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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3575/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Minerals Exploration**

1.3. Property details

Property: Exploration Licence 69/1505
Exploration Licence 69/1530
Local Government Area: Shire of Ngaanyatjarraku
Colloquial name: West Musgraves Exploration Project

1.4. Application

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

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 at a scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2007):

- **Beard Vegetation Association 236:** hummock grassland, shrub steppe; mulga and mallee (marble gum) over hard spinifex.

Coffey Environments conducted a flora and vegetation assessment of the application area from 22 October 2009 to 5 November 2009. Eleven vegetation units were identified within the application area (Coffey Environments, 2010):

Vegetation Unit 1: Dune
Shrubland of *Acacia ligulata*, *Grevillea stenobotrya*, *Gyrostemon ramulosus*, *Aluta maisonneuvei* subsp. *maisonneuvei* and *Acacia melleodora* to 2 metres over low open shrubland *of Bonamia rosea* and *Solanum coactiliferum* to 0.3 metres over scattered tussock grasses of *Aristida contorta* to 0.2 metres with a lower slope component of low shrubland of *Aluta maisonneuvei* subsp. *maisonneuvei* and *Acacia maitlandii* to 1.4 metres over hummock grassland of *Triodia basedowii* and *Triodia schinzii* to 1.1 metres on larger dunes. A band of large linear red Aeolian sand dunes and their associated vegetation were recorded from the south-west corner of the study area running in a north-east direction to approximately the centre of the northern boundary of the study area. Smaller sand dunes were scattered (low frequency) throughout the rest of the study area with a concentration in the north east corner.

Vegetation Unit 2: Calcrete
Scattered shrubs to tall open shrubland of *Hakea lorea* subsp. *lorea* to 3 metres over open shubland of *Acacia ligulata* to 1.6 metres over low open shrubland of *Petalostylis cassioides*, *Halgania cyanea* var. Allambi Stn and *Alogyne pinoniana* to 1 metre over mixed tussock / hummock grasses. *Stackhousia clementii* (Priority 3) was recorded from this vegetation type at times in such high densities that it was a component of the vegetation. Most of the calcrete outcrops and associated vegetation were located to the east of the major linear sand dunes and were found to be scattered amongst smaller dunes (i.e. in the north-east corner of the study area).

Vegetation Unit 3: SLT
Scattered low trees of *Corymbia opaca* to 4 metres with mallee pockets (*Eucalyptus oxymitra* and *Eucalyptus gamophylla*) over scattered *Hakea lorea* subsp. *lorea* to 4 metres over open shrubland of *Acacia ligulata* to 1.8 metres over mid-dense hummock grassland of *Triodia* spp. to 1.1 metres.

Vegetation Unit 4: LOW
Low open woodland of *Eucalyptus oxymitra*, *Eucalyptus gamophylla* and *Brachychiton gregorii* to 2.2 metres with occasional *Corymbia opaca* to 4 metres over scattered shrubs of *Codonocarpus cotinifolius* to 1.8 metres over low open shrubland of *Halgania erecta* and *Dicrastylis doranii* to 0.3 metres over very open tussock grassland.

Vegetation Unit 5: SLTEs
Scattered low trees of *Eucalyptus socialis* subsp. *eucentrica* and *Corymbia opaca* to 8 metres over open shrubland of *Acacia kempeana*, *Acacia ligulata*, *Melaleuca glomerata* and *Senna artemisioides* subsp. *petiolaris*.

Vegetation Unit 6: TOS
Tall open shrubland of *Acacia aneura* to 5 metres over low open shrubland of *Senna artemisioides* subsp. *artemisioides* and *Eremophila latrobei* subsp. *filiformis* to 1.1 metres over very open tussock grassland.

Vegetation Unit 7: TS
Tall shrubland of *Acacia aneura* subsp. *aneura* to 4 metres over low shrubland of *Aluta maisonneuvei* subsp. *maisonneuvei* to 1 metre over mid-dense hummock grassland of *Triodia basedowii* to 1 metre.

Vegetation Unit 8: STS
Scattered tall shrubs of *Haekea lorea* subsp. *lorea*, *Grevillea eriostachya* and *Acacia sericophylla* to 3 metres over scattered shrubs of *Acacia pachyacra* to 2 metres over very open tussock grassland of *Amphipogon caricinus* var. *caricinus* to 0.3 metres over low open shrubland of *Leptosema chambersii* and *Rulingia leptophylla* to 0.3 metres.

Vegetation Unit 9: LOWEoTOS
Low open woodland of *Eucalyptus oxymitra* to 5 metres over tall open shrubland of *Acacia aneura* to 4 metres over scattered shrubs of *Acacia abrupta* to 1.5 metres over mid-dense hummock grassland of *Triodia basedowii* to 1 metre.

