



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: CPS 8111/1  
File Number: DER2018/000992  
Duration of Permit: 15 December 2018 to 15 December 2020

### PERMIT HOLDER

Mathew John Muir  
Caroline Jane Anderson

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 8200 on Deposited Plan 201608, Channybearup

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 12.54 hectares of native vegetation within the area cross hatched yellow on attached Plan 8111/1.

### CONDITIONS

#### 1. Avoid, minimise and reduce the impacts and extent of 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.

#### 2. 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) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

#### 3. Records must be kept

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

- (a) 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;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares); and
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit.
- (e) Actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 2 of this Permit.

#### 4. Reporting

The Permit Holder must provide to the CEO the records required under condition 3 of this Permit, when requested by the CEO.

#### DEFINITIONS

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

**CEO** means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

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

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

**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;

**weed/s** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



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Ryan Mincham  
MANAGER  
NATIVE VEGETATION REGULATION

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

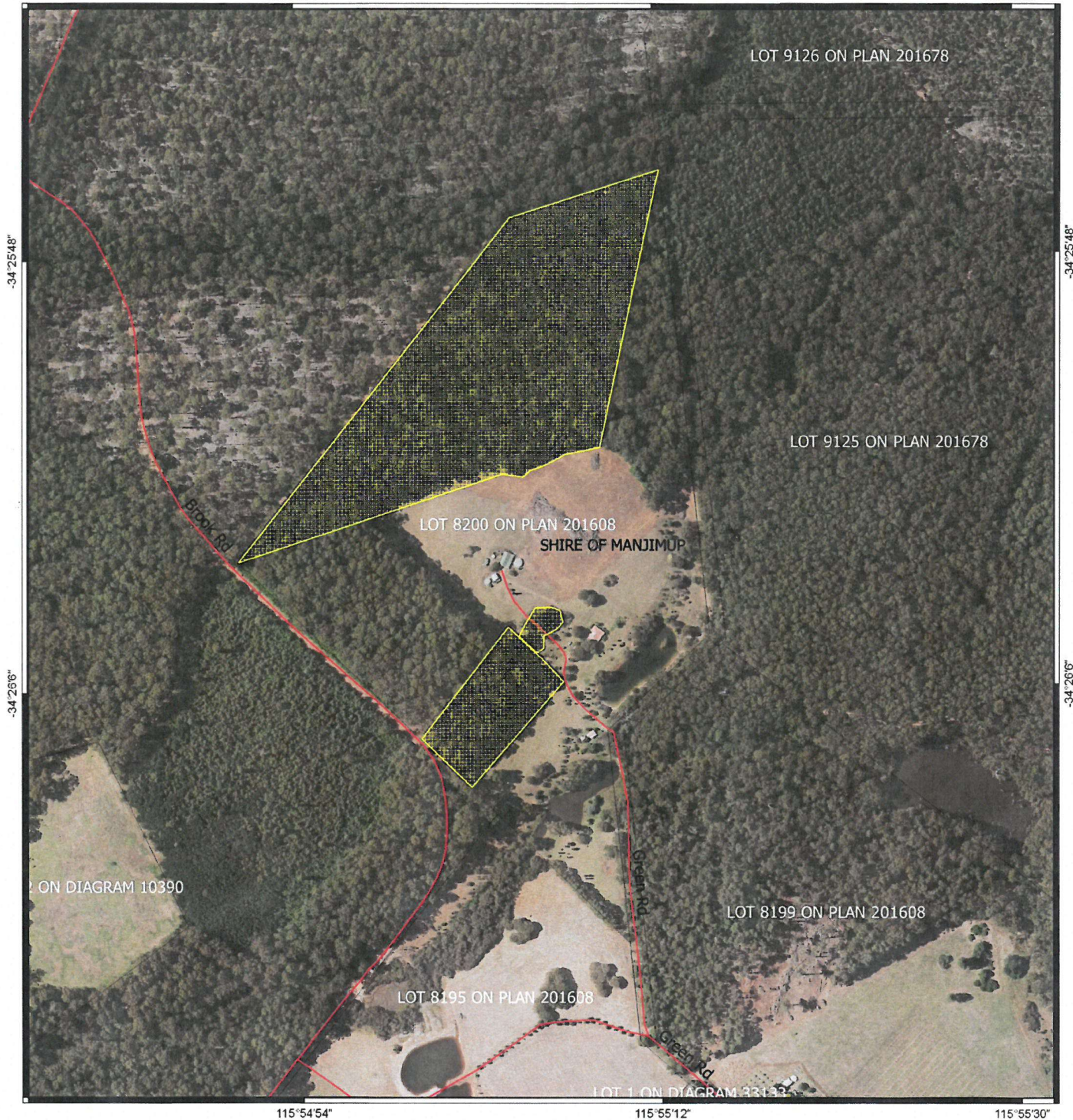
15 November 2018

# Plan 8111/1

115°54'54"

115°55'12"

115°55'30"






115°54'54"

115°55'12"

115°55'30"

## Legend

-  CPS areas approved to clear
-  Cadastre
-  Roads
- Image



200 0 200 m



IMGA 94  
Geocentric Datum of Australia 1994

*R. [Signature]* Date 15/11/18

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



GOVERNMENT OF  
WESTERN AUSTRALIA



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 8111/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: Mr Mathew John Muir

Application received date: 22 June 2018

### 1.3. Property details

Property: LOT 8200 ON PLAN 201608, CHANNYBEARUP  
Local Government Authority: MANJIMUP, SHIRE OF  
Localities: CHANNYBEARUP

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
12.54		Mechanical Removal	Grazing & pasture

### 1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 15 November 2018

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing may be at variance to principle (h) and is not likely to be at variance to any of the remaining clearing principles.

