



## 1. Application details

### 1.1. Permit application details

Permit application No.: 86/1

Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: MR Maitford Vernon & Hazel Rosemary Green

### 1.3. Property details

Property: LOT 12899 ON PLAN 210664 ( LAKE JASPER 6260)

Local Government Area: Shire Of Nannup

Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
37.9		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
Mattiske Jangardup (JN): jarrah-marri tall woodland to open forest communities with Banksia grandis and Persoonia logifolia as a low tree understorey.	The condition of the vegetation proposed to be cleared is considered to be Good to Excellent (Keighery 1994). Some of the eastern areas have been burnt in the recent past and are recovering. This vegetation consists of woodland/ open forest (jarrah and marri) communities and is not directly associated with wetlands.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation condition was determined during site visit (15/11/04) undertaken by two DEC officers and the applicant. The native vegetation under application is varied in condition with some areas showing signs of die back (the cause of this dieback is unknown). A second site visit was undertaken (22/2/06) with a DoW Senior Hydrogeologist. There was some evidence of grazing within the property.

## 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 may be at variance to this Principle

The condition of the vegetation under application is considered to vary from good, being the eastern areas to excellent, being the western areas (Keighery 1994). The eastern areas under application have been burnt recently and all areas under application are open to grazing and weed invasion of pasture species from the surrounding landuse.

The vegetation type has been mapped as the Mattiske complex Coolakin (Ck) and Yalananbee (Y6). These complexes have 41.7% and 51.7% of there pre-European extent remaining respectively, and therefore have a conservation status of 'Depleted' and 'Least Concern' respectively (Department of Natural Resources and Environment 2002).

The property is also surrounded by CALM Managed Land.

The vegetation under application may have biodiversity value, however, biodiversity values within the property have previously been offset with an Agreement to Reserve (ATR) and retain 125 hectares, imposed as a memorial under Soil and Land Conservation Act 1945 (DAFWA 2004).

#### Methodology

DAFWA 2004  
DoE Site Visit 2006  
Keighery 1994  
GIS Database:



- Matiske Vegetation - CALM July 2003
- CALM Managed Lands and Waters - CALM 1/06/04
- GIS databases:
- Matiske Vegetation - CALM 24/3/98

**(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 may be at variance to this Principle**

A search of the CALM's Threatened and Priority Fauna Database indicates three species of threatened and priority fauna have been recorded in the local area (10km radius of the NOIC). These include two species of S1 (Rare or is likely to become extinct): Western Ringtail Possum (*Pseudocheirus occidentalis*) and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*), and one species of P3 fauna: Black-stripe Minnow (*Galaxiella nigrostriata*) (CALM, 2003).

The proposed clearing will make further contribution to fragmentation and breakdown of important connecting corridors important to some of the threatened and priority fauna species known to occur in the local area (CALM, 2004).

The area proposed to be cleared consists of vegetation in good to excellent condition (Keighery 1994), which may be providing habitat to native fauna. A large proportion of the property is still vegetated, with 125ha of this being protected under an Agreement to Reserve. The proponent has excluded all riparian vegetation and the buffer zones associated with all watercourses from the areas proposed to be cleared. The property is surrounded by State Forest on three of its boundaries, with linkages to these areas existing outside of the areas proposed for clearing and along the watercourses throughout the property.

The eastern area under application had recently been burnt but is regenerating well. Both areas proposed for clearing are likely to become further degraded due to edge effects from surrounding activities, such as weed infestation of pasture species and grazing.

The proposed clearing may impact on fauna through loss of habitat and disturbance, and from further fragmentation of the vegetation.

Although the areas under application may have some habitat value, other areas found locally in the nearby State Forest and the reserved areas on the property are thought to be preferred habitat sites for native fauna.

It is therefore concluded the proposal may be at variance to this principle.

- Methodology**
- CALM Report Advice 2003
  - CALM Report Advice 2004
  - GIS databases:
  - CALM Managed Lands and Waters - CALM 1/06/04
  - Donnelly 1.4 Orthomosaic - DLI00

**(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 declared rare flora (DRF) population in the local area (defined as a 10km radius) within the same vegetation complex as that under application. The DRF population of *Meziella trifida* is 6km north-west of the proposed clearing (CALM, 2003).

