



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1118/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

### 1.3. Property details

Property: State Agreement Act ML244SA (AML70/244)  
Local Government Area: Shire Of East Pilbara  
Colloquial name:

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10		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
<p>The area is broadly mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i>.</p> <p>The 2006 Conservation Significant Flora Survey conducted by Ecologia determined that two vegetation types cover the proposed area to clear. The two vegetation types surveyed were described as:</p> <p>1. Sparse tall shrubland dominated by <i>Acacia inaequilatera</i>, over patches of moderately dense <i>Acacia ancistrocarpa</i> low shrubland, over <i>Triodia pungens</i> / <i>Triodia basedowii</i> open low hummock grassland. This vegetation type occurs on gently sloping undulating plains and lower hill slopes in the north western portion of the survey area and comprises less than half of the area;</p> <p>2. Scattered <i>Eucalyptus leucophloia</i> ssp. <i>leucophloia</i> trees, over mixed <i>Acacia</i> spp. medium to dwarf shrubs, over <i>Triodia wiseana</i> / <i>Triodia</i></p>	<p>BHP Billiton Iron Ore Pty Ltd propose to clear 10 hectares of native vegetation for the construction of an Ammonium Nitrate and Fuel Oils (ANFO) Storage Facility and supporting infrastructure. The ANFO Storage Facility has been proposed to be constructed northeast of Whaleback Mine in Newman and west of the Sewage Treatment Plant. The new facility will comprise of a washdown facility, bulk earthworks, detailed earthworks, roads, drainage, fencing, swipe card system, Closed Circuit Television (CCTV) and controlled access gates. The Works will also include the construction of the Ammonium Nitrate receiveal, storage and dispensing facility; the Emulsion Storage and dispensing facility; the Fuel Oil Storage and dispensing facility; and Oat Husk / Emulsion Storage and dispensing facility (BHP, 2006).</p>	<p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)</p>	<p>A one-day field survey of the proposed clearing area was conducted by Ecologia Environmental Consultants on the 9th January 2006. No flora species listed under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i>, or Declared Rare Flora or Priority Flora listed under the <i>Wildlife Conservation Act 1950</i> was recorded within the disturbance area of the proposed Ammonium Nitrate Storage Facility (Ecologia Environment, 2006).</p>

*pungens* open hummock grassland. This is the main vegetation type within the area, and occurs on lower to mid hillslopes, and the gravelly plain in the southern and eastern parts of the area.

### 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 area proposed to clear is situated within the Pilbara 3 (PIL3 - Hamersley) Interim Biogeographic Regionalisation for Australia (IBRA) subregion (GIS Database). High species and ecosystem diversity within the PIL3 Hamersley IBRA subregion are described in Kendrick (2001) as: *Acacia*, *Triodia*, *Ptilotus*, *Corymbia*, and *Sida* species within the Hamersley Range, and the stygofauna crustacean fauna within calcrete environments. The flora of the area proposed to clear consists of two main vegetation associations, both of which are well represented in the Newman and eastern Pilbara regions (Ecologia, 2006; GIS Database). No vegetation units of restricted distribution and no species of Rare or Priority flora are known to occur within the application area (Ecologia, 2006; GIS Database).

Some flora and fauna of conservation significance are known to occur within the local area (GIS Database; Ecologia, 2006), however these species have not been recorded within the application area and are not expected to be impacted as a consequence of the proposed clearing. The vegetation types in the application area are well represented in the Newman and eastern Pilbara regions (Ecologia, 2006; GIS Database), and are unlikely to be of higher biodiversity than surrounding areas. CALM (2006) do not consider the proposal to be seriously at variance to any of the relevant biodiversity principles based on the well represented nature of vegetation in a regional context, and the relatively small area that is proposed to be cleared.

The proposed clearing is not likely to have any significant impact on the biodiversity of the region; therefore the proposal is not likely to be at variance to this principle.

**Methodology**      Ecologia (2006).  
GIS Database:  
Clearing Regulations - Environmental Sensitive Areas - DoE 30/05/05.  
Clearing regulations - Schedule One Areas - DoE 10/03/05.  
IBRA Subregions - EA 18/10/2000.  
Pre-European Vegetation- DA 01/01.  
Kendrick (2001).

#### (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**

Two fauna surveys of the general Mt Whaleback area (which included the proposed ANFO area), were conducted by Ecologia Environmental Consultants in August and November 1997 and no Rare and Endangered species were recorded (BHPBIO, 2001; 2006). In addition, no Priority fauna species were recorded or collected from the ANFO Storage Facility study area (application area) (Ecologia Environmental Consultants, 1997a&b).

