



1. Application details

1.1. Permit application details

Permit application No.: 2005/1
 Permit type: Area Permit

1.2. Proponent details

Proponent's name: Anika Simich

1.3. Property details

Property: LOT 220 ON PLAN 40602 (STIRLING ESTATE 6271)
 LOT 220 ON PLAN 40602 (STIRLING ESTATE 6271)
 Local Government Area: Shire Of Capel
 Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1.5		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
6 Medium woodland; tuart & jarrah	Vegetation within the application area is degraded and consists mainly of overstorey species of <i>Agonis flexuosa</i> (Peppermint tree), <i>Eucalyptus marginata</i> (Jarrah) and <i>Corymbia calophylla</i> (Marri). There is some bracken regeneration however understorey is mainly pasture. The Atlas of Tuart Woodlands maps the notified area as having 30-39% canopy cover in a high disturbance area.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	Vegetation condition assessment was based upon site photo's received from proponent.
37 Shrublands; teatree thicket			
KARRAKATTA COMPLEX } CENTRAL AND SOUTH : Predominantly open forest of <i>E. gomphocephala</i> - <i>E. marginata</i> - <i>E. calophylla</i> and woodland of <i>E. marginata</i> - <i>Banksia</i> species.			
VASSE COMPLEX : Mixture of the closed scrub of <i>Melaleuca</i> species fringing woodland of <i>E. rudis</i> - <i>Melaleuca</i> species and open forest of <i>E. gomphocephala</i> - <i>E. marginata</i> - <i>E. calophylla</i>			

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 area proposed to be cleared is considered to be in a degraded condition (Keighery, 1994) consisting mainly of overstorey species. The remaining woodland is composed predominantly of Peppermint (*Agonis flexuosa*), Tuart (*Eucalyptus gomphocephala*) and Jarrah (*Eucalyptus marginata*) with little to no understorey.

The notified area adjoins Tuart Forest National Park. Tuart woodlands have been recognised for their biological importance and the in situ conservation of these is regarded as the most effective means of conserving biological diversity (Commonwealth of Australia, 1996). However as the area proposed to be cleared is in a degraded condition it no longer retains the characteristic features of this woodland.

Given the degraded nature of the notified area and the high diversity contained within the adjoining Tuart Forest National Park, it is unlikely that the proposed clearing would be at variance to this principle.

Methodology Site Photo's, 2007
Commonwealth of Australia, 1996
Keighery, 1994
GIS Databases:
- Preston - Gelorup - Bunbury Townsite 20cm Orthomosaic - DLI04
- CALM Managed Lands and Waters - CALM 1/07/05

(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

The Western Ringtail Possum (*Pseudocheirus occidentalis*) has been recorded within a 10km radius of the area that has been applied to be cleared. This species is listed as Vulnerable on the IUCN Red list, Threatened (vulnerable) under the Environment Protection and Biodiversity Conservation Act 1999 and Threatened under the Wildlife Conservation Act 1950.

Woodlands consisting of Tuart (*Eucalyptus gomphocephala*) and Peppermint (*Agonis flexuosa*) represent the major areas of habitat for this species as the large Tuart trees provide nesting hollows or areas for dreys and the Peppermint trees provide their major source of food (Naturebase, 2007).

One of the key threatening processes this species is habitat loss and modification (DEWHA, 2007 and IUCN, 2007). In the National action plan recovery outline for this species, one of the objectives is listed as minimising impact of land development through in situ conservation or translocation where appropriate (DEWHA, 2007).

Tuart Forest National Park is known to contain the densest population of Brush-tailed Possums in the State as well as Brush-tailed Phascogales, Bush Rats, Kangaroos and Quendas (Naturebase, 2007). Additionally the National Park is known to be used by migratory and non-migratory waterbirds for nesting and dietary purposes (Naturebase, 2007). Given that the area proposed to be cleared adjoins Tuart Forest National Park, with vegetation extending from the National Park into the notified area, it is likely that these species will utilise this extension of habitat.