There are an additional 10 populations of threatened flora within other vegetation complexes in the local area. There is a population of Priority 4 taxon of *Melaleuca basicephala* in the vicinity of the eastern boundary of Nelson location 12899. The locality for this taxon is described as: 'East side of Pneumonia Rd., ca 2.6km south of junction with Jangardup R. Story Forest Block (CALM, 2003).

Based on records in the DCLM's Western Australian Herbarium Specimen Collection Database, there are 23 specimens of threatened flora collected in the local area (10km radius): two specimens of P1, one specimen of P2, six specimens of P3 and 14 specimens of P4 (CALM, 2003).

The Priority 4 taxon of *Melaleuca basicephala* is not within the same vegetation type as the areas under application.

The area proposed to be cleared consists of largely open woodlands. Other vegetated areas on the property, that are not proposed to be cleared, are likely to provide a more intact remnant than the area under application as they are contiguous with areas of adjoining State Forest. The areas proposed to be cleared are subject to edge effects, grazing and lack of linkage to State Forest further reducing the likelihood that significant flora occurs within the site. The DRF, *Meziella trifida*, existing 6km from the property within the same vegetation type, is a prostrate perennial herb. Given the grazing history of the property and disturbance by pasture species, it is considered unlikely this species would exist within the areas proposed for clearing.



It is concluded the proposal is not likely to be at variance to this principle.

**Methodology** CALM 2003  
GIS databases:  
- Declared Rare and Priority Flora List - CALM 13/08/03  
- Herbarium Specimen Collection Database - CALM (CALM 2004)\*  
- Threatened Flora Data Management System - CALM (CALM 2004)\*.  
\*This citation signifies that we do not have access to this database and that our use of it is through the CALM advice provided.

**(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 at variance to this Principle**  
There are no recorded occurrences of Threatened Ecological Communities within the local area (10km radius) of the proposed clearing.

The proposed clearing is not at variance to this Principle.

**Methodology** CALM 2003

**(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 at variance to this Principle**  
The vegetation under application is within the IBRA Bioregion - Warren which has a pre-European extent of 836 270 ha<sup>\*\*\*</sup>, a current extent of 724 014 ha<sup>\*\*\*</sup> indicating that there is 86.6%\* remaining with a conservation status of Least Concern\*\*.

The vegetation under application is within the Shire of Nannup which has a pre-European extent of 293 198 ha<sup>\*\*\*</sup>, a current extent of 275 524 ha<sup>\*\*\*</sup> indicating that there is 94%\* remaining with a conservation status of Least Concern\*\*.

The vegetation type under application has also been mapped as the Mattiske complexes Coolakin (CK) and Yalanbee (Y6). Mattiske vegetation type Coolakin (CK) has a pre-European extent of 133,988 ha<sup>\*\*\*</sup>, with a current extent of 55,828 ha<sup>\*\*\*</sup> indicating that there is 41.7% remaining. Mattiske vegetation type Yalanbee (Y6) has a pre European extent of 158,507 ha, and a current extent of 81,972 ha, indicating that there is 51.7% remaining..The vegetation types that occur within the property are reasonably secure within the local area and therefore the clearing proposal is unlikely to be at variance to this principle.

\*\* Department of Natural Resources and Environment (2002)

\*\*\* Area within the Intensive Landuse Zone.

**Methodology** Department of Natural Resources and Environment 2002  
Mattiske Consulting 1998  
Shepherd et al. 2001.  
GIS databases:  
- Mattiske Vegetation - CALM July 2003  
- Interim Biogeographic Regionalisation of Australia - EM 18/10/00  
- Local Government Authorities - DLI 8/07/04

**(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 likely to be at variance to this Principle**  
There are a number of first, second and third order, minor perennial watercourses within the property. The vegetated buffer requirement for watercourses of these orders is 30m on either side of the watercourse (WRC 1996). No clearing will occur within 30m of these watercourses.

There is Palusplain wetland that covers the Northern half of the property. The areas under application adjoin this wetland in some areas, however due to the extent of bluegum plantation across the property it is unlikely this clearing will impact on wetland values.

**Methodology** WRC (1996)  
GIS databases:  
- Geomorphic Wetlands, Augusta to Walpole - DoE 18/6/03  
- Hydrography Linear - DoE 1/2/04



**(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 report 2004:

**Water Erosion**

'The soils are winter wet, but due to the flat nature of the plain the drainage lines are inclined to drain slowly. Any newly constructed drains would be at risk of some erosion until stabilising. The proposed use of pasture production is likely to present a very low risk of water erosion.'