Through assessment it has been determined that the proposed clearing may impact the environmental values of Donnelly State Forest through the possible introduction or spread of weeds and dieback. Weed and dieback management measures will minimise impacts to Donnelly State Forest.

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is not likely to have any unacceptable impacts to environmental values.

## 2. Site Information

**Clearing Description** The application is to clear 12.54 hectares of native vegetation within Lot 8200 on Plan 201608, Channybearup, for the purposes of establishing an avocado orchard and livestock agriculture (figure 1).

**Vegetation Description** The application area is mapped in the 'Warren' region of the Interim Biogeographic Regionalisation for Australia (IBRA), and is mapped as the following Matiske vegetation complexes:

Crowea CRb (approximately 10 per cent) described as tall open forest of *Corymbia calophylla* (Marri)-*Eucalyptus diversicolor* (Karri) on upper slopes with *Allocasuarina decussate* (Karri She-oak)-*Banksia grandis* (Bull Banksia) on upper slopes in hyperhumid and perhumid zones;

Pemberton PM1 (approximately 14 per cent) described as tall open forest of *Eucalyptus diversicolor* (Karri) with mixtures of *Corymbia calophylla* (Marri) on valley slopes and low forest of *Taxandria juniperina*-*Banksia seminuda* (River Banksia)-*Callistachys lanceolata* (Wonnich) on valley floors in the perhumid zone; and

Crowea CRd (approximately 76 per cent) described as open forest to tall open forest of *Eucalyptus marginata* subsp. *marginata* (Jarrah)-*Corymbia calophylla* (Marri) on uplands in hyperhumid and perhumid zones (Matiske and Havel, 1998).

A site inspection of the application area was conducted by Department of Water and Environmental Regulation (DWER) (13 July 2018). The site inspection report describes the vegetation as a mixture of *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri) woodland and *Eucalyptus diversicolor* (Karri) woodland

over open native heath, with Jarrah woodland over open heath being the dominant vegetation type. A range of understorey species were identified, the most prevalent species included, *Xanthorrohea* sp., *Macrozamia reidleyi*, *Hibbertia* sp. (including *Hibbertia acerosa*), *Acacia* sp., *Tetraria* sp., *Grevillea trifida* and *Hakea lissocarpa*; *Banksia dallenneyi*, *Trichocline spathulata* and *Bossiaea ornata* were also observed. The site inspection report noted that the majority of the vegetation was in very good (Keighery, 1994) condition (DWER, 2018).

A land degradation site inspection of the property (3 October 2018) found the native vegetation on the property to be dominated by *Eucalyptus diversicolor* (Karri), *Eucalyptus marginata* (Jarrah), and *Banksia* sp. (DPIRD, 2018).