Vegetation Unit 10: LOWEoCo
Low open woodland of *Eucalyptus oxymitra* and *Corymbia opaca* to 4 metres over scattered tall shrubs of *Hakea lorea* subsp. *lorea* to 3 metres over open shrubland of *Melaleuca glomerata* and *Acacia ligulata* to 2 metres over mid-dense hummock grassland of *Triodia basedowii* to 1 metre.

Vegetation Unit 11: SCTAp
Scattered tall shrubs of *Acacia pruinocarpa* to 4 metres over low open woodland of *Eucalyptus oxymitra*, *Eucalyptus socialis* subsp. *eucentrica* and *Corymbia opaca* to 4 metres over open shrubland of *Hakea lorea* subsp. *lorea*, *Acacia ligulata*, *Melaleuca glomerata* and *Acacia kempeana* to 2 metres over mid-dense hummock grassland of *Triodia scariosa* to 1 metre.

Clearing Description

BHP Billiton Minerals Exploration (BHP Billiton) has applied to clear up to 50 hectares of native vegetation within an application area equalling approximately 22,232 hectares (GIS Database). The proposed clearing is located approximately 80 kilometres south-east of Warburton (GIS Database).

The purpose of the proposed clearing is mineral exploration (BHP Billiton, 2010). BHP Billiton (2010) proposes to clear for the construction of drill holes, drill pads and sumps and access tracks. Vegetation will be cleared by mechanical means and vegetation and topsoil will be stockpiled for rehabilitation purposes (BHP Billiton, 2010).

Vegetation Condition

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).

Comment

The vegetation condition rating is derived from information provided by Coffey Environments (2010).

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 within the Ranges of the Western Desert Register of National Estate and the Ranges of the Western Desert Redbook Area (GIS Database). The Ranges of the Western Desert are a series of mountain ranges that are the western extension of the central Australian range complex (EPA, 1974). The ranges have varied topography and geology and are therefore often high in flora diversity (EPA, 1974).

A flora and vegetation assessment of the application area was conducted by Coffey Environments from 22 October 2009 to 5 November 2009. Coffey Environments (2010) identified a total of 126 flora species within the application area, consisting of 124 native and 2 introduced flora species. The dominant families were represented by the grass family (*Poaceae*), wattle family (*Mimosaceae*), myrtle family (*Myrtaceae*) and the goodenia family (*Goodeniaceae*) (Coffey Environments, 2010). Coffey Environments (2010) reports that this represents fairly typical flora diversity for the region.

Coffey Environments (2010) identified two weed species within the application areas; buffel grass (*Cenchrus ciliaris*) and wild sage (*Salvia verbenaca*). The presence of weed species lowers the biodiversity value of the proposed clearing area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. The risk of spreading weeds can be mitigated by imposing a condition for the purpose of weed management.

A search was conducted by the assessing officer of the Department of Environment and Conservation's NatureMap database for fauna species that could potentially occur within the application area. This search identified a total of 35 fauna species that could potentially occur within the application area, which represents relatively low fauna diversity (DEC, 2007 – 2010). The majority of these species consisted of reptile and bird

species (DEC, 2007 – 2010).

The landforms, vegetation and habitat types occurring within the application area are well represented within the surrounding region (Coffey Environments, 2010). The clearing of 50 hectares of native vegetation within an area that equals approximately 22,232 hectares, is unlikely to have a significant impact upon biodiversity within the region.

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

Methodology

Coffey Environments (2010)
DEC (2007 - 2010)
EPA (1974)
GIS Database
- Register of National Estate
- Systems 1 to 5 and 7 to 12

(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 search of the Department of Environment and Conservation's (DEC's) databases was conducted by DEC on behalf of the proponent. This search revealed four fauna species of conservation significance that have previously been recorded within a 100 kilometres radius of the application area, however, some of these species have not been officially recorded since 1873 (BHP Billiton, 2010). The vegetation descriptions provided by Coffey Environments (2010) indicate that no rare or unusual vegetation units or landforms such as watercourses or breakaways that would be likely to represent significant fauna habitat, occur within the application area.

Based on the moderate amount of clearing (50 hectares within approximately 22,232 hectares), and the dispersed and temporary nature of clearing (all exploration works will be rehabilitated following completion of the drilling program), it is unlikely that the proposed clearing would have a significant impact on the habitat of any fauna species.

