



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 5238/1

File Number: DEC12312

Duration of Permit: From 9 November 2012 – 9 November 2021

PERMIT HOLDER

Evelyn Belle Hall

Wayne Andrew Hall

LAND ON WHICH CLEARING IS TO BE DONE

Lot 10904 on Deposited Plan 203844 (Smith Brook 6258)

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 9.3 hectares of native vegetation within the combined areas hatched yellow on attached Plan 5238/1.

CONDITIONS

1. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 9 November 2018.

2. 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.

3. Type of clearing authorised

To the extent authorised under authorised activity of this Permit, the Permit Holder may undertake the following activities within the area cross-hatched yellow on Plan 5238/1:

- (a) clearing and burning of *understorey*;
- (b) *thinning* of Karri (*Eucalyptus diversicolor*) trees; and
- (c) *culling* and burning of unsaleable trees.

4. 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.

5. Dieback and weed control

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*:

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

6. Fauna management

- (a) Prior to undertaking any clearing authorised under this Permit, the areas shall be inspected by a *fauna specialist* who shall identify *habitat tree(s)* suitable to be utilised as habitat by fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice*.
- (b) Prior to undertaking any clearing authorised under this Permit, *habitat tree(s)* identified by condition 6(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice*.
- (c) Where fauna are identified in relation to condition 6(b) of this Permit, the Permit Holder shall ensure that no taking of identified fauna occurs unless approved by the CEO.

7. 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 2 *habitat trees* in each hectare authorised under this Permit, where they exist.
- (c) A minimum retention rate of 14m²/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) The permit holder shall not clear native vegetation within 30 metres of the *riparian vegetation* of any *watercourse* or *wetland* within and/or adjacent to the area cross-hatched yellow on Plan 5238/1.
- (f) Within two years of 9 November 2018, 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 7(a), 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.

8. 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;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to fauna management pursuant to condition 6 of this Permit:
 - (i) the location of each *habitat tree* identified 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;
 - (ii) the species name of fauna reasonably likely to utilise, or that have been observed utilising, the *habitat/habitat tree(s)*;

(iii) the location and date where relocated fauna was released, 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; and report.

(c) In relation to vegetation management pursuant to condition 7 of this Permit:

(i) the species and number per hectare of *habitat trees* retained;

(ii) 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;

(iii) monitoring undertaken to ensure that the specified minimum *basal area* is retained;

(iv) photographs of the *understorey* taken at one year, two years and three years after completing clearing authorised under this Permit;

(v) a detailed description of the nature and extent of any *remedial actions* undertaken; and

9. 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 8 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 19 July 2021, the Permit Holder must provide to the CEO a written report of record required under condition 8 of this Permit where these records have not already been provided under condition 9(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, whose diameter is measured at 1.5m above the ground, 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;

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;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

habitat tree(s) means trees that have a diameter, measured at 1.5m above the ground, of 50cm or greater, 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;

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 July for undertaking *planting*;

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*;

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*; and

Wildlife Conservation (Specially Protected Fauna) Notice means those fauna taxa gazetted as rare fauna pursuant to section 14(4)(a) of the *Wildlife Conservation Act 1950* (as amended).

