



GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Purpose Permit Number: 3574/1
File Number: DEC11586
Duration of Permit: 18 April 2010 to 18 April 2014

PERMIT HOLDER

Western Australian Land Authority

LAND ON WHICH CLEARING IS TO BE DONE

Lot 300 on Plan 46449, Gap Ridge

PURPOSE FOR WHICH THE CLEARING MAY BE DONE

Clearing for the purpose of constructing drainage areas for the Karratha Support Industry Estate

CONDITIONS

1. The Permit Holder must not clear more than 22.3 hectares of native vegetation within the area cross hatched yellow on attached Plan 3574/1.

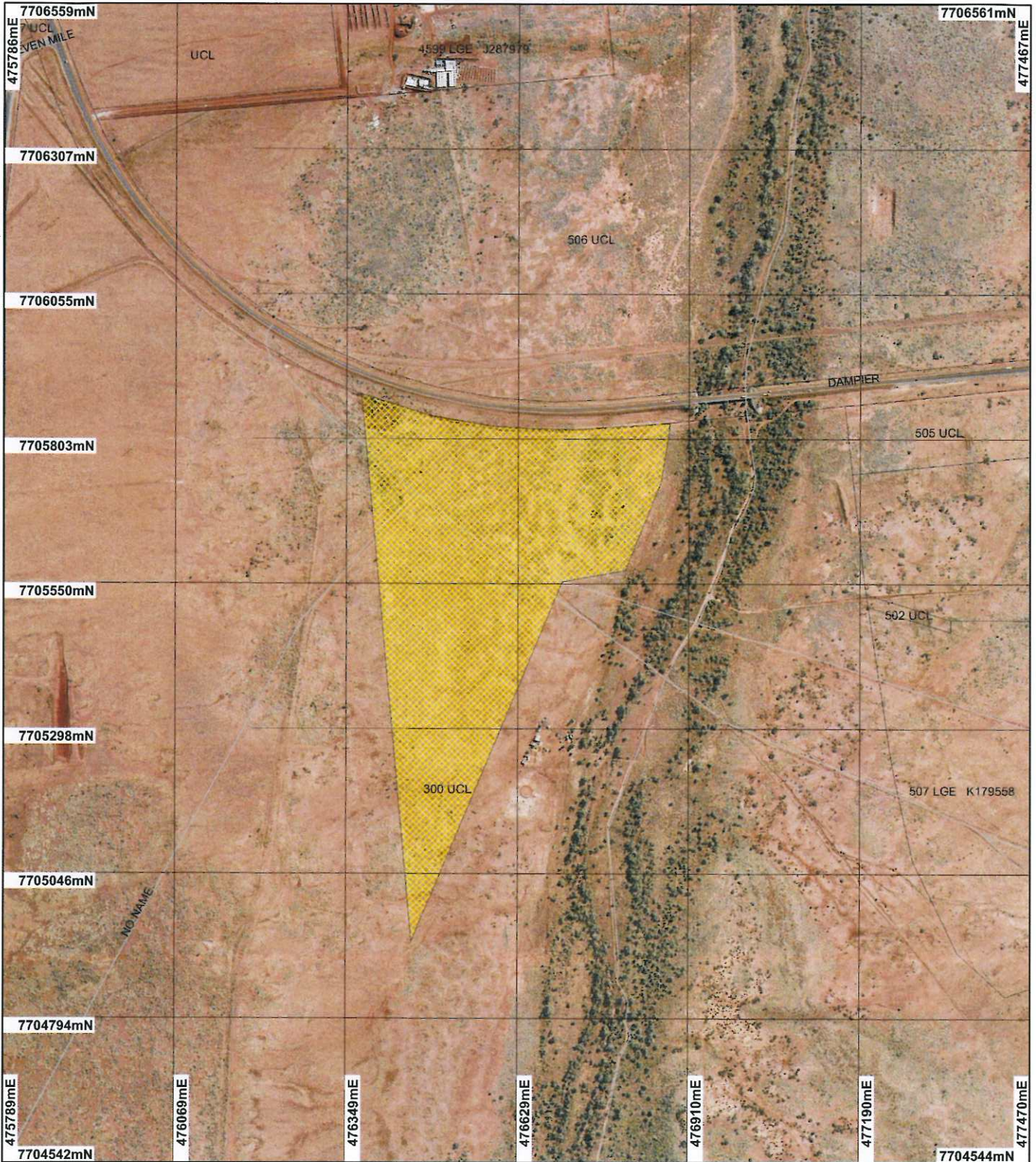
A handwritten signature in black ink, appearing to be 'K Faulkner', written over a horizontal line.

Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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

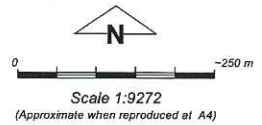
18 March 2010

Plan 3574/1



LEGEND

- Cadastre for labelling
- Road Centrelines
- FW
- HY
- LRO (cont)
- LRS
- MR
- N
- TR
- Clearing Instruments
- Areas Approved to Clear



Geocentric Datum Australia 1994

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

Date 18/3/10

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

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



Department of Environment and Conservation

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* Project Data is denoted by asterisk. This data has not been quality assured. Please contact map author for details.



1. Application details

1.1. Permit application details

Permit application No.: 3574/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Western Australian Land Authority

1.3. Property details

Property: LOT 300 ON PLAN 46449 (GAP RIDGE 6714)
Local Government Area:
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
22.3		Mechanical Removal	Industrial

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association 589: Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex.	The application is to clear 22.3 hectares of native vegetation for the purpose of constructing drainage areas for the Karratha Support Industry Estate. The majority of the vegetation condition ranges from Excellent to Very Good with some areas ranging from Degraded to Good (Keighery 1994) (GHD 2009).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	The vegetation description and condition was determined from Supporting Document for Clearing Permit Application (GHD 2009).

(Shepherd 2007)

The area consists of scattered shrubs of *Acacia bivenosa*, *Acacia xiphophylla* and *Acacia ancistrocarpa* over low scattered shrubs of *Senna glutinosa* subsp. *luerssenii*, *Corchorus walcottii*, *Neptunia dimorphantha* and *Solanum lasiophyllum* over hummock grassland of *Triodia wiseana*, *Triodia epactia*, *Aristida* spp and the weed *Cenchrus ciliaris* over scattered herbs of *Hybanthus aurantiacus* and *Rhynchosia minima* (GHD 2009).

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 to clear 22.3 hectares of native vegetation for the purpose of constructing drainage areas for the Karratha Support Industry Estate. The majority of the vegetation condition ranges from Excellent to Very Good with some areas ranging from Degraded to Good (Keighery 1994) (GHD 2009).

The area consists of scattered shrubs of *Acacia bivenosa*, *Acacia xiphophylla* and *Acacia ancistrocarpa* over low scattered shrubs of *Senna glutinosa* subsp. *luerssenii*, *Corchorus walcottii*, *Neptunia dimorphantha* and *Solanum lasiophyllum* over hummock grassland of *Triodia wiseana*, *Triodia epactia*, *Aristida* spp and the weed *Cenchrus ciliaris* over scattered herbs of *Hybanthus aurantiacus* and *Rhynchosia minima* (GHD 2009).

A vegetation survey undertaken in February 2009 of the area under application identified one vegetation type of scatters *Acacia* shrubs over scattered herbs (GHD 2009). The vegetation under application is also mapped as Beard Vegetation Association 589: Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex (Shepherd 2007).

Roebourne Plains gilgai grasslands (Roebourne Plains coastal grasslands with gilgai microrelief on deep cracking clays), a Priority 1 ecological community, is known to occur within the area under application (DEC 2009), with several occurrences of this PEC surrounding the proposed clearing area. However, in some parts of the applied area the PEC is severely degraded (DEC 2009). The flora and vegetation survey found no occurrence of this PEC (GHD 2009), however six quadrats conducted across a 250 ha survey area is not considered sufficient to determine the absence of this PEC.

Additionally, three priority flora species recorded within the local area may be present within the area under application based on similarity of soil and vegetation types mapped for the area:

- *Acacia glaucocaesia* (P3) is known to occur in red loam, sandy loam and clay soils on floodplains (DEC 2009a);
- *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3) occurs on red clay within clay pans and grass plains (DEC 2009a); and
- *Tephrosia bidwillii* (P3) has been collected in variable habitats and soil types, which include creeklines (DEC 2009a). However, little information is available for these species and the impact of the proposed clearing on these species is unknown.

Flora surveys were carried out in the adjacent area to the applied area during February and July 2009 (GHD 2009), however these would need to have been conducted after rainfall events in order to be able to identify these species. Additional information provided by LandCorp has established that the February survey occurred after a high rainfall event and that a targeted search within suitable habitat for DRF and Priority Flora species was conducted. However, only six 50 metre square quadrates across a 250 ha area was surveyed and this survey effort is unlikely to be sufficient to determine the presence of these species. Also no quadrates were placed within the area under application.

Given the predominantly excellent to very good condition of the vegetation under application, the possible occurrence of priority flora and the possibility of a PEC occurring within the applied area, it is considered that the area under application may contain a high level of biological diversity and may be at variance to this Principle.

