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

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 3463/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

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

### 1.3. Property details

**Property:** *Iron Ore (Mount Goldsworthy) Agreement Act 1964*, Special Lease for Mining Operations 3116/5999, Document I 126342 L, Lot 125 on Deposited Plan 21986, Special Lease 3116/6235, Document J998591 L, Lot 47 on Deposited Plan 241374,Special Lease J998595 L, Lot 3000 on Deposited Plan 51079; Miscellaneous Licence 45/129
**Local Government Area:** Town of Port Hedland
**Colloquial name:** Finucane Island Rail Project

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 20 | | Mechanical Removal | Railway construction and maintenance, and associated works |

## 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 |
|---|---|---|---|
| Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia and are useful to look at vegetation extent in a regional context. Three Beard Vegetation Associations are located within the proposed clearing area (GIS Database):<br><br>Beard Vegetation Association 43: Thicket, mangroves;<br><br>Beard Vegetation Association 117: Hummock grasslands, grass steppe; soft spinifex; and<br><br>Beard Vegetation Association 127: Bare areas, mud flats.<br><br>ENV Australia Pty Ltd (2009a) undertook a Level One flora and vegetation assessment of the proposed clearing area in June 2009. The following two vegetation types were mapped for the proposed clearing area:<br><br>1. Mangroves - High closed shrubland of *Avicennia marina* and *Ceriops tagal* on brown-grey clay on mudflats; and<br><br>2. Samphires - Low open shrubland of *Tecticornia halocnemoides subsp. tenius* and *Tecticornia halocnemoides* over very open herbs of *Muellerolimon salicorniaceum* with scattered shrubs of *Avicennia marina* on light brown clay on mudflats. | BHP Billiton Iron Ore Pty Ltd has applied to clear up to 20 hectares of native vegetation within an application area of 147 hectares to implement the Finucane Island Rail Project, located approximately 3 kilometres west of Port Hedland. Native vegetation clearing may be undertaken for the following purposes:<br><br>- duplicating the existing Newman - Port Hedland Mainline rail formation and track between Boodarie and the rail car dumper at Finucane Island;<br><br>- construction of borrow pits;<br><br>- construction of access tracks;<br><br>- utilisation of laydown areas;<br><br>- installation of communications and cabling; and<br><br>- installation of level crossings, utilities and culverts (BHP Billiton Iron Ore Pty Ltd, 2009).<br><br>Vegetation clearing will be undertaken via mechanical means. A majority of the proposed clearing will be associated with permanent infrastructure. | Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994);<br><br>to<br><br>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994). | The vegetation condition rating is derived from information provided by ENV Australia Pty Ltd (2009a). |

## 3. Assessment of application against clearing principles

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

**Comments**

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

The proposed clearing area is located approximately 3 kilometres west of Port Hedland in the Roebourne subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Roebourne subregion is characterised by coastal and sub-coastal plains with a grass savannah of mixed bunch and hummock grasses, dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Mangroves occur on marine alluvial flats and river deltas (Kendrick & Stanley, 2002).

ENV Australia Pty Ltd (2009a) conducted a flora and vegetation assessment of the proposed clearing area in June 2009. The flora assessment was a culmination of desktop database searches, ENV Australia Pty Ltd's Level 2 Outer Harbour Development Flora Assessment (which included the entire proposed clearing area) conducted from 1-9 October 2007, 5 - 15 May 2008 and 26-30 May 2008; ENV Australia Pty Ltd's Outer Harbour Development Priority Flora Assessment conducted from 18-22 March 2009 and a field reconnaissance of the proposed clearing area on 19 June 2009. Findings of the flora assessment are detailed below:

ENV Australia Pty Ltd (2009a) recorded 17 taxa from 7 families and 10 genera from the proposed clearing area. The total number of species recorded is considered low in comparison to areas surveyed elsewhere in the Pilbara bioregion (ENV Australia Pty Ltd, 2009a).Two vegetation associations occur in the proposed clearing area, one of which is considered to be of high conservation significance (Mangroves).

A majority of the proposed clearing area was described as 'completely degraded' with disturbances including existing infrastructure such as roads and railways (ENV Australia Pty Ltd, 2009a). Two introduced flora species, Buffel Grass (*Cenchrus ciliaris*) and Kapok Bush (*Aerva javanica*), were scattered along the length of the proposed clearing area. The assessing officer notes that appropriate weed management needs to be implemented during clearing operations to minimise the risk of the spread of weeds.

ENV Australia Pty Ltd (2009b) recorded 54 terrestrial vertebrate fauna taxa during a fauna assessment of the proposed clearing area. This included 47 species of bird, six species of mammal and one reptile species. Whilst tidal flats and mangroves are typically diverse in bird fauna, the limited habitats within the proposed clearing area are not likely to support a higher level of faunal diversity in comparison to surrounding tidal flats and mangroves which are larger and in better condition.

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

**Methodology**

ENV Australia Pty Ltd (2009a).
ENV Australia Pty Ltd (2009b).
Kendrick & Stanley (2002).

