Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 5839/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Fortescue Metals Group Limited**

1.3. Property details

Property: *Iron Ore (Hamersley Range) Agreement Act 1963*, Mineral Lease 4SA (AML 70/4)
Local Government Area: Shire of Ashburton
Colloquial name: Panhandle and The Edge Prospects

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.45		Mechanical Removal	Acess track construction

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 21 November 2013

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation associations are located within the application area (GIS Database):

18: Low woodland; mulga (*Acacia aneura*) and
567: Hummock grasslands, shrub steppe; mulga and kanji over soft spinifex and *Triodia basedowii*

A Level 1 flora and vegetation survey has not been conducted in this area. However, flora and vegetation surveys of adjacent areas which appear similar according to aerial imagery have recorded up to 23 vegetation types (Ecologia, 2012; Ecoscape, 2012a; Ecoscape, 2012b). In their flora and vegetation survey of the Flying Fish/ Eliwana project area, Ecoscape (2012b) identified 21 woodland/ shrubland over hummock grassland vegetation types, dominated by *Acacia* sp., *Corymbia* sp. and *Eucalyptus* sp., including *Eucalyptus leucophloia* (Ecoscape, 2012b). Similarly, in an assessment of the Turner Syncline project area, Ecologia (2012) recorded 23 vegetation types comprising woodlands, shrublands and hummock grasslands.

Clearing Description

Panhandle and The Edge Prospects. Fortescue Metals Group Ltd has applied to clear up to 3.45 hectares of native vegetation within a total application area of approximately 14.66 hectares, for the purpose of access track construction. The proposed clearing is located approximately 29.5 kilometres east, south-east and 62.5 kilometres east, north-east of Tom Price, in the Shire of Ashburton.

Vegetation Condition

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)

to

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

Comment

Due to the absence of flora and vegetation surveys over the application area, vegetation condition has been determined by comparing survey findings within adjacent areas and aerial imagery. Areas of the application area that are considered to be in degraded condition are parts of the existing The Edge access track that has been previously cleared. Although no flora and vegetation assessment has taken place within the application area, there is expected to be some level of weed invasion based on the observations of nearby surveys. However, it is likely that most of the application area is in Very Good/ Excellent condition.

Clearing will be by mechanical means.

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 application is located within the Pilbara (PIL) Interim Biogeographic Regionalisation of Australia (IBRA) region and the Hamersley (PIL3) subregion (GIS Database). The Pilbara region represents a transitional zone between semi-arid and tropical climates (Kendrick, 2001). The Hamersley IBRA subregion comprises Proterozoic ranges, plateaus, and gorges of basalt, shale and dolerite (Kendrick, 2001). Vegetation associated with the Hamersley subregion includes low mulga (*Acacia aneura*) woodland over bunch grasses on fine soils, and (within ranges) Snappy Gum (*Eucalyptus leucophloia*) over spinifex grassland (*Triodia brizoides*) on skeletal soils (Kendrick, 2001). The Hamersley Range also contains biologically important assets such as refugial ecosystems in gorges, waterfalls and mountaintop 'sky islands', which contain a high level of floristic, vertebrate and invertebrate species richness (Kendrick, 2001).

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were identified within the application area (GIS Database). The nearest TEC is a Themeda Grasslands TEC, which lies approximately 28.6 kilometres north, north east of The Edge proposed access track. Ecoscape (2012b) identified a '*Triodia* sp. Robe River' Priority 3 PEC within the Flying Fish/ Eliwana area north of The Edge proposed track.

The vegetation within the application area is mapped as belonging to Beard associations 18 and 567 (GIS Database). No flora and vegetation surveys have taken place within the application areas, although nearby FMG project areas have been surveyed such as Flying Fish and Eliwana (Ecoscape, 2012a; Ecoscape, 2012b), and Turner Syncline (Ecologia, 2012). According to visual imagery, these project areas may incorporate vegetation and habitat types comparable to those present within the application areas (GIS Database).

