



1. Application details

1.1. Permit application details

Permit application No.: 1886/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: MR Brent Ronald Smoothy

1.3. Property details

Property: LOT 5 ON PLAN 220364 (KUMARINA 6642)
 LOT 7 ON PLAN 220364 (KUMARINA 6642)
 LOT 5 ON PLAN 220364 (KUMARINA 6642)
 Local Government Area: Shire Of Meekatharra
 Colloquial name:

1.4. Application

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

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
Shrublands; mulga scrub	Acacia trees over scattered shrubland and Triodia hummocks. The vegetation is fairly sparse with large open sandy areas. The area has been degraded due to grazing.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation to be cleared description has been gathered from photos provided by DAFWA from the site inspection on Tuesday 7th August 2007 (DEC TRIM REF: DOC32392).

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 and land types that occur under this application are represented elsewhere, however it is difficult to determine whether clearing under this application may impact an area of outstanding biodiversity within the local and/or regional area.

There has been very little small scale survey work conducted in the biogeographical subregion and assessment of the biodiversity significance of the site therefore relies on data that is often very large scale and not site specific.

The land systems under application have been degraded due to grazing and mining pressures and continue to be at risk of further degradation due to these activities. There are also issues associated with weed species and feral animals in the wider bioregion.

With the limited information gathered from a desktop survey, the site appears to contain habitat that, although represented elsewhere, may provide a suitable environment for a diverse range of species of flora and fauna including conservation significant taxa.

Without further specific knowledge of the biodiversity values within a local and regional context, it is impossible to compare those values of the project site to the wider region however given the large extent of vegetation association 39 (Hopkins et al., 2001) remaining it is unlikely that proposal is at variance to this principle.

Methodology Hopkins et al., 2001
 Sac Biodatasets 151007;
 Gis Database;

(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

Seven species of conservation significance have been previously recorded within a 100 kilometre buffer area surrounding the application area (SAC Biodatasets 151007). The fauna of conservation significance include:

- * Lagostrophus fasciatus fasciatus (Banded Hare-wallaby) - Schedule 1 Vulnerable;
- * Dasycercus cristicauda (Mulgara) - Vulnerable;
- * Ardeotis australis (Australian Bustard) - P4;
- * Polyletis alexandrae (Princess Parrot) - P4;
- * Pseudomys chapmani (Western Pebble-mound Mouse (Ngadji) - Priority 4;
- * Amytornis striatus striatus (Striated Grass Wren) - P4; and
- * Numenius madagascariensis (Eastern Curlew) - Priority 4 (Biota, 2006b).

The habitat under application (Plain Sparse Mulga Shrubland - PSMS; and Hard Plain Mulga Shrubland - HPMS) contains plant species common to many other site types and is represented in the Karijini National Park and on Unallocated Crown Land (Van Vreeswyk et al., 2004).

The vegetation under application may contain fauna habitat values, however similar habitat is located within the local and wider area (Gis Database) and clearing of this vegetation is not likely to significantly affect the area necessary for maintaining ecological processes, functions or habitat linkages of native fauna.

Therefore this proposal is not likely to be at variance to this proposal.

Methodology Van Vreeswyk et al., 2004
Sac Biodatasets 151007;
Gis Database;
~Pre-European Vegetation - Da 01/01

(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 has not been a flora and vegetation survey conducted for the site or nearby areas. There is only 1 report of a declared rare flora species within a 100 km radius of the application area. Thryptomene witteri a Vulnerable species under IUCN and EPBC legislation was found approximately 88km south east of the project area. There are several reported occurrences of Priority species at approximately 40km distance from the site. These include;

- Eucalyptus semota (Priority 1 - P1)
- Micromyrtus racemosa var. mucronata (P1)
- Eremophila appressa (P1)
- Eremophila micrantha (P1)
- Eremophila caespitosa (P3)
- Eremophila lanata (P3)
- Goodenia berringbinensis (P4)

Many of the priority species listed above are recorded as being found in Acaacia Shrubland, vegetation similar to that found within the project area.