**Waterlogging**

'The area is generally winter wet and prone to waterlogging, however it is slightly raised. With the proposed use of pasture production this winter saturation can be beneficial, extending the growing season of productive waterlogging tolerant annual species and increasing the production of summer growing perennial species.'

**Salinity**

'The average rainfall in this region is over 1100mm. There is little risk of increased soil salinity on these sandy surfaced soils.'

**Wind Erosion**

'As the areas to be cleared will be irrigated for pasture production, ground cover levels should be well maintained throughout the year and as a result there would be a low risk of wind erosion.'

'The risk of on site and of site land degradation hazards is minimal. The area is well suited for the proposed land use.'

The areas under application are not likely to be at variance to this Principle.

**Methodology** DAWA 2004

**(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 notified areas with other remnant vegetation on the property links different parts of the state forest thus allowing for the preservation of significant ecological linkages. This proposal will contribute to incremental clearing of native vegetation within the property (CALM, 2004). This advice considered the clearing of 65ha within the property the proposed clearing has since been reduced to 37.9ha.

Milyeannup State Forest borders property on the western, northern and eastern boundaries and D'Entrecasteaux National Park is 2.4km south of the property.

The areas under application consists of largely open woodlands. Other vegetated areas on the property, including the 125ha under an ATR, are likely to provided a more intact remnant than the area under application as they are contiguous with areas of adjoining State Forest. The area proposed to be cleared is subject to edge effects and grazing reducing the likelihood of significant ecological linkages occurring within the areas under application. The vegetation on the property, not within the area under application, provides east west linkages to the State Forest surrounding the property. The proposed clearing is therefore, not likely to have an impact on the environmental values of any adjacent or nearby conservation areas, and is not likely to be at variance to this Principle.

**Methodology** CALM 2004  
GIS database:  
- CALM Managed Lands and Waters - CALM 1/06/04  
- Donnelly 1.4 Orthomosaic - DLI00

**(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**

DAWA report 2004:

**Eutrophication**

'During a 1996 (April) assessment of proposed land clearing on this property (SWD45449), Nick Cox, a former Land Conservation Officer with the Department of Agriculture, reported that the high nutrient input of horticultural operations on low phosphate fixing soils was causing concern in the Scott River area with regards to eutrophication of waters. However, he considered that the potential for pollution was minimal due to:

- Soils on the site to be cleared were comparable to soils on neighbouring properties, which have been found to have moderate to high PRI's (Phosphorus Retention Index).
- The site was not predisposed to extensive overland flows and runoff



- There was a minor drainage line within one section of the area that was proposed to be cleared, however drainage from the site would flow via 2.5 km of fully vegetated natural drainage line before exiting the property - 1.5 km of the above mentioned drainage line passes through an E. globulus plantation which was expected to act as a surface water/nutrient sink for much of the year.'

'The proponent's intended land use is currently pasture production (it is likely that at some stage in the future the area will be used for horticultural purposes) and the proponent advised me verbally that since the E. globulus plantation has been established the water tables have been lowered. If Mr Cox is correct in regards to the soil having moderate to high PRIs, then the risk of eutrophication resulting from the proposed clearing is very low.'

DoE Hydrogeological Assessment 2006:

'In general the sediment beneath the Mr. Green's property include superficial formations. They comprise alluvial, swamps, estuarine and shoreline sediments. The superficial formations are typically 20 to 30 m thick, except beneath the coastal dunes, they are up to 200 m thick east of Black Point.'

'The superficial formations overlie the Yarragadee Formation and, locally, the Bunbury Basalt. All bore close to Mr Green's property intersect some silty or clayey layers, or coffee rock in the superficial formations, that would restrict vertical leakage of groundwater, but at the same time could develop seasonal waterlogging conditions to part of the property.'

'The Yarragadee Formation underlies the superficial formations in the area consists largely of sandstone and with minor shale.'

General Hydrogeology

'The main aquifers in the area are the superficial and Yarragadee aquifers.'

Superficial formation

Groundwater Flow System

'The superficial formations contain an unconfined groundwater flow system that is recharged by direct infiltration of rainfall.'

'The water table in the superficial aquifer occurs at or near ground surface. It fluctuates seasonally by less than 1 m near the coast and by increasing amounts to over 3 m inland.'

