



1. Application details

1.1. Permit application details

Permit application No.: 1354/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Matthew, Anthony and Jennifer Malloch Edagee Station

1.3. Property details

Property: LOT 406 ON PLAN 238157 (WOORAMEL 6701)
 Local Government Area: Shire Of Carnarvon
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
99.17		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 344: Mosaic: Shrublands; bowgada scrub and associated spp / Shrublands; Acacia sclerosperma, bowgada and A. victoriae scrub. (Hopkins et al. 2001, Shepherd et al. 2001).	The proposal includes clearing of 99.17ha of pastoral land. The vegetation under application consists mainly of tall shrublands of Acacia and current bush, needle bush and intermittent grasses. The vegetation is considered to be in good (Keighery 1994) condition with stock and grazing impacts noted throughout the area (site visit 2006).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The majority of the area (99.17ha) under application is altered except for the effects of grazing. This has resulted in the removal of understorey species and grasses and damage to the lower sections of the larger shrubs (site visit 2006).

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 proposal includes clearing of 99.17ha for pastoral land. The vegetation under application consists mainly of tall shrublands of acacia and current bush, needle bush and intermittent grasses (site visit 2006). The vegetation is considered to be in good (Keighery 1994) condition with stock and grazing impacts noted throughout the area (site visit 2006). This has resulted in the removal of understorey species and grasses and damage to the lower sections of the larger shrubs (site visit 2006).

There are thirteen records of Priority flora within the local area (50km radius), including two P1, four P2 and two P3 species. The closest is 11km south of the area under application and is the same soil but different vegetation type to the area under application. This species is unlikely to occur within the area under application due to the distance from the application area, the difference in vegetation type and that the record is historical (1973). All other records of Priority flora are either on differing soil and vegetation types to the area under application or some distance away (greater than 25km).

The level of disturbance at this site and limited diversity of native species suggests that the original biodiversity value has been compromised. It is therefore unlikely that the vegetation under application is representative of an area of high biodiversity in the Bioregion or the local area.

Methodology Keighery (1994)
 Site visit (2006)
 GIS Databases:
 - Interim Biogeographic Regionalisation of Australia - EA 18/10/00

(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 proposal includes clearing of 99.17ha for pastoral land. The vegetation under application consists mainly of tall shrublands of acacia and current bush, needle bush and intermittent grasses (site visit 2006). The vegetation is considered to be in good (Keighery 1994) condition with stock and grazing impacts noted throughout the area (site visit 2006). This has resulted in the removal of understorey species and grasses and damage to the lower sections of the larger shrubs (site visit 2006).

Within 50km of the site under application there was one record of a threatened fauna species, the Western Spiny-tailed Skink (*Egernia stokesii badia*). This species was recorded 27km north. The species occurs in two apparently disjunct populations in the central wheatbelt and central Carnarvon Basin in WA. The Carnarvon Basin population is poorly known, with only two known localities, Callagiddy and Woodleigh Stations. Hollow logs are required for refuge sites in woodland habitat (Cogger et al. 1993; How et al. undated). Preferred refuges consist of piles of several overlapping hollow logs providing a combination of basking and shelter sites (How et al. undated).

Given the lack of understorey due to previous grazing, the limited habitat for the skink (hollow logs), the remaining native vegetation within a 50km area (90%) and limited diversity of native species suggests that the original biodiversity and habitat value has been compromised. The vegetation under application is therefore unlikely to provide a significant habitat for indigenous fauna.

Methodology Cogger et al. (1993)
 DEWHA (2008)
 How et al. undated
 Site visit (2006)

(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 are no known records of rare flora within the local area (50 km of the proposal area). In addition the area under application is a pastoral station and the history of grazing has significantly reduced the understorey and altered the vegetation structure (site visit 2006). It is therefore unlikely that the proposed clearing is at variance with this Principle.

Methodology Site visit (2006)
 GIS Databases:
 - Clearing Regulations - Environmentally Sensitive Areas - DoE 30/05/05
 - SAC Biodatasets - accessed 18 Jun 08

(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's) within 50km of the proposed clearing. This proposal is therefore not likely to be at variance with this Principle.

Methodology GIS Databases:
 - 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 at variance to this Principle**
 The IBRA, shire and vegetation communities for the area under application are above the threshold to clear land (30%) (Commonwealth Australia 2001). This proposal is therefore not at variance with this Principle.