Methodology References

- DEC (2009)
 - DEC (2009a)
 - GHD (2009)
 - Shepherd (2007)
 - Keighery (1994)
- GIS database:
- SAC Biodatasets - accessed 12 Feb 2010

(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**

Two threatened and one specially protected fauna species have been mapped within the local (20km radius) area of the proposed clearing:

Seven species of priority fauna have been recorded within the local area (20km radius) of the proposed clearing:

- *Mormopterus loriae cobourgiana* (Little North-western Mastiff Bat - P1)
- *Numenius madagascariensis* (Eastern Curlew - P4)
- *Pseudomys chapmani* (Western Pebble-mound Mouse - P4)
- *Phaps histrionica* (Flock Bronzewing - P4)
- *Macroderma gigas* (Ghost Bat - P4)
- *Burhinus grallarius* (Bush Stonecurlew - P4)
- *Leggadina lakedownensis* (Lakeland Downs Mouse - P4)

Given that the fauna surveys conducted were opportunistic and involved no fauna trapping (GHD 2009), the methodology is not considered sufficient to determine the presence of suitable habitat for these species.

Falco peregrinus (Peregrine Falcon) is not confined to a specific habitat, and threatening processes associated with habitat loss are particularly associated with loss of woodland trees where the Peregrine Falcon nest in areas where there are no cliffs (DEWHA 2009). Therefore, the proposed clearing, being grassland savannah, is not likely to further contribute to significant habitat loss for this species.

Liasis olivaceus barroni (Pilbara Olive Python) prefers escarpments, gorges and water holes in the ranges of the Pilbara region (DEWHA 2009). The vegetation under application may contain potential habitat for this species, and although fauna surveys conducted suggest significant habitat is not present within the proposed clearing (GHD 2009), the methodology provided is insufficient to assume the absence of this species. However, as the area under application is surrounded but similar habitat, it is not considered likely for the applied area of 22.3ha to contain significant habitat for this species.

Dasyurus hallucatus (Northern Quoll) is a solitary carnivorous marsupial that makes its dens in rock crevices, tree holes or occasionally termite mounds (DEWHA 2009). In savannah landscapes, females maintain territories of about 35 hectares, with males estimated to range over 150 hectares. In the Pilbara region, the species distribution is now considered to be fragmented and mostly confined to the larger conservation reserves as well as to the Burrup Peninsula (DEWHA 2009). Given that the area under application is not within these conservation reserves it is not considered likely for the applied area to provide significant habitat for this species.

Given the above, the size of the applied area (22.3ha) and that similar habitat can be found in the local area, it is considered that the applied area is not significant habitat for threatened fauna and the proposed clearing is unlikely to be at variance to this principle.

Methodology References
-DEWHA (2009)
-GHD (2009)
-Keighery (1994)
GIS database:
- SAC Biodatasets - accessed 12 Feb 2010

(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**
No rare flora species have been recorded within 20km of the area under application.

Therefore, the vegetation under application is not likely to include or be necessary for the continued existence of rare flora. It is considered that the clearing as proposed is therefore not likely to be at variance to this principle.

Methodology GIS database:
- Pre European Vegetation
- SAC Biodatasets - accessed 12 Feb 2010
- 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 threatened ecological communities (TEC) have been recorded within 20km of the area under application.

Therefore, the vegetation under application is not likely to comprise or be necessary for the continued existence of TEC. It is considered that the clearing as proposed is therefore not likely to be at variance to this principle.

Methodology GIS Database:
- SAC Biodatasets - accessed 12 Feb 2010
- Pre European 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 vegetation under application is mapped as Beard vegetation association 589, of which approximately 100% (730,682 hectares) of its pre-European extent remains within the Pilbara bioregion (Shepherd 2007).

Therefore, it is considered that the clearing as proposed is not likely to be at variance to this principle.

Methodology References
-Shepherd (2007)
GIS Databases:
- Interim Biogeographic Regionalisation of Australia
- Local Government Authorities
- Pre European Vegetation
- SAC Biodatasets - accessed 12 Feb 2010
- NLWRA, Current Extent of Native Vegetation

(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 area under application is 1.9km south of an area subject to inundation, and a minor non-perennial watercourse (Seven Mile Creek) is mapped as occurring ~100m east of the area under application.

Given the size of the proposed clearing (22.3ha) and that it occurs within the buffer of seven mile creek, the proposed clearing may change the hydrology of the watercourse.

However, the assessment recommendation considers that the proposed clearing is not at variance to this principle as the area under application is 100 m west of a watercourse.

