



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 6141/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: BHP Billiton Iron Ore Pty Ltd

### 1.3. Property details

Property: Iron Ore (Goldsworthy-Nimingarra) Agreement Act 1972, Mining Lease 263SA (AM 70/263)  
Local Government Area: Shire of East Pilbara  
Colloquial name: Ophthalmia Exploration

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
200		Mechanical Removal	Mineral Exploration, Geotechnical and Hydrogeological Investigations and Associated Activities

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 31 July 2014

## 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 for the whole of Western Australia and are useful to look at vegetation in a regional context. Two vegetation associations have been mapped within the application area (GIS Database):

18: Low woodland; mulga (*Acacia aneura*); and

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

There have been several flora surveys conducted over the application area. The most recent was conducted by ENV Australia Pty Ltd (ENV) between 12 and 22 May 2010. The following eight vegetation associations were recorded within the application area:

#### Triodia Hummock Grassland

**1a:** Hummock Grassland of *Triodia wiseana*, *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) and *T. pungens* with Open Shrubland of *Acacia ancistrocarpa*, *A. bivenosa* and *A. inaequilatera* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia deserticola* subsp. *deserticola* and *C. hamersleyana* on red-brown loam with a covering of cobbles and pebbles on low hills;

**1b:** Hummock Grassland of *Triodia brizoides* with Open Shrubland of *Acacia synchronicia*, *A. bivenosa* and *A. tetragonophylla* with Scattered Low Trees of *Eucalyptus leucophloia* subsp. *leucophloia*, *E. socialis* subsp. *eucentrica* and *E. repullulans* on red-brown loam on low hills;

**1c:** Hummock Grassland of *Triodia wiseana*, *T. brizoides* and *T. pungens* with Low Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia deserticola* subsp. *deserticola* and *Acacia citrinoviridis* with Low Open Shrubland of *Scaevola browniana* subsp. *browniana*, *Eremophila jucunda* subsp. *pulcherrima* and *Keraudrenia nephrosperma* on red-brown loam on steep hill slopes;

**1d:** Hummock Grassland of *Triodia wiseana*, *T. angusta* and *T. brizoides* with Open Mallees of *Eucalyptus socialis* subsp. *eucentrica*, *E. trivalva* and *E. repullulans* with Open Shrubland of *Melaleuca eleuterostachya*, *Acacia bivenosa* and *A. synchronicia* on red-brown loam with a covering of cobbles and pebbles on Low undulating hills;

**1e:** Open Hummock Grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835) *T. melvillei* and *T. pungens* with Low Open Woodland of *Acacia aneura* var. *microcarpa*, *A. citrinoviridis* and *A. catenulata* subsp. *occidentalis* with Low Open Shrubland of *Eremophila forrestii*, *Acacia pruinocarpa* and *Sida ectogama* on red-brown loam with a covering of cobbles and pebbles on Undulating Plains;

**1f:** Hummock Grassland of *Triodia sp.* Shovelanna Hill (S. van Leeuwen 3835), *T. pungens* and *T. wiseana* with Tall Shrubland of *Acacia catenulata* subsp. *occidentalis*, *A. citrinoviridis* and *A. pruinocarpa* with Low Open Woodlands of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* and *Acacia aneura* var. *aneura* on red-brown loam with a covering of cobbles and pebbles on sloping hills and drainage gullies.

### **Themeda Tussock Grassland**

**2a:** Tussock Grassland of *Themeda triandra*, *Eulalia aurea* and *Cymbopogon fallax* with Open Shrubland of *Petalostylis labicheoides*, *Acacia pyrifolia* and *A. citrinoviridis* with Scattered Low Trees of *Eucalyptus xerothermica* and *E. victrix* on red-brown clayey loam in drainage lines.

### **Keraudrenia Low Shrubland**

**3a:** Low Shrubland of *Keraudrenia velutina* subsp. *elliptica*, *Rulingia luteiflora* and *Indigofera monophylla* with Open Hummock Grassland of *Triodia melvillei* and *T. sp.* Shovelanna Hill (S. van Leeuwen 3835) with Very Open Mallees of *Eucalyptus gamophylla*, *E. kingsmillii* subsp. *kingsmillii* and *E. repullulans* on red-brown loam with a covering of cobbles and pebbles on Hill Slopes.

