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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2864/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: Mineral Lease 244SA (AML 70/244), *Iron Ore (Mt Newman) Agreement Act 1964*
General Purpose Lease 52/206;
General Purpose Lease 52/214.
Local Government Area: Shire of East Pilbara
Colloquial name: Mt Whaleback and Orebody 25, 29, 30 Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
21.32		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
The vegetation of the application area is broadly mapped as Beard Vegetation Association 18: low woodland; mulga (*Acacia aneura*); and Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database). The clearing permit application area consists of four separate areas. GHD (2008) conducted a flora survey of the application areas, and described the vegetation of the four application areas, as follows: **Area 1** Partially cleared for mine activities, and has a small area recently rehabilitated. Retains some areas of native vegetation dominated by mixed tree species (*Acacia*) and shrubs of *Senna* and *Eremophila*. A total of 67 species recorded. Dominant families: *Poaceae*: 13 taxa; *Mimosaceae*: 9 taxa; Chenopodiaceae: 7 taxa; Malvaceae: 6 taxa. Dominant genera: *Acacia*: 9 taxa; *Eremophila*: 5 taxa; *Senna*: 5 taxa. The weeds Buffel Grass (*Cenchrus ciliaris*), Spiked Malvastrum (*Malvastrum americanum*) and Bipinnate Beggartick (*Bidens bipinnatifida*) were present around the cleared areas. An established patch of Ruby Dock (*Acetosa vesicaria*) was present in the north-west corner. Vegetation condition: Very Good to Completely Degraded. **Area 2** Partially cleared for mine activities, with a small area recently rehabilitated. Retains some areas of native vegetation dominated by grass species and mixed *Acacia*. A total of 57 species recorded. Dominant families: *Poaceae*: 9 taxa; *Mimosaceae*: 7 taxa; Amaranthaceae: 6 taxa. Dominant genera: *Acacia*: 7 taxa; *Ptilotus*: 5 taxa. The weeds Buffel Grass (*Cenchrus ciliaris*), Ruby Dock (*Acetosa vesicaria*), Bipinnate Beggartick (*Bidens bipinnatifida*) and Whorled Pigeon Grass (*Setaria verticillata*) were recorded. Vegetation condition: Good to Completely Degraded.	BHP Billiton Iron Ore Pty Ltd have applied to clear up to 21.32 hectares (ha) of native vegetation within four separate application areas, totalling approximately 37.54 ha. The proposed clearing is for the purposes of general mining operations associated with the Mt Whaleback, Orebody 25, Orebody 29 and Orebody 30 minesites. Areas cleared will be used for expansion of mine pits, waste dumps, topsoil stockpiles, access roads, and other mining related infrastructure. (BHP Billiton, 2008).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994). To Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).	The vegetation condition was derived from a description by GHD (2008).

Area 3
Extensively cleared and currently used to store topsoil. Native vegetation is regenerating on the topsoil mounds however it is not representative of the original vegetation composition. The area is now dominated by mixed *Acacia* species.

A total of 65 species were recorded.
Dominant families: *Poaceae*: 13 taxa; *Mimosaceae*: 8 taxa; Chenopodiaceae: 7 taxa; Malvaceae: 6 taxa.
Dominant genera: *Acacia:* 8 taxa.

Buffel Grass (*Cenchrus ciliaris*) was present in the north east corner of the area.

Vegetation condition: Degraded.

Area 4
Previously cleared, vegetation structure and composition significantly altered, and dominated by mixed *Acacia* species over tussock grasses.

A total of 43 species recorded, with the weed Buffel Grass (*Cenchrus ciliaris*) dominating.
Dominant families: *Poaceae*: 11 taxa; *Mimosaceae*: 7 taxa; *Malvaceae*: 5 taxa.
Dominant genera: *Acacia*: 7 taxa; *Ptilotus*: 4 taxa.

Weeds present in the area included Buffel Grass (*Cenchrus ciliaris*), Ruby Dock (*Acetosa vesicaria*) and Smaller Stinkgrass (*Eragrostis minor*).

Vegetation condition: Very Good to Good.

No significant flora species were recorded in any of the application areas (GHD, 2008).