Methodology GIS Databases
- Hydrography, linear
-Topographic contours statewide

(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 vegetation under application is mapped as occurring on alluvial plains with occasional stony residuals of basic and ultrabasic rocks (Northcote et al 1968). The chief soils are deep cracking clays, which are less prone to erosion; however, clearing of 22.3 ha of native vegetation in excellent to degraded (Keighery 1994) condition as proposed may result in some land degradation through wind and water erosion, predominately during construction stage however, given the predominantly flat landscape and stoney soils, erosion will be minimal.

The applicant proposes to develop and Construction Environmental Management Plan and Weed Management Plan to minimise and manage any land degradation issues (GHD 2009).

Therefore, it is considered that the clearing as proposed is not at variance to this principle.

Methodology References
-Keighery (1994)
- GHD (2009)
-Northcote et al. (1968)
GIS Databases
- Salinity Risk LM 25m
- Soils, Statewide
- Topographic contours 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

There are no mainland conservation areas mapped within 20km of the area under application.

Therefore, the clearing as proposed is not likely to have a significant impact on conservation areas, and it is considered that the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
- DEC Tenure
- Hydrography, linear

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments Proposal may be at variance to this Principle

The area under application is 1.9km south of an area subject to inundation, and a minor non-perennial watercourse (Seven Mile Creek) is mapped as occurring ~100m east of the area under application. The elevation ranges from 10m to 20m, and the area is of low relief. The clearing of 22.3 ha of native vegetation in excellent to degraded (Keighery 1994) condition as proposed may result in some increased in surface water runoff and cause sedimentation of surface water of Seven Mile Creek in the short term during the construction stage.

The applicant proposes to develop a Construction Environmental Management Plan to minimise and manage any land degradation issues including sedimentation (GHD 2009). It is considered that the clearing as proposed may be at variance to this principle.

Methodology References

- Keighery (1994)
- GHD (2009)
- GIS Databases
- Hydrography, linear
- Topographic contours statewide

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

Comments Proposal may be at variance to this Principle

The area under application is 1.9km south of an area subject to inundation, and a minor non-perennial watercourse (Seven Mile Creek) is mapped as occurring ~100m east of the area under application.

The clearing of 22.3ha of native vegetation in excellent to very good (Keighery 1994) condition as proposed is likely to result in increased runoff, and increased risk of flooding during high rainfall events of the Seven Mile Creek and of the area of inundation to the north. Given this, it is considered that the clearing as proposed may be at variance to this principle

LandCorp will provide appropriate drainage within the estate design and management measures will be developed in the management plan to mitigate potential flooding within cleared areas of the applied area.

Methodology References

- Keighery (1994)
- GIS Databases
- Hydrography, linear
- Topographic contours statewide

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

Comments

The area under application is currently zoned industrial development within the Town Planning Scheme

Development approval for earthworks from the Shire of Roebourne is required and an application has been submitted to the Shire on the 10 February 2010.

Landcorp has received a Section 91 Licence from the Department of Planning to access Lot 300 on Deposited Plan 46449 for drainage works.

As the proposed clearing is within unallocated crown land, the clearing proposal constitutes a future act. Notification was given as required by section 24MD of the Native Title Act 1993 to the Ngarluma/Yindjibarndi Native Title Claimants and their representative body, the Ngarluma Aboriginal Corporation. No responses to these letters have been received.

The application area is mapped as having a moderate to low risk of acid sulphate soils occurring within 3m of the natural soil surface.

Three Aboriginal Sites of Significance are recorded within the area under application.

Methodology GIS database:

- Aboriginal Sites of Significance
- Acid Sulfate Soil Risk Map, Pilbara Coastline
- Town Planning Scheme Zones

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and the assessment recommendation is that the proposed clearing may be at variance to Principle (a), (i) and (j) and is not likely to be at variance to the remaining clearing Principles.

5. References

DEC (2009) Pilbara Regional Advice. Department of Environment and Conservation Trim Ref DOC109354.

DEC (2009a) Florabase - Flora Species Profiles: . Accessed at <http://florabase.calm.wa.gov.au>. Accessed 9/12/2009. Department of Environment and Conservation, Western Australia.

DEWHA (2009). Threatened species and ecological communities publications. Accessed at:

<http://www.environment.gov.au/biodiversity/threatened/publications/index.html> Accessed on: 9/12/2009. Department of the Environment, Water, Heritage and the Arts, Australia.

GHD (2009). Report for Karratha Support Industry Estate - Supporting Document for Clearing Permit Application (Purpose Permit). TRIM ref DOC 100337.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western 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. (2007). 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. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

6. 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 (now DEC)
DMP	Department of Mines and Petroleum (ex DoIR)
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)