Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3072/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Iron Ore Pty Ltd**

1.3. Property details

Property: General Purpose Leases 52/70, 52/90, 52/109, 52/110, 52/128, 52/129
Local Government Area: Shire of East Pilbara
Colloquial name: Mt Whaleback Overburden Storage Area Expansion Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
16		Mechanical Removal	Mineral Production

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 Associations have been mapped at a 1:250,000 scale for the whole of Western Australia and are useful to look at vegetation extent in a regional context. One Beard Vegetation Association is located within the application area (GIS Database): Beard Vegetation Association 82 - Hummock grasslands, low tree steppe; Snappy Gum over *Triodia wiseana* (Shepherd, 2007). ENV Australia (2006a) undertook a comprehensive Level 1 flora and vegetation survey of the Mt Whaleback mine site between 2 and 13 August 2006, including the area subject to this clearing permit application. The following two vegetation types were described from the proposed clearing area: 1. Shrub steppe of *Acacia inaequilatera* over *Triodia wiseana* - Scattered tall *Acacia inaequilatera* over an open *Acacia bivenosa* and *Acacia pyrifolia* shrubland over a *Triodia wiseana* hummock grassland; and 2. Shrub steppe of *Acacia inaequilatera* over *Triodia basedowii* - *Acacia inaequilatera*, *Acacia pruinocarpa* and *Acacia pyrifolia* tall shrubland over an *Acacia bivenosa* shrubland over *Triodia basedowii* hummock grassland.	BHP Billiton Iron Ore Pty Ltd (hereafter referred to as BHP Billiton) have applied for a Purpose Permit to clear up to 16 hectares of native vegetation within an application area of approximately 18.3 hectares. The proposed clearing area is located on the northern boundary of the active Mount Whaleback mining operations. The proposed clearing will allow the proponent to infill a catchment area which currently poses an acid rock drainage risk to the receiving environment. By clearing and subsequently infilling this area with mine overburden, BHP Billiton aim to prevent the through flow of water through pyritic waste material along the western boundary of the mine site (BHP Billiton, 2009).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994); to Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation condition rating is derived from information provided by BHP Billiton (2009) and ENV Australia (2006a).

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 proposed clearing area is located approximately five kilometres north west of Newman in the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Hamersley subregion is extensive, covering approximately 6.25 million hectares. The subregion is well reserved, with approximately 14.1% of the total land area in conservation reserves (BHP Billiton, 2009). At a broad scale, vegetation of the Hamersley subregion can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

At a broad scale, the proposed clearing area contains one Beard Vegetation Association which is well represented at the state and bioregional level (GIS Database; Shepherd, 2007). At a finer scale, ENV Australia (2006a) undertook a flora and vegetation assessment of the Mt Whaleback minesite which included 81 quadrats over 22 person days. Approximately 240 flora taxa were identified. A summary of the flora and vegetation assessment indicated that all the vegetation types present are well represented in a local and regional context. DEC biodiversity advice previously provided for a much larger clearing proposal at the Mt Whaleback mine site indicated that the species richness of the Mt Whaleback area is comparable with other adjacent areas of similar size and supporting similar landforms (DEC, 2006).

The Mt Whaleback area has been more comprehensively surveyed for terrestrial fauna, compared to other development areas in the Pilbara region (ENV Australia, 2006b). DEC considers that the flora and fauna assessments have demonstrated adequately that the vegetation at Mt Whaleback is representative of other areas in the Ophthalmia Range and is not restricted in nature or of significant biodiversity value (DEC, 2006).

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

Methodology

BHP Billiton (2009).
CALM (2002).
DEC (2006).
ENV Australia (2006a).
ENV Australia (2006b).
Shepherd (2007).
GIS Database:
- Interim Biogeographic Regionalisation for Australia (subregions).
- Pre European Vegetation.

(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

A large fauna survey (which included the area subject to this application) was conducted at the Mt Whaleback minesite in accordance with EPA Guidance Statement No. 56, by ENV Australia environmental consultants, between the 1 and 11 September 2006 (ENV Australia, 2006b). Seven fauna habitat types were identified, broadly associated with major topographical features: 1) Range crests; 2) Range Slopes; 3) Breakaways; 4) Gorges and Gullies; 5) Riverine areas; 6) Minor Drainage lines; 7) Valley Plains. On the basis of aerial imagery and site photographs, the Assessing Officer, DMP, considers three of these habitats (range crests, range slopes and minor drainage lines) are likely to be present within the proposed clearing area.