It is difficult to determine whether the proposal will be at variance to this principle without a flora survey, however it is likely that priority flora may be present within the application area.

Therefore, without a flora survey to suggest otherwise, this assessment has found that the application may be at variance to this principle.

Methodology GIS Database
- SAC Biodatasets - DEC 15/10/07

(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 is no known TEC or PEC within the application areas. The nearest known TEC is the Ethel Gorge Aquifer stygobiont community located approximately 162km north of the area applied to clear. The West Angelas Cracking Clays are a ecological community listed as priority for conservation and are located approximately 195km north west of the application area. Due to the vast distance between the known TEC and PEC communities and the application area, this proposal will not impact on these communities. Therefore it is unlikely that this proposal is at variance to this principle.

Methodology GIS Database
- SAC Biodatasets - DEC, 15/10/07

(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 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 (EPA, 2000).

The vegetation of the area applied to clear consists of Beard Vegetation Association 39 (Hopkins et al., 2001). Beard Association 39 is described as Shrublands; mulga scrub (Shepherd et al., 2001).

There is approximately 100% of the Pre-European extent of this association remaining (Shepherd et al., 2001). There is approximately 8.2% of the remaining extent protected in IUCN Class I-IV Reserves and 3.6% situated in pastoral leases managed by CALM (Shepherd et al., 2001). The vegetation common to this system has been somewhat degraded by grazing and mining, and remains under threat to further degradation due to these processes.

Clearing under this proposal is not likely to impact on the extent of vegetation in a local or regional context. Therefore this proposal is unlikely to be at variance to this principle.

Methodology Shepherd et al., 2001
EPA, 2002
Hopkins et al., 2001
Gis Database;
~Pre-European Vegetation - DA 01/01
~Rangeland Land System Mapping - DA

(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 application is not associated with a watercourse or wetland that has been identified as having significant environmental values (Gis Database). The two sites proposed to be cleared are located approximately 1.75km either side of the Gascoyne River (North branch), and are within the Gascoyne River Catchment (Gis Database).

Clearing of the vegetation under application will not affect water tables, and are not likely to affect ecological communities that are groundwater dependent.

Therefore this proposal is not likely to be at variance to this principle.

Methodology Gis Database;
~ Hydrography, Linear (Hierarchy) - DOW
~ Hydrographic Catchments - Catchments - DOW
~ ANCA, Wetlands - CALM 08/01
~ Hydrography, linear (medium scale, 250k GA)
~ Hydrography, linear - DOE 1/2/04
~ RAMSAR Wetlands - CALM 14/02/03

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

Comments **Proposal may be at variance to this Principle**

Two areas have been nominated for clearing;
1. 119.34E, 24.47S.

This area is situated in the Augustus land System. The Only land unit within this system which could support agriculture is the drainage floors (DAFWA 2007). Soils of these drainage floors include some duplex red-brown soils and some clays of variable depth. The vegetation is often degraded with some water erosion (DAFWA 2007).

2. 119.39E, 24.46S.

This area is situated in the Frederick land system. The land units involved are Groves and Inter-groves. Groves soil is red-brown loamy sand increasing to sandy clay loam below 750mm (DAFWA 2007). Soil pH is 5-7. Over-use of upslope areas has led to increased runoff and creation of marked channels through groves (DAFWA 2007).

There are a number of issues that will need to be considered and resolved for the project to be successful:

- # Available water supply - depth, quality, quantity, pressure
- # Soil profile - is depth/nutrients adequate for agriculture
- # Pasture species - able to withstand harsh conditions, yet be adequate for stock feed and efficient for water use
- # Irrigation infrastructure - cost effective method
- # Grazing method - strip grazing, 4-paddock system etc
- # Fencing to safeguard against other grazers
- # Integration into Stations Business plan

If planning is not adequate, delays in the project may lead to land degradation. For example if the land is cleared but then not seeded for some period of time, or seeding is not successful, this may lead to increased risk of wind and water erosion of soils.