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 clearing permit application areas are located within the Hamersley subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara Bioregion (GIS Database).

The application areas are located in close proximity to several large scale mining operations (GIS Database; BHP Billiton, 2008). Much of the area proposed to be cleared is immediately adjacent to existing roads and mining related infrastructure and the vegetation has suffered varying degrees of disturbance (GHD, 2008; GIS Database).

GHD (2008) conducted flora and fauna surveys of the application areas in May 2008. The surveys concluded that the vegetation associations and fauna habitats in the survey areas were common and widespread within the Pilbara region (BHP Billiton, 2008; GHD, 2008).

GHD (2008) recorded 67, 57, 65, and 43 flora species, respectively, in the four application areas, and this is not considered to represent a high level of biological diversity. The vegetation condition within the application areas ranged from “very good” to “completely degraded”, and several weed species were recorded (GHD, 2008).

No flora species of conservation significance, restricted vegetation types or significant fauna habitat features were recorded within the application areas (GHD, 2008). One fauna species of conservation significance was recorded within the application areas, however the impacts of the proposed clearing to the habitat of this wide ranging migratory bird species are expected to be minimal.

The small areas of proposed clearing, adjacent to existing disturbed areas, are unlikely to have any significant impact on the biological diversity of the region.

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

Methodology

BHP Billiton (2008).
GHD (2008).
GIS Database:
- Interim Biogeographic Regionalisation of Australia (subregions)
- Pre-European Vegetation
- Newman 1.4m Orthomosaic - Landgate 2003

(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 fauna survey covering a large area surrounding the Mount Whaleback minesite (and including part of the current clearing permit application area) was conducted by ENV Australia environmental consultants in August 2006 (ENV, 2006).

GHD (2008) conducted a Level 1 fauna assessment of the current application areas. The fauna assessment consisted of a desktop review of available fauna databases, and a reconnaissance survey to determine the general habitat types within the application areas (GHD, 2008). The reconnaissance survey was conducted during May 2008 and consisted of opportunistic survey and searching for fauna signs such as tracks, scats, bones and diggings. No fauna trapping was conducted during the survey (GHD, 2008).

Desktop surveys conducted by GHD (2008) identified three fauna species of conservation significance with the potential to occur in the vicinity of the application areas: the Greater Bilby (*Macrotis lagotis*), the Pilbara Leafnosed Bat (*Rhinonicteris aurantius*) (Pilbara form) and the Olive Python *(Liasis olivaceus barroni*) (Pilbara subspecies). None of these species were recorded during the survey, and GHD (2008) considered that the habitats available within the application areas were unlikely to represent significant habitat for any of these species.

One species of conservation significance was recorded during the survey, the Whistling Kite (*Haliastur sphenurus*). This species is recognised under international treaties such as *JAMBA* and the *Environment Protection and Biodiversity Conservation Act 1999* and is listed as a Marine species. This species ranges over extensive areas, and impacts of the proposed clearing on the habitat available for this species is considered to be negligible (GHD, 2008).

GHD reported that the majority of the application area had been degraded by previous disturbance including weed invasion, cattle grazing and mine related activities and infrastructure. No restricted fauna habitat features (eg. caves, rock crevices, ridges, gullies, water sources) were recorded within the application areas, and GHD (2008) considered that the application areas were unlikely to provide significant fauna habitat, in comparison to less disturbed sites in the surrounding area (GHD, 2008). The landforms, vegetation types and fauna habitats found in the application areas are well represented in surrounding areas (BHP Billiton, 2008; GHD, 2008; ENV, 2006). ENV (2006) reported that all of the habitat types recorded in the Mt Whaleback survey were well represented within the wider Pilbara region, and none were of specific conservation significance.

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

Methodology

BHP Billiton (2008).
ENV (2006).
GHD (2008).

(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

The nearest known population of Declared Rare Flora is *Lepidium catapycnon* which is located approximately one kilometre north-east of application area 3 (GIS Database). Searches of Department of Environment and Conservation (DEC) databases and Western Australian Herbarium records indicated that one species of Declared Rare Flora (*Lepidium catapycnon*) and thirteen species of Priority Flora had the potential to occur within the application area (GHD, 2008).