#### **Vegetation Condition**

The condition of the vegetation within the application area is considered to be:

- Very Good: vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
- Good: vegetation structure significantly altered by very obvious signs of multiple disturbance; retains basic structure or ability to regenerate (Keighery 1994).

The condition of the vegetation was determined from the site inspection (DWER, 2018).

#### **Soil type**

The application area is mapped as the following land subsystems:

Crowea (Pimelia) brown duplex phase (254PvcRb), which covers approximately 10 per cent of the application area, and is described as brown gravelly duplex soils and red earths;

Crowea (Pimelia) sandy duplex phase (254PvCRd), which is mapped across approximately 76 per cent of the application area, and is described as sandy yellow duplex soils; and

Pemberton Subsystem (Pimelaia) (254PvPM), which is mapped across approximately 14 percent of the application area, and is described as flat to gently sloping floors with few channels, smooth slopes, and red or yellow gradational soils, not calcareous with some red duplex soils (Schoknecht, 2004).

The land degradation site inspection described the soil type and landscape 'located in the upper slope of the landscape and mapped to be dominated by the soils of the Crowea (Pimelia) sandy duplex Phase, described as broad ridge crests with sandy gravels and grey deep sand duplexes; and to a lesser extent by the Crowea (Pimelia) brown duplex Phase, described as broad ridge crests with brown gravelly duplex soils and red earths' (DPIRD, 2018).



Fig 1: Application area



Fig 2: Photo showing typical vegetation within application area, south east section (DWER, 2018)



Fig 3: Photo showing typical vegetation within application area, central northern section (DWER, 2018)

### 3. Minimisation and mitigation measures

No minimisation and mitigation measures provided.

### 4. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Proposed clearing not likely to be at variance to this Principle

The applicant proposes to clear 12.54 hectares of native vegetation within Lot 8200 on Deposited Plan 201608, Channybearup, for the purposes of livestock agriculture and establishing an avocado orchard.

Six priority and two rare flora species have been recorded within the local area (10 kilometre radius). Rare flora are discussed under Principle (c). Five of the priority species are associated with either granite outcrops, drainage lines or sand. None of these habitat types are present within the application area.

The sixth species (priority 2) is a macro-fungi (part of the Agarics group - mushrooms with gills) with only one known record in Western Australia collected in 2001. The habitat, in Western Australia, for this species is recorded as "on soil in karri forest under *Eucalyptus diversicolor* and *Corymbia calophylla*". This single record is located approximately five kilometres west of the application area. Suitable habitat for this species may be located within the application area, however the proposed clearing is

not likely to impact on the conservation status of the species given the large tracts of similar habitat, within conservation estate, surrounding the application area.

No priority ecological communities are mapped within the application area or local area (10 kilometre radius).

As discussed in Principle (b) thirteen fauna species listed as being of conservation significance under the *Wildlife Conservation Act 1950* have been recorded within the local area, being; Carnaby's cockatoo (*Calyptorhynchus latirostris*), forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), mud minnow (*Galaxiella munda*), western ringtail possum (*Pseudocheirus occidentalis*), quokka (*Setonix brachyurus*), Carter's freshwater mussel (*Westralunio carteri*), osprey (*Pandion cristatus*), peregrine falcon (*Falco peregrinus*), pouched lamprey (*Geotria australis*), rakali (*Hydromys chrysogaster*), quenda (*Isodon obesulus*), and blue-billed duck (*Oxyura australis*) (DBCA, 2007-). Based on the vegetation types identified, the application area is not likely to provide significant habitat for any of the abovementioned fauna species.

The disturbance caused by the proposed clearing is likely to increase the prevalence of weeds spreading into adjacent vegetation. Weed management practices will assist in mitigating the risk of spreading weeds and/or dieback.

The application area is not likely to contain a high level of biodiversity. As such, the proposed clearing is not likely to be at variance to this Principle.

**(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.**

**Proposed clearing is not likely be at variance to this Principle**

According to available databases, thirteen conservation significant fauna species have been recorded within the local area (DBCA, 2007-). Noting the habitat requirements of these species, and the mapped vegetation type and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*, threatened), forest red-tailed black cockatoo (*Calyptorhynchus banksia* subsp. *naso*, threatened), Baudin's cockatoo (*Calyptorhynchus baudinii*, threatened), western ringtail possum (*Pseudocheirus occidentalis*, threatened), quokka (*Setonix brachyurus*, threatened), and Quenda (*Isodon obesulus*, Priority 4).

