



## CLEARING PERMIT

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

### PERMIT DETAILS

Area Permit Number: 4503/1  
File Number: 2011/006520-1  
Duration of Permit: From 26 September 2011 to 26 September 2013

### PERMIT HOLDER

Samantha Caitlin Brewer

### PART I – CLEARING AUTHORISED

#### 1. Purpose for which clearing may be done

Clearing up to 55.08 hectares for the purpose of fire suppression and silviculture.

#### 2. Land on which clearing is to be done

Lot 8161 on Plan 201586, Quinninup.

#### 3. Area of Clearing

(a) The Permit Holder must not clear more than 55.08 hectares of native vegetation for the purpose of fire suppression and silviculture thinning within the areas cross-hatched yellow on attached Plan 4503/1.

#### 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 area cross-hatched yellow on Plan 4503/1:

- (a) The Permit Holder may undertake the following activities:
- (i) clearing and burning of *understorey*;
  - (ii) *thinning* of Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) or Karri (*Eucalyptus diversicolor*) trees; and
  - (iii) *culling* and burning of unsaleable trees.
- (b) The Permit Holder shall not clear any native vegetation after 26 September 2013. This being two years from the date this Permit becomes valid.

#### 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. Watercourse management

- (i) The Permit Holder shall not clear native vegetation within 30 metres of the *riparian vegetation* of any *watercourse* or *wetland*.

## 10. 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.
- (c) A minimum retention rate of 10m<sup>2</sup>/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 two years of 26 September 2011, 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 10(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.

## **PART III - RECORD KEEPING AND REPORTING**

### 11. 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 vegetation management pursuant to condition 10 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;
  - (iv) monitoring undertaken to ensure that the specified minimum *basal area* is retained;
  - (v) photographs of the *understorey* taken at one year, two years and three years after completing clearing authorised under this Permit; and

(vi) a detailed description of the nature and extent of any *remedial actions* undertaken.

## 12. 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 12 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 26 September 2013, the Permit Holder must provide to the CEO a written report of records required under condition 11 of this Permit where these records have not already been provided under condition 12(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;

**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;

**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;

**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*;

**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.



M Warnock  
A/MANAGER  
NATIVE VEGETATION CONSERVATION BRANCH

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

1 September 2011



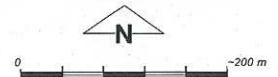
# Plan 4503/1



## LEGEND

- Clearing Instruments**
- Areas Approved to Clear
  - Road Centrelines
  - Cadastre for labelling

**Manjimup 50cm Orthomosaic - Landgate 2007**



Scale 1:7000  
(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.

*M Warnock* Date 1/9/2011

M Warnock  
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.: 4503/1  
Permit type: Area Permit

### 1.2. Proponent details

Proponent's name: Samatha Caitlan Brewer

### 1.3. Property details

Property: LOT 8161 ON PLAN 201586 (House No. 30465 SOUTH WESTERN QUINNINUP 6258)  
Local Government Area: Shire of Manjimup  
Colloquial name:

### 1.4. Application

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

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 1 September 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
The vegetation under application is mapped as: Beard Vegetation Association: 1144: Tall forest; karri and marri and 3: Medium forest; jarrah marri (Hopkins et al 2001; Shepherd 2009). Mattiske vegetation complex: (Lf): Tall open forest of <i>Corymbia calophylla</i> with mixture of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> and <i>Eucalyptus diversicolor</i> on uplands in hyperhumid and perhumid zones (Mattiske and Havel 1998).	The application is for the proposed clearing of 55.08 ha within Lot 1861 on Plan 201586, Quinninup, for the purpose of silviculture and fire suppression.  The vegetation proposed to be cleared consists of Marri / Karri / Jarrah overstorey and a dense understorey. The vegetation has been assessed as excellent (Keighery 1994) condition (DEC, 2011).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The vegetation condition and description was determined from photographs supplied by the applicant, aerial photography and site visit (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 may be at variance to this Principle**

The application is for the clearing of 55.08 hectares of native vegetation for silviculture thinning and fire suppression.