The fauna survey included six trapping grids, using cage traps, Elliot traps and pit traps, and all the main habitat types were represented (ENV Australia, 2006b). Bird species were surveyed during the day, by opportunistic survey, along transects throughout the survey area. In addition, opportunistic nocturnal surveys were conducted in spotlighting transects along existing tracks through the application areas. Nocturnal bat species were surveyed using echolocation recording, in suitable habitat areas (ENV Australia, 2006b).

Many biological surveys have been conducted in the Pilbara bioregion, over several years, mainly on behalf of the mining industry (ENV Australia, 2006b). Approximately 10 terrestrial fauna surveys have been undertaken in the vicinity of the Ophthalmia Ranges, which are located approximately 5 kilometres to the north of the Mt Whaleback minesite, and extend to the east of Newman. Two previous fauna surveys were conducted within the Mount Whaleback mine area in 1997 and 1998. The fauna habitats occurring within the clearing permit application area are not likely to be unique or restricted in distribution, and are not considered to have any special conservation significance. All of the habitat types within the Mt Whaleback area are well represented within the wider Pilbara region (ENV Australia, 2006b).

The three fauna surveys conducted within the Mt Whaleback mine area have recorded a cumulative total of 32 mammals, 54 reptiles, 80 birds and 3 frog species (ENV Australia, 2006b). This represents 65% of the total expected terrestrial vertebrate fauna for the Ophthalmia Ranges. The 2006 survey by ENV Australia (2006b) also identified a number of species which were not recorded in the previous surveys. DEC (2006) considers that the results of the fauna assessment surveys of the Mt Whaleback area have enabled a comprehensive characterisation of the Mt Whaleback area from a faunal perspective. DEC is confident that the fauna habitat present at Mt Whaleback has now been adequately surveyed to ascertain the conservation significance of the area under application, and it would appear that the area does not contain habitat which is restricted to the application area. The surveys have adequately demonstrated that the vegetation and fauna habitats proposed to be cleared are adequately represented in a broader context in the Ophthalmia Range (DEC, 2006).

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

Methodology

DEC (2006).
ENV Australia (2006b).

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

Comments

Proposal is at variance to this Principle

The Hamersley Lepidium (*Lepidium catapycnon*) is a Declared Rare Flora (DRF) species which is present within the proposed clearing area. This species is also listed as Vulnerable under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999* (BHP Billiton, 2009). As part of this clearing proposal, BHP Billiton are proposing to clear 63 individuals of *Lepidium catapycnon*.

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

In accordance with section 23F of the *Wildlife Conservation Act 1950*, BHP Billiton have lodged an application for a permit to take DRF with the Species and Communities Branch of the Department of Environment and Conservation (DEC). The Minister for the Environment is responsible for granting or refusing permits to take DRF, based on recommendations made by DEC's Species and Communities Branch.

In accordance with the *EPBC Act 1999*, the proponent has submitted a referral to the Commonwealth Department of Environment, Water, Heritage and the Arts to determine whether the proposal is a controlled action (BHP Billiton, 2009).

Based on location maps provided by BHP Billiton (2009), *Lepidium catapycnon* occurs predominantly on hill crest and hill slope landforms within the proposed clearing area. This is consistent with the preferred habitat for the species, which is described by the Western Australian Herbarium (2009) as skeletal soils and hillsides. More specifically, HGM (1999) cited in BHP Billiton (2009) note that *Lepidium catapycnon* occurs on the crest or sides of steep hills that have shale banded ironstone formation substrate. It is noted by HGM (1999) that this substrate has a very restricted distribution in Western Australia.

Lepidium catapycnon was first recorded at Mt Whaleback in November 1996, and since then BHP Billiton has commissioned a series of ground searches for the species (1997, 1999 and 2008). As a result of surveys undertaken in 1999, 8 new populations and 36 new sub-populations were identified. It is estimated that there is in excess of 20,000 individuals of *Lepidium catapycnon* in the vicinity of the Mt Whaleback mine site (BHP Billiton, 2009). In addition, the proponent has previously received approval to collect *Lepidium catapycnon* seeds for research purposes.

Information provided by BHP Billiton (2009) indicates that all specimens of *Lepidium catapycnon* within the proposed clearing area had senesced as of November 2008. Continuation of the population relies on storage of seed in topsoil, and BHP Billiton (2009) note that any topsoil cleared from the project area will be stockpiled and used in future rehabilitation.

Advice received from the Species and Communities Branch recommends that BHP Billiton be granted a permit to take DRF in this instance. The impact of taking the plants in the application area is unlikely to be significant to the conservation status of the species at a local level given that the plants in the application area are senesced and other populations have been recorded in the surrounding area. The Species and Communities Branch will also recommend that any permit to take DRF has a condition requiring *Lepidium catapycnon* material to be salvaged prior to clearing for use in rehabilitation and research purposes (DEC, 2009).