Species known to potentially occur in the local area based on the CALM Threatened and Priority Fauna database include the: Australian Bustard, *Ardeotis australis* (P4); Grey Falcon, *Falco hypoleucos* (P4); Major Mitchell's Cockatoo or Pink Cockatoo, *Cacatua leadbeateri* (S4), Peregrine Falcon, *Falco peregrinus* (VU); Western Pebble-mound Mouse, *Pseudomys chapmani* (P4); and Woma or Ramsay's Python, *Aspidites ramsayi* (S4) (CALM, 2005). These are wide-ranging species and the two vegetation types described on the area proposed to clear are common and well represented within the Newman and eastern Pilbara areas (Ecologia, 2006). The relatively small clearing of 10 hectares is not likely to have any significant impact on fauna habitat in the region.

BHPBIO (2006) expect the long-term impacts from the construction of the ANFO Storage Facility on fauna to be negligible. BHPBIO have specific management procedures for fauna in the Whaleback and Orebody 29/30/35 Environmental Management Plan (EMP) (BHPBIO, 2001). The objective of the EMP on the impacts of fauna is to ensure that the conservation status of Rare and Endangered fauna species is maintained (BHPBIO, 2001). All clearing operations will be kept to a minimum to reduce the impact on surrounding fauna habitat (BHPBIO, 2001).

The proposal is not likely to be at variance to this principle.

**Methodology**      BHPBIO (2001).

BHPBIO (2006).  
CALM (2005).  
Ecologia (1997a&b).  
Ecologia (1998).  
Ecologia (2006).  
GIS Database: CALM Threatened Fauna - CALM (30/09/2005).

**(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**

At present 89 Priority taxa are known to occur within the Pilbara botanical region (Ecologia, 2006). Based on known habitat preferences and currently recorded distributions within 200 km of the project area (Atkins, 2005), it is considered that two species of Declared Rare Flora (DRF) and 56 species of Priority flora could potentially occur within the vicinity of the proposed area to clear (Ecologia, 2006; GIS Database). However, it is unlikely that the native vegetation present within the area to be cleared would be necessary for the continued existence of rare flora. In addition, a one-day field survey of the proposed area to clear was conducted by Ecologia Environmental Consultants on the 9th January 2006. No DRF or Priority flora listed under the *Wildlife Conservation Act 1950*, or flora species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* were recorded (Ecologia, 2006). The nearest known Declared Rare Flora is six populations of *Lepidium catapycnon*, which occur fairly close together approximately 17-20km west of the application area (GIS Database). The CALM database have no records of any other populations of known Declared Rare or Priority flora within a 50km radius of the area applied to clear (GIS Database).

The proposed area to clear is located within two vegetation types that are typical of the region, and thus are well represented both within the immediate vicinity of Newman and throughout the eastern Pilbara (Ecologia, 2006). Ecologia (2006) have described the condition of the vegetation in the application area as pristine, with only one recorded weed population and little evidence of degradation from mining and pastoral activities. Given the absence of any restricted vegetation communities, that no DRF or Priority Flora were found during surveys, and that the amount of clearing required is relatively small, it is unlikely that the proposed clearing area is necessary for the continued existence of rare flora. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Atkins (2005).  
Ecologia (2006).  
GIS Database:  
Declared Rare and priority List - CALM 01/07/05.  
Pre-European Vegetation - DA 01/01.

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

**Comments Proposal is not likely to be at variance to this Principle**

There are no known Threatened Ecological Communities (TEC's) within the area applied to clear (GIS Database). According to the surveys conducted by Ecologia Environment Consultants (1997a & b; 2006), it is unlikely that there are any TEC's within the vicinity of the area to be cleared. The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 12 km east/northeast of the proposed area to clear (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. It is unlikely that the vegetation in the proposed clearing area is necessary for the maintenance of this TEC; therefore the proposal is not likely to be at variance to this principle.

**Methodology** Ecologia (1997a & b).  
Ecologia (2006).  
CALM (2002).  
GIS Database: Threatened Ecological Community Database - CALM 12/4/05.

**(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 likely to be at variance to this Principle**

The application area falls within the Pilbara IBRA Bioregion and the Shire of East Pilbara (GIS Database). Shepherd et al. (2001) report that approximately 100% of the pre-European vegetation still exists in the IBRA Pilbara Bioregion, with approximately 9.1% in reserves. The vegetation in the application area is recorded as Beard Vegetation Association 82: hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database).

	Pre-European area (ha)	Current extent (ha)	Remaining %*	Conservation Status**	% in Reserves/ CALM managed land
IBRA Bioregion - Pilbara	17,944,694*	17,944,694*	100%	Least concern	
Shire of East Pilbara	No information available				
Beard vegetation association - 82	2,920,910	2,920,910	~100%	Least concern	9.1%

\* Shepherd et al. (2001)

\*\* Department of Natural Resources and Environment (2002)

The area proposed to clear does not represent a significant remnant of native vegetation. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Department of Natural Resources and Environment (2002).  
GIS Database:  
IBRA Subregions - EA 18/10/2000.  
Pre-European Vegetation - DA 01/01.  
Shepherd et al. (2001).