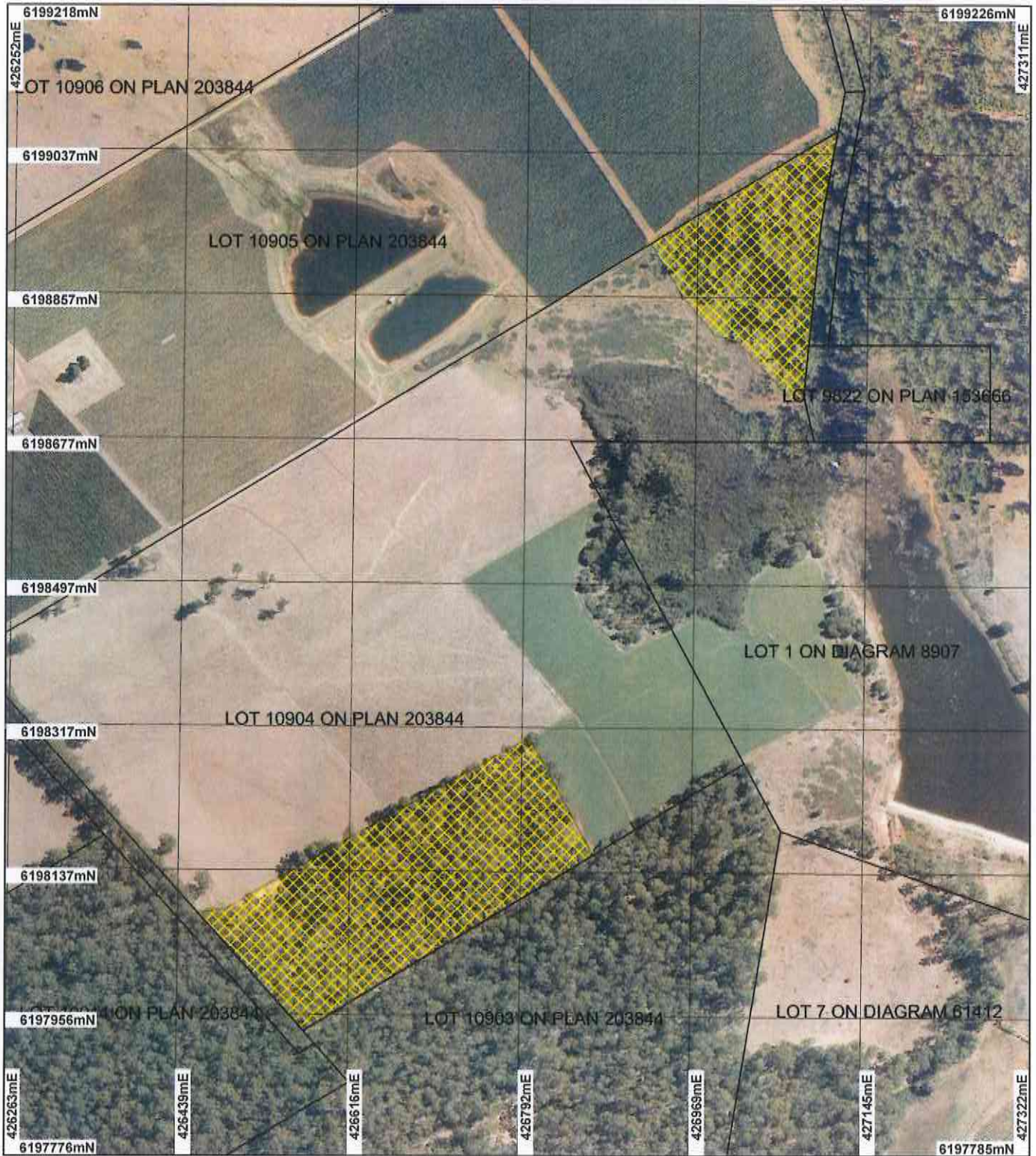


Roxane Shadbolt
A/MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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


18 October 2012

Plan 5238/1



LEGEND

Clearing Instruments

-  Areas Approved to Clear
- Cadastre_1
- Manjimup 50cm Orthomosaic - Landgate 2007



0 150 m

Scale 1:6315

(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.

R. Shadbolt Date 18/10/12

Roxane Shadbolt

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.



Department of Environment and Conservation

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1. Application details

1.1. Permit application details

Permit application No.: 5238/1

Permit type: Area Permit

1.2. Proponent details

Proponent's name: Wayne Andrew and Evelyn Belle Hall

1.3. Property details

Property: LOT 10904 ON PLAN 203844 (SMITH BROOK 6258)

Local Government Area: Shire of Manjimup

Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
9.3		Mechanical Removal	Timber Harvesting

