



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4254/1
Permit Holder:	Water Resources Ministerial Body
Duration of Permit:	30 May 2011 – 30 May 2019

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of silviculture.

2. Land on which clearing is to be done

LOT 2 ON DIAGRAM 14576 (PALGARUP 6258)

LOT 6 ON PLAN 14435 (WESTBOURNE ROAD, CHOWERUP 6244)

LOT 13 ON PLAN 16306 (PRETTY GULLY ROAD, CHOWERUP 6244)

3. Area of Clearing

The Permit Holder shall not clear more than:

- (a) 180 hectares within the area cross-hatched yellow on attached Plan 4254/1a;
- (b) 29 hectares within the area cross-hatched yellow on attached Plan 4254/1b; and
- (c) 26 hectares within the area cross-hatched yellow on attached Plan 4254/1c.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Type of clearing authorised

To the extent authorised under condition 3 of this Permit, the Permit Holder may undertake the following activities within the combined areas cross-hatched yellow on Plan 4254/1a and Plan 4254/1b and Plan 4254/1c:

(a) The Permit Holder may undertake the following activities:

- (i) clearing and burning of *understorey*;
- (ii) clearing for the establishment of a maximum of 10 *log landings* no larger than 0.3 hectares in size within Lot 2 on Diagram 14576, Palgarup only;
- (iii) *thinning* of Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*) and Blackbutt (*Eucalyptus patens*) trees; and
- (iv) *culling* and burning of unsaleable trees.

(b) The Permit Holder shall not clear any native vegetation after 30 May 2015.

6. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

8. Dieback and weed control

(a) When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (ii) shall only move soils in *dry conditions*;
- (iii) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

9. Vegetation management

- (a) Prior to undertaking any clearing authorised under this Permit, an *environmental specialist* must determine the species composition, structure and density of the *understorey* of areas proposed to be *thinned*.
- (b) The Permit Holder must retain a minimum of 5 *habitat trees* within the area of clearing authorised under this Permit in each hectare authorised under this Permit.
- (c) A minimum retention rate of 15m²/ha *basal area* is required within the area of clearing authorised under this Permit.
- (d) Prior to undertaking any clearing authorised under this Permit, the Permit Holder must exclude all *stock* from the areas subject to *thinning* activities.
- (e) Within one month of 30 May 2015, the Permit Holder must *rehabilitate* any *log landings* established within native vegetation by scarifying the soil surface to reduce compaction and facilitate natural regeneration.
- (f) Within two years of 30 May 2015, the Permit Holder must:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the *understorey* of areas subject to *thinning*; and
 - (ii) where, in the opinion of an *environmental specialist*, there is evidence that *understorey* will not recover and develop towards its pre-clearing composition, structure and density determined under condition 9(f)(i), the Permit Holder must undertake *remedial action* at an *optimal time* within the next 12 months to ensure re-establishment of *understorey* prior to expiry of this Permit.
- (g) The Permit Holder shall not clear native vegetation within 50 metres of the *riparian vegetation* of any *watercourse* or *wetland* within and/or adjacent to the areas cross-hatched yellow on attached Plan 4254/1a and Plan 4254/1b and Plan 4254/1c.

PART III - RECORD KEEPING AND REPORTING

10. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).

- (b) In relation to vegetation management pursuant to condition 9 of this Permit:
 - (i) prior to clearing native vegetation authorised under this Permit, the species composition, structure and density of *understorey*;
 - (ii) the species and number per hectare of *habitat trees* retained;
 - (iii) the location of *habitat trees* retained, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iv) monitoring undertaken to ensure that the specified minimum *basal area* is retained;
 - (v) number of *log landings* established;
 - (vi) the location of *log landings*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (vii) photographs of the *understorey* taken at one year, two years and three years after clearing authorised under this Permit has ceased; and
 - (viii) a detailed description of the nature and extent of any *remedial actions* undertaken.

11. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 10 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

- (b) Prior to 30 March 2019 the Permit Holder must provide to the CEO a written report of records required under condition 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

basal area is the method of expression of tree cover density in an area where the total area of tree trunk, measured at average adult human breast height, is expressed as square metres per hectares of land area;

culled/ing means the selective removal and/or killing of unsaleable trees for *thinning*, using methods including notching, felling or machine pushing;

dieback means the effect of *Phytophthora* species on native vegetation;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fill means material used to increase the ground level, or fill a hollow;

habitat tree(s) means trees that have a diameter, at average adult human chest height, of greater than 70cm, healthy but with dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna, or where these are not present then healthy but with the potential to contain hollows and roosts;

local provenance means native vegetation seeds and propagating material from natural sources within 40 kilometres of the area cleared.

