



1. Application details

1.1. Permit application details

Permit application No.: 103/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: Alexandra Stephanie Rogers

1.3. Property details

Property: LOT 2 ON DIAGRAM 55237 (Lot No. 2 KENTS DINNINUP 6244)

Local Government Area: Shire Of Boyup Brook

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
162		Cutting	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
The majority of vegetation in the area is described as Marri-jarrah (Eucalyptus calophylla-E. marginata) forest with wandoo (E. wandoo). Understorey species include parrot bush (Dryandra sessilis), snotty gobbie (Persoonia longifolia), bull banksia (Banksia grandis), honey bush (Hakea lissocarpha), white myrtle (Hypocalymma angustifolium), zamia (Macrozamia riedlei), grass trees (Xanthorrhoea spp), running postman (Kennedia prostrata) and prickly moses (Acacia pulchella). On valley floors and wet areas Flooded gum (Eucalyptus rudis) woodland occupies poorly drained flats with an understorey of sedge (Juncus spp.), golden wreath wattle (Acacia saligna) and paperbark (Melaleuca spp.).	The south eastern area proposed for clearing (below the river) is in Good condition (Keighery 1994). This area is not fenced to prevent stock from entering. The area consisted of young Jarrah and mature Wandoo trees. In some areas there were Xanthorrhoea spp. trees but no native mid-storey or understorey was present. Pasture weeds were present. There were many fallen trees within the area.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	Initial field visit was undertaken on 4th November 04 by DoE Officers. The applicant did not accompany the officers.
	The large area proposed for clearing in the middle of the property and the two small sections on the western side are considered to be in Excellent condition (Keighery 1994). This area has been fenced to keep stock out and consequently supports an intact native mid- and understorey. Tracks present suggested that stock had used this area in the past. Compared with the first area, there were more jarrah and marri of differing ages, with fewer wandoo trees. Some weeds were present.		
	The smaller eastern area proposed for clearing is considered to be in Very Good condition (Keighery 1994). This area includes		

jarrah, marri, wandoo and *Xylomelum occidentale* trees. There was some mid-storey and more sedges in this area than other parts of the property, suggesting it is a wetter 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 at variance to this Principle**

The vegetation under application is considered to be an area of outstanding biodiversity in the Bioregion as it is in Very good to Good condition (Keighery 1994; DoE site visit 2004) and is comprised of five Mattiske vegetation types, four of which are well below the 30% 'threshold level' identified by the EPA (2000).

There is one Specially Protected Fauna species, one Priority Listed Fauna species and four otherwise significant species occurring within the local area (CALM 2004). There is a medium-high to high probability that these species occur within the vegetation under application. There are vegetated links to conservation reserves increasing the likelihood that these species occur within the vegetation under application.

Methodology CALM (2004); DoE site visit (2004).

GIS databases:

- Declared Rare and Priority Flora List - CALM 13/08/03.
- Threatened Flora Data Management System - CALM (CALM 2004)
- Herbarium Specimen Collection Database - CALM (CALM 2004).
- GIS databases: EPA Position Paper No. 2 Agriculture Region - DEP 12/00
- Mattiske Vegetation - CALM 23/3/98.
- CALM Managed Lands and Waters - CALM 1/06/04.

(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 may be at variance to this Principle**

CALM (2004) advice:

There appears to be a medium-high probability of the proposed clearing to be at variance with this Principle.

File correspondence from CALM District Nature Conservation Officer indicates that Chuditch are regularly captured approximately 5km to the north west in the Camballan Proposed Conservation Park as part of the annual Western Shield Fauna monitoring which have similar vegetation/habitat characteristics to the vegetation under assessment. Common fauna captured on this transect include the Brushtail Possum, Honey Possum, Western Pygmy Possum and the Mardo. The Priority 4 Western Brush Wallaby has also been recorded from Camballan and would most likely be within the area in question. The area is likely to support breeding hollows for both the White-tail and Red-tail Black Cockatoo but again without a field assessment this is unknown. The Red-tail Black Cockatoo has been recorded from Camballan. There is a high likelihood of the proposed clearing adversely impacting on the habitat and lifecycle (breeding, feeding, migration or resting behaviour) of the listed fauna if they persist in the area.

The fauna recorded from CALM's Fauna database include:

- Western Brush Wallaby (*Macropus irma*) P4,
- Australian Bustard (*Ardeotis australis*) P4,
- Forest Red-Tailed Black-Cockatoo (*Calyptorhynchus banksii naso*) P3,
- Crested Shrike-tit (south-western spp.) *Falcunculus frontatus leucogaster* P4,
- White-tailed Black Cockatoo (*Calyptorhynchus baudinii*).

These were recorded just outside the 10km buffer to the north east in the Trigwell and Haddleton Springs Nature Reserves, however they are concurrent with taxa captured in the Camballan Proposed Conservation Park.

CALM advises that a fauna survey, undertaken at the appropriate time of the year, is the only way to determine whether the proposed clearing will impact on any fauna species specifically protected by the Wildlife Conservation Act.