Using a 10 kilometre buffer, NatureMap (DEC, 2013) flora records comprise 29 (including four Priority 3) flora species from The Edge proposed access track. A flora and vegetation survey of nearby Flying Fish and Eliwana areas identified an additional six Priority 3-4 flora species (Ecoscape, 2012a; 2012b). Fifty flora species were identified within a 10 kilometre buffer around the proposed Panhandle access track, including seven Priority flora (DEC, 2013). A survey of the adjacent Turner Syncline area by Ecologia (2012) identified an additional six Priority flora species to those identified by NatureMap. Records of Priority flora included two Priority 1 species; *Goodenia pedicellata* and *Hibiscus* sp. Mt Brockman (E. Thoma ET 1354). *Goodenia pedicellata* exists from two records of the Western Australian Herbarium (Western Australian Herbarium, 2013). This species is a single-stemmed perennial herb, found on rocky clayey soils on rocky slopes and the crest of small hills (Western Australian Herbarium, 2013). According to aerial imagery, this habitat may occur within the application area, and therefore this species may be impacted by the proposed clearing (GIS Database). There are a total of six records of *Hibiscus* sp. Mt Brockman (E. Thoma ET 1354) within the Western Australian Herbarium database, most from ironstone gorges and gullies (Western Australian Herbarium, 2013). Similarly, other surveys have also found this species upon steep terrain (Biota, 2013). The *Hibiscus* haynaldii complex, which until recently included *Hibiscus* sp. Mt Brockman (E. Thoma ET 1354), is found within creeklines in gullies and rocky crevices on red or pebbly sand (Western Australian Herbarium, 2013). Therefore, this species may not be expected to occur within the application area.

Vegetation condition within the Flying Fish/ Eliwana areas was Good to Excellent (Ecoscape, 2012a; 2012b), and was Degraded to Excellent within the Turner Syncline area (Ecologia, 2012). Degraded areas were attributed to grazing and the encroachment of introduced flora, with some disturbance evident as a result of previous exploration activity (Ecologia, 2012; Ecoscape, 2012a). Twelve invasive flora species were identified during the Flying Fish/ Eliwana flora and vegetation surveys (Ecoscape, 2012a; 2012b), and 19 were recorded within the Turner Syncline area (Ecologia, 2012). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

According to NatureMap, 19 mammal, 56 avian, 43 reptile, two amphibian and 13 invertebrate species have been recorded within a 10 kilometre buffer around The Edge proposed track, including one Threatened (Pilbara Olive Python; *Liasis olivaceus* subsp. *barroni*), one Migratory (Rainbow Bee-eater; *Merops ornatus*) and five Priority 4 fauna (Striated Grasswren; *Ametornis striatus* subsp. *striatus*, Australian Bustard; *Ardeotis australis*, Ghost Bat; *Macroderma gigas,* Western Pebble-mound Mouse; *Pseudomys chapmani* and Lined Soil-crevice Skink; *Notoscincus butleri*) (DEC, 2013). Ecoscape (2012a) recorded 38 birds, ten mammals and one reptile species within the nearby Flying Fish/ Eliwana areas, including the locally significant northern Brush-tailed Possum (*Trichosurus vulpecular*). In addition, a total of 15 conservation significant fauna were either confirmed or considered likely to occur (Ecoscape, 2012a). Following a review of aerial imagery, two habitat types recorded within the Flying Fish/ Eliwana survey area are likely to be present within The Edge application area (Ecoscape, 2012a; GIS Database); EFF1 and EFF2. Both habitats were noted by Ecoscape (2012a) to be in Excellent condition (Keighery, 1994).

An appraisal of fauna habitat was absent from the flora and vegetation survey of the Turner Syncline area (Ecologia, 2012). Using a 10 kilometre buffer surrounding the proposed Panhandle access track, the NatureMap database returned records of 23 mammal, 73 avian, 50 reptile and two invertebrate species (DEC, 2013). These included four Priority 4 fauna species (Australian Bustard, Bush Stone-curlew, Ghost Bat, Western Pebble-mound Mouse), one migratory species (Rainbow Bee-eater) and one Threatened species

(Pilbara Olive Python) (DEC, 2013).