log landing/s means an area established for the purpose of stockpiling commercially harvested trees, to enable loading for collection;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

optimal time means the period from April to June for undertaking *direct seeding*, and the period from May to June for undertaking *planting*;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

remedial action/s means for the purpose of this Permit, any activity that is required to ensure successful re-establishment of *understorey* to its pre-clearing composition, structure and density, and may include a combination of soil treatments and *revegetation*;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

riparian vegetation has the meaning given to it in Regulation 3 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004;

stock means the horses, cattle, sheep, pigs and other non-indigenous grazing animals kept or bred on a property;

thinned/ing describes a silvicultural activity to promote the growth of selected trees by removing competing trees;

understorey means, for the purpose of this Permit, all native vegetation that does not include trees to be *culled* or subject to harvest;

watercourse has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914*;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*;

wetland/s means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.



Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

5 May 2011

Plan 4254/1a



LEGEND

- Clearing Instruments
- Areas Approved to Clear
- Road Centrelines
- Cadastre
- Towns
- Cadastre for labelling
- Manjimup 50cm Orthomosaic - Landgate 2007
- Local Government Authorities
- Tonebridge 50cm Orthomosaic - Landgate 2004



0 500m

Scale 1:19999

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: (In-situ) this map have not been projected. This may result in geometric distortion or measurement inaccuracies

[Signature]
K Faulkner

Date 5/5/11

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986
Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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Plan 4254/1b



LEGEND

- Clearing Instruments
- Areas Approved to Clear
- Road Centrelines
- Cadastral
- Towns
- Cadastral for labelling
- Manjimup 50cm Orthomosaic - Landgate 2007
- Local Government Authorities
- Tonbridge 50cm Orthomosaic - Landgate 2004



0 500 m

Scale 1:18000

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

K Faulkner Date 5/5/11

K Faulkner

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.