<b>Clearing Description</b>	Ophthalmia Exploration Project. BHP Billiton Iron Ore Pty Ltd (BHP Billiton) proposes to clear up to 200 hectares within a boundary of approximately 8,323 hectares for the purposes of mineral exploration, hydrogeological and geotechnical investigations and associated activities. The project is located approximately 34 kilometres west of Newman within the Shire of East Pilbara.
<b>Vegetation Condition</b>	Pristine: No obvious signs of disturbance (Keighery, 1994);  to  Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).
<b>Comment</b>	The vegetation condition was derived from a report prepared by ENV (2010).  The time since last burnt varied across the application area from less than two years up to 12 years (ENV, 2010).  The rainfall during the three months leading up to the survey was 45% below the long term average. Given the low rainfall perennial grasses were difficult to identify and many annual species were likely to be absent (ENV, 2010).

## **3. Assessment of application against clearing principles**

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

<b>Comments</b>	<p><b>Proposal is not likely to be at variance to this Principle</b></p> <p>A flora and vegetation survey of the application area identified eight different vegetation associations (ENV, 2010). The vegetation condition ranged from Pristine to Good with the majority of the vegetation in Pristine or Excellent condition. Disturbances within the application area include trampling and grazing from cattle and horses (ENV, 2010). None of the vegetation associations recorded were identified as a Threatened or Priority Ecological Community (ENV, 2010).</p> <p>The ENV (2010) flora survey recorded 257 taxa from 96 genera and 37 families within the application area. The level of species richness recorded during this survey is considered lower than comparable surveys using a similar methodology (ENV, 2010). There were four species of Priority Flora recorded during the flora survey, however only three Priority 3 species; <i>Acacia subtiliformis</i>, <i>Goodenia</i> sp. East Pilbara and <i>Rhagodia</i> sp. Hamersley were recorded within the application area (BHP Billiton, 2014). BHP Billiton (2014) has committed to avoiding clearing within 10 metres of these species. Potential impacts to Priority Flora may be minimised by the implementation of a flora management condition.</p> <p>Based on previous surveys and known records there has been a total of 304 fauna species recorded within the vicinity of the application area (ENV, 2010). The ENV (2010) Level 1 fauna survey of the application area identified seven broad fauna habitats. These habitats are well represented in the local area (BHP Billiton, 2014). Given the habitats and habitat features present within the application area, it is not likely to support a higher level of faunal diversity than surrounding areas.</p> <p>Based on the above, the proposed clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	BHP Billiton (2014) ENV (2010)

### **(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.**

<b>Comments</b>	<p><b>Proposal is not likely to be at variance to this Principle</b></p> <p>A Level 1 fauna survey was conducted over the application area between 12 and 17 May 2010. Based on the results of this survey there are the following seven fauna habitats within the application area (ENV, 2010):</p> <ol style="list-style-type: none"><li>1. Riverine;</li><li>2. Minor Drainage Line;</li><li>3. Breakaway;</li></ol>
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4. Alluvial Plain;
5. Stony Plain;
6. Hill Slope; and
7. Hill Crest.

The Riverine habitat consists of large ephemeral creeks and rivers including Western Creek. This habitat type has high habitat value for fauna as there is a high diversity of microhabitats such as logs, debris, tree hollows, soft soils and dense vegetation (ENV, 2010). It also provides an ecological corridor for fauna travel and is likely to be utilised by several conservation significant species (ENV, 2010). Potential impacts to this habitat may be minimised by the implementation of a watercourse management condition.