	Pre-European	Current	Remaining
%*			
IBRA Bioregion			
Carnarvon	223,685	223,685	100.0
Shire of Carnarvon	223,685	223,685	100.0
Beard veg type			

* (Shepherd et al. 2001)

Methodology Shepherd et al, 2001.
Commonwealth Australia (2001)
GIS Databases:
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Pre-European Vegetation - DA 01/01
- Local Government Authorities - DLI 08/07/04

(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**
No watercourses or wetlands were observed within the proposed area (site visit 2006).

The closest watercourse or wetland occurs 400 m south of the area under application and consists of a major drain that drains into a non-perennial lake.

Given the distance to the major drain and the low rainfall it is unlikely that this proposal is at variance to this Principle.

Methodology Site visit (2006)
GIS Databases:
- Hydrography, linear - DoE 01/02/04
- Hydrographic Catchments - Catchments - DoE 23/03/05

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

Comments **Proposal is at variance to this Principle**
The underground salinity levels of the area under application is between 7000 to 14000mg/L (saline). DAFWA (2006) advise that the soluble salt accumulation is anticipated within the soil profile after clearing and under the intended irrigation regime. Changes in soil salinity and in the level of soil moisture in the soil profile will be monitored. DAFWA Research Officer reported on the potential of Sandal land system for irrigated crop production and did not recommend the development of the red shallow duplex soils due to their inherent salinity (DAFWA, 2006).

DAFWA (2006) advise that Areas of Aeolian sand are common within the Sandal land system. The red deep sand topsoils that are referred to by the proponent were in pre-historic times subject to wind erosion. The reporting officer does not expect wind erosion to be a problem once the irrigated perennial grass pasture has been established. However, wind erosion may require management. For this reason the proponents plan has been amended. Each of the proposed 23 fenced paddock areas will be irrigated in its entirety, and hence the area of each paddock will be approximately 2.17 hectares. Irrigated pasture surfaces are less prone to soil erosion (DAFWA, 2006).

DAFWA (2006) advise that water erosion can be anticipated whenever rainfall or the rate of irrigation water application exceed the infiltration potential of the soil. When the present shrub cover has been cleared and also as the application of artesian irrigation water proceeds, surface salt concentrations can be expected to rise. Intense rainfall will then be more likely to cause dispersive sealing of Sandal soil surfaces, which may also increase the likelihood of water erosion (DAFWA, 2006).

DAFWA advise that 'The assessment identified the potential for land degradation in the form of wind erosion, water erosion and salinity. However, if appropriate management strategies are implemented these risks should be minimised. Therefore, I conclude that the proposed clearing of 99.17ha within Edaggee Station is at variance with principle (g) for wind erosion, water erosion and salinity.'

Methodology DAFWA (2006)
GIS Databases:
- Rainfall, Mean Annual - BOM 30/09/01
- Salinity Risk LM 25m - DOLA 00
- Acid Sulphate Soil risk map, SCP DOE 04/11/04
- 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 Shark Bay Marine Park is located 14km west of the area under application. In addition the Shark Bay Area and Wooramel Seagrass Bank are registered as National Estate and form part of the Shark Bay World Heritage area. No terrestrial conservation areas were located within 50 km from the area under application. The vegetation under application is in good condition, however, it is disturbed from grazing with negligible understorey present (site visit 2006).

The proposed clearing is not likely to impact on the environmental values of the identified conservation reserves due to the distance. Therefore this proposal is unlikely to be at variance to this Principle.

Methodology Site visit (2006)

GIS Databases:

- CALM Regional Parks - CALM 12/04/02
- CALM Managed Lands & Waters - CALM 01/07/05
- Proposed National Parks FMP-CALM 19/03/03
- Register of National Estate - EA 28/01/03

(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 falls within the coastal catchment and has a low recorded rainfall average of 300mm per annum. In addition no watercourses or wetlands were observed within the proposed area (site visit 2006). The closest watercourse or wetland occurs 400 m south of the area under application and consists of a major drain that drains into a non-perennial lake. Due to the low rainfall rate and the depth to groundwater varying between 360 - 406 m below ground level it is unlikely that this proposal will cause deterioration in the quality of surface or underground water.

Methodology Site visit (2006)

GIS Databases:

- WIN datasets - WRC 09/02
- Hydrographic Catchments - Catchments - DOE 23/03/05
- Hydrography, linear - DoE 01/02/04
- 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 area under application consists of red sandy duplexes associated with the level terrain, secondary associated soils are red deep siliceous sands and sandy earths occurring on low dunes and relic alluvial benches, and minor soil inclusions of moderately saline, red shallow duplex associated with depressions (DAFWA, 2006).