No Priority Flora species are known to occur within the proposed clearing area on the basis of GIS records and a flora and vegetation assessment conducted by ENV Australia (GIS Database; ENV Australia, 2006a). The risk to Priority Flora species as a result of this clearing proposal is therefore perceived to be low.

Methodology

BHP Billiton (2009).
DEC (2009).
ENV Australia (2006a).
Western Australian Herbarium (2009).
GIS Database:
- Declared Rare and Priority Flora list.

(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 are no known Threatened Ecological Communities (TEC's) within the area applied to clear (GIS Database). The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 15 kilometres east of the application area (GIS Database).

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

Methodology

GIS Database:
- Threatened Ecological Communities.

(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 area applied to clear is within the Interim Biogeographic Regionalisation of Australia (IBRA) Pilbara bioregion (GIS Database). According to Shepherd (2007) there is approximately 99.9% of the pre-European vegetation remaining in the Pilbara bioregion. The vegetation of the application area is classified as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; Snappy Gum over *Triodia wiseana* (GIS Database). There is approximately 100% of the pre-European vegetation remaining of Beard Vegetation Association 82 in the Pilbara bioregion (Shepherd, 2007).

Beard Vegetation Association 82 is well represented in conservation reserves within the Pilbara bioregion (10.2% of the pre-European vegetation extent), and the area proposed to clear does not represent a significant remnant of vegetation in the wider regional area. The proposed clearing will not reduce the extent of Beard Vegetation Association 82 below the current recognised threshold level of 30% of the pre-clearing extent of the vegetation type (below which species loss accelerates exponentially at an ecosystem level) (EPA, 2000).

It is acknowledged that iron ore mining activities in the Pilbara have resulted in an increase in native vegetation clearing at the bioregional scale in recent years. This trend is expected to continue with proposed BHP Billiton and Rio Tinto Iron Ore expansion projects. It will therefore become increasingly important in the future to consider the cumulative impacts of native vegetation clearing both locally and regionally.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,187	17,794,646	~99.9	Least concern	6.3
Beard veg assoc. – State					
82	2,565,901	2,565,901	~100	Least concern	10.2
Beard veg assoc. Pilbara Bioregion					
82	2,563,583	2,563,583	~100	Least concern	10.2

* Shepherd (2007)
** 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).
EPA (2000).
Shepherd (2007).
GIS Databases:
- Interim Biogeographic Regionalisation of Australia.
- Pre-European 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 at variance to this Principle

Analysis of aerial photography and GIS databases reveals that two minor ephemeral drainage lines intersect the proposed clearing area (one crosses the south-western corner of the application area and the other crosses the northern section). Ephemeral drainage lines appear to be common and abundant in the local area.

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

Drainage lines in the application area would remain dry dry for most of the year, only flowing briefly immediately following significant rainfall. No distinctive riparian vegetation communities are associated with these drainage lines according to vegetation mapping provided by HGM (1997), cited in ENV Australia (2006a). According to available information, neither drainage line is a wetland of conservation significance, or is associated with a wetland of conservation significance (GIS Database).

Should a clearing permit be granted, there will inevitably be some impact to watercourses. However, the impact is unlikely to be deemed significant on the basis of the above information.

Methodology

ENV Australia (2006a).
GIS Database:
- ANCA Wetlands.
- Hydrography, linear.

- RAMSAR Wetlands. - Wild Rivers (Priority).

(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

Land system mapping by the Department of Agriculture Western Australia has mapped a variety of land systems for the Pilbara bioregion. Land systems are mapped based on biophysical features such as soil and landform type, geology, geomorphology and vegetation type (Van Vreeswyk et al, 2004). The proposed clearing area includes two different land systems (GIS Database). A broad description of both land systems is given below:

McKay Land System - This land system is characterised by hills, ridges, plateaux remnants and breakaways supporting hard spinifex grasslands. The McKay Land System is not prone to degradation or soil erosion (Van Vreeswyk et al, 2004). The Assessing Officer, DMP, notes that approximately two- thirds of the proposed clearing area is mapped as the McKay Land System (GIS Database). Analysis of aerial imagery, topographic contours and photographs provided by the proponent indicate that the proposed clearing area includes a low hill crest and occasional steep hill slopes; landforms consistent with the land system description.

Rocklea Land System - This land system is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands). The Rocklea land system has a very low erosion hazard. The Assessing Officer, DMP, notes that approximately one - third of the proposed clearing area is mapped as the Rocklea Land System (GIS Database).