The Minor Drainage Line, Breakaway, Alluvial Plain and Stony Plain habitats were all rated as having a moderate habitat value (ENV, 2010). Similar to the Riverine areas, the Minor Drainage Line habitat also acts as a corridor for dispersal (ENV, 2010). It has a moderate diversity of microhabitats and is likely to provide habitat for the Rainbow Bee-eater (*Merops ornatus* - Migratory) (ENV, 2010). The Breakaway habitat is associated with areas of rocky hills and has a high diversity of microhabitats such as overhangs, cracks, and caves (ENV, 2010). A number of conservation significant species may utilise this habitat, in particular for foraging activities. The caves present are not suitable roosting sites for the Pilbara Leaf-nosed Bat (*Rhinonictis aurantia* - Schedule 1) and Ghost Bat (*Macroderma gigas* - Priority 4) (ENV, 2010). The Alluvial Plain habitat contains soils suitable for digging and burrowing animals and has a moderate diversity of other microhabitats (ENV, 2010). The Stony Plain habitat also contains substrate suitable for burrowing animals although it is not as soft as the Alluvial Plain habitat (ENV, 2010).

Both the Hill Slope and Hill Crest habitats were rated as having a low habitat value as they have poor vegetation complexity and a low diversity of microhabitats (ENV, 2010). Approximately half the application area is comprised of these two habitats.

The survey recorded three fauna species of conservation significance (ENV, 2010); Australian Bustard (*Ardeotis australis* - Priority 4), Rainbow Bee-eater and Western Pebble-mound Mouse (*Pseudomys chapmani* - Priority 4). The Australian Bustard and Rainbow Bee-eater are transient species and the habitat within the application area is not likely to represent significant habitat for these species (ENV, 2010). There was one active mound of the Western Pebble-mound Mouse recorded within the application area during the fauna survey (ENV, 2010). This species is likely to utilise the Stony Plain and Hill Slope habitat which cover the majority of the application area. Similar habitat is common outside the application area and the proposed clearing is not likely to significantly impact this species (BHP Billiton, 2014).

The fauna survey identified a further ten species of conservation significance that have the potential to utilise the application area (ENV, 2010). The majority of these species are bird species that are unlikely to solely rely on habitats within the application area and will be able to easily disperse following clearing (BHP Billiton, 2014). As stated above the habitat present is not likely to contain suitable roosting caves for the Ghost Bat and Pilbara Leaf-nosed Bat. The Riverine habitat contains possible nesting trees for the Grey Falcon (*Falco hypoleucos* - Schedule 1) and this habitat is also likely to be utilised by the Pilbara Olive Python (*Liasis olivaceus barroni* - Schedule 1; Vulnerable) (ENV, 2010). The Pilbara Olive Python may also be found in the Breakaway habitat sheltering in cracks and crevices (BHP Billiton, 2014). Where possible BHP Billiton will utilise existing tracks within riparian areas (BHP Billiton, 2014).

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

**Methodology** BHP Billiton (2014)  
ENV (2010)

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

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

According to available databases, there are no records of any Threatened Flora species within the application area (GIS Database). The flora survey did not record any Threatened Flora species within the application area (ENV, 2010).

Several populations of *Lepidium catapycnon* have been recorded within 25 kilometres of the application area (DPaW, 2014; ENV, 2010). No suitable habitat for *Lepidium catapycnon* was recorded within the application area (ENV, 2010).

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

**Methodology** DPaW (2014)  
ENV (2010)  
GIS Database:  
- Threatened and Priority Flora

**(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**

According to available databases, there are no Threatened Ecological Communities (TECs) within the application area (GIS Database). The vegetation survey did not identify any vegetation communities considered to be a TEC within the application area (ENV, 2010).

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

**Methodology ENV (2010)**

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 lies within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

The vegetation of the application area has been broadly mapped as Beard vegetation associations 18 and 82. These vegetation associations have not been extensively cleared as over 99% remains at both a State and bioregional level (see table) (Government of Western Australia, 2013). There has not been extensive clearing in the local region and the vegetation within the application area is not a remnant nor does it form part of any remnants within the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Land
IBRA Bioregion – Pilbara	17,808,657	17,733,583	~99.6	Least Concern	8.37
Beard veg assoc. – State					
18	19,892,304	19,843,727	~99.8	Least Concern	6.29
82	2,565,901	2,553,217	~99.5	Least Concern	10.51
Beard veg assoc. – Bioregion					
18	676,556	672,424	~99.4	Least Concern	17.16
82	2,563,583	2,550,898	~99.5	Least Concern	10.52

\* Government of Western Australia (2013)

\*\* 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)**

Government of Western Australia (2013)

GIS Database:  
- IBRA WA (Regions - Sub Regions)  
- Ophthalmia 50cm Orthomosaic  
- 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**

There are numerous ephemeral watercourses within the application area (GIS Database). The majority of these are minor drainage lines similar to those that are widespread throughout the surrounding area. Vegetation association 2a is associated with drainage lines in the application area (ENV, 2010). Where possible existing tracks will be utilised within this vegetation (ENV, 2010). Given the proposed clearing is spread over a large area, it is not anticipated that it will have a significant impact on minor drainage lines within the application area.