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 18 October 2012

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
Mapped Beard vegetation association 1144 is described as: Tall forest; karri & marri (Shepherd 2001 et al).	The application is to clear 9.3 hectares of native vegetation for the purpose of silvicultural thinning.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The clearing description and vegetation condition were ascertained through a site inspection undertaken by the Department of Environment and Conservation on the 3 October 2012 (DEC 2012).
Mapped Beard vegetation association 3 is described as: Medium forest; Jarrah-Marri (Shepherd 2001 et al).	The vegetation under application consists of Eucalyptus diversicolor regrowth with an understorey of Agonis flexuosa (DEC 2012).		
Mattiske vegetation complex Crb is described as: Tall open forest of Corymbia calophylla-Eucalyptus diversicolor on upper slopes with Allocasuarina decussata-Banksia grandis on upper slopes in hyperhumid and perhumid zones (Mattiske 1998).			
Mattiske vegetation complex WH1 is described as: Tall open forest of Eucalyptus diversicolor-Corymbia calophylla on slopes and tall open forest of Eucalyptus patens on valley floor in perhumid and humid zones (Mattiske 1998).			

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 under application is comprised of 9.3 hectares of native vegetation in a very good (Keighery 1994) condition across two sites. The vegetation is consistent with *Eucalyptus diversicolor* regrowth containing an *Agonis flexuosa* mid storey and an understorey that is lightly grazed in one area and undisturbed in the other (DEC 2012).

Two priority flora species are mapped within the local area with the closest located seven kilometres from the application. As the vegetation under application consists primarily of *Eucalyptus diversicolor* regrowth (DEC 2012), it does not contain suitable habitat for these species. Therefore, it is unlikely that priority flora are present within the application area.

Twelve fauna species of conservation significance have been mapped within the local area. However, due to the relatively young age of overstorey vegetation there are no suitable hollows for threatened fauna species that occur within the local area (10 km radius) (DEC 2012). In addition, there is greater than 70 percent of native vegetation remaining in the local area (10 km radius) (DEC 2012, Hall 2012) consisting of vegetation containing similar habitat. Therefore, it is unlikely that the application area provides significant habitat for indigenous fauna species.

The vegetation under application consists of vegetation associations that are highly represented within the local area (10km radius).

Given the above and that the application is for selective silvicultural thinning, the application is not likely to be at variance to principle (a).

Methodology **References:**
- Hall (2012)
- Keighery (1994)
- DEC (2012)

GIS Data sets:
- Manjimup 50cm Orthomosaic Landgate 2007
- SAC Bio Datasets accessed 17 September 2012

(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**
Twelve fauna species of conservation significance have been recorded within the local area (10 kilometre radius) and include *Calyptorhynchus banksii* subsp. *naso* (Forest Red-tailed Black-Cockatoo), *Calyptorhynchus baudinii* (Baudin's Cockatoo), *Calyptorhynchus latirostris* (Carnaby's Cockatoo), *Phascogale tapoatafa* subsp. *tapoatafa* (Southern Brush-tailed Phascogale), *Pseudocheirus occidentalis* (Western Ringtail Possum), *Setonix brachyurus* (Quokka) *Cacatua pastinator* subsp. *pastinator* (Western Corella), *Bettongia penicillata* subsp. *ogilbyi* (Woylie), *Dasyurus geoffroyi* (Chuditch) and *Myrmecobius fasciatus* (Numbat) (DEC 2007-).

The vegetation under application consists of *Eucalyptus diversicolor* regrowth with an understorey of *Agonis flexuosa* in a very good (Keighery 1994) condition (DEC 2012). It is not thought that large trees, capable of containing hollows, will be present within the area as it is predominantly regrowth (DEC 2012).

The application area falls within an area that contains 70% of the pre-European vegetation extent and is surrounded by large conservation reserves which are considered to contain similar habitat as the area under application.

The Forest Management Plan for the proposed thinning proposes a basal area of 15 to 17 metres squared, per hectare to be retained including the retention of two habitat trees per hectare (Hall 2012), where present.

Given the low potential for hollows to be present, retention of habitat trees and extensive fauna habitat located within close proximity to the application area, the application is not likely to be significant habitat for fauna indigenous to Western Australia and is therefore, not likely to be at variance to principle (b).

Methodology **References**
- DEC (2012)
- DEC (2007-)
- Hall (2012)
- Keighery (1994)

GIS Data Sets:
- Manjimup 50cm Orthomosaic Landgate, 2007
- Existing DEC Managed Lands and Waters, 2011
- NWLRA, Extent of Native Vegetation

(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

The closest known record of rare flora is located 11.5 kilometres from the proposed clearing, within the same soil and vegetation type (Northcote et al 1960-68).