As vegetation that is proposed to be cleared is considered to be degraded (Keighery, 1994) and is relatively small, it may not be considered significant, however it does constitute part of a significant habitat for fauna in the local area. Therefore the notified area provides part of the significant feeding area for fauna, and additionally maintains an ecological linkage to, and buffers fauna habitat found within the Tuart Forest National Park. Given these factors it is considered that clearing within the notified area maybe at variance to this principle.

In order to mitigate any potential affects upon fauna habitat a condition will be recommended to prevent the clearing of Tuart and Jarrah trees.

Methodology DEWHA, 2007
SAC Bio datasets, 31 October 2007
IUCN, 2007
Naturebase, 2007
GIS Databases:
- Preston - Gelorup - Bunbury Townsite 20cm Orthomosaic - DLI04

(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

Within the local area (10km) the following species or rare and priority flora have been recorded.

Declared Rare Flora:

Caladenia busselliana
Synaphea stenoloba
Drakaea elastica
Eleocharis keigheryi
Caladenia huegelii
Drosera marchantii subsp. marchantii
Diuris drummondii
Verticordia densiflora var. pendunculata

Priority 1:

Synaphea odocoileops

Priority 2:

Synaphea petiolaris subsp. simplex
Trichocline sp. Treeton (B.J. Keighery & N. Gibson 564)

Calytrix sp. Tutunup (G.J. Keighery & N. Gibson 2953)

All known DRF in the local area are considered to be unlikely to be found in, or reliant upon, the notified area, due to characteristic habitat preferences of these species, which are not found within the proposed clearing area (Brown et al, 1998). Local priority flora species are also unlikely due to their habitat preferences. Given this, it is not likely that the clearing proposed is at variance to this principle.

Methodology SAC Biodatasets, 2007
Brown et al, 1998

(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**

The below Threatened Ecological Communities (TEC's) have been recorded within the local area (10km)

SCP 8 (Occurrence ROSE03) - This TEC is considered to be unlikely to occur within the notified area given the soil type preferences and known dominant vegetation of this TEC.

SCP 1b (Occurrence CAPEL05) Soils for this TEC are heavy with a marri overstorey and are therefore considered unlikely to occur within the notified area due to habitat differences within the proposed clearing area.

SCP 3c [Occurrences ROSE01-05 (excl 03)] - The proposed clearing is to degraded (Keighery, 1994) to accurately state if some of the key species of this TEC were found there however as the dominant species are marri and xanthorrea sp. it is unlikely to occur in application area.

SCP 19b (Occurrence MUDDY01) - The area proposed to be cleared has a similar habitat however known listed species do not currently occur there and it is unlikely that they historically did given the species found in the adjoining Tuart Forest National Park.

Given the above factors it is unlikely that clearing within the proposed area would be at variance to this principle.

Methodology SAC Biodatasets, 31 October 2007
Keighery, 1994

(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 below table provides an indication of remaining vegetation in numerous area associated with the clearing.

Pre-European	Current extent	Remaining (ha)	Conservation (ha) DEC Managed	% In reserves	(%)	status
	Land					
IBRA Bioregions						
Swan Coastal Plain	1,501,456	571,758	38.1	Depleted	N/A	
Shire*						
Capel	N/A	55,869	20,059	35.9	Depleted	
Heddlle Vegetation Complex						
Vasse		11,189	3,286	29.4	Vulnerable	
		N/A				
Karrakatta complex						
Central and south	49,912	14,728	29.5	Vulnerable	N/A	
Beard Vegetation Complex						
6		56,345	15,013	26.6	Vulnerable	
		11.3				
37		39,385	22,748	57.8	Least Concern	
	17.8					

The State Government is committed to the National Objectives Targets for Biodiversity Conservation 2001-2005 (AGPS 2001) which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-1750 (Department of Natural Resources and Environment 2002; EPA 2000). Beyond this value species extinction is believed to occur at an exponential rate and any further clearing is therefore at variance to this

principle. As indicated in the above table, the predominant vegetation type of the notified area and both vegetation complexes are under the target amount.

The notified area lies within a rural area that has been identified through the Greater Bunbury Region Scheme (GBRS) as potentially significant but which has been deferred for assessment.

