the applicant.

The applicant has applied to Department of Water (DoW) for a groundwater extraction licence for 46,150kL. The applicant requires 45,000kL to pursue horticultural activities in the area under application. DoW (2008) advised that the application for a groundwater licence has been refused due to the aquifer being fully allocated. DoW has also advised that the applicant may be able to acquire water through the groundwater trading scheme.

The City of Wanneroo (2008) has advised that horticulture is consistent with the property's zoning as Rural Resource and that a Development Application would be required. To date, the land owners have not submitted a Development Application for the property.

It is noted that a small portion of the property is within a draft Local Biodiversity Linkage identified by the City of Wanneroo, however, the City believes retention of the native vegetation surrounding the house, as proposed, would support the maintenance of this ecological linkage (City of Wanneroo, 2007).

There are no Native Title Claim Areas or Aboriginal Sites of Significance associated with the area under application.

Methodology Resources:
- City of Wanneroo (2007)

- City of Wanneroo (2008)
- Department of Water (2007)

GIS Databases:

- Aboriginal Sites of Significance - DIA
- Native Title Claims - DLI

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Horticulture	Mechanical Removal	3	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 not likely to be at variance to the clearing principles. However Department of Water have refused to issue a groundwater extraction licence for this horticulture proposal..

5. References

- City of Wanneroo (2007). Submission Letter. (TRIM Ref: DOC31155)
- City of Wanneroo (2008). Updated comments. (TRIM Ref: DOC47658)
- Commonwealth of Australia (2001). National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra.
- DAFWA (2007) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. (TRIM Ref: DOC34616)
- DAWA (2004) Soil-landscape mapping, Department of Agriculture Western Australia, Date accessed 20/07/07.
- Department of Water (2007). Refusal of Groundwater Licence. (TRIM Ref: DOC47664)
- 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.
- EPA (2006) Guidance for the Assessment of Environmental Factors -level of assessment of proposals affecting natural areas within the System 6 region and Swan Coastal Plain portion of the System 1 Region. Report by the EPA under the Environmental Protection Act 1986. No 10 WA.
- Gibson et al. (1994). A Floristic Survey of the Southern Swan Coastal Plain. Western Australian Department of Conservation and Land Management.
- Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western 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.
- 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 (2007) (TRIM Ref: DOC29607)
- Water and Rivers Commission (2001). Position Statement: Wetlands.
- Western Australian Herbarium (1998). FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 20/07/2007)

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)