Carnaby's cockatoo and Baudin's cockatoo are listed as endangered and forest red-tailed black cockatoo is listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*. Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012).

Potential nesting trees for black cockatoos are defined as "trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, suitable DBH is 500 millimetres". The site inspection conducted by DWER officers identified that a high proportion of the trees within the application area were younger trees that are not likely to be suitable as habitat trees. The site inspection identified scattered older growth trees, some of which contained sizable hollows, however it has since been determined that these trees are located outside of the application area and will not be cleared (Muir, 2018).

Noting the vegetation types present within the application area, the application area contains suitable foraging habitat for Carnaby's cockatoo, forest red-tailed black cockatoo, and Baudin's cockatoos. However given the extent of vegetation in the local area, the application area is not likely to contain significant foraging or breeding habitat for these species.

Western ringtail possum is listed as critically endangered under the *Environmental Protection and Biodiversity Conservation Act 1999*. The western ringtail possum forages predominantly on leaves of Peppermint (*Agonis flexuosa*), Marri (*Corymbia calophylla*), and Jarrah trees (*Eucalyptus marginata*) (DBCA, 2017b). Noting the absence of mature Peppermint trees, and given the extent of vegetation in the surrounding local area (approximately 82 per cent), the application area is not likely to contain significant foraging or breeding habitat for western ringtail possum.

Quokka is listed as threatened under the *Wildlife Conservation Act 1950*. Quokka are known to inhabit southern Jarrah, Karri and Marri forests with a preference for, woodland and wetland habitats with a thick understorey, located close to swamps and areas containing more open and recently burnt vegetation (DBCA, 2017a). Given the extent of vegetation in the surrounding local area, the application area is not likely to contain significant foraging or breeding habitat for quokka.

Quenda is listed as priority 4 under the *Wildlife Conservation Act 1950*. Quenda are known to inhabit scrubby, swampy vegetation with low, dense understorey, located nearby water courses, pasture, or forest/woodland that is regularly burnt (DBCA, 2012). Noting the vegetation types within the application area, and given the extent of vegetation in the surrounding local area, the application area is not likely to contain significant foraging or breeding habitat for quenda. Priority 4 species are also known to occur from a number of conservation areas, sustaining more secure populations.

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molloy et al., 2009) is mapped approximately 110 metres west of the application area within Donnelly State Forest. The SWREL report (Molloy et al., 2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape". This mapped ecological linkage follows a large

tract of remnant vegetation within conservation estate. Although the application area supports this linkage, the proposed clearing will not fragment the linkage.

Noting the above, the application area is not likely to comprise significant habitat for indigenous fauna, including species of conservation significance, and is not likely to be at variance to this Principle.

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, two rare flora species have been recorded within the local area.

The first species is an orchid that is known from populations between Nannup and Albany. It usually inhabits paperbark (*Melaleuca* spp.) and flooded gum (*Eucalyptus rudis*) swamps and flats, which are inundated for several months of the year, but may also be found along creeklines in jarrah (*Eucalyptus marginata*) and karri (*Eucalyptus diversicolor*) forest (Brown et al., 1998). The application area does not contain swamps or inundated flats and therefore this species is not likely to be present.

The second species (*Commersonia apella*) is currently known from only one extant population southeast of Esperance but in the past has been found over a much larger area between Esperance and Pemberton (Department of Parks and Wildlife, 2016).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(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.**

**Proposed clearing is not likely to be at variance to this Principle**

There are no threatened ecological communities recorded within the application area or within the local area. The closest recorded threatened ecological community is 20.5 kilometres from application area (*Subtropical and Temperate Coastal Saltmarsh*) and is not likely to occur within application area. The vegetation identified within the application area is not consistent with this threatened ecological community, as such the proposed clearing is not likely to be at variance to this Principle.

**(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.**

**Proposed clearing is not likely to be at variance to this Principle**

The proposed clearing is located within the Warren IBRA bioregion. This bioregion retains approximately 79 per cent pre-European vegetation (Government of Western Australia, 2018).