DAFWA (2006) further advise that the red deep sand topsoils are red loamy sand or clayey sand generally with a depth of 60-200 cm. Subsoil horizons usually contain ironstone. The ironstone segregations can be weakly cemented and form pans similar to red-brown hardpan however the pans are not continuous and do not restrict drainage. For the red deep sandy duplex soils, electrical conductivity values indicate slight to moderate salinity usually between 60-120 cm while subsoils below 150 cm have high to extreme salinity. These concentrations can be assumed to be indicative that the deep soil drainage is to some extent impaired.

The area under application has a low recorded rainfall average of 300mm per annum. Due to the low rainfall and the sandy nature of the topsoil it is unlikely that the clearing of vegetation will have an impact on peak flood height or duration.

Methodology DAFWA (2006)

GIS Databases:

- Rainfall, Mean Annual - BOM 30/09/01
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The Shire of Carnarvon advised that they have no objection to the land being cleared for the purpose of grazing and pasture.

An Environmental Impact Assessment (EIA) was conducted over the area under application as part of the Shire

of Carnarvon Town Planning Scheme which identified proposed areas for infrastructure and areas of conservation within the Shire of Carnarvon. The Scheme was formally assessed for environmental review and managed through scheme maps, provisions and local planning strategy. This EIA does not affect this application as the property is zoned accordingly (EPA reference CRN145179).

The Department of Environment and Conservation (Industry Regulation Branch - Geraldton Office) advised that there is currently no application for the area applied to be cleared. They further advised that the applicant should be aware that the lot feeding of 500 or more head of cattle (with a stocking density of at least 50 head/ha) is a prescribed activity under the Environmental Protection Regulations 1987 and the Department should be contacted if the activity will meet these thresholds. The applicant should also be directed to the Department of Agriculture and Food's Guidelines for the Environmental Management of Cattle Feedlots in Western Australia (available from DAFWA) regarding the accepted standards of environmental management for cattle feedlots in WA.

The proposal under application is to establish irrigated pasture for the possible future establishment of a cattle feedlot. Given the timeframes required to establish the pasture this proposal does not currently impact on any other Environmental Protection Act licences.

The Department of Water are currently assessing an amendment to the property's water licence to 1.0GL for irrigation of 100ha of fodder crops. To date no amended water licence has been received by DEC.

The Department of Environment and Conservation received a submission from the native title representative body, representing the native title claimants whose traditional land is affected by this proposal. The representative advises that the proponent should ensure clearing does not interfere with any Aboriginal sites and is in compliance with the Aboriginal Heritage Act 1972. The representative further advises that the social and cultural use of the land falls within the definition of 'environment' under the Environmental Protection Act 1986 and should be afforded appropriate protective measures. The proponent will be advised in the covering letter of their obligations under the Aboriginal Heritage Act and the Native Title Act 1993.

DAFWA (2006) has advised that an agreement exists between the proponent and DAFWA. It is a goal of the proposal that Best Management Plan guidelines are to be developed; to support the potential future expansion of artesian bore irrigated crop production, utilizing soil types such as the Sandal land system soils that are recognised as having some limitations.

Methodology Shire of Carnarvon submission
DAFWA (2006)

4. Assessor's comments

Comment

The assessable criteria have been addressed and the proposal is at variance to Principle (g) and is not likely to be at variance to the remaining Principles.

5. References

- Cogger, H.G., E.E. Cameron, R.A. Sadler & P. Egger (1993). The Action Plan for Australian Reptiles. [Online]. Australian Nature Conservation Agency. ANCA, Canberra. Available from:
<http://www.environment.gov.au/biodiversity/threatened/action/reptiles/index.html>.
- DAFWA (2006) Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DEC TRIM Ref DOC6626.
- DEC (2006) Site Inspection Report for Clearing Permit Application CPS 1354/1, Lot 406 on Plan 238157, Wooramel. Site inspection undertaken 20 June 2006. Department of Environment and Conservation, Western Australia (TRIM Ref. DOC9108).
- 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.
- Department of the Environment, Water, Heritage and the Arts (DEWHA), (2008). *Egernia stokesii badia* in Species Profile and Threats Database, Department of the Environment, Water, Heritage and the Arts, Canberra.
- 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.
- How, R.A., J. Dell & K. Aplin (undated). Assessment of the central wheatbelt populations of the endangered skink *Egernia stokesii badia*. Western Australian Museum. Unpublished.
- 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.

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)