Based on the above, the application area is not expected to comprise a higher biological diversity than surrounding areas. However, the absence of a flora and vegetation survey does bring a level of uncertainty to the assessment of the biological diversity of the application area.

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

Methodology

Biota (2013)
DEC (2013)
Ecologia (2012)
Ecoscape (2012a)
Ecoscape (2012b)
Keighery (1994)
Kendrick (2001)
Western Australian Herbarium (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Mount Lionel 50cm Orthomosaic - Landgate 2004
- Pre-European Vegetation
- Rocklea 50cm Orthomosaic - Landgate 2004
- Threatened Ecological Sites Buffered

(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

No vegetation and flora assessment has taken place within the area delineated for either of the proposed access tracks. A survey of the nearby Flying Fish/ Eliwana Project area by Ecoscape (2012a) revealed two habitat types which are likely to be present within The Edge access track. These include:

EFF1: Creek lines and drainage lines on lower slopes and valley floors. This habitat type in particular represents an important water and foraging resource required by a number of species, including conservation significant fauna such as the Rainbow Bee-eater (*Merops ornatus*), Australian Bustard (*Ardeotis australis*), Bush Stone-curlew (*Burhinus grallarius*), and the Northern Short-tailed Mouse (*Leggadina lakedownensis*); and

EFF2: Open shrubland or open woodland over spinifex grassland on slopes.

However, both habitats were noted by Ecoscape (2012a) to be in excellent condition, which included the observation that they were well connected to the surrounding landscape. Within The Edge and Panhandle track proposed clearing, the assumption that this fauna habitat is well connected is supported by aerial imagery (GIS Database) and the application areas in themselves may not represent significant fauna habitat.

Ecoscape's (2012a) assessment of the habitat suitability and observed fauna within the Flying Fish/ Eliwana areas advised that a total of 15 conservation significant species may be permanent or transient residents within the local area. However, based on the limited area of the proposed clearing, and the apparent availability of suitable habitat outside the application areas, it is unlikely that these species would be significantly dependent on the habitat within the proposed clearing.

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

Methodology

Ecoscape (2012a)
GIS Database:
- Mount Lionel 50cm Orthomosaic - Landgate 2004
- Rocklea 50cm Orthomosaic - Landgate 2004

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

Comments

Proposal is not likely to be at variance to this Principle

A flora and vegetation survey has not been conducted within the application areas. NatureMap does not hold records of Threatened flora within a 20 kilometre buffer of The Edge or Panhandle proposed access tracks (DEC, 2013), which is supported by available databases (GIS Database). Furthermore, surveys by Ecoscape (2012a; 2012b) and Ecologia (2012) of nearby areas did not detect the presence of any Threatened flora species.

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

Methodology

DEC (2013)
Ecologia (2012)
Ecoscape (2012a)

Ecoscape (2012b)
GIS Database:
- Threatened and Priority Flora

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There have been no Threatened Ecological Communities (TECs) identified within the application area (GIS Database). The nearest TEC is a Themeda Grasslands TEC, which lies approximately 28.6 kilometres north, north east of The Edge proposed access track.

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

Methodology

GIS Database:
- Threatened Ecological Sites Buffered

(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 at variance to this Principle

The application area falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 99.6% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

The vegetation within the application area has been mapped as Beard vegetation associations 18 and 567 (GIS Database). Over 90% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DEC Managed Lands
IBRA Bioregion – Pilbara	17,808,657	17,733,584	~99.6	Least Concern	8.4
Beard veg assoc. – State					
18	19,892,305	19,843,727	~99.8	Least Concern	6.29
567	777,507	774,896	~99.7	Least Concern	22.5
Beard veg assoc. – Bioregion					
18	676,557	672,424	~99.39	Least Concern	17.16
567	776,824	774,213	~99.7	Least Concern	22.5

