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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4113/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Mining Co Pty Ltd**

1.3. Property details

Property: Miscellaneous Licence 47/212
Miscellaneous Licence 47/214
Miscellaneous Licence 47/213
Local Government Area: Shire of Ashburton
Colloquial name: Deepdale Rail Line Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.2		Mechanical Removal	Railway construction or maintenance

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 27 January 2011

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 1:250,000 scale for the whole of Western Australia. The vegetation of the application area is broadly mapped as Beard vegetation association **173**: Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt (GIS Database).

Robe River Mining (2010) conducted a flora survey of the application areas on the 20th and 21st August 2010, and described the vegetation of the application areas as follows:

AcVfGpCcil - *Acacia colei* var. *colei*, *Vachellia farnesiana* open scrub *Grevillea pyramidalis* scattered shrubs over *Cenchrus ciliaris* very open tussock grassland;

ElChGwAmixTeEa - *Eucalyptus leucophloia*, *Corymbia hamersleyana* low open woodland over *Grevillea wickhamii* scattered tall shrubs over mixed *Acacia* shrubland over *Triodia epactia* hummock grassland over *Eulalia aurea* scattered tussock grassland;

EvAcAtTaCv - *Eucalyptus victrix* open woodland over *Acacia colei* var. *colei, A. trachycarpa* scattered shrubs over *Triodia angusta* open hummock grassland; and

ChAtAbAcTeTa - *Corymbia hamersleyana* low open forest over *Acacia trachycarpa*, *A. bivenosa* open scrub over *Acacia colei* var. *colei* scattered shrubs over *Triodia epactia*, *T. angusta* hummock grassland (Robe River Mining, 2010).

Clearing Description Robe River Mining is proposing to clear up to 3.2 hectares of native vegetation for the Deepdale Rail Line Project (Robe River Mining, 2010). The clearing of vegetation is required to establish borrow pits, laydown areas, access tracks, topsoil stockpiles and establishment of water bores.

The vegetation will be cleared using a dozer with vegetation stockpiled for use in rehabilitation.

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

To

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

Comment The application areas are located in the Chichester subregion of Western Australia and are situated approximately 102 kilometres south of Karratha.

The vegetation condition was derived from a vegetation survey conducted by Robe River Mining (2010). The

vegetation conditions were described using a scale based on Trudgen (1988) and have been converted to the corresponding conditions from the Keighery (1994) scale.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal may be at variance to this Principle

The application areas occur within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by undulating Archaean granite and basalt plains which include significant areas of basaltic ranges. Plains support a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002).

The vegetation within the application areas consists of Beard vegetation association 173, which is common and widespread throughout the Pilbara bioregion with approximately 99.9% of the pre-European vegetation extent remaining (Shepherd, 2009; GIS Database). A vegetation survey of the application areas and surrounding local vegetation identified 84 species of native vascular flora belonging to 58 Genera and 26 Families (Robe River Mining, 2010). No Declared Rare Flora (DRF) or Priority flora species were found. A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed that one Priority 3 species (*Oldenlandia* sp. Hamersley Station) may potentially occur in the application area (Robe River Mining, 2010) which is currently under review, as it is suspected to be the more common *Oldenlandia crouchiana* which is not a Priority species (Robe River Mining, 2010).

Four vegetation types as described by Robe River Mining (2010) were identified within the application areas. The vegetation condition of two vegetation types were classed as 'excellent' (ChAtAbAcTspmTa in Miscellaneous Licence 47/212 and ElChGwAmixTeEa in Miscellaneous Licence 47/213), one as 'good' (EvAcAtTaCv in Miscellaneous Licence 47/212), and one as 'degraded' (AcVfGpCcil in Miscellaneous Licence 47/214) (Keighery, 1994). No Threatened Ecological Communities (TECs) were recorded or identified within the application area (GIS Database). The application area located on Miscellaneous Licence 47/212 overlaps a Priority Ecological Community (PEC) 'Middle Robe' buffer zone (GIS Database). It is unlikely the clearing of 3.2 hectares of native vegetation will disturb this PEC as it consists of subterranean invertebrates. A second PEC, The Wona Land System, is located less than two kilometres north-west of the application area on Miscellaneous Licence 47/214. The area corresponds with the Priority 1 plant assemblage 'Cracking clays of the Chichester and Mungaroona Range' (DEC, 2010). The total area covered by the Wona Land System is 194,821 hectares (Robe River Mining, 2010), and with the clearing of 3.2 hectares of native vegetation, it is unlikely to significantly impact the conservation status within this plant assemblage of the Wona Land System.