'Groundwater flow is inferred from the mound westward towards Scott River; eastward towards the Donnelly River; and southwestward towards the ocean where groundwater discharge occurs. There are low hydraulic gradients on the water table in the area that are subject to inundation in winter and spring, such as around Lakes Jasper and Quitjup, and there may be higher hydraulic gradients beneath the coastal dunes. The low hydraulic gradients result from the water table rising above the ground surface, leading to sheet flow at the surface, and they are controlled by the flat-lying nature of the ground surface.'

Salinity

'The groundwater salinity in the superficial aquifer is generally less than 500 mg/L TDS, except in the north-western part of the SCP where Mr. Green's property is located salinity of more than 750 mg/L TDS is recorded. The cause of the higher salinity is uncertain. However, the area does broadly correspond to where there are upward decreasing head gradient from the Yarragadee aquifer beneath the superficial aquifer. Higher superficial aquifer salinity may be caused by evapotranspiration from the shallow water table.'

#### CONCLUSION AND RECOMMENDATIONS

'In conclusion the clearing of 86 ha of land from the above proposal is not expected to have an adverse impact on groundwater system. However, groundwater table will rise and could develop waterlogging and salinity distributions as a result of increase in recharge to the superficial formation.'

'It should be noted that there are no significant groundwater dependence ecosystems in the vicinity of Mr Green's Property.'

The above assessment was based on a much larger proposal (for 87.5 ha). The current area under application has been reduced to 37.9 ha. The areas on the property recognised as having a shallow water table are no longer within the area under application therefore, reducing the risk of salinity and waterlogging. The area under application is not like to be at variance to this Principle.

Methodology DAWA 2004  
DoE Hydrogeological Assessment 2006



**(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 at variance to this Principle**

Due to scale, flooding impacts are unlikely to occur as a result of the proposed clearing.

**Methodology GIS database:**

Pemberton 1.4m Orthomosaic - DOLA 99

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

**Comments**

The property is zoned rural.

Several 'Notice of Intent to Clear' (NOIC) have been granted by DAWA for four centre pivots within the south of the property. As part of DAWA negotiations for these centre pivots an Agreement to Reserve (ATR) was placed on the property (SWD45408 and SWD45409). The current application does not include any of these ATR areas.

The original application was for centre pivots and, therefore, required a Water Licence under the RIWI Act 1914, for the taking of groundwater. The decision on the water licence has been deferred so that studies and local groundwater models can be developed that will clearly identify any impacts of abstraction on the adjacent Jasper Quitjup wetlands. The applicant subsequently altered the application to reflect a dry land proposal without any requirement for groundwater (SWD47197). This assessment and recommendations is based on this dry land proposal.

**Submissions:**

- Raised concerns about weather or not there is a genuine need to clear any more vegetation in the Nannup area.
- Requested that flora and fauna surveys of the site be conducted to increase the knowledge of the species within the property.
- Had the view that the proposal was to extensive.

The need for removal of vegetation can not be addressed in clearing principles however the purpose of the clearing has been noted. Assessment against principles (b), (c) and (d) used expert knowledge and current information for the area under application resulting in no flora or fauna surveys being required. The area under application was reduced in size to address the concern of extensive clearing.

**Methodology GIS database:**

- Town Planning Scheme Zones - MFP 8/98

**4. Assessor's comments**

Purpose	Method	Applied area (ha)/ trees	Comment
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Grazing & Pasture	Mechanical Removal	37.9	The assessment and continued negotiation has resulted in the following outcome: Principles (d), (e) and (j) are not at variance. Principles (c), (f), (g), (h), (i) are not likely to be at variance. Principles (a) and (b) may be at variance.
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This assessment took into consideration the current Agreement to Reserve (ATR) and retain 125ha over the property.

**5. References**

CALM Land clearing proposal advice. 2003 Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref SWD45451.

Clearing Assessment Unit's biodiversity advice for land clearing application, 2004. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM ref HD27517.

DAWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref HD17835.

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.

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.

Hydrogeologist report, Department of Environment (DoE). DoE TRIM ref SWD45451.

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 Consulting (1998) Mapping of vegetation complexes in the South West forest region of Western Australia, CALM.  
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 Report. 2004 Department of Environment. DoE TRIM ref SWO24091.  
Site Visit Report. 2006 Department of Environment. DoE TRIM ref SWO29892.  
WRC (1996) Policy and Guidelines: Granting of Licences to Clear Indigenous Vegetation in Catchments Subject to Clearing  
Control Legislation. Water and Rivers Commission, Western Australia.

## 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)