Methodology CALM (2004); CALM (additional advice 2004).

GIS databases: Threatened and Priority fauna - CALM.

(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

CALM (2004) report:

There appears to be a high probability of the proposed clearing to be at variance with this Principle. Given the good condition of the vegetation based on the land degradation assessment supplied by the Agriculture Department (2004) and the similar vegetation associations of the vegetation under assessment to that of the Declared Rare flora listed, it is highly likely that DRF (and possibly Priority flora) are located within the notified area. Of particular importance is Critically Endangered taxa *Rulingia* sp. Trigwell Bridge (Supervising Hydrogeologist 20.6.89) which is found in only two loctions in the local area.

CALM additional advice:

In the immediate vicinity of the North East extremity of the local area (10km radius) Declared Rare Flora (DRF) species *Verticordia carinata* and *Drakaea confluens* have been recorded. These populations share the same broad vegetation type (Beard - Medium forest Jarrah - Marri) as the proposed clearing. There is a range of other declared rare species of flora, particularly in the 10 to 20km range of the proposal, and although these populations are outside the defined local area CALM considered their presence noteworthy when assessing the biodiversity of the subject area.

CALM advises that a flora survey, undertaken at the appropriate time of the year, is the only way to determine whether the proposed clearing will impact on any flora species specifically protected by the Wildlife Conservation Act.

Methodology CALM (2004); CALM additional advice (2004).

GIS databases: Declared Rare and Priority Flora List - CALM 13/08/03; Herbarium Specimen Collection Database - CALM (CALM 2004); Pre European Vegetation - DA 01/01; Threatened Flora Data Management System - CALM (CALM 2004)

(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 were no Threatened Plant Communities or Threatened Ecological Communities recorded within the local area (10km radius) according to GIS databases.

Methodology GIS database: Threatened Ecological Community - CALM 15/7/03.

(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 at variance to this Principle

Four vegetation types identified by Mattiske Consulting (1998) within the proposed clearing, have an occurrence of less than 30% with two vegetation types classified as 'Endangered' (Department of Natural Resources and Environment 2002). The EPA has identified this area as being significant (in terms of biodiversity) (EPA 2000).

reserves/CALM	Pre-European (ha)*	Current Extent (ha)*	Remaining (%)*	Conservation status **	%In managed land* Least Concern
IBRA Bioregion- Jarrah Forest***		4503156	2624301	58.7	
Shire-Boyup Brook	282638	127847	45.2	Depleted	
Beard Unit 3	3046385	2197837	72.1	Least Concern	67.9
Mattiske Consulting:					
DM2 Dalmore2	414704	78793	19	Vulnerable	
LK2 Lukin2	238028	33323	14	Vulnerable	
SD Sandalwood	89636	41876	46.7	Depleted	
KU2 Kulikup	227429	20468	9	Endangered	
BR Brockman	112104	4484	4	Endangered	

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

*** Within the Intensive Landuse Zone

The property has approximately 801 hectares (64%) of native vegetation remaining; if implemented, this clearing proposal will leave 43% remaining.

The vegetation under application is at variance to this Principle considering the low representation of Mattiske vegetation types and the Excellent to Good condition of the vegetation (Keighery 1994).

Methodology CALM (2004); Hopkins et al. (2001); Havel and Mattiske (2002); Shepherd et al. 2001.
GIS databases: EPA Position Paper No. 2 Agriculture Region - DEP 12/00; Mattiske Vegetation - CALM 23/3/98; Pre European Vegetation - DA 01/01.

(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

A minor perennial watercourse adjoins the proposed clearing to the east (1st order). A second minor perennial watercourse runs between two areas proposed in the south-west corner (running west to east, 2nd order) into an area subject to inundation. Vegetated buffers of 30m (on each side) would decrease the potential degradation of these watercourses.

Methodology GIS database: 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 at variance to this Principle

Clearing is likely to increase salinisation (Clearing Principle criteria g4):

There is a risk of increased salinity from this clearing application. One hundred and sixty two hectares is a significant area of vegetation. Salinisation is likely to have already been occurring in the area as a result of clearing on neighbouring properties higher in the catchment, with vegetation in parts of the valley floor showing signs of being previously affected by salinity. In recent years much of the localised catchment in this area has undergone a change in land use from an annual based agricultural system to perennial based forestry.

If the area is cleared for annual crops and pastures there will be an increased risk of salinisation of the valley floors. However, with the rest of the localised catchment now in forestry plantations this risk is potentially lower than it was prior to the agro-forestry occurring. Even if the proponent intends to use the land for agro-forestry it is not protected vegetation and there is no certainty that at some time in the future economics may change and see a return to annual based agriculture in the area, which would again see salinisation occurring. If salinisation does occur it will occur locally on this property and have limited impact on salinisation processes on properties down stream.