Given the above, the proposal may be at variance to this principle.

Methodology DAFWA 2007

(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 to be cleared does not contribute significantly to the environmental values of a conservation area. The property is not located within a conservation area and is 12.5km from the nearest conservation estate (GIS Database). Collier Range National Park is located 12.5km northwest, and Carnarvon Range is approximately 68.5km east south of the proposal area. Due to the large distance to the nearest conservation area, it is unlikely that this proposal will be at variance to this principle.

Methodology Gis Database;
 ~Register of National Estate - EA 28/01/01
 ~System 1 to 5 and 7 to 12 Areas - DEP 06/95
 ~Clearing Regulations - Schedule One Areas - DOE 10/03/05
 ~CALM Managed Land and Waters

(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 Department of Agriculture did not raise any issues with the clearing leading to increased salinity on or off site. There is however the risk of erosion of soils due to surface water runoff though it is unlikely that this sediment will impact on water bodies on or off site. The clearing itself is not likely to alter the depth of the water table nor adversely impact upon groundwater dependent ecosystems, however the water required for the irrigation of the proposed crops, may lead to small drawdown effects.

The clearing of native vegetation under this application is unlikely to reduce the quality of surface or groundwater. Therefore this proposal is unlikely to be at variance to this principle.

Methodology DAFWA 2007

(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

Kumarina has a mean annual rainfall of approximately 230mm of which 70% falls in summer (DAFWA 2007). This rainfall tends to be of relatively high intensity. There is evidence that overuse of upslope areas has led to increased run-off and created marked channels through some groves (DAFWA 2007). Having said this DAFWA have raised no concern that if the site were to be cleared for the purpose of irrigated agriculture, that flooding risk would be increased. Therefore the proposal is not likely to be at variance to this principle.

Methodology DAFWA 2007

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

Comments

A water licence under the Rights in Water and Irrigation Act 1914 will be required from the Department of Water for the abstraction of groundwater or for the diversion of surface water flows for irrigation purposes.

A Diversification Permit will be required before any clearing can take place.

Department of Agriculture and Food Western Australia (DAFWA) assessment has suggested that the amount of water required to irrigate forage crop in the Kumarina environment, may lead to the project being economically unsound. In order for the project to be successful, DAFWA suggest that a clear plan will need to be outlined which investigates several specific issues, particularly those related to the economics of the proposal. The following issues will need to be investigated;

- water supply (water depth, quality, quantity and pressure);
- soil profile (is depth/moisture content/nutrients suitable for growing perennial grasses and legumes);
- irrigation infrastructure
- grazing method
- fencing to guard against other grazers
- business plan

DAFWA have suggested that before broad-scale clearing of the site is undertaken, that a small scale trial of 1 hectare be undertaken to determine suitable species mix, cultivation techniques, irrigation schedule etc. This will prevent the risk of outlaying large amounts of capital into a system which may require refining in the initial stages and decrease the risk of clearing land that may be found unsuitable for crop irrigation.

Suitable crop species will need to be investigated and it is a concern that some species have the potential to impact on the biodiversity of the immediate environment and its surrounds. This is the case where Buffel Grass *Cenchrus ciliaris* has been introduced in the past as a feed for stock and has now turned into a serious threat to the biodiversity of the Pilbara Region. Crop species should be limited to those native to the area that will not pose a threat to the surrounding environment and that are also water efficient due to their adaptation to the arid climate.

Methodology DAFWA 2007

4. Assessor's comments

Comment

Principles (a), (b), (d), (e), (f), (g), (h), (i) and (j) are not likely to be at variance and principle (c) may be at variance.

5. References

- DAFWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia. DoE TRIM ref DOC32392
- Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- 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.
- 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.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A., and Henning, P. (2004) An inventory and condition survey of the Pilbara region, Western Australia, Technical Bulletin No.92, South Perth, 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)