Robe River Mining (2010) found four weed species within the application areas. These were: *Cenchrus ciliaris* (Buffel Grass), *Vachellia farnesiana* (Mimosa Bush), *Malvastrum americanum* (Spike Malvastrum) and *Cynodon dactylon* (Couch Grass). None of these species are listed as a 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Three broad faunal habitat types were recorded as occurring within the application areas, and were in varying conditions from 'good' to 'very good' (Keighery, 1994; Robe River Mining, 2010). These faunal habitats are common and widespread within the subregion and fauna assemblages are unlikely to be different to that found in similar habitat located elsewhere in the subregion (Van Vreeswyk et al., 2004; Robe River Mining, 2010). The habitat types are not of high ecological significance and the clearing of 3.2 hectares of native vegetation is unlikely to have a significant impact in a regional context.

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

Methodology

CALM (2002)
DEC (2010)
Keighery (1994)
Robe River Mining (2010)
Shepherd (2009)
Van Vreeswyk et al. (2004)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-European vegetation
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

There were no targeted fauna surveys undertaken within the application areas. A desktop fauna survey was

conducted by Robe River Mining (2010) and during the flora surveys conducted by Robe River Mining (2010) on the 20th and 21st August 2010 potential fauna habitat sites were inferred from the flora survey.

Potential fauna habitats within the application areas consist of:

1. Scattered Acacia shrublands over spinifex grasslands;
2. Floodplains of Eucalyptus and Acacia woodlands/shrublands over spinifex; and
3. Ephemeral coolabah (*Eucalyptus victrix*) or Acacia creeklines (Robe River Mining, 2010).

These habitat conditions ranged from 'poor' to 'very good' with historical clearing, weed invasion, and livestock grazing and trampling reducing the condition in the ephemeral creekline and gilgai plain habitats (Robe River Mining, 2010). No significant fauna habitats were identified in aerial photography, the desktop survey or the flora survey (GIS Database; Robe River Mining, 2010), and the habitat present within the application areas are considered to be widespread within the region (CALM, 2002).

There are three species of mammals, one volant mammal, one bird and one arachnid listed as Threatened Species under the *Environmental Protection and Biodiversity Conservation Act (EPBC) 1999* or protected under Western Australian legislation, that may potentially occur within a 40 kilometre radius of the application area (Western Australian Museum, 2010; GIS Database). Of these species, the Australian Bustard (*Ardeotis australis*) and Middle Robe *Draculoides* (*Draculoides mesozeirus*) may occupy areas within the application areas due to potential suitable faunal habitats occurring in the area (Western Australian Museum, 2010; Robe River Mining, 2010).

The Australian Bustard is a nomadic bird where its faunal habitat is well represented in the subregion (Johnstone & Storr, 2004). The clearing of 3.2 hectares of native vegetation is not likely to represent significant habitat for the Australian Bustard.

The Middle Robe *Draculoides* have been located within the Priority Ecological Community (PEC) Middle Robe where the application area on Miscellaneous Licence 42/212 sits within the PEC buffer zone (GIS Database). It is unlikely that the clearing of 3.2 hectares of native vegetation will impact the faunal habitat of the Middle Robe *Draculoides* as this subterranean arachnid is found in the pisolitic mesas in the Robe Valley, which are not featured within or near the application area (GIS Database; Robe River Mining, 2010).

There is approximately 99.89% of the pre-European vegetation remaining within the Pilbara bioregion (Shepherd, 200p; GIS Database). Given the extent of the native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological link.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. The clearing of 3.2 hectares of native vegetation is not likely to significantly impact important habitat for endemic fauna in a regional context, as the vegetation units are well represented in the bioregion.

Methodology

CALM (2002)
Johnstone & Storr (2004)
Robe River Mining (2010)
Shepherd (2009)
Western Australian Museum (2010)
GIS Database:
- Elvire 1.4M Orthomosaic - Landgate 2000
- Pre-European Vegetation
- Threatened Ecological Sites Buffered
- Threatened Fauna (DEClist)

(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

Robe River Mining (2010) conducted a flora survey on the 20th and 21st August, 2010. There were no Declared Rare Flora (DRF) recorded in the application areas.