Should a clearing permit be granted, it is recommended that conditions be imposed requiring the proponent to retain cleared vegetation and topsoil for use in rehabilitation.

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.
- Topographic contours.

(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 conservation areas in the vicinity of the application area. The nearest DEC managed lands are the Collier National Park, approximately 115 kilometres south/southwest of the application area; and the Karijini National Park, approximately 110 kilometres west/northwest of the application area (GIS Database).

This proposal is unlikely to have any impact on any conservation area, based on the large distance to the nearest conservation reserve.

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

Methodology

GIS Database:
- DEC Managed Lands and Waters.

(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

According to available GIS databases and analysis of aerial imagery, there are two minor ephemeral drainage lines within the proposed clearing area (one crosses the south-western corner of the application area and the other crosses the northern portion) (GIS Database). The Department of Water (DoW) note that the proposed clearing area is within a proclaimed surface water area under the *Rights in Water and Irrigation (RIWI) Act 1914*. Any taking or diversion of surface water in this proclaimed area for purposes other than domestic and or stock watering is subject to a licence by the DoW. In addition, DoW (2009) have advised that any interference with the bed and banks of a watercourse in this proclaimed area will require a permit in accordance with section 17 of the *RIWI Act 1914*.

The proposed clearing area is located entirely within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) gazetted under the *Country Areas Water Supply Act 1947* on 21 August 1983. This PDWSA is defined as 'Policy Use - Not Assigned' under the Priority Source Classification Scheme (DoW, 2009). Construction activities associated with mining are considered to be a conditional activity within Priority 1 Source Protection Areas. DoW (2009) has advised that the proposed clearing of 16 hectares is unlikely to have a significant impact on the quality or quantity of groundwater.

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

Methodology DoW (2009).
GIS Database:
- Hydrography, linear.
- Public Drinking Water Source Areas.

(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

Natural flooding occurs occasionally during the wet season (November to March) following significant rainfall (BHP Billiton, 2005). Average annual rainfall at Mt Whaleback is 314 millimetres, and the average annual evaporation exceeds the annual rainfall by as much as 2,500 millimetres per year (BHP Billiton, 2005). There are no permanent watercourses within the application area (GIS Database). Creeklines are dry most of the year, only flowing briefly following significant rainfall (BHP Billiton, 2005). The proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology BHP Billiton (2005).
GIS Database:
- Hydrography, linear.

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

Comments

There is one native title claim over the area under application (GIS Database). This claim (WC99/004) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenements have 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 GIS databases, there are no known registered Site of Aboriginal Significance within the proposed clearing area (GIS Database). However, there are a number of sites approximately 300 metres to the east (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with 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.

No submissions were received from direct interest parties or members of the public when the clearing permit application was advertised for comment.

Methodology GIS Database:
- Aboriginal Sites of Significance.
- Native Title Claims.

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles, and the proposed clearing is at variance to Principles (c) and (f), is not likely to be at variance to Principles (a), (b), (d), (g), (h), (i) and (j), and is not at variance to Principle (e).

Should a clearing permit be granted, it is recommended that conditions be imposed for the purposes of weed management, retention of topsoil and vegetative material, record keeping and permit reporting.

5. References

BHP Billiton (2005) Application for a Clearing Permit (Purpose Permit 1018/1) Mt Whaleback. BHP Billiton Iron Ore Pty Ltd, Western Australia.

BHP Billiton (2009) Mt Whaleback Mining Operation: OSA Expansion for ARD Catchment Infill - Application to clear native vegetation (Purpose Permit) under the Environmental Protection Act 1986. March 2009.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3(PIL 3 - Hamersley subregion).

DEC (2006) Land clearing proposal advice (CPS 1018/1). Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Environment and Conservation, Western Australia.

DEC (2009) Declared Rare Flora advice for land clearing application. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), received 3 July 2009. Species and Communities Branch, Department of Environment and Conservation, Western Australia.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity

at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

DoW (2009) Written advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), 17 June 2009. Department of Water, Western Australia.

ENV Australia (2006a) Mount Whaleback Flora and Vegetation Assessment - Phase III. Unpublished report prepared for BHPBIO, December 2006.

ENV Australia (2006b) Mount Whaleback Fauna Assessment Survey - Phase III Summary Report. Unpublished report prepared for BHPBIO, October 2006.

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, 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.

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.

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

Western Australian Herbarium (2009) Florabase - The Western Australian Flora. Department of Environment and Conservation. http://florabase.calm.wa.gov.au/

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), 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, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

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.