Most of the areas proposed for clearing are mid slope and as such have a low risk of being affected by waterlogging. Waterlogging in the valley floors is also likely to be minimal as the terrain is incised and only areas already prone to waterlogging are likely to be effected.

Unless the area is poorly managed and overgrazed reducing ground cover to very little, the risk of wind erosion occurring is low.

There is a risk of water erosion on some of the steeper slopes, however, if good levels of ground cover are maintained the risk of water erosion occurring will be minimal.

It is noted that a Soil Conservation Notice (SCN) has been placed on part of the proponent's property. The proposed clearing is outside the area of the SCN.

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 may be at variance to this Principle

The proposed clearing of 162ha is a significant level of clearing within a previously cleared agricultural landscape. It is highly likely that the vegetation provides important habitat and wildlife corridors to adjacent native vegetation remnants and indirectly to conservation reserves in the local area (CALM 2004).

Clearing Principle criteria (h1): The Trigwell (10.1km north east) Nature Reserve and the Camballan Proposed Conservation Park (5km north west) are located in the local area (10km radius).

Clearing Principle criteria (h3): Wilga State Forest (10.8km to the north-west of the property) and Camballan Proposed Conservation Park have a significant corridor, via privately-owned properties, linking to the vegetation under application. Trigwell Nature Reserve is linked by remanent islands of vegetation via privately owned properties. The vegetation under application contributes to a wildlife corridor between the listed CALM managed areas and other important remnant vegetation in the area.

Whilst the Shire of Boyup Brook has 45.2% native vegetation cover present (Shepherd et al. 2001), the area under application is relatively large in relation to other native remnants and nature reserves in the local area

(CALM 2004). CALM therefore recognises that the vegetation is considered important in a local context for off-reserve nature conservation.

Methodology CALM (2004); Shepherd et al. (2001).
GIS databases: CALM Managed Lands and Waters - CALM 1/06/04.

(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 at variance to this Principle

The proposed clearing is within the Hardy Estuary Blackwood River Hydrographic Catchment.

The loamy gravels on this property have a high nutrient retention potential, and leaching of nutrients is not expected.

Hydrogeology advice (Supervising Hydrogeologist, DoE, pers. comm. 2004) indicates that: The property has salt store (evaporation is greater than rainfall) and increasing groundwater salinity downslope (to the east). The soils are reasonably well drained, however, the proposed clearing will mobilise salt storage increasing the risk of salinisation with the rise of the groundwater.

The large amount of clearing proposed (162 ha) and the history of salinisation on surrounding properties, as indicated in the DAWA report (2004), also increase the likelihood of salinisation occurring within the property in question.

Methodology DAWA (2004).
Hydrogeology advice (Supervising Hydrogeologist, DoE, pers. comm. 2004)
GIS database: Evaporation Isopleth - BOM 09/98; Hydrogeology, statewide - WRC 05/02/02; Hydrographic Catchments, Catchments - DoE 3/4/03; Rainfall, Mean Annual - BOM 30/09/01; Salinity Mapping LM 25m - DOLA 00; Salinity Monitoring LM 50m - DOLA 00; Salinity Risk LM 25m - DOLA 00; Soils, statewide - DA 11/99; WIN Groundwater sites, other - non DEWCP (Current).

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

Methodology

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

Comments

DAWA have previously placed Soil Land Conservation Notices (SLCN) on the same property, however the areas under application do not include those areas under the SLCN.

Submissions have been received by the Wildflower Society of Western Australia, Conservation Council of Western Australia and Land Conservation District Committee (Bridgetown). All submissions indicated concerns in regards to flora and fauna protection and urged more information be sought.

Methodology

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Cropping	Cutting	162	Refuse	<p>Recommend that the permit is refused on the basis that it is at variance with Principles (a), (e), (g), (i) and may be at variance with Principle (h). In particular:</p> <ul style="list-style-type: none">- Four (of the five) vegetation complexes identified by Mattiske consulting are well below the 30% of the original extent remaining. Two of these vegetation complexes have a conservation status of Endangered.- The EPA (EPA 2000) has identified this area as being significant in terms of biodiversity.- There is a significant risk of salinity and a risk of waterlogging increasing as a result of clearing. <p>It is also probable that this proposal is at variance with Principles (b) and (c) and a secondary assessment would be required to determine if this was the case.</p> <ul style="list-style-type: none">- It is highly likely that DRF occur in the area under application and it is likely to be habitat for Specially Protected and Priority Listed Fauna.

5. References

- CALM Land clearing proposal advice. Advice to A/Director General, Department of Environment (DoE). Department of Conservation and Land Management, Western Australia. DoE TRIM ref SWO23707.
- DAWA Land degradation assessment report. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture Western Australia. DoE TRIM ref SWO22472.
- 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.
- Havel, J.J. and Mattiske Consulting Pty Ltd (2002) Review of management options for poorly represented vegetation complexes, Conservation Commission.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALM Science 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.
- 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.

6. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management
DAWA	Department of Agriculture
DEP	Department of Environmental Protection (now DoE)
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 DoE)