The vegetation under application is recorded to be in an excellent (Keighery 1994) condition (DEC 2011). The vegetation comprises of a *Eucalyptus marginata*, *Eucalyptus diversicolor* and *Corymbia calophylla* closed forest over *Banksia* sp, *Acacia pentadenia*, *Trymalium odoratissimum* shrubland over *Pteridium esculentum*, *Pattersonia* sp, *Logania vaginalis* and *Podocarpus drouynianus*. Evidence in the form of stumps and tracks were observed during the site inspection which indicates that past logging occurred (DEC 2011).

There are no known occurrences of priority or threatened ecological communities within a 10km radius.

The local area is highly vegetated and undisturbed, with approximately 70% native vegetation remaining in a 10km radius, and 80% in the Warren bioregion. Much of the vegetation within the local area is native and forms part of the Warren State Forest or Tone State Forest which are adjacent to the application area. The application area is likely to provide an ecological linkage and wildlife corridor between these conservation areas and to the Quinninup Brook which is within the property and adjacent to the application area.

Western grey kangaroos, red tail forest black cockatoos were observed in the site inspection (DEC 2011). Other fauna including baudins cockatoo, chuditch, western mud minnow are also likely to use the forest or waterways within or immediate surrounding the application area as habitat, feeding areas or movement corridors. No hollows were observed during the site inspection (DEC 2011) however all of the property was not surveyed and it is likely that older trees within the application area contain hollows suitable for native fauna habitats.

Due to the excellent (Keighery 1994) vegetation condition and connection with other areas of native vegetation, the proposed clearing may be at variance to principle (a).

**Methodology** DEC (2011)  
Keighery (1994)

GIS databases:

- Heddle Vegetation Complexes - DEP 22/06/95
- Pre European Vegetation - DA 01/01
- SAC Biodatasets (Accessed 29 July 2011)

**(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**

The application is for the clearing 55.08 8 hectares of native vegetation for silviculture and fire suppression. The majority of the vegetation is regrowth forest as a result of past logging operations (DEC 2011) and the majority of the trees in the regrowth forest are not large or mature enough to have developed nesting hollows (DEC 2011).

The Department of Water request that native vegetation with a basal area of 10m<sup>2</sup> be retained and uniformly distributed over the forest management area (DoW 2011) for habitat purposes.

Western grey kangaroos and red tail forest black cockatoos were observed during the site assessment (DEC 2011). Three threatened and three vulnerable fauna species have been recorded to occur within the local (10km) area. The chuditch and western mud minnow are recorded to occur within 1km of the application area.

The local area remains highly vegetated and fauna are likely to use the application area but only in association with habitats available in the surrounding bushlands and creeklines.

The vegetation under application is not likely to be at variance to principle (b) as most of the trees do not support hollows, the application area is surrounded by other intact forests and the mature trees are proposed to be retained.

**Methodology** DEC 2011  
DoW 2011

GIS databases:

- Manjimup 50cm Orthomosaic ? Landgate 2007
- SAC Biodatasets (Accessed 29 July 2011)

**(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**

Two declared rare flora and no priority flora have been mapped within the local (10km radius) area. The closest occurrences were *Kennedia glabrata* (DRF) and *Caladenia winfieldii* (DRF) located 6.3km and 8km south of the application area respectively. These flora prefer granite and winter wet depressions respectively. As the application is not located in a granite soil type and it is proposed not to clear within 30m of winter wet depression these flora, if occurring in the application area, will not be affected.

The DEC site inspection indicates that no DRF or priority flora were observed (DEC 2011).

As the vegetation under application is not likely to contain priority or declared rare flora and the application is not likely to be at variance to the principle (c).