Searches made on the available GIS Databases reveal that there are no known records of DRF existing in the application areas, or within 100 kilometres of the application areas (GIS Database). A search of the Department of Environment and Conservation Declared Rare and Priority Flora databases revealed that no DRF species have been found in the application areas.

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

Methodology

Robe River Mining (2010)
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 at variance to this Principle

A search of the available databases shows that there are no Threatened Ecological Communities (TEC's) within the application areas (GIS Database). There are no TECs situated within 100 kilometres of the application areas (GIS Database).

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

Methodology

GIS Database:
- Threatened Ecological Sites Buffered

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara IBRA bioregion (GIS Database). Beard vegetation association 173 retains approximately 99.9% of its pre-European extent, which is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000).

The vegetation within the application area is recorded as Beard vegetation association 173: Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt (GIS Database; Shepherd, 2009).

According to Shepherd (2009) approximately 100% of these Beard vegetation associations remain within the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,193	17,785,001	~99.89	Least Concern	6.32
Beard vegetation associations - State					
173	1,421,376	1,421,376	~100	Least Concern	4.82
Beard vegetation associations - Bioregion					
173	1,420,793	1,420,793	~100	Least Concern	4.82

* Shepherd (2009)
** 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 (2009)
GIS Database:
- IBRA WA (regions - subregions)
- 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

According to available databases there are few minor non-perennial drainage lines within the application area (GIS Database). Based on vegetation mapping by Robe River Mining (2010) two vegetation associations found within the application areas are associated with the ephemeral creeklines;

AcVfGpCcil - *Acacia colei* var. *colei, Vachellia farnesiana* open scrub over *Grevillea pyramidalis* scattered shrubs over *Cenchrus ciliaris* very open tussock grassland; and

EvAcAtTaCv - *Eucalyptus victrix* open woodland over *Acacia colei* var. *colei*, *A. trachycarpa* scattered shrubs over *Triodia angusta* grassland over *Cyperus vaginatus* scattered sedgeland (Robe River Mining, 2010).

The condition of the riparian vegetation association AcVfGpCcil which lines an ephemeral creekline located within Miscellaneous Licence 47/214 has been classified as 'degraded' (Keighery, 1994; Robe River Mining, 2010). This condition can be attributed to significant weed infestation and preferential grazing, also trampling of vegetation by cattle. Erosion was evident from a lack of vegetation cover (Robe River Mining, 2010).

The condition of the riparian vegetation association EvAcAtTaCv in the creekline habitat located within the application area of Miscellaneous Licence 47/212 has been classified as 'good' (Keighery, 2004; Robe River Mining, 2010). Clearing from an existing borrow pit, grazing and trampling of livestock and weed infestation is evident (Robe River Mining, 2010).

Based on the above, the proposed clearing is at variance to this Principle, however, as the ephemeral creeklines located within the application areas are only likely to flow following significant rainfall, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland provided natural surface water flow patterns are not disturbed.

Methodology Keighery (1994)
Robe River Mining (2010)
Van Vreeswyk et al. (2004)
GIS Database:
- Geodata, Lakes
- 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 areas fall into two land systems;

1. Rocklea land system (Miscellaneous Licence 47/212 and 47/214); and
2. Paraburdoo land system (Miscellaneous Licences 47/213 and 47/214) (GIS Database).

The Rocklea land system is described as Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). This system is generally not susceptible to erosion. The 'hills, ridges, plateaux and upper slopes', 'stony plains and interfluves' and 'lower slopes' are sub units of the Rocklea land system to occur within the application areas (Robe River Mining, 2010).

The Paraburdoo land system, which is described as basalt derived stony gilgai plains and stony plains supporting snakewood and mulga shrublands with spinifex and tussock grasses (Van Vreeswyk *et al.,* 2004). Much of the system is inherently resistant to erosion except for drainage zones which are moderately susceptible. The 'stony gilgai upland plains' sub unit of the Paraburdoo land system is the only one to potentially occur within the application areas on Miscellaneous Licences 47/213 and 47/214 (Robe River Mining, 2010).