* Government of Western Australia (2013)
** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions – Sub Regions)
- Mount Lionel 50cm Orthomosaic - Landgate 2004
- Pre-European Vegetation
- Rocklea 50cm Orthomosaic - Landgate 2004

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

Comments

Proposal is at variance to this Principle

Fortescue Metals Group Limited (FMG) proposes to clear native vegetation for the provision of temporary access tracks 4 metres in width across two ephemeral watercourses. The Edge access track is a widening of an existing track, which crosses a minor drainage line (GIS Database). A total of 12 flora species which are known to be associated with watercourses, floodplains or drainage lines (and are therefore riparian in nature) exist within a 10 kilometre radius of The Edge track, and therefore could be located in the path of the proposed clearing (DEC, 2013).

The Pandhandle track crosses a 300 metre wide section of Hardey River, which flows into the Ashburton River

following significant rainfall events (API Management, 2012; GIS Database). A review of aerial imagery indicates that vegetation growing in association with this watercourse is riparian in nature (GIS Database). A total of 22 flora species which are always or often associated with watercourses are found within a 10 kilometre radius of the Panhandle access track (DEC, 2013), and therefore any selection of these may be present within the proposed clearing. Potential impacts to riparian vegetation as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.

Based on the above, the proposed clearing is at variance to this Principle.

Methodology API Management (2012)
DEC (2013)
GIS Database:
- Hydrography, linear
- Mount Lionel 50cm Orthomosaic - Landgate 2004
- Rocklea 50cm Orthomosaic - Landgate 2004

(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 application area encompasses five land systems (GIS Database). The Panhandle access track falls within the Newman and Rocklea land systems, with small portions within the Table land system and Boolgeeda land system. Approximately one third of The Edge access track falls within the Boolgeeda land system, Robe land system and the River lands system respectively.

The River land system consists of major rivers and flood plains, which support grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands (Van Vreeswyk et al., 2004). At present, little of this land system suffers from erosion (Van Vreeswyk et al., 2004). However, erosion is highly likely following the clearing of native vegetation, such as that proposed under this permit (Van Vreeswyk et al., 2004).

Newman is a rugged land system, consisting of mountains, ridges and plateaus (Van Vreeswyk et al., 2004). This land system is the second largest within the Pilbara, and especially common within the Hamersley Range (Van Vreeswyk et al., 2004). A very small proportion of this land system has been affected by erosion. The Boolgeeda land system comprises the lower slopes and plains adjacent to hill systems (such as the Newman land system), dissected by numerous closely spaced drainage lines (Van Vreeswyk et al., 2004). Despite this, the Boolgeeda land system appears to be resistant to soil erosion, as are the Table, Rocklea and Robe land systems (Van Vreeswyk et al., 2004). The planned activities under this permit involve the provision of temporary access tracks, which is not expected to have highly erosive impacts.

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

Methodology Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping

(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 application area does not lie within any conservation areas of the Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is the Karijini National Park, which is a Class A Nature Reserve (GIS Database). It is located approximately 39.7 kilometres east of the application area (GIS Database). From this distance, the proposed clearing is not likely to impact the environmental values of the proposed conservation area.

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

Methodology GIS Database:
- 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 is not likely to be at variance to this Principle**
The application area does not occur within a Public Drinking Water Source Area (PDWSA), however it is located within the proclaimed Pilbara groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for the purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

Part of The Edge access track falls within the River land system, and crosses a minor ephemeral watercourse (GIS Database). This land system is susceptible to erosion following the clearing of vegetation (Van Vreeswyk

et al., 2004), and as such the proposed clearing has the potential to increase sedimentation within affected watercourses. However, this clearing consists of the widening of an existing track by 2 metres, and is therefore unlikely to cause any further degradation to surface water quality. Furthermore, sedimentation within Pilbara flowlines is typically high following heavy rainfall (CALM 2002), and therefore there is not likely to be a conspicuous increase in sedimentation as a result of the proposed clearing.