This species is found within the margins of winter-wet flats, swamps and freshwater lakes (Western Australian Herbarium 1998-). The area under application consists of karri forest regrowth (DEC 2012) and therefore does not contain vegetation growing in association with a wetland. In addition, the Native Forest Management Plan states that no harvesting will occur within 30 metres of creek lines and swamps (Hall 2012).

Therefore, the proposed clearing is not likely to impact on habitat for rare flora species and therefore is not likely to be at variance to principle (c).

Methodology

References

- Hall (2012)
- Western Australian Herbarium (1998-)
- Northcote et al (1960-68)
- DEC (2012)

GIS Data sets:

- SAC Bio Datasets - accessed 18 September 2012
- Soils, statewide - accessed 20 September 2012
- Pre-European Vegetation, 2007

(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

No Threatened Ecological Communities (TEC) are located within the local area (10 km). The closest TEC is the Scott Ironstone Association located approximately 60 kilometres from the application area, within a coastal environment.

Given the distance to the nearest TEC and location within a different habitat, the proposed clearing is not likely to be at variance to principle (d).

Methodology

GIS Data Sets:

- SAC Bio Datasets - accessed 18 September 2012

(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 area under application is located within the Warren Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 80 per cent of its Pre European vegetation extent remaining (Government of Western Australia 2011). The application occurs within the Shire of Manjimup which has approximately 85 percent of its pre- European vegetation extent remaining (Government of Western Australia 2011).

The vegetation under application is mapped as Beard Vegetation Association 998 which has approximately 79 percent of their Pre European extent remaining in the Warren bioregion (Government of Western Australia 2011). The vegetation under application is also mapped as Mattiske Vegetation Complex CRb and WH1, which have approximately 85 per cent of their Pre European extent remaining (Mattiske and Havel 1980).

Digital imagery (Manjimup 50cm Orthomosaic - Landgate 2007) indicates that the local area (10 km radius) surrounding the area under application retains approximately 70 per cent vegetation cover.

The Beard vegetation association retains more than the threshold level (30%) recommended in the National Objectives Targets for Biodiversity Conservation, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001).

Given the above, the vegetation under application is not regarded as a significant remnant in an extensively cleared landscape. Therefore, the proposal is not likely to be at variance to principle (e).

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Warren	833,982	664,123	79	83
Shire*				
Shire of Manjimup	287,390	242,922	85	10
Beard Vegetation Association in Bioregion*				
998	250,262	198,873	79	85
	159,668	126,978	79	91
Mattiske Vegetation Complex ***				
CRb	52,753	46,468	88%	82
WH1	18,325	14,864	81%	72

* Government of Western Australia (2011)
** Shepherd (2007)

Methodology Reference:
-Government of Western Australia (2011)
-Commonwealth of Australia (2001)
- Mattiske and Havel (1998)

GIS Data sets:
- Interim Biogeographic Regionalisation for Western Australia (IBRA), 2004
- Local Government Authority Boundaries, 2012
- Manjimup 50cm Orthomosaic - Landgate 2007
- Pre-European vegetation, 2007
- NLWRA, Current Extent of Native Vegetation 2011

(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 area is surrounded by minor watercourses leading into the Warren River however, no riparian vegetation was identified during a site inspection of the application area (DEC 2012).

The Forest Management Plan (Hall 2012) advises no harvesting of native vegetation will occur within 30 metres of creek lines and swamps.

As no riparian vegetation was identified and clearing will not take place within 30 metres of a watercourse, the application is not likely to be at variance to principle (f).

Methodology References
- Hall (2012)
-DEC (2012)

GIS Data Sets:
- Hydrography, Linear, 2006

(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 area under application is mapped as soil type Tc6 which is described as Dissected lateritic plateau of hilly relief at moderate elevation: chief soils of the dissected hilly areas are hard acidic yellow mottled soils (Dy3.61), (Dy3.71), and (Dy3.81) with some hard acidic red mottled soils (Dr3.21) and brown earths (Gn2.45), all containing ironstone gravels; some (Um5.2) soils on major stream terraces (Northcote et al 1960-8).