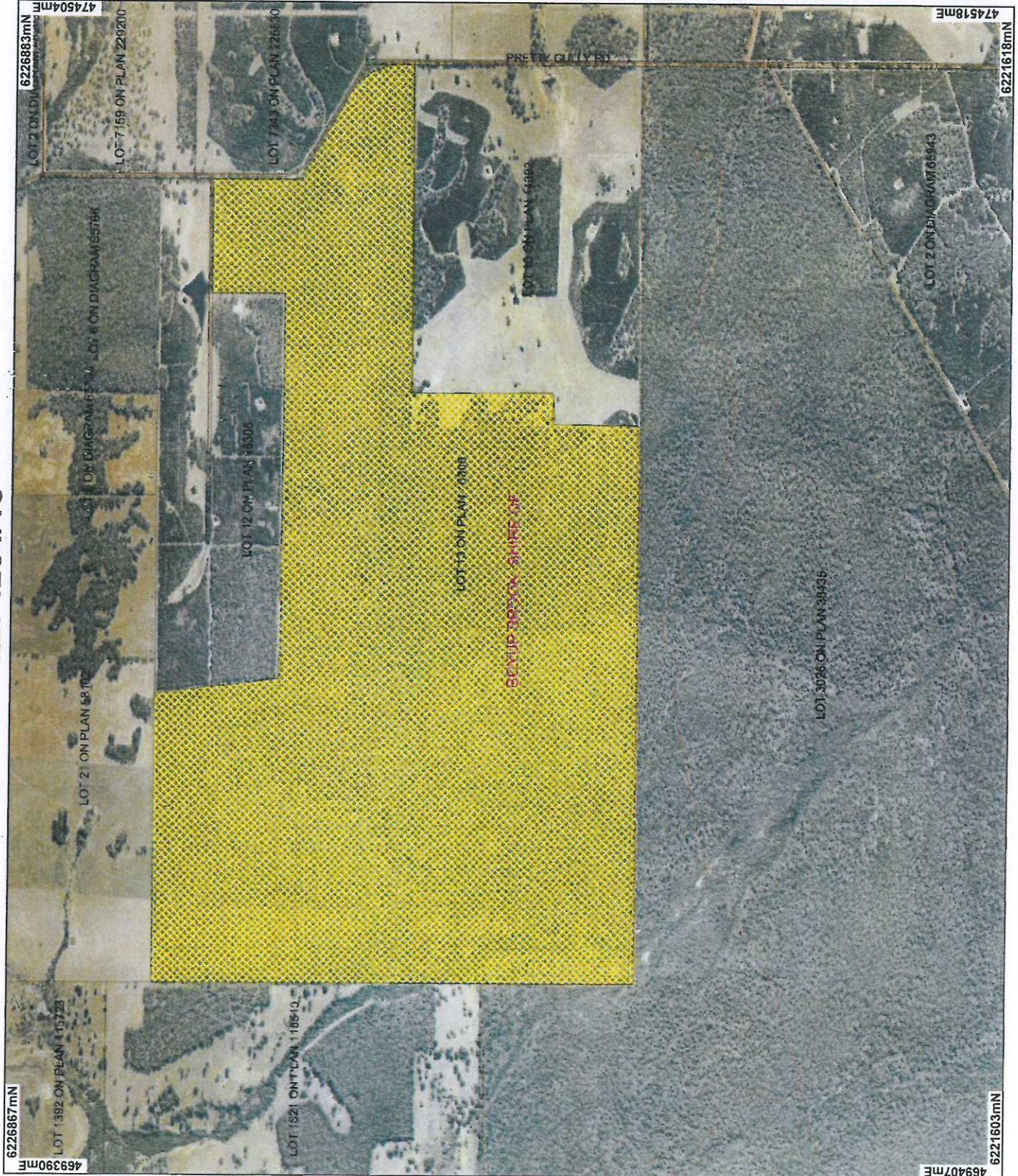


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Plan 4254/1C



LEGEND

- Clearing Instruments
 - Items Approved to Clear
 - Read Control Lines
- Cadastral
 - Towns
- Cadastral for Labelling
 - Manjimup 50cm Orthomosaic - Landgate 2007
 - Local Government Authorities
 - Tonbridge 50cm Orthomosaic - Landgate 2004



0 425 m

Scale 1:24999

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in cosmetic distortion or measurement inaccuracies.

K Faulkner Date *5/5/11*

K Faulkner

Office with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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1. Application details

1.1. Permit application details

Permit application No.: 4254/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Water Resources Ministerial Body

1.3. Property details

Property: LOT 2 ON DIAGRAM 14576 (PALGARUP 6258) (RYAN BLOCK)
LOT 6 ON PLAN 14435 (WESTBOURNE ROAD, CHOWERUP 6244) (MEAD BLOCK)
LOT 13 ON PLAN 16306 (PRETTY GULLY ROAD, CHOWERUP 6244) (CHAPMAN BLOCK)
Local Government Area: SHIRE OF BOYUP BROOK AND SHIRE OF MANJIMUP

1.4. Application

Clearing Area (ha)	Method of Clearing	For the purpose of:
29	Mechanical Removal	Timber Harvesting
180	Mechanical Removal	Timber Harvesting
26	Mechanical Removal	Timber Harvesting

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 5 May 2011

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: 3 - described as medium forest; Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri).	The proposed clearing under application is for the purpose of silviculture across three sites - Ryan, Chapman and Mead forest blocks to encourage regeneration of native vegetation and improve yields of water resources.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation condition and description was confirmed by site visits undertaken to Ryan block on the 18 April 2011 and Mead and Chapman blocks on the 19 April 2011 as well as from forest management plans from Rose and Bending Forest Services (October 2010).
Ryan Block: Mattiske vegetation complexes - YN2 (Yanmah) - Mixture of tall open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on slopes and low woodland of Banksia littoralis-Banksia seminuda on valley floors in the humid zone. WH2 (Wheatley) - Woodland of Eucalyptus marginata subsp. marginata-Eucalyptus wandoo on slopes with woodland of Eucalyptus rudis on valley floors in the humid zone. BE2 (Bevan 2) -Open forest to woodland of Eucalyptus marginata subsp. marginata with some Corymbia calophylla on lateritic uplands in humid and subhumid zones. CL1(Corbalup) - Mosaic of open forest of Eucalyptus marginata subsp. marginata-Banksia spp. on well drained sites, with some Eucalyptus decipiens on lower slopes in southern areas, woodland of Eucalyptus rudis-Melaleuca preissiana-Banksia littoralis on depressions in perhumid and humid zones.	The vegetation under application within Ryan block comprises Jarrah (Eucalyptus marginata), Blackbutt (Eucalyptus patens) and Marri (Corymbia calophylla) with Eucalyptus rudis, Banksia littoralis and Banksia grandis adjacent to the watercourses and understorey including Hibbertia sp., Bracken Fern, Xanthorrhoea preissii, Acacia pulchella and Hakea sp. (DEC, 2011 & Rose and Bending Forest Services, 2010a). There is some evidence of disturbance at this site through historic logging operations with the presence of old stumps, at least 50 years ago (DEC, 2011).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	As above.