The application area is also mapped in the following Matisse vegetation complexes:

- Crowea (CRd) which is mapped across approximately 76 per cent of the application area, and retains approximately 78 per cent pre-European vegetation;
- Pemberton (PM1) which is mapped across approximately 14 per cent of the application area, and retains approximately 65 per cent pre-European vegetation; and
- Crowea (CRb) which is mapped across approximately 10 per cent of the application area, and retains approximately 86 per cent pre-European vegetation.

The local area retains approximately 82 per cent native vegetation (approximately 27,625 hectares).

The National Objectives and Targets for Biodiversity Conservation 2001-2005 include a target to have clearing controls in place that prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (Commonwealth of Australia, 2001).

The application area does not contain high biodiversity or significant fauna habitat and, as such, is not considered a significant remnant.

The bioregion, vegetation complexes and local area all retain more than the minimum 30 per cent threshold for maintaining ecological communities, and as such, the application area is not likely to be a significant remnant in an extensively cleared area.

Given the above, the proposed clearing is not likely to be at variance to this Principle.



	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
<b>IBRA bioregion:</b>					
Warren	833,985.56	659,438.59	79.07	557,850.14	66.89
<b>Mattiske vegetation complexes:</b>					
Crowea (CRb) (10%)	52,753.26	45,325.96	85.92	42,940.94	81.40
Pemberton (PM1) (14%)	25,801.16	16,743.91	64.90	14,902.93	57.76
Crowea (CRd) (76%)	1,904.36	1,488.53	78.16	1,364.93	71.67

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Proposed clearing is not likely to be at variance to this Principle**

There are no watercourses or wetlands located within the application area. The closest mapped watercourse is Fly Brook, a minor river located approximately 326 metres from the south western corner of the application area. The vegetation within the application area does not appear to be growing in association with this water course.

Given the above, that the vegetation within the application area is not growing in association with a wetland or watercourse environment, the proposed clearing is not likely to be at variance to this Principle.

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

**Proposed clearing is not likely to be at variance to this Principle**

Primary soils within the application area are mapped by the Department of Primary Industries and Regional Development (2018), and described as:

- Crowea (Pimelia), sandy duplex Phase – Covers approximately 76 per cent of application area, and is described as, sandy yellow duplex soils;
- Pemberton Subsystem (Pimelaia). 20 to 40 m deep - Covers approximately 14 per cent of application area, and is described as, flat to gently sloping floors, with few channels, smooth slopes, and red or yellow gradational soils, not calcareous with some red duplex soils; and
- Crowea (Pimelia), brown duplex Phase - Covers approximately 10 per cent of application area, and is described as, brown gravelly duplex soils and red earths.

A land degradation site inspection of the property indicates that the risk of land degradation (including, salinity, eutrophication, wind erosion, water erosion, waterlogging and flooding) occurring as a result of the proposed clearing is likely to be low (DPIRD, 2018).

Noting the above, and the mapped soil type within the application area, the proposed clearing is not likely to cause appreciable land degradation, and as such, is not likely to be at variance to this Principle.

**(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.**

**Proposed clearing may be at variance to this Principle**

According to available databases, the nearest conservation area is the Donnelly State Forest, which is located adjacent to the application area.

An ecological linkage, defined by the South West Regional Ecological Linkage (SWREL) Report (Molloy et al., 2009) is mapped approximately 110 metres west of the application area within Donnelly State Forest. The SWREL report (Molloy et al., 2009) defines an ecological linkage as "A series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape".

This mapped ecological linkage follows a large tract of remnant vegetation within conservation estate. Although the application area supports this linkage, the proposed clearing will not fragment the linkage.

The disturbance caused by the proposed clearing may increase the risk of weeds and dieback being spread in Donnelly State Forest. Hygiene management practices will assist in mitigating this risk.

Given the above, the proposed clearing may be at variance to this Principle.

**(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.**

**Proposed clearing is not likely to be at variance to this Principle**

No watercourses or wetlands are mapped within the application area, and it is unlikely that the proposed clearing would impact surface or underground water.

A land degradation site inspection of the property indicates that the risk of land degradation (including, salinity, eutrophication, wind erosion, water erosion, waterlogging and flooding) occurring as a result of the proposed clearing is likely to be low (DPIRD, 2018).