**(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 not likely to be at variance to this Principle**

There are no permanent watercourses or wetlands within or associated with the area applied to clear (GIS Database). Creeks in the surrounding areas are dry for most of the year, only flowing briefly, immediately after significant rainfall. There are a set of hills to the south of the application area, and an intermittent seasonal drainage line is located in the centre of the area to be cleared. The drainage line is orientated in a north-south direction (BHPBIO, 2006), and covers a very small proportion of the total area to be cleared (GIS Database). The clearing of the vegetation adjacent to the minor drainage line is not likely to have any significant impact on any other creeklines or watercourses in the area.

The proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2006).  
GIS Database:  
Linear Hydrography, (hierarchy) - DoE 13/04/2005.  
Topographic Contours, Statewide - DPLA 12/09/02

**(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**

There are no recorded acid sulphate soils in the area and clearing is unlikely to result in an increased risk of salinity (BHPBIO, 2006). BHPBIO (2006) describes the soil within the proposed area to clear as typical of the gravelly Pilbara skeletal soils. The proposed area to clear lies within the McKay Land System (Van Vreeswyk, 2004). The McKay Land System consists of hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks. The soils within this land system have a low susceptibility to wind erosion (due to the stony mantle or cryptogram crusting) and a low or low to moderate risk of water erosion (dependent on slope) (Van Vreeswyk, 2004).

No Declared Weeds listed under the *Agriculture and Related Resources Protection Act 1976* was recorded within the proposed area to clear. However, one small and localised population (seven plants) of the environmental weed *Cenchrus ciliaris*, was recorded within the *Acacia inaequilatera* tall shrubland vegetation type (BHPBIO, 2006). However, this species is widespread within the vicinity of Newman and is unlikely to be a conservation issue (Ecologia, 2006). Ecologia (2006) have recommended BHPBIO implement weed hygiene procedures including that machinery required for construction should be washed prior to commencement and remains within the disturbance area until construction is complete. Additionally, regular monitoring of disturbed areas should be undertaken to determine if weeds are spreading into construction areas and if necessary, spot spraying of emergents may be required (Ecologia, 2006).

The proposed clearing is not likely to cause appreciable land degradation; therefore the proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2006).  
Ecologia (2006).  
GIS Database:  
Hydrography, linear - DoE 01/02/04.

**(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 (GIS Database). The nearest CALM managed lands are the Collier National Park, approximately 120km south/southwest of the application area and the Karijini National Park, approximately 120km northwest of the application area (GIS Database). Given the distance of the proposed clearing area from these conservation reserves, the proposal is not likely to be at variance to this principle.

**Methodology** GIS Database: CALM Managed Lands and Water - CALM 1/07/05.

**(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 proposed area to clear is located within the Newman Water Reserve, a Public Drinking Water Source Area (PDWSA) (GIS Database). The Department of Water (DoW) advised BHPBIO that the design of the ANFO Storage Facility should comply with the Water Quality Protection Note 'Above Ground Chemical Storage Tanks In Public Drinking Water Source Areas' (1999). DoW has assessed the proposed facility and is satisfied that there will be minimal risk to the Newman groundwater source (DoW, 2006). The Ammonium Nitrate storage is consistent with current uses within the PDWSA as the facility is replacing an existing facility (DoW, 2006). DoW has no objection to the clearing permit and advised that the application did not need to be referred to the Environmental Protection Authority (EPA) (DoW, 2006).

The area proposed to clear is not within or associated with any permanent watercourses or waterbodies (GIS Database) however one minor drainage line transects through the centre of the proposed area to clear. BHPBIO (2006) advised that surface drainage will be incorporated into the proposed works and will avoid unnecessary disturbance to natural surface water drainage. Culverts do not need to be installed (BHPBIO, 2006).

The relatively small extent of proposed clearing is not likely to cause deterioration in the quality of any surface or underground water. Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** BHPBIO (2006).  
DoW (2006).  
GIS Database:  
Groundwater provinces - WRC 98.  
Groundwater Salinity, Statewide - 22/02/00.  
Hydrography, linear - DoE 01/02/04.  
PDWSA Protection Zones - DoE 7/01/04.  
Public Drinking Water Source Areas (PDWSAs) - DoE 28/04/05.  
Topographic Contours, Statewide - DOLA 12/09/02.

**(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 proposed clearing area is situated within the Pilbara region. The Pilbara experiences an arid-tropical climate, characterised by high temperatures, low and variable rainfall and high evaporation (Pilbara Development Commission, 2005; BHPBIO, 2006). Annual evaporation exceeds the annual rainfall by as much as 2500 mm per year (BHPBIO, 2006). The region is prone to seasonal cyclones and natural flooding may occur occasionally during the wet season (November to March).