Chapman Block: Mattiske vegetation complexes -	A 20 hectare portion of the Chapman block which is to be mostly affected by silviculture consists predominantly of Jarrah/Marri forest in the upland areas with areas of heath, Eucalyptus rudis and Eucalyptus wandoo along the drainage system (Rose and Bending Forest Services, 2010b). There is approximately 8 hectares of land that was previously cleared for the purpose of grazing however, this area still retains isolated paddock trees and has good Marri regeneration, an additional 12 hectares of Jarrah-Marri forest was also historically grazed but does contain some understorey including Banksia grandis, Persoonia longifolia, Xanthorrhoea preisii, Zamia sp., Acacia pulchella, Hakea lisocarpa, Hibbertia sp., Daviesia sp., Bossiaea ornata and Caladenia sp. (Rose and Bending Forest Services, 2010b). The remaining 840 hectares of this block comprises Jarrah - Marri forest with areas of thickets (such as on the western side of the block) and Wandoo woodlands (to the north of the block) adjacent to watercourses in 'very good' (Keighery, 1994) condition (DEC, 2011 & Rose and Bending Forest Services, 2010b).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	As above.
FH1 (Frankland Hills) - Woodland to low open forest of Eucalyptus marginata subsp. marginata with some Corymbia calophylla on uplands in subhumid and semiarid zones.			
FH2 (Frankland Hills) - Woodland of Eucalyptus wandoo-Corymbia calophylla with some Eucalyptus marginata subsp. marginata on slopes of low undulating hills in subhumid and semiarid zones.			
FH3 (Frankland Hills) - Woodland of Eucalyptus wandoo-Corymbia calophylla on the slopes and woodland of Eucalyptus rudis-Eucalyptus occidentalis and Eucalyptus decipiens on the valley floors in subhumid and semiarid zones.			
CC2 (Catterick) - Open forest of Corymbia calophylla-Eucalyptus marginata subsp. marginata with some Eucalyptus wandoo, Eucalyptus patens and Eucalyptus cornuta on slopes and woodland of Eucalyptus rudis-Melaleuca raphiophylla on lower slopes in subhumid and semiarid zones.			
YR (Yornup) - Mosaic of open woodland of Eucalyptus marginata subsp. marginata-Corymbia calophylla, open woodland of Melaleuca cuticularis, open woodland of Melaleuca preissiana-Banksia littoralis-Banksia seminuda, tall shrubland of Myrtaceae spp. and sedgelands on broad depressions in humid and subhumid zones.			

Mead Block: Mattiske vegetation complexes -	The vegetation under application within Mead block comprises predominantly Jarrah (Eucalyptus marginata) and Marri (Corymbia calophylla) (DEC, 2011) with scattered Wandoo (Eucalyptus wandoo) (Rose and Bending Forest Services, 2010c).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	As above.
CL2 (Corbalup 2) - Open forest of Eucalyptus marginata subsp. marginata with some Corymbia calophylla on low rises and low woodland of Melaleuca preissiana-Banksia littoralis on depressions in humid and subhumid zones.			
CC2 (Catterick) - Open forest of Corymbia calophylla-Eucalyptus marginata subsp. marginata with some Eucalyptus wandoo, Eucalyptus patens and Eucalyptus cornuta on slopes and woodland of Eucalyptus rudis-Melaleuca raphiophylla on lower slopes in subhumid and semiarid zones.	This vegetation ranges from 'completely degraded' to 'good' (Keighery, 1994) condition with very little understorey remaining which may be attributed to a history of grazing (DEC, 2011).		

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 mostly in 'very good' (Keighery, 1994) condition (DEC, 2011) with vegetation being consistent with mapped vegetation types. Ryan Block comprises closed forest of marri, blackbutt and jarrah, Mead Block is predominately marri and jarrah closed forest and Chapman Block being marri-wandoo-jarrah (DEC, 2011). There is evidence of disturbance at all sites with all areas having old stumps indicating historic logging operations (at least 50 years ago) (DEC, 2011). Mead Block has the most degradation with little mid and understorey present which could be the result of past grazing within this vegetation (DEC, 2011).

The vegetation under application supports a number of threatened and priority fauna species (DEC, 2011 & NatureMap, 2011). The presence of mature trees with hollows within the areas under application and thickets within the riparian zone of the watercourses as well as the close proximity of these sites to Nature Reserves allows for ground-dwelling, arboreal and avian species to inhabit these sites (DEC, 2011). The presence of

jarrah and marri, in particular, also provides prime foraging habitat for a number of species including Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*), Carnaby's black cockatoo (*Calyptorhynchus latirostris*) and Baudin's black cockatoo (*Calyptorhynchus baudinii*).

The vegetation under application provides suitable habitat for declared rare flora species *Caladenia harringtoniae* (Ryan Block) and *Caladenia christineae* and *Caladenia dorrienii* (Chapman Block) (DEC, 2011). There are also three priority flora species in the local area of Mead Block, eight within the local area of Chapman Block and 11 within the local area of Ryan Block. Priority flora species *Leptinella drummondii* (P2) and *Wurmbea* sp. Cranbrook (P3) are also likely to occur within the riparian vegetation of the creek systems within the forest blocks (DEC, 2011). Due to the likelihood of these species to occur on Ryan and Chapman Blocks in particular, clearing will be restricted to areas more than 50 metres from riparian vegetation on these lots in order to ensure no impact occurs to potential habitat for any flora of conservation significance.