**Methodology** DEC 2011

GIS databases:

- SAC Biodatasets (Accessed 29 July 2011)
- Hydrography linear
- Soils, Statewide

**(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 priority or threatened ecological communities are located within the local area (10km radius). The closest ecological community mapped is a Priority 3 community located 15km north of the application area and known as Epiphytic Cryptogams of the karri forest. This community is not likely to occur in the application area.

The proposed clearing is not likely to be at variance to principle (d).

**Methodology** GIS databases:

- SAC Biodatasets (Accessed 29 July 2011)
- Matiske Vegetation
- Soils, Statewide

**(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 in the Warren Bioregion, within which 80% of the pre-European vegetation remains (Shepherd 2007). The proposal also falls within the Shire of Manjimup, of which there is 84% remaining of pre-European vegetation (Shepherd 2007).

The Beard Vegetation Association and Matiske Vegetation Complex of the areas under application retain 79%, 80% and 74% of the remaining pre-European vegetation within the Warren Bioregion (Shepherd et al 2007, Matiske and Havel 1998).

The local area is highly vegetated, with approximately 70% vegetation remaining in a 10km radius.

Due to the highly vegetated local area, the application area is not seen as a remnant of native vegetation in an area that has been extensively cleared. The application is not likely to be at variance to principle (e).

**Methodology** Heddle et al (1980)  
Shepherd et al (2007)  
Hopkins et al. (2001)  
Matiske and Havel (1998).

GIS databases:

- Pre-European Vegetation
- Interim Biogeographic Regionalisation of Australia
- Heddle Vegetation Complexes - DEP 22/06/95
- Matiske Vegetation Complexes
- Local Government Authorities

**(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**

The northern edge of the application area contains a major perennial watercourse known as Quinninup Brook. Two minor watercourses are located within the application area and one of these is mapped as connecting to Quinninup Brook.

DoW (2011) advised that clearing should exclude any riparian areas and associated buffers. Buffers are recommended to be 30m wide. Approximately 60m has been allocated as a buffer to Quinninup Brook, no buffer or exclusion has been identified in the application's map for the minor watercourses but the forest management plan outlines that harvesting will not occur within 30m of creeklines and swamps where present (Brewer 2011)

No wetlands are mapped within or immediately surrounding the application area.



Due to the location of the minor watercourses within the application area and the need for a buffer or exclusion zone, the proposed clearing is at variance to principle (f).

**Methodology** DoW 2011

GIS databases:  
- Hydrography, Linear

**(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 and Uc1 (Northcote et al 1960-8). Both of these soil types are described as containing dissected lateritic plateau with acidic yellow mottles soils on hilly relief.

The forest management plan (Brewer 2011) advises that species with a minimum basal area of 16 to 18 m<sup>2</sup>/ha will be retained and so too will 2 habitat trees per hectare (Brewer 2011). Harvesting is proposed to be conducted in dry soil conditions to avoid soil compactions, rutting and erosion. All harvesting equipment is proposed to be cleaned before entry reducing the potential to introduce dieback (*Phytophthora cinnamoni*) into the property (Brewer 2011).

The application is within Zone C of the Warren River Water Reserve area of the Country Areas Water Supply Act 1947. Zone C poses a moderate salinity risk to the catchment.

Noting that the application is for thinning and fire suppression and a forest management plan will be in place to reduce degradation, it is considered that the application is not likely to be at variance to principle (g).

**Methodology** Northcote et al (1960-8)  
Brewer (2011)

GIS databases:  
-Country Areas Water Supply Act (Part IIA) Clearing Control Catchments  
- Hydrography, linear  
- Soils, Statewide  
- Topographic contours statewide  
- Hydrogeology, 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 is not likely to be at variance to this Principle**

The area proposed to be cleared is adjacent to conservation areas, particularly the Warren State Forest is located on the western property boundary and the Tone State Forest is located on the northern property boundary of the application area. The application area provides a vegetated link between these conservation area.