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

Methodology

BHP Billiton (2010)
Coffey Environments (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

Coffey Environments conducted a flora and vegetation survey of the application area in Spring 2009. This survey included a desktop survey of the Department of Environment and Conservation's threatened flora databases to identify Declared Rare Flora species and Priority flora species that could potentially occur within the survey area (Coffey Environments, 2010). Following this, a field survey was conducted from 22 October 2009 to 5 November 2009 with the aim of providing a description of the dominant vegetation communities, vegetation condition and flora species present, in addition to determining if any of the conservation significant flora identified during the desktop survey are present within the search area (Coffey Environments, 2010). The methods employed by Coffey Environments (2010) to search the survey area consisted of the following:

- identification and delineation of major vegetation types using a combination of colour aerial photography and ground truthing;
- sampling using releves (plotless assessment sites) within representative vegetation types;
- broad scale traversing throughout the study area; and
- intensive traversing in areas which were identified as potential habitats suitable for the location of Priority flora.

The desktop survey identified the following Priority flora species that could potentially occur within the application area (Coffey Environments, 2010):

- *Acacia calcicola* (Priority 4);
- *Calotis latiuscula* (Priority 3);
- *Euphorbia parvicaruncula* (Priority 1);
- *Goodenia gibbosa* (Priority 1); and
- *Stackhousia clementii* (Priority 3).

During the field survey Coffey Environment (2010) recorded the Priority 3 flora species; *Stackhousia clementii*, and one flora species that hasn't been formally described and may potentially become a Priority listed flora species in the future; *Goodenia* sp. (A.S GEORGE 4809).

Stackhousia clementii is described by the Western Australian Herbarium (1998 – 2010) as being a dense broom-like perennial herb that generally grows in skeletal soils and on sandstone hills. Coffey Environments (2010) reports that approximately 17,038 plants of this species were recorded during the flora and vegetation survey. These plants were recorded almost specifically in association with calcrete habitats, from low calcrete / clay plains to large calcrete domes with a significant sandy / clay component or in between calcrete areas in low depressions with a sandy clay and calcrete soil make up (Coffey Environments, 2010).

Goodenia sp. (A.S GEORGE 4809) is a small prostrate herb with yellow flowers (Coffey Environments, 2010). Coffey Environments (2010) recorded 158 plants of this species during the flora and vegetation survey in association with calcrete outcrops.

BHP Billiton (2010) reports that drilling is unlikely to be undertaken on calcrete mounds and therefore, large numbers of *Stackhousia clementii* will not be impacted. Based on the moderate amount of clearing, spread out over an area equalling approximately 22,232 hectares, the proposed clearing is unlikely to affect the conservation status or viability of either of these species.

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

Methodology BHP Billiton (2010)
Coffey Environments (2010)
Western Australian Herbarium (1998 ? 2010)

(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 (TECs) or Priority Ecological Communities (PECs) within the application area (GIS Database). There are no known TECs or PECs within 500 kilometres of the application area (GIS Database).

Coffey Environments (2010) reports that no TECs or PECs were identified during the flora and vegetation assessment of the application area.

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

Methodology Coffey Environments (2010)
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 application area falls within the Great Victoria Desert Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) reports that approximately 100% of the pre-European vegetation still exists within this Bioregion (see table below). The vegetation within the application area is recorded as the following Beard Vegetation Association (Shepherd, 2007):

- **Beard Vegetation Association 236**: hummock grasslands, shrub steppe; mulga and mallee (marble gum) over hard spinifex.

According to Shepherd (2007) approximately 100% of this vegetation association remains within the bioregion (see table below).

Therefore, the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Great Victoria Desert	21,794,205	21,784,757	~100	Least Concern	~8.5
Beard vegetation associations - State					
236	1,626,899	1,617,261	~100	Least Concern	
Beard vegetation associations - Great Victoria Desert Bioregion					

236	1,619,192	1,612,226	~100	Least Concern	

* 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 Resource Management and Environment (2002)
Shepherd (2007)
GIS Database
- Interim Biogeographic Regionalisation for Australia

(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 may be at variance to this Principle**
According to available databases there are several minor, ephemeral watercourses within the application area (GIS Database). It is the proponent's responsibility to liaise with the Department of Water to determine whether a Bed and Banks permit is necessary for the proposed works.

The application area is located in an arid region with an average annual rainfall of approximately 200 – 250 millimetres falling mainly during the summer months (BHP Billiton, 2010). Based on an average annual evaporation rate of approximately 3,400 millimetres, any water within these drainage lines is likely to be short-lived (BHP Billiton, 2010). Furthermore, according to available databases these drainage lines do not appear to be interconnected on the surface to each other or to any other watercourse. Each of these watercourses is quite short, ranging up to a couple of kilometres in length (GIS Database). Aerial photographs suggest that vegetation surrounding the watercourses is quite sparse (GIS Database).

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

Methodology BHP Billiton (2010)
GIS Database
- Hydrography, linear

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

Comments **Proposal is not likely to be at variance to this Principle**
The application area is reported as being within the Central subregion of the Great Victoria Desert Interim Biogeographic Regionalisation of Australia bioregion (GIS Database).