One priority ecological community (PEC), the Yate dominated alluvial claypans of the Jingalup Soil System has been recorded within the local area (10km radius) of Chapman Block however this community is of different vegetation and soil types to those mapped for Chapman Block. There are no PECs recorded within the local area of either Ryan or Mead forest blocks.

The areas under application lie directly adjacent to areas of conservation including the Tone-Perup Area and Nature Reserve and DEC Timber reserves as well as being close to Palgarup State Forest. The vegetation under application therefore supports these areas of conservation through facilitating the ecological processes in the local area, including providing adjoining habitat for fauna and flora. The vegetation under application appears to be dieback free and in good health however, Mead block retains very little mid and understorey indicator species to confirm this (DEC, 2011; Rose and Bending Forest Services (2010a), (2010b) & (2010c)). Clearing and silviculture in these adjoining areas could result in the introduction and/or spread of weeds and dieback into these areas and adjacent areas of conservation and subsequently impact upon the high biodiversity values of these areas. Appropriate hygiene measures will help to reduce this risk.

Given the overall 'very good' (Keighery, 1994) condition of most of the vegetation under application (DEC, 2011), the presence of habitat for threatened and priority fauna species and declared rare and priority flora species as well as the diversity of vegetation from riparian systems to closed forests and the vegetation being adjacent to areas of conservation, it is considered that this vegetation comprises a high level of biological diversity.

Methodology

References:

- DEC (2011)
- Keighery (1994)
- NatureMap (2011)
- Rose and Bending Forest Services (2010a)
- Rose and Bending Forest Services (2010b)
- Rose and Bending Forest Services (2010c)

GIS Databases:

- DEC Tenure - DEC
- Dinninup 50cm Orthomosaic - Landgate 2004
- Manjimup 50cm Orthomosaic - Landgate 2007
- Register of National Estate - EA
- SAC Biodatasets - Accessed 29 March 2011
- Tonebridge 50cm Orthomosaic - Landgate 2004

(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 at variance to this Principle

The blocks under application are all located in areas that provide significant habitat for a number of threatened fauna species. Eight threatened and priority fauna species have been recorded within the local area (10km radius) of all of the blocks under application - Baudin's Black Cockatoo (*Calyptorhynchus baudinii*), Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii* subsp. *naso*), Woylie (*Bettongia penicillata* subsp. *ogilbyi*), Chuditch (*Dasyurus geoffroii*), Numbat (*Myrmecobius fasciatus*), Western Brush Wallaby (*Macropus irma*), Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *ssp.* (WAM M434)) and Quokka (*Setonix brachyurus*).

All of the sites contain mature trees with hollows (DEC, 2011) providing significant nesting habitat for fauna as well as Ryan and Chapman blocks, in particular, providing vegetation in overall 'very good' (Keighery, 1994) condition with understorey providing suitable habitat for the ground-dwelling threatened and priority fauna species listed in the local areas (DEC, 2011) such as those previously mentioned and Quenda (*Isodon obesulus fusciventer*) and Water Rat (*Hydromys chrysogaster*) that have been recorded within the vicinity of Ryan block.

In addition to nesting habitat, the vegetation provides foraging habitat for the three black cockatoo species which feed upon Marri, Jarrah and Banksia seeds (Johnstone and Storr, 1998). Forest red-tailed black cockatoos (*Calyptorhynchus banksii naso*) were observed and/or heard within or in close vicinity to each of the three sites.

Chapman Block provides important habitat for Tammar wallaby (*Macropus eugenii* subsp. *derbianus*) which were observed along the western boundary of this block (DEC, 2011). Tammar wallabies have been recorded as inhabiting dry sclerophyll forest and Melaleuca and Sheoak thickets or other large shrubs associated with grasslands for feeding (DEC, 2006 & DEC, 2007). This species has also been recorded within the local area of Mead block.

Muir's Corella (*Cacatua pastinator* subsp. *pastinator*, listed as Vulnerable and Migratory under the EPBC Act 1999 and Endangered under the Wildlife Conservation Act 1950) were observed in a paddock adjacent to Mead Block. Muir's Corella nest in hollows within mature eucalypts (such as *Eucalyptus marginata* and *Corymbia calophylla*) and feed upon insect larvae and a range of bulbs, seeds and tubers from both native and introduced plant species (Higgins, 1999) particularly grasses and grains but also feeds upon marri seeds (Smith & Moore, 1991). This species has also been recorded within the local area of Chapman block. The vegetation under application therefore provides both nesting and foraging opportunities for this species.