Whilst the application area is in an excellent (Keighery 1994) condition, the application is for the selective clearing of vegetation for fire suppression and silviculture. The forest management plan (Brewer 2011) has been developed for the application area which outlines that the objective is to maintain the wildlife and water quality through a low reduction burn to reduce the future fire risk to the property and surrounding forest.

Due to the application having an objective to maintain the wildlife and water quality of the area, the proposed clearing is not likely to be at variance to principle (h).

**Methodology** Keighery (1994)  
Brewer (2011)

GIS databases:  
- DEC Tenure

**(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**

Two minor perennial watercourses (unnamed) are within the application area and Quinninup Brook, a major perennial river, is located 60m northeast of the application area. The forest management plan has committed to excluding riparian areas and their buffers from the clearing (Brewer 2011). DoW (2011) also advises that riparian areas and their buffers should be excluded from the clearing area.

The application is to clear native vegetation for silviculture and fires suppression. The vegetation proposed to be

cleared is in zone C of the Country Areas Water Supply Act 1947 (CAWS) which is a moderate salinity risk area of the catchment. Salinity caused by clearing may pose a risk to the catchment and cause deterioration of the surface and/or underground water.

Due to the watercourses occurring within the application area, the application may be at variance with principle (i).

**Methodology** Brewer (2011)  
DoW (2011)

GIS databases:

- Hydrographic Catchments - Catchments
- Country Areas Water Supply Act (Part IIA) Clearing Control Catchments

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

**Comments Proposal is not likely to be at variance to this Principle**

The proposed clearing is outlined in the forest management plan to be thinning with larger trees to be retained. Two minor watercourses are within the application area and DoW (2011) outline that clearing of these watercourses and buffers are to be excluded.

Due to the exclusion of the riparian area and buffers the proposed clearing is not likely to be at variance to this principle.

**Methodology** DoW (2011)

GIS database:

- Hydrography, linear

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

**Comments**

The application is within a rural zoning in the Town Planning Scheme.

The Shire of Manjimup (2011) advised that the applicant should confer with the Shire regarding compliance with requirements relating to the Town Planning Scheme, local laws and legislation relating to the movement of heavy vehicles and the repair of road damage.

The area under application is within the Warren River Water Reserve of the Country Areas Water Supply Act 1947 (CAWS Act) native vegetation clearing controls since December 1978 to prevent salinisation of water resources (DoW 2011). The proposed clearing site is located in Zone C, a moderate salinity risk part of the catchment, where DoW Policy and Guidelines for the 'Granting of Licences to Clear Indigenous Vegetation' provide for the grant of a licence for millable timber and silviculture works. The CAWS Act requires the adherence to a sustainable Forest Management Plan; retention of a least a native vegetation basal area of 10m<sup>2</sup> uniformly distributed over the forest management area; exclusion of riparian areas and associated buffers and exclusion of grazing by livestock.

A CAWS Act application has been submitted. DoW (2011) also outline that a licence to clear 25ha was granted in 1983 and compensation was paid in 1984 to retain native vegetation. Imagery suggests that the 1983 licence was not acted upon and that regrowth may have occurred in the 8ha of cleared area at that time (DoW 2011).

The applicant advises in the forest management plan that a commercial producers licence is still required.

**Methodology** Shire of Manjimup (2011)

GIS databases:

- Town Planning Scheme
- Country Areas Water Supply Act (Part IIA) Clearing Control Catchments
- RIWI Act, Groundwater Areas - DOW

**4. References**

- Brewer SC. (2011) Native Forest Management Plan. SC Brewer. Manjimup.  
DEC (2011) Site Inspection Report for Clearing Permit Application CPS 4503/1, Lot 8161, Quininup. Site inspection undertaken 11/08/2011. Department of Environment and Conservation, Western Australia.  
DoW (2011) CPS 4503/1 Clearing Application -Lot 8161 Quininup advice. Advice dated 16 August 2011. Department of Water, Western Australia.  
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.
- Shepherd, D.P. (2009) Adapted from: 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)