The proposed clearing area is not associated with any permanent watercourses or waterbodies (GIS Database). The event of flooding is only likely as a result of cyclones, in which case the severity of flooding is not likely to be heavily influenced by the amount of vegetation clearing proposed under this application. Therefore, the removal of 10 hectares of vegetation is not likely to cause or exacerbate the incidence or intensity of flooding.

**Methodology** Pilbara Development Commission (2005).  
GIS Database:  
Evaporation Isopleths - BOM (09/1998).  
Mean annual rainfall surface (1975-2003) - DoE 09/05.  
Topographic Contours, Statewide - DOLA 12/09/02

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

### Comments

The clearing application falls wholly within a Public Drinking Water Source Area (PDWSA), and was referred to the Department of Water (DoW) requesting advice on whether referral to the Environmental Protection Authority (EPA) was required. DoW had no objection to the clearing permit and saw no reason to refer to the EPA. The Ammonium Nitrate Storage is consistent with current uses within the PDWSA as the facility is replacing an existing facility (DoW, 2006).

There is a native title claim (WC99/004) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the Nyiyaparli claimant group. However, the mining tenement 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*.

The proposed Fuel Storage Facility is not a prescribed activity under the *Environmental Protection Act 1986* and therefore does not require a works approval or to be licensed (DoE, 2006).

BHP Billiton Iron Ore Pty Ltd Mount Newman AML70/244 has five current groundwater licences GWL65148, GWL65210, GWL74556, GWL158381, and GWL160437 valid until 31/12/2008 for the purposes of dewatering, dust suppression, mineral ore processing and potable water purposes, granted in accordance with the *Rights in Water and Irrigation Act 1914*. The licence will not need to be amended to take into account the clearing application (DoE, 2006). While there are a number of water licences for ML244SA, it is unlikely that water will be required for an Ammonium Nitrate and Fuel Oils (ANFO) storage facility (DoE, 2006).

### Methodology

DoE (2006).

DoW (2006).

GIS Database:

Aboriginal Sites of Significance - DIA 04/07/02.

Native Title Claims - DLI 19/12/04.

## 4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mineral Production	Mechanical Removal	10	Grant	The clearing principles have been addressed and the proposed clearing is not likely to be at variance to any of the ten clearing principles. The assessing officer therefore recommends that the permit be granted.

## 5. References

- Atkins, K.J. (2005) Declared Reare and Priority Flora List. Department of Conservation and Land Management, Perth.
- BHPBIO (2001) Mt Whaleback and Orebody 29/30/35 Environmental Management Plan (June 2001). Prepared for BHPBIO.
- BHPBIO (2006) Newman Hub Ammonium Nitrate and Fuel Oils (ANFO) Storage Facility. Vegetation Clearing Permit Supporting Documentation, February 2006.
- CALM (2005). CALM Database; Records of Threatened and Priority Fauna in the Newman area. CALM, Western Australia.
- CALM (2006) Land clearing proposal advice. Advice to Erin D'Raine, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR). Department of Conservation and Land Management, Western Australia.
- Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.
- 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.
- DoE (2006) Water Allocation/Licence Advice. Department of Environment, Western Australia.
- DoW (2006) EPA Referral Advice regarding PDWSA area. Department of Water, Western Australia.
- Ecologia (2006) Newman Ammonium Nitrate Storage Facility Conservation Significant Flora Survey (January 2006). Unpublished report for BHPBIO.
- Ecologia Environmental Consultants (1997a) Mt Whaleback Fauna Monitoring Survey Summary Report (August 1997). Unpublished Report for BHPBIO.
- Ecologia Environmental Consultants (1997b) Mt Whaleback Fauna Monitoring Programme Phase 1: Winter 1997 (November 1997). Unpublished report for BHPBIO.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Kendrick, P. (2001) Pilbara 3 (PIL3 - Hamersley subregion). Department of Conservation and Land Management, Western Australia.
- Pilbara Development Commission (2005). The Pilbara Region. Retrieved on the 13/06/06 from <http://www.pdc.wa.gov.au/>.
- 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.
- 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:

<b>BoM</b>	Bureau of Meteorology, Australian Government.
<b>CALM</b>	Department of Conservation and Land Management, Western Australia.
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia.
<b>DA</b>	Department of Agriculture, Western Australia.
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DoE), Western Australia.
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia.
<b>DoE</b>	Department of Environment, Western Australia.
<b>DoIR</b>	Department of Industry and Resources, Western Australia.
<b>DOLA</b>	Department of Land Administration, Western Australia.
<b>EP Act</b>	Environment Protection Act 1986, Western Australia.
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System.
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia.
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI</b>	Rights in Water and Irrigation Act 1914, Western Australia.
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia.
<b>TECs</b>	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.