Possum scratchings were also observed on trees in both Mead and Chapman blocks (DEC, 2011) which could be either Common Brush-tailed (*Trichosurus vulpecula*) or Western Ringtail Possum (*Pseudocheirus occidentalis*, listed as Vulnerable under both the EPBC Act 1999 and the Wildlife Conservation Act 1950) and therefore any trees with obvious signs of fauna use as well as those with hollows should be retained as a priority. Western Ringtail Possums have also been recorded within a 10km radius of Ryan block.

In addition, to the aforementioned species, Western False Pipistrelle (*Falsistrellus mackenziei*) has also been recorded within the local areas of Mead and Chapman blocks and Peregrine Falcon (*Falco peregrinus*) and *Falco peregrinus* subsp. *macropus* have also been recorded within the local area of Ryan block and could utilise the areas under application.

The retention of a minimum of five habitat trees per hectare at these sites is required to ensure that adequate fauna habitat in these areas is available for fauna species. In addition, a buffer of 50m from riparian vegetation will be retained which will ensure the Tammar thickets will be protected at Chapman forest block.

Methodology

References:

- DEC (2006)
- DEC (2007)
- DEC (2011)
- Higgins (1999)
- Johnstone & Storr (1998)
- Keighery (1994)
- NatureMap (2011)
- Smith & Moore (1991)

GIS Databases:

- Dinninup 50cm Orthomosaic - Landgate 2004
- Manjimup 50cm Orthomosaic - Landgate 2007
- Tonebridge 50cm Orthomosaic - Landgate 2004

(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**

Four declared rare flora species have been recorded within the local areas (10km radius) of the applied clearing areas.

Caladenia dorrienii has been recorded within the local area of both Mead and Chapman forest blocks. This species prefers habitat comprising of moist areas on sandy clays or clayey loams adjacent to watercourses within open wandoo (*Eucalyptus wandoo*) and jarrah (*Eucalyptus marginata*) woodland over low scattered shrubs (Brown et al., 1998 & WA Herbarium, 1998-2011).

Caladenia christineae has been recorded within the local area of both Chapman and Ryan forest blocks and prefers winter-wet sites or the margins of swamps and freshwater lakes within jarrah-marri forest amongst heath and tall scrub (Brown et al, 1998 & WA Herbarium, 1998-2011).

The riparian vegetation of the creek systems within Chapman Block provide suitable habitat for these two species (DEC, 2011).

Caladenia harringtoniae and *Andersonia annelsii* have been recorded within the local area of Ryan Block. *Caladenia harringtoniae* is known to inhabit sandy loam soils and areas of paperbark and flooded gum (*Eucalyptus rudis*) winter-wet flats, but have also been recorded on lake margins and along creeklines in jarrah (*Eucalyptus marginata*) and karri (*Eucalyptus diversicolor*) forest (Brown et al, 1998 & WA Herbarium, 1998-2011). *Andersonia annelsii* prefers soils comprising sandy loam or clay in granite outcrops or quartzite ridges (WA Herbarium 1998-2011) and is less likely to occur within the forest blocks compared with the *Caladenia* species.

As the preferred habitat types for these rare flora species are within winter-wet areas or within the riparian vegetation of creeklines and rivers, a condition to prevent clearing or works within 50m of the riparian vegetation of creeklines within any of the watercourses on the three blocks will ensure that potential habitat for these species is not disturbed.

- Methodology** References:
- Brown et al. (1998)
 - WA Herbarium (1998-2011)
- GIS Databases:
- Matiske vegetation complexes - DEC
 - Pre-European Vegetation - DA
 - SAC Biodatsets - Accessed 29 March 2011
 - Soils, Statewide - DA

(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) within 10km radius of the areas under application.

The closest TEC, the Scott River ironstone association, is more than 60km from Ryan forest block and is mapped as being of different vegetation and soil types to the areas under application.

No potential TECs were observed within the forest blocks during the site visit (DEC, 2011).

It is therefore unlikely that the vegetation under application comprises or is necessary for the maintenance of a threatened ecological community.

- Methodology** References:
- DEC (2011)
- GIS Databases:
- Matiske vegetation complexes - DEC
 - Pre-European vegetation - DA
 - SAC Biodatsets - Accessed 29 March 2011
 - Soils, Statewide - DA

(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

All of the mapped vegetation types across the properties under application within the Jarrah Forest bioregion and the Shires of Boyup Brook and Manjimup have more than 40% of their pre-European extents remaining.

The local areas are also highly vegetated with areas being protected in DEC tenure (state forest, nature reserves and national parks) and recognized under Register of National Estate, including areas directly adjacent to the areas under application.

Given the highly vegetated local areas and the amount of retained vegetation within the mapped vegetation complexes and associations, the vegetation under application is not likely to be considered significant as a remnant within an extensively cleared area.