The application is for silvicultural thinning and the proponent has committed to retaining a minimum basal area of 14 to 16 meters squared per hectare (Hall 2012). Given the proposed clearing is for thinning and not broad scale clearing, the proposal is not considered likely to cause appreciable land degradation and is therefore, not likely to be at variance to principle (g).

Methodology References:
- Northcote et al (1960-68)

- Northcote et al (1960-68)
- Hall (2012)

GIS Data sets:
 - Soils, statewide

(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 application area lies adjacent to Tone State Forest (class A) and is 700m from DEC freehold land. The application area is also adjacent to an area under an agreement to reserve under the Soil and Land Conservation Act.

As the clearing proposed is for silvicultural thinning it is unlikely that it will sever any ecological linkages through these conservation areas.

The proposed clearing may introduce weed and dieback within the adjacent conservation areas. Therefore, the proposed clearing may be at variance to this Principle. Weed and dieback management measures would mitigate this potential impact.

Methodology References
 - Existing DEC Managed Lands and Waters, 2011

(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 application area falls within the unassigned Public Drinking Water Source area 'Warren River Water Reserve', and zone C of the 'Warren River Water Reserve catchment area covered by the Country Areas Water Supply Act, 1947.

The application area is located in Zone C a moderate salinity risk part of the catchment, where DoW (2012) advise timber harvest works be subject to a Forest Management Plan, retention of a basal area of at least 10 metres squared over the area, exclusion of riparian areas and associated buffers and exclusion of grazing by livestock from the area (DOW, 2012). The proponent has submitted a Forest Management Plan (Hall 2012) which meets much of the above criteria, except to that relating to grazing. Vegetation management practices will help mitigate this impact.

Given the above the application is not likely to be at variance to principle (i).

Methodology Reference:
 - DoW (2012)
 - Hall (2012)

GIS Data sets:
 - Hydrology, linear

(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

Given the application is for silvicultural thinning and a minimum basal area of 14 to 16 meters squared per hectare will be maintained (Hall 2012), the proposal is not likely to cause or exacerbate the incidence or intensity of flooding.

Therefore, the application is not likely to be at variance to principle (j).

Methodology GIS Data sets:
 - Hydrography, Linear, 2006

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

Comments

A Commercial Producer's licence under the Wildlife Conservation Act 1950 from DEC is required for the purpose of selling harvested logs.

The application area falls within the Warren River and Tributaries Surface Water Area under the Rights in Water Irrigation Act 1914.

The proposed clearing site lies within Warren River Water Reserve gazetted under the Country Areas Water

Supply Act 1947 (CAWS Act) (DoW, 2012). The lot is not currently located in a Public Drinking Water Source Area hence no priority source protection has been assigned or is proposed. The application area is located in Zone C a medium salinity risk part of the catchment, where the DoW (2012) advise timber harvest works be subject to a Forest Management Plan, retention of a basal area of at least 10 metres squared over the area, exclusion of riparian areas and associated buffers and exclusion of grazing by livestock from the area (DOW, 2012).

An agreement to reserve is present on an adjoining lot owned by the applicant.

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, 2005).

Methodology **References:**
- DEC (2005)
- DoW (2012)
- Shire of Manjimup (2012)

4. References

DEC (2005) Silvicultural Practice in the Karri Forest. Department of Environment and Conservation. SFM Guideline No.3

DEC (2007 -) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>. Accessed 20/9/2012

DEC (2012) Regional Advice Report Clearing Permit Application CPS 5238/1. Department of Environment and Conservation. Warren Region. Western Australia. (DEC Ref: A552935)

DoW (2012) Advice for Clearing Permit CPS 5238/1 W and E Hall, Lot 10904 on Deposited Plan 203844. Department of Water Western Australia. (DEC Ref: A547399)

Government of Western Australia (2011); 2011 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.

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, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment 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.

Hall (2012) Native Forest Management Plan. Western Australia. (DEC Ref:A540951)

Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

5. 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)