The most significant ephemeral watercourse that passes through the application area is Western Creek (GIS Database). Disturbance to vegetation associated with Western Creek will be kept to a minimum and any creek

crossings constructed flat level to the surface (BHP Billiton, 2014). Potential impacts to watercourses may be minimised by a watercourse management condition.

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

**Methodology** BHP Billiton (2014)  
ENV (2010)  
GIS Database:  
- Hydrography, linear

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

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

The application area is mapped as occurring on the Boolgeeda, Egerton, Newman, Platform, Rocklea, Spearhole and Table land systems (GIS Database). All of these land systems are generally not prone to erosion (Van Vreeswyk et al., 2004). The proposed clearing is spread over a large area so it is not anticipated that the proposed clearing will cause appreciable land degradation.

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

**Methodology** Van Vreeswyk et al. (2004)  
GIS Database:  
- Rangeland land system mapping

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

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

The application area does not lie within any conservation areas or Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is Karijini National Park which is located approximately 66 kilometres west of the application area (GIS Database). At this distance the proposed clearing will not impact on the environmental values of the 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**

There are no permanent watercourses within the application area (GIS Database). Numerous ephemeral watercourses including Western Creek are within the application area (GIS Database). Potential impacts to surface water quality may be minimised by the implementation of a watercourse management condition.

The application area is not located within a Public Drinking Water Source Area (GIS Database). The groundwater within the application area ranges from 500 to 1,000 milligrams per litre of total dissolved solids (GIS Database). Given the relative scale of the proposed clearing (200 hectares within a boundary of 8,323 hectares), it would not be expected that it would cause salinity levels within the application or surrounding area to alter.

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

**Methodology** GIS Database:  
- Groundwater Salinity, Satewide  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSAs)

**(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**

With an average annual rainfall of 321.3 millimetres and an average annual evaporation rate of 3,400-3,600 millimetres there is likely to be little surface flow during normal seasonal rains (BoM, 2014; GIS Database). Whilst large rainfall events may result in the flooding of the area, the proposed clearing is spread over a large area (200 hectares within a boundary of 3,836 hectares) and is not likely to lead to an increase in incidence or intensity of flooding.

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

**Methodology** BoM (2014)  
GIS Database:  
- Evaporation Isopleths

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

### Comments

There is one native title claim (WC2005/006) over the application area (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant groups (GIS Database). However, the 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*.

According to available databases, there is one registered Aboriginal site 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 Regulation, Department of Parks and Wildlife and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 16 June 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance  
- Native Title Claims – Registered with the NNTT

## 4. References

- BHP Billiton (2014) Ophthalmia Exploration: Native Vegetation Clearing Permit Application Supporting Document for Exploration Drilling May 2014.
- BoM (2014) Bureau of Meteorology Website - Climate statistics for Australian locations, Newman Aero. Available online at: [http://www.bom.gov.au/climate/averages/tables/cw\\_007176.shtml](http://www.bom.gov.au/climate/averages/tables/cw_007176.shtml) Accessed on 17 March 2014.
- 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.
- DPaW (2014) NatureMap: Mapping Western Australia's Biodiversity - Department of Parks and Wildlife. <http://naturemap.dec.wa.gov.au/default.aspx> (Accessed 24 July 2014).
- ENV (2010) Ophthalmia Flora, Vegetation and Fauna Assessment. Unpublished report prepared for BHP Billiton Iron Ore Pty Ltd, dated 7 October 2010.
- Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Government of Western Australia, Perth, Western Australia.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, 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 DEC), Western Australia
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DoE</b>	Department of Environment (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental Protection Act 1986, Western Australia
<b>EPBC Act</b>	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.