- Methodology** References:
- GIS Databases:
- DEC Tenure - DEC
 - Manjimup 50cm orthomosaic - Landgate 2007
 - Tonebridge 50cm Orthomosaic - Landgate 2004

(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 at variance to this Principle

A number of significant watercourses occur through the areas under application including Wilgarup River (a major, perennial watercourse) and one minor, perennial watercourse run through Ryan Block. The closest watercourse to Mead Block is a minor, perennial watercourse approximately 90m north of the applied clearing area with the closest major watercourse being Perup River, approximately 200m west. Chapman Block has six minor, non-perennial watercourses and a flood limit area running through the applied clearing area as well as tributaries of Chowerup Creek running less than 100m north and east of the applied clearing area.

The closest mapped lake is approximately 110m from Ryan Block. It is unlikely that any mapped wetlands in the area will be affected by the proposed silviculture.

The applied clearing area includes areas of riparian vegetation associated with the aforementioned watercourses (DEC, 2011). The proposal is therefore at variance to this principle.

A condition to prevent clearing within 50m of the riparian vegetation of any watercourse within Mead, Ryan and Chapman blocks will ensure that there is no direct impact to riparian vegetation and subsequently the watercourses as a result of proposed silviculture on these properties.

Methodology References:
- DEC (2011)
GIS Databases:
- Geodata Lakes - AUSLIG
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW

(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

A range of soil types occur on Ryan Block including shallow loamy and sandy gravels over laterite or gneiss; red-brown and brown loamy earths as well as areas of semi-wet soils and deep grey sandy duplex soils (Department of Agriculture, 2011 & Northcote et al, 1960-68). Mead Block lies on loamy and sandy gravels and loams with swampy soils on the valley floors. Chapman Block has similar soils to that found on Mead with other soils of deep sandy gravels and deep grey sandy duplexes and loamy earths and lateritic crests and duricrust (Department of Agriculture, 2011 & Northcote et al, 1960-68).

The risk of salinity across the three sites is mapped as having nil or partial risk with some high risk areas mapped on Ryan and Chapman Blocks being confined to areas along watercourses. There were no signs of present salinity observed on any of the blocks during the site visit (DEC, 2011).

There is the potential for water erosion and waterlogging to occur as a result of the clearing, particularly on Ryan Block which has areas of steep topography and some mapped soil types with poor drainage and semi-wet soils on the valley floors. Due to the presence of watercourses within the applied area of Chapman Block there is also the potential for water erosion to occur.

The prevention of clearing within 50 metres of riparian vegetation within the applied clearing areas will assist in mitigating potential erosion to banks of watercourses and waterlogging in areas that are prone to inundation.

Methodology References:
- DEC (2011)
- Department of Agriculture and Food (2003) - Accessed April 2011
- Northcote et al (1960-68)
GIS Databases:
- Soils, statewide - DA
- Topographic Contours, Statewide - DOLA and ARMY

(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 vegetation under application on both Mead and Chapman Blocks lie directly adjacent to Tone-Perup Nature Reserve (also recognised as the Tone-Perup River Area and Tone-Perup Area on the Register of National Estate and a System 2 conservation reserve).

A DEC Timber reserve lies directly adjacent to eastern boundary of Ryan Block and Palgarup State Forest is approximately 590m south of the block at its closest point.

These conservation areas, as well as others in the local areas, such as Greater Kingston National Park and Wilgarrup and Alco Nature Reserves, all provide refuge and significant habitat for threatened fauna and flora species and retain vegetation in good or better condition. The properties themselves also have an important ecological role in the landscape being that they are directly adjacent to large areas of conservation and consist of vegetation in 'very good' (Keighery, 1994) condition.

Given the areas of high biodiversity and habitat for threatened and priority species both within, and in close proximity to, the areas under application, hygiene and management measures will be required to reduce the risk of introduction and/or spread of *Phytophthora cinnamomi* (dieback) and weed species into these areas during the clearing process.

- Methodology** **References:**
- DEC (2011)
- Keighery (1994)
GIS Databases:
- DEC Tenure - DEC
- Register of National Estate - EA
- Systems 1-5 and 7-12 - DEC

(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 may be at variance to this Principle

The vegetation under application is located within the Warren River Catchment in the Warren River Basin. The clearing as proposed will be limited to thinning and not broadacre clearing and therefore the potential impacts to surface and groundwater resources are likely to be minimal.

There are however, a number of watercourses within the applied clearing areas where localised and temporary sedimentation could result if clearing of riparian vegetation was to occur. In addition, a number of small high salinity risk areas have been mapped along some of the watercourses however, due to the clearing being limited to thinning, significant increases in salinity in both ground and surface water sources is not likely to occur.

The purpose of undertaking silviculture at these sites is to promote regeneration of the native vegetation and to improve yields of water resources (DoW, 2011) within the catchment.