Noting the above, and the mapped soil type within the application area, the proposed clearing is not likely to cause deterioration to the quality of surface or underground water, and as such, is not likely to be at variance to this Principle.

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Proposed clearing is not likely to be at variance to this Principle**

No watercourses or wetlands are mapped within the application area, and it is unlikely that the proposed clearing would impact the incidence or intensity of flooding.

A land degradation site inspection of the property indicates that flooding occurring as a result of the proposed clearing is likely to be low (DPIRD, 2018).

Noting the above, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding, and as such, is not likely to be at variance to this Principle.

**Planning instruments and other relevant matters.**

A Department of Primary Industries and Regional Development land degradation report advised that the proposed clearing has a moderate to high capability for the proposed landuse (DPIRD, 2018).

The Shire of Manjimup advised that it has no objection to the proposed clearing and that there are no planning or other matters that apply in this instance (Shire of Manjimup, 2018). The Shire of Manjimup advised that the land is zoned as 'Priority Agriculture' in Local Planning Scheme No.4, and that planning approval for the proposed clearing is not required (Shire of Manjimup, 2018).

A direct interest response was received from the Manjimup Land Conservation District Committee, now known as the Warren Catchment Council, enquiring as to whether offset planting would be required in this case (WCC, 2018). The assessment of this application determined that the proposed clearing will not result in any significant, residual environmental impacts and therefore an offset is not required in this instance.

The application area falls within a proclaimed Surface Water Area (Donnelly River System) under the *Rights in Water and Irrigation Act 1914*. Any taking or diversion of water in this proclaimed area is subject to licensing. The applicant holds a current water licence (SWL200761) which expires on 14 January 2028 (Landuse Planning, 2018).

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the DWER website on 12 July 2018 with a 21 day submission period. No public submissions have been received in relation to this application.

**5. References**

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC act referral guidelines for three threatened back cockatoos species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Biodiversity, Conservation and Attractions. (2017a). *Fauna Profile - Quokka Setonix brachyurus*. Retrieved from <http://www.dbca.wa.gov.au/>
- Department of Biodiversity, Conservation and Attractions. (2017b). *Fauna Profile - Western Ringtail Possum Pseudocheirus occidentalis*. Retrieved from <http://www.dbca.wa.gov.au/>
- Department of Biodiversity, Conservation and Attractions (DBCA) (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed October 2018
- Department of Parks and Wildlife (2016) Many-flowered Commersonia (*Commersonia apella*) Interim Recovery Plan 2016-2021. Interim Recovery Plan No. 362. Department of Parks and Wildlife, Western Australia.
- Department of Primary Industries and Regional Development (DPIRD) (2018). Land degradation advice provided in relation to clearing permit application CPS 8029/1, including Land Degradation Assessment Report (DWER ref. A1731437).
- Department of Water and Environmental Regulation (DWER) (2018) Site inspection report for CPS 8111/1.
- Department of Water and Environmental Regulation (Landuse Planning) (2018) Direct interest advice provided in relation to clearing permit application CPS 8111/1 (DWER ref. A1704128, A1733704).
- Government of Western Australia. (2018). 2017 South West Vegetation Complex Statistics. Current as of October 2017.

- 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.
- Muir, Mathew (2018) Personal Communication with applicant. (DWER ref. A1734972).
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Shire of Manjimup (2018) Direct interest advice provided in relation to clearing permit application CPS 8111/1, received 18 July 2018. Shire of Manjimup, Western Australia (DWER ref. A1703991).
- Warren Catchments Council (WCC) (2018) Direct interest advice provided in relation to clearing permit application CPS 8111/1, received 17 July 2018. Warren Catchments Council, Western Australia (DWER ref. A1703944).

**GIS databases:**

- CPS Areas applied to clear
- NatureMap (conservation significant fauna)
- DAFWA Subsystems V5
- Soils of WA
- Vegetation Complexes – South West Forests
- Managed Tenure
- Environmentally Sensitive Areas
- TPFL Data October 2018
- WAHerb Data October 2018
- Aboriginal Sites Register
- IBRA Vegetation WA
- WA TECPEC
- Land Degradation Hazards
- Hydrography
- RIWI – surface water area
- RIWI – ground water area