The Panhandle access track crosses Hardey River, a wide (approximately 300 metre) seasonal watercourse (GIS Database) which, like all watercourses in the Pilbara, is seasonal and flows after large rainfall events (CALM 2002; Van Vreeswyk et al., 2004). The clearing of vegetation from the Hardey River has the potential to destabilise soils, causing sedimentation and turbidity within this watercourse. FMG (2013) have advised that the tracks will be in seasonal use, as they are likely to be inundated during the wet season. This may also limit increased turbidity within these watercourses due to disturbances to alluvium.

Groundwater salinity in the local area is estimated to be between 500 – 1,000 milligrams/Litre Total Dissolved Solids (TDS), which is considered marginal (GIS Database). The proposed clearing activity is not likely to significantly alter salinity levels within the application area.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

Methodology

CALM (2002)
FMG (2013)
Van Vreeswyk et al. (2004)
GIS Database:
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- Rangeland Land System Mapping

(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

Mean annual rainfall in the Shire of Ashburton is estimated at 313.6 millimetres (BoM, 2013). As the annual evaporation rate is approximately 3,500 millimetres, there is not likely to be substantial or widespread surface flow during normal seasonal rains (GIS Database).

The application area falls within the Ashburton River catchment area (GIS Database). Given the size of the application area (four hectares) compared to the size of the catchment area (7,877,743 hectares) (GIS Database), the proposed clearing is not likely to increase the potential for flooding in this region.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

Methodology

BoM (2013)
GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments - Catchments

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

Comments

There are two native title claims over the area under application (GIS Database). These claims (WC2010/16 and WC2001/5) have been registered with the Native Title Tribunal on behalf of the claimant group (GIS Database). However, tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation (formerly the Department of Environment and Conservation) and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 21 October 2013 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims – Registered with the NNTT

4. References

API Management Pty Ltd (2012) West Pilbara Iron Ore Project Stage 2: Hardey Proposal Assessment of Proponent Information (API). Report Prepared by API Management Pty Ltd.

Biota Environmental Sciences (2013) West Turner Syncline Phase 2 Vegetation and Flora Report. Report prepared for Rio Tinto Pty Ltd.

BoM (2013) Climate Statistics for Australian Locations. A Search for Climate Statistics for Paraburdoo, Australian Government Bureau of Meteorology, http://www.bom.gov.au/climate/averages/tables/cw_007185.shtml, viewed October 2013.

CALM (2002) Bioregional Summary of the 2002 Biodiversity Audit for Western Australia. Department of Conservation and Land Management, Western Australia.

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Ecologia (2012) Turner Syncline Vegetation and Flora Assessment. Report prepared for Fortescue Metals Group Limited.

Ecoscape (2012a) Vegetation, Flora and Fauna assessment, and Targeted Conservation Significant Flora and Fauna Survey: Flying Fish. Report prepared for Fortescue Metals Group Limited.

Ecoscape (2012b) Eliwana and Flying Fish Level 2 Flora and Vegetation Survey. Report prepared for Fortescue Metals Group Limited.

FMG (2013) Further information provided to the assessing officer by Fortescue Metals Group Limited on 30 October 2013.

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. 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.

Kendrick, P. (2001) Pilbara 3 (PIL1 – Hamersley Subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.

Van Vreeswyk, A.M.E, Payne, A.L., Leighton, K.A., and Hennig, P. (2004) An inventory and condition survey of the Pilbara region, Western Australia, Department of Agriculture Technical Bulletin No. 92, December 2004.

Western Australian Herbarium (2013) FloraBase – The Western Australian Flora. Department of Environment and Conservation. http://florabase.dec.wa.gov.au/, viewed 29/10/2013.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). ***Declared rare and priority flora list for Western Australia, 22 February 2005*****. Department of Conservation and Land Management, Como, Western Australia} :-**

P1	**Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the

prescribed criteria.

VU **Vulnerable:** A native species which:

(a) is not critically endangered or endangered; and

(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.