The prevention of clearing of native vegetation within 50m of any riparian vegetation of watercourses will ensure that sedimentation and erosion of the banks of watercourses will not occur as a result of clearing at these sites.

- Methodology** **References:**
- DoW (2011)
GIS Databases:
- Hydrographic Catchments, Basins - DoW
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW

(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 may be at variance to this Principle

The potential for flooding to occur as a result of the clearing, both locally and within the catchment is likely, given the hard, gravelly soils at the three sites and the presence of watercourses and floodplain areas within them.

Ryan Block has a high relief in some areas particularly to the north-east of the block. Clearing along these areas could result in soil erosion through water flows along cleared areas. It is likely that these areas will be avoided during works given the steep topography and lack of vehicle accessibility to these areas.

If the clearing of vegetation across the site is minimal and limited to individual trees then the amount of increased flooding should be kept to a minimum. Prevention of clearing within 50m of riparian vegetation and given that the purpose is for silviculture which in turn will promote regeneration of the forest will mean that significant flooding is not likely to occur.

- Methodology** **References:**
GIS Databases:
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW
- Soils, statewide - DA
- Topographic Contours, Statewide - DOLA and ARMY

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

Comments

Vegetation management conditions have been added to the permit to restore the understorey disturbed by the silviculture operations, retain mature trees and a set basal area for habitat and exclude stock to ensure the remaining vegetation can continue to function due to the disturbance and will recover in the future. These conditions are consistent with DEC Sustainable Forest Management (DEC, 2004).

The properties under application are zoned 'Rural' under the Town Planning Schemes. The Shire of Boyup Brook (2011) has advised, for Mead and Chapman Blocks, that under the Town Planning Scheme No. 2, the land use of 'silviculture' is not defined as a land use that requires Council approval and unless other works are

required such as road or track construction, the harvesting of existing native vegetation does not require local government approval. Council does however, expect that harvesting operations will comply with the Code of Practice for Timber Plantations which includes a harvest plan and haulage notification being lodged and appropriate fire management measures being implemented in accordance with the Shire's Firebreak Notice (Shire of Boyup Brook, 2011).

The Shire of Manjimup (2011) advised in relation to the proposed silviculture on Ryan Block (Lot 2 on Diagram 14576) that "the applicant is advised to confer with the Shire of Manjimup with respect to the need to comply as relevant with all requirements relating to its Town Planning Scheme, local laws and legislation relating to the movement of heavy vehicles and the repair of road damage resultant from the use of those vehicles."

Mead and Chapman Blocks lie within the EPA Position Statement No.2 agricultural area within which extensive clearing of native vegetation has already occurred. As the purpose for the clearing is for silviculture which in turn will help to promote regeneration of native vegetation if undertaken in accordance with the silvicultural guidelines, then the clearing as proposed will not result in significant loss of native vegetation.

Mead and Chapman Blocks lie within the Warren River Water Reserve Public Drinking Water Source Area (PDWSA) (priority not yet assigned), as well as Zone A of the Warren River Water Reserve CAWS Area and Warren River and Tributaries RiWI Act surface water area. Ryan Block also lies within the Warren River Water Reserve PDWSA and the Warren River and Tributaries RiWI Act surface water area as well as Zone B of Warren River Water Reserve CAWS Area. These area are managed under the Country Areas Water Supply Act 1947 and Rights in Water and Irrigation Act 1914 administered by the Department of Water. The lots under application have not been subject to the payment of CAWS Act compensation (DoW, 2011).

Methodology

References:

- DEC (2004)
 - DoW (2011)
 - Shire of Boyup Brook (2011)
 - Shire of Manjimup (2011)
- #### GIS Databases:
- EPA Position Statement No. 2
 - Public Drinking Water Source Areas (PDWSA's) - DoW
 - RiWI Act, Surface Water Areas and Irrigation Districts - DoW
 - Town Planning Scheme Zones - DPI

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- Rose and Bending Forest Services (2010b) Chapman Forest Block Management Plan prepared for Department of Water, November 2010. Rose and Bending Forest Services, Western Australia. DEC ref A358844.
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Shire of Boyup Brook (2011) Direct Interest Letter Response for CPS 4254/1. Silviculture on Lot 6 on Plan 14435 and Lot 13 on Plan 16306, Chowerup. DEC ref A390378.

Shire of Manjimup (2011) Direct Interest Letter Response for CPS 4254/1 - Application to Clear Native Vegetation - Lot 2 (Location 1024) South West Highway, Palgarup. DEC ref A385617.

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5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now DEC)
DA	Department of Agriculture (now DAFWA)
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
DoP	Department of Planning
DoW	Department of Water
DPI	Department of Planning and Infrastructure (now DoP)
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 DoW)