The Central subregion is described by CALM (2002) as being an arid active sand-ridge desert with extensive dune fields of deep Quaternary aeolian sands overlying Permian strata of the Gunbarrel Basin. Landforms consist of salt lakes and major valley floors with lake derived dunes (CALM, 2002). Sand plains with extensive seif dunes running east west, occasional outcroppings (breakaways) and quartzite hills provide minor relief (CALM, 2002).

Based on the sandy composition of many areas within this region, the proposed clearing may exacerbate erosion in some areas. BHP Billiton (2010) will avoid dune systems as these are untrafficable and are particularly prone to land degradation when the vegetation cover is removed. Furthermore, land disturbance will be limited to approximately 50 widely spaced drill holes, with minimal track clearance over an area equalling approximately 22,232 hectares (BHP Billiton, 2010).

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

Methodology BHP Billiton (2010)
CALM (2002)
GIS Database
- Interim Biogeographic Regionalisation of Australia

(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 is located within the Ranges of the Western Desert Register of National Estate (RNE) and the Ranges of the Western Desert Redbook area (GIS Database). The Ranges of the Western Desert are a series of mountain ranges that are the western extension of the central Australian range complex (EPA, 1974). The ranges have varied topography and geology and are therefore often high in flora diversity (EPA, 1974).

The proposed clearing of 50 hectares of native vegetation, in comparison to the size of the Ranges of the

Western Desert RNE area and Redbook area (approximately 8,016,568 hectares (GIS Database)) is unlikely to impact on the conservation values of these reserves.

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

Methodology EPA (1974)
GIS Database
- Register of National Estate
- Systems 1 to 5 and 7 to 12

(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

There are no permanent water features within the proposed clearing area, however, there are several minor, ephemeral drainage lines within the far south-eastern section of the application area (GIS Database). Based on a low annual rainfall and high annual evaporation rate, these watercourses are expected to be dry the majority of the time and any surface water would be short-lived. The clearing of 50 hectares of native vegetation, within an area that equals approximately 22,232 hectares, is unlikely to impact upon surface water quality.

Mallee scrubland calcrete habitat is present within the application area, which can be an indication of shallow groundwater aquifers (South Australian Museum, 2001 – 2010). Calcrete aquifers have the potential to be habitat for stygofauna (South Australian Museum, 2001 – 2010), however, the proposed clearing of 50 hectares of native vegetation, scattered over areas that equal approximately 22,232 hectares, is unlikely to alter groundwater levels and thereby impact stygofauna habitat or impact groundwater quality.

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

Methodology South Australian Museum (2001 ? 2010)
GIS Database
- Hydrography, linear

(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

There are no permanent surface water features within the proposed clearing area, however, there are several ephemeral watercourses (GIS Database). The application areas are located within a region that has an arid climate with a variable rainfall (Coffey Environments, 2010). Given the high average annual evaporation rate (3,400 millimetres) compared to the low average annual rainfall (200 – 250 millimetres), any surface water resulting from rainfall is likely to be short lived (BHP Billiton, 2010).

Given the above, the clearing of 50 hectares of vegetation within an area equalling approximately 22,232 hectares, is not likely to lead to an increase in 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 (2010)
Coffey Environments (2010)
GIS Database
- Hydrography, linear

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

Comments

There is one Native Title claim (WC04/003) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group, however, the 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 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 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 by the Department of Mines and Petroleum on 15 February 2010, inviting submissions from the public. There were no submissions received.

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 may be at variance to Principle (f), is not likely to be at variance to Principles (a), (b), (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should the permit be granted it is recommended that conditions be imposed for the purposes of weed management, record keeping and permit reporting.

5. References

BHP Billiton (2010) Clearing Permit Application Supporting Documentation. BHP Billiton Minerals Exploration, February 2009.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

Coffey Environments (2010) Flora and Vegetation Assessment West Musgraves Project Area Great Victorian Desert. Unpublished Report. Coffey Environments Pty Ltd, Western Australia.

DEC (2007 - 2010) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: http://naturemap.dec.wa.gov.au.

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.

EPA (1974) Conservation Reserves in Western Australia - Report of the Conservation Through Reserves Committee to the Environmental Protection Authority: Section 1, Systems 1-5 "CTRC Green Book". Environmental Protection Authority, 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.

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.

South Australian Museum (2001 - 2010) Underground Animals: Stygofauna. South Australian Museum. URL:http://www.samuseum.sa.gov.au.

Western Australian Herbarium (1998 - 2010) Florabase - The Western Australian Flora. Department of Environment and Conservation. URL: http://florabase.dec.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.