The area proposed to be cleared is likely to have been classified as Community type 25 'Southern Eucalyptus gomphocephala - Agonis flexuosa woodlands' which are considered to be poorly reserved with a susceptible conservation status (Gibson et al, 1994) however the notified area is now too degraded (Keighery, 1994) to accurately identify the floristic community type. Tuart woodlands have been recognised for their biological importance and the in situ conservation of these is regarded as the most effective means of conserving biological diversity (Commonwealth of Australia, 1996).

The above factors indicate the area proposed to be cleared may be significant as a remnant of vegetation in a highly cleared landscape, however as the notified area is in a degraded (Keighery, 1994) condition and the clearing is limited to one species (*Agonis flexuosa*) within a small area (1.5ha) it is unlikely that the clearing is at variance to this principle.

Methodology Shepherd et al, 2001
Hopkins et al, 2001
EPA, 2000
Commonwealth of Australia, 1996
Gibson et al, 1994
Keighery, 1994
GIS Databases:
- Pre-European Vegetation - DA 01/01
- Heddl Vegetation Complexes - DEP 21/06/95
- 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 is not likely to be at variance to this Principle**
The area proposed to be cleared lies approximately 120m north of a mapped multiple use wetland and approximately 400m north of an EPP Wetland.

Vegetation within the notified area is in a degraded condition (Keighery, 1994) and photo's taken by the proponent do not show any wetland specific or associated species. Clearing within this property is stated to be selective thinning of peppermint trees, which is unlikely to cause any effects on water table levels, and as such, should not affect any groundwater dependent wetlands.

Methodology Site Photos, 2007
Keighery, 1994
GIS Databases:
- Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC_1
- EPP, Lakes - DEP 1/12/92

(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**
The physical landscape of the area under application shows low elevation, siliceous sands with an underlying aeolianite rock base. These geomorphological factors indicate that water logging is unlikely to occur within the notified area.

A soil analysis of the area under application showed acceptable pH levels, however magnesium, salinity and potassium were very low. Phosphate levels were normal (SWCS, 2007). Given this information, and associated mapping of Acid Sulphate Soils and groundwater salinity levels, clearing within the notified area is not likely to impact on acidity and salinity.

The fine soils within the application area may be prone to wind erosion, however the remaining pasture and some overstorey species should provide an adequate buffer for the prevention of wind erosion.

Given the above information the proposed clearing is unlikely to be at variance to this principle.

Methodology SWCS Soil Analysis, 2007
GIS Databases:
- Geology, Statewide - DMPR 01/12/99

- Groundwater Salinity, Statewide - DOW
- Acid Sulfate 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 at variance to this Principle

The area that is proposed to be cleared adjoins the northern section of Tuart Forest National Park. Other significant conservation areas found nearby are; the southern portions of Tuart Forest National Park, a system 6 reserve 6.6km North, and the North Capel Industrial Zone Buffer Area which is situated 2.2km east. There are also numerous Conservation Category Wetlands and EPP Lakes within the local area, with the nearest EPP Lake located approximately 500m south of the proposed clearing.

Tuart Forest National Park contains numerous significant environmental values. The park is known to protect the largest remaining wild population of Western Ringtail Possums, is known to provide feeding habitat for many species of migratory and non-migratory waterbirds (Naturebase, 2007) and contributes towards halting the decline of the Tuart, which is endemic to the Swan Coastal Plain (TRG, 2002). It is suggested that disturbance resulting from clearing is contributing factor in the decline in health of Tuarts (TRG, 2002).

Vegetation condition with the notified area is of a degraded condition (Keighery, 1994) containing mainly overstorey species that comprise of Tuart (*Eucalyptus gomphocephala*), Peppermint (*Agonis flexuosa*) and Jarrah (*Eucalyptus marginata*) trees. Given that some of the overstorey species found within the National Park are located within the notified area, the area is likely to represent an extension of significant habitat for fauna and flora species within the park, including Tuarts

Due to the strategic location of the proposed clearing area, it represents a buffer and an ecological linkage to the surrounding conservation areas. The property is providing a vegetated link between the wetlands to the south and the Tuart Forest National Park to the north. Although the condition of vegetation is degraded, the area still retains buffering capacities through protection from wind, weeds and other associated edge effects.