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

Methodology CALM (2002)
Robe River Mining (2010)
Van Vreeswyk et al. (2004)
GIS Database:
- Rangeland Land System Mapping

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal is not likely to be at variance to this Principle**
The proposed application area is not located within any conservation areas (GIS Database). The nearest conservation area is Millstream Chichester National Park, located approximately 29 kilometres east of the application areas (GIS Database). At this distance, the proposed clearing is unlikely to impact on the environmental values of the Millstream Chichester National Park.

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

Methodology GIS Database:
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

The available databases show that the application areas are not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses or water bodies within the application areas (GIS Database).

The Chichester subregion climate is a semi-arid to semi-tropical (Van Vreeswyk et al., 2004), with dry winters and summer rains with an average annual rainfall of 379 millimetres/year (Luke, Burke & O'Brien, 2003). Ephemeral creeklines within the application areas are located on Miscellaneous Licences 47/212 and 47/214 (GIS Database) and flow sporadically during heavy rainfall, where sediment loads can occasionally be high during these times (Robe River Mining, 2010). Any clearing of native vegetation within the application area leading to an increase in sediment loads is likely to be negligible. The application area has an average pan evaporation rate of 3,200-3,600 millimetres/year (BoM, 2010), where the annual evaporation rate exceeds the annual rainfall, any surface water resulting from rain events is expected to be short lived and evaporate. The proposed small amount of 3.2 hectares of native vegetation to be cleared is unlikely to have a measurable impact on surface or ground water quality (Robe River Mining, 2010).

The groundwater in the Pilbara bioregion is generally fresh (500-1,000 milligrams/Litre Total Dissolved Solids (TDS)) (GIS Database; Van Vreeswyk et al., 2004). The application areas occur in two catchment areas; the Robe River catchment area (Miscellaneous Licences 47/213 and 47/212) and the Fortescue River catchment area (Miscellaneous Licence 47/214) (GIS Database). The size of the Robe River catchment area (757,100 hectares) and Fortescue River catchment area (1,860,800 hectares) (GIS Database) in relation to the clearing of 3.2 hectares of native vegetation is unlikely to deteriorate 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

BoM (2010)
Luke et al. (2003)
Robe River Mining (2010)
Van Vreeswyk et al. (2004)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear
- Groundwater Salinity, Statewide
- 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

The application areas experience a semi-arid to semi-tropical climate where the annual evaporation rate substantially exceeds the annual rainfall (BoM, 2010; Bastin, G., and the ACRIS Management Committee, 2008). There are no permanent watercourses within the application areas; however there are ephemeral drainage lines within the proposed clearing areas (Robe River Mining, 2010; GIS Database). Due to the high evaporation rate and low rainfall, it is unlikely that the drainage lines would carry water under normal rainfall events. Any surface water resulting from the summer rainfall is expected to be short lived and evaporate, or be quickly utilised by the existing vegetation (Robe River Mining, 2010).

The proposed clearing of 3.2 hectares of native vegetation represents only a very small proportion of the size of the two catchment areas; the Robe River catchment (757,138 hectares) which enclose Miscellaneous Licences 47/212 and 47/213, and the Fortescue River catchment (1,860,784 hectares) containing Miscellaneous Licence 47/214) (GIS Database). Shepherd (2009) vegetation statistics indicate that approximately 99.9% of the pre-European vegetation extent remains within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region, so given that the Pilbara bioregion remains in essence uncleared, the proposed clearing is not likely to impact on the drainage characteristics of the Robe River and Fortescue River catchment areas.

Natural flood events do occur within the Pilbara region following cyclonic activity (Van Vreeswyk et al., 2004) however the proposed clearing of 3.2 hectares is not expected to increase the incidence or intensity of such events.

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

Methodology

BoM (2010)
Bastin, G., and the ACRIS Management Committee (2008)
Robe River Mining (2010)
Shepherd (2009)
Van Vreeswyk et al., (2004)
GIS Database:

- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

The clearing permit application was advertised on 27 December 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

There is one Native Title Claim (WC99/12) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

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.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Determined
- Native Title Federal
- Natitve Title NNTT

4. References

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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.

Western Australian Museum (2010) Nature Map, Department of Environment and Conservation, viewed 10 January 2011, http://www.museum.wa.gov.au/research/databases/nature-map.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia

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

Definitions:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

status before consideration can be given to declaration as threatened fauna.

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

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

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

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

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

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

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

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

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

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