GHD (2008) conducted a flora survey of the application areas in May 2008. No species of Declared Rare Flora, Priority Flora or flora species of restricted distribution were recorded during the survey (GHD, 2008).

The vegetation associations within the application area are common and widespread within the Pilbara region (BHP Billiton, 2008; GHD, 2008; GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of rare flora.

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

Methodology

BHP Billiton (2008).
GHD (2008).
GIS Database:
- Declared Rare and Priority Flora List
- Pre-European Vegetation

(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 application areas (GIS Database). The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 12 km east/north-east of the eastern-most application area (application area 4) (GIS Database). Groundwater drawdown is listed as a threatening process for the Ethel Gorge stygofauna (CALM, 2002), however the proposed clearing is not expected to have any effect on groundwater levels.

No TEC's or Priority Ecological Communities (PEC's) were identified during the flora survey of the application area (GHD, 2008).

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

Methodology

CALM (2002).
GHD (2008).
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 areas are located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application areas is broadly mapped as Beard Vegetation Associations 18: Low woodland; mulga (*Acacia aneura*) and 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database). According to Shepherd et al., (2001) there is approximately 100% of these vegetation types remaining (see table below).

Although several large scale mining operations are located within a 50km radius of the application areas (BHP Billiton, 2008; GIS Database), on a broader scale the Pilbara region has not been extensively cleared. Hence the application areas are not considered to represent a significant remnant of native vegetation in an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,164	17,794,164	~99.9	Least Concern	6.3
Beard vegetation associations - WA					
18	19,892,437	19,890,348	~100	Least Concern	2.1
82	2,565,930	2,565,930	~100	Least Concern	10.2
Beard vegetation associations - Pilbara Bioregion					
18	676,561	676,561	~100	Least Concern	16.8
82	2,563,610	2,563,610	~100	Least Concern	10.2

* Shepherd et al. (2001) updated 2005
** 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).
Shepherd et al. (2001).
GIS Database:
- Interim Biogeographic Regionalisation of Australia (subregions)
- Pre-European Vegetation
- Newman 1.4m Orthomosaic - Landgate 2003

(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

There are no permanent watercourses within the application area (GIS Database). Two minor ephemeral drainage lines cross the application areas, one crossing application area 1 and one crossing the eastern end of application area 2. There are no drainage lines within application areas 3 and 4. Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (BHP Billiton, 2008). The vegetation within the application areas is not considered to be riparian vegetation, and the impacts of the proposed clearing on any watercourse or wetland are likely to be minimal.

Based on the above, the proposal is at variance to this Principle. However, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland.

Methodology

BHP Billiton (2008).
GIS Database:
- Hydrography, Linear
- Lakes, 1M
- Rivers 250K
- Newman 1.4m Orthomosaic - Landgate 2003

(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 areas fall predominantly within the Newman Land System, with the southern tip of application area 1 mapped as the Rocklea Land System, and approximately two thirds of application area 3 mapped as the Elimunna Land System (GIS Database).

The Newman Land System consists of lower slopes, with stony soils and some red loamy earths; narrow drainage floors up to 400m in width with stony mantles on shallow red loam soils; and lower stony plains with stony soils, shallow loams or loamy earth soils (DAFWA, 2006). The Newman Land System soils are not particularly prone to soil erosion (DAFWA, 2006; Van Vreeswyk et al., 2004).

The Rocklea Land System consists of basalt hills, plateaux, lower slopes and minor stony plains supporting hard Spinifex (and occasionally soft Spinifex) grasslands. This land system is not susceptible to erosion (Van Vreeswyk et al., 2004).

The Elimunna Land System consists of stony plains on basalt, supporting sparse *Acacia* and *Cassia* shrublands and patchy tussock grasslands. This land system is generally resistant to erosion (Van Vreeswyk et al., 2004).

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

Methodology

DAFWA (2006).
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

There are no conservation areas in the vicinity of the application area. The nearest DEC managed land is the Karijini National Park, approximately 110km north-west 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:
- CALM 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

The application areas are located within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). All activities conducted within the PDWSA, should be in accordance with the Department of Water (DoW) Land Use Compatibility Tables (DoW, 2009). The proponent is advised to follow the Water Quality Protection Guidelines for the mining and mineral industry, produced by the DoW, to minimise any risk that the proposed clearing and associated activities may pose to the Water Reserve (DoW, 2009).