Given the above factors it is considered the proposed clearing is likely to have an impact on the environmental values of surrounding conservation areas, and therefore is at variance to this principle.

- Methodology**
- Naturebase, 2007
 - SAC Biodatasets - accessed 06/12/2007
 - TRG, 2002
 - EPA, 2001
 - Keighery, 1994
 - GIS Databases
 - CALM Managed Lands and Waters - CALM 1/07/05
 - Geomorphic Wetlands (Classification), Swan Coastal Plain - DEC_1
 - EPP, Lakes - DEP 1/12/92
 - System 6 Conservation Reserves - DEP 06/95

(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

Within the notified area, the hydrogeology is described as being surficial sediment with shallow aquifers and the area has low elevation with siliceous sands.

The proposed area is mapped as having no known acid sulphate soils (ASS), with a small area in the south-western portion of the block mapped with a low-moderate risk of ASS.

Salinity mapping shows the area as having 500-1000TDS/mg/L.

As the proposal is to clear a small amount of overstorey species; and given the above factors it is unlikely that there will be a significant impact on the quality of surface or underground water

- Methodology**
- GIS Databases:
 - Hydrogeology, Statewide - DOW
 - Groundwater Salinity, Statewide - DOW
 - Acid Sulfate Soil Risk Map, Swan Coastal Plain - DEC
 - Topographic Contours, Statewide - DOLA 12/09/02
 - Soils, Statewide - DA 11/99
 - Geology, Statewide - DMPR 01/12/99

(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 proposed to be cleared lies in a dune swale at approximately 5m elevation with fine sandy soil. Clearing within this application area is unlikely to cause or exacerbate flooding given the geomorphology of the area.

Methodology GIS Databases:
- Topographic Contours, Statewide - DOLA 12/09/02
- Geology, Statewide - DMPR 01/12/99
- Soils, Statewide - DA 11/99

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

Comments
The area proposed to be cleared is zoned rural according to Local Planning Schemes and the Greater Bunbury Region Scheme.

The proponent intends to clear to provide grazing pasture for horses. The proponent has had a sample of soil tested from the notified area tested for nutrient capacity and is intending to fertilise regularly. There is potential for this fertilisation and associated runoff to affect the surrounding EPP and other wetlands given the proximity to these wetlands.

Methodology SWCS, 2007

4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Grazing & Pasture	Mechanical Removal	1.5	To clear away the smaller trees to allow sunlight in to develop adequate grassed paddocks for grazing horses.

5. References

Brown, A, Thomas-Dans, C, Marchant, N, 1998, Western Australia's Threatened Flora, Conservation and Land Management. Commonwealth of Australia, 1996, National Strategy for the Conservation of Australia's Biological Diversity, Department of Environment, Sport and Territories
http://www.environment.gov.au/biodiversity/publications/strategy/chap1.html#ob1_5 (site accessed 07.12.07)

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.

DEWHA, 2007, Action Plan for Australian Marsupials and Monotremes, <http://www.environment.gov.au/biodiversity/threatened/publications/action/marsupials/23.html> , Site accessed on 7 December 2007.

Dodds, D, 2007, Soil Analysis, South West Chemical Services Environmental and Analytical Consulting.

Gibson, N, Keighery, B.J, Keighery, G.J, Burbidge, A.H, and Lyons, M.N, 1994, A floristic survey of the Southern Swan Coastal Plain, Department of Conservation and Land Management.

Heddl, 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. Information sheet on RAMSAR wetlands, Naturebase, 2003, http://www.naturebase.net/pdf/national_parks/wetlands/fact_sheets/vasse_wonnerup1.doc, site accessed on 30 November 2007

IUCN, 2007, 2007 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Downloaded on 07 December 2007.

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., 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.

Tuart Forest National Park, Naturebase, http://www.naturebase.net/component?option=com_hotproperty/task/view/id,81/Itemid,755/, site accessed on 30 November 2007.

Tuart Response Group, An Atlas of Tuart Woodlands on the Swan Coastal Plain in 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)