The application areas are located within the Pilbara Groundwater Area, as proclaimed under the *Rights in*

Water and Irrigation Act 1914. Any groundwater abstraction within this area will require a Water Licence from the Department of Water (DoW, 2009). Groundwater quality monitoring is conducted as part of the existing mine operations at the nearby Mt Whaleback and Orebody 25 minesites (BHP Billiton, 2008). The Department of Water has advised that the proposed clearing is unlikely to have any significant impact on groundwater levels or quality (DoW, 2009).

Two minor ephemeral drainage lines cross the application areas (GIS Database). The small area of proposed clearing is unlikely to result in increased sedimentation of any watercourse.

The small area of the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.

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

Methodology

BHP Billiton (2008).
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

There are no permanent watercourses within the application area. Two minor ephemeral drainage lines cross the application areas, one crossing application area 1 and one crossing the eastern end of application area 2. There are no drainage lines within application areas 3 and 4. Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (BHP Billiton, 2008).

The application areas drain into the Fortescue River Upper catchment area (GIS Database). Natural flooding occurs occasionally within this catchment area during the wet season (November to March) following significant rainfall (BHP Billiton, 2008). However, the relatively small area of proposed clearing (21.32 ha) in relation to the size of the catchment area (2,975,192 ha) (GIS Database), is unlikely 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 (2008).
DoW (2009).
GIS Database:
- Hydrographic Catchments - Catchments

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

Comments

There is one native title claim over the area under application. This claim (WC99-004) has been registered with the National Native Title Tribunal on behalf of the claimant group. 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 (ie. 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*.

There are four known Aboriginal Sites of Significance overlapping the application areas (Site ID's: 60, 6702, 11961, 17394), and several others within close proximity. The proponent is committed to the management and protection of Aboriginal heritage sites (BHP Billiton, 2005). BHP Billiton has a heritage protocol agreement with the Nyiyaparli people (traditional owners of the Newman area), and regularly consult with the Nyiyaparli people to undertake Aboriginal heritage surveys in and around Newman (BHP Billiton, 2008). BHP Billiton also has an internal process; the Project Environment and Aboriginal Heritage Review (PEAHR), which is designed to prevent inadvertent disturbance of Aboriginal heritage sites within BHP Billiton operations. Prior to the commencement of any land disturbance activity, a PEAHR must be completed and submitted to BHP Billiton's Aboriginal Affairs Department for assessment. All land disturbance activities must be approved by BHP Billiton's Environment and Aboriginal Heritage staff (BHP Billiton, 2005). 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.

The application areas are located within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). The Department of Water (DoW) has advised that all activities conducted within the PDWSA should be compatible with the DoW's Land Use Compatibility Tables (DoW, 2007). The proponent is advised to seek further advice from the DoW to ensure compliance in this regard.

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.

Methodology

BHP Billiton (2005).
BHP Billiton (2008).
DoW (2009).
GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims
- Public Drinking Water Source Areas

4. Assessor's comments

Comment

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

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

5. References

BHP Billiton (2005) Aboriginal Heritage Induction Handbook. BHP Billiton Iron Ore Pty Ltd, Western Australia.

BHP Billiton (2008) Mt. Whaleback and Orebody 25, 29 and 30 Mining Operations. Application to Clear Native Vegetation (Purpose Permit) under the *Environmental Protection Act 1986*. BHP Billiton Iron Ore Pty Ltd, Western Australia.

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

DAFWA (2006) Land degradation assessment report. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), for clearing permit application CPS 1018/1. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food Western Australia.

DoW (2009) Public Drinking Water Source Area (PDWSA) Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Water, Western Australia.

ENV (2006) Mount Whaleback Fauna Assessment Survey - Phase 111 Summary Report. ENV Australia, Western Australia.

GHD (2008) Report for Whaleback Additional Clearing Areas - Flora and Fauna Assessment. GHD, 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., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia (updated 2005).

Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia. Department of Agriculture, Western Australia.

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
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.