### (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 may be at variance to this Principle**

ENV Australia Pty Ltd (2009b) conducted a terrestrial vertebrate fauna assessment of the proposed clearing area in June 2009. The fauna assessment was a culmination of desktop database searches, ENV Australia Pty Ltd's Level 2 Outer Harbour Development Fauna Assessment (which included the entire proposed clearing area) conducted from 12 October - 9 November 2007 and 5 - 16 May 2008, and a field reconnaissance of the proposed clearing area on 19 June 2009. Findings of the June 2009 fauna assessment are detailed below:

Two fauna habitats occur in the proposed clearing area:

1. Tidal Flats; and
2. Mangroves.

In addition to these two habitat types, it is noted that approximately 93% of the proposed clearing area has been classified as 'completely degraded' (ENV Australia Pty Ltd, 2009a; 2009b) and would provide little or no habitat value for fauna species indigenous to Western Australia. These areas are characterised by existing infrastructure associated with the transportation, stockpiling and port loading of iron ore (BHP Billiton Iron Ore Pty Ltd, 2009).

A number of long, linear strips of tidal flat habitat (totalling 6.4 hectares or 4.3% of the proposed clearing area) occur in the proposed clearing area. ENV Australia Pty Ltd (2009b) report that tidal flats are poorly represented in the region and have a high richness of conservation significant species. However, the vegetation condition of the tidal flat habitat in the proposed clearing area is 'degraded' and is therefore considered to have moderate habitat value (ENV Australia Pty Ltd, 2009b).

Three narrow strips of mangrove habitat (totalling 3.7 hectares or 2.5% of the proposed clearing area) occur in the proposed clearing area. Mangrove habitat is considered to be under -represented in the region and is known to support a high richness of conservation significant species. ENV Australia Pty Ltd (2009b) consider mangrove habitat in the proposed clearing area to be in good condition and of high habitat value.

A number of wading birds, mangrove-specialist birds, migratory shorebirds, raptors, common water birds and common generalist birds are expected to forage in the tidal mudflats and mangroves of the proposed clearing area. A smaller number of species are expected to roost in these habitats.

With respect to mammals, the Little Northern Freetail Bat (*Mormopterus loriae coburgiana*) was recorded in mangroves on Finucane Island by ENV Australia Pty Ltd in a previous fauna survey and would be expected to forage, roost and possibly breed in small numbers in the proposed clearing area (ENV Australia Pty Ltd, 2009b). Importantly, BHP Billiton Iron Ore Pty Ltd (2009) will retain a relatively large patch of mangroves on the eastern side of the access road to Finucane Island. This area provides potential roosting sites (large mangroves with hollows) for the Little Northern Freetail Bat.

With respect to reptiles, no conservation significant species are expected to occur in the proposed clearing area (ENV Australia Pty Ltd, 2009b). Species such as the White-bellied Mangrove Snake and the Southern Mud Snake potentially occur in the proposed clearing area, whilst the Long-nosed Water Dragon has previously been recorded within mangroves in the proposed clearing area.

The proposed clearing area is not likely to provide habitat for any amphibian species given the saltwater tidal habitats present (ENV Australia Pty Ltd, 2009b).

Whilst up to 30 conservation significant species (29 birds, one mammal) may occur in the proposed clearing area, most are wide ranging and highly mobile and would not rely on habitat in the proposed clearing area. The main impact of vegetation clearing is likely to be a slight reduction in the area of tidal flats and mangroves available for foraging and roosting by bird species (ENV Australia Pty Ltd, 2009b).

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

Should a clearing permit be granted, it is recommended that good condition mangrove habitat within the application area be excluded from clearing.

**Methodology** BHP Billiton Iron Ore Pty Ltd (2009).
ENV Australia Pty Ltd (2009b).

**(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 GIS Databases, there are no known records of Declared Rare Flora (DRF) within the proposed clearing area (GIS Database). ENV Australia Pty Ltd (2009a) did not record any DRF species during a flora and vegetation assessment of the proposed clearing area in June 2009.

According to GIS Databases, there are no known records of Priority Flora species within the proposed clearing area (GIS Database). ENV Australia Pty Ltd (2009a) did not record any Priority Flora species during a flora and vegetation assessment of the proposed clearing area in June 2009.

The Priority 1 species *Tephrosia rosea var. venulosa* is known from Finucane Island and has been recorded within 50 metres of the proposed clearing area. ENV Australia Pty Ltd (2009a) considers that this species is likely to occur in a degraded strip of land (10 – 15 metres wide, 1 kilometre long) around the western side of the decommissioned tailings dam between the rail line and public road. The species is considered likely to occur in this area as it is known to inhabit disturbed land and has been found in close proximity.

*Tephrosia rosea var. venulosa* is considered to have a restricted distribution and is only known from collections in the Port Hedland area. However, it has been relatively well recorded in the Port Hedland area, with ENV Australia Pty Ltd recording 2,280 plants from 19 locations, as of the end of 2009. The Western Australian Herbarium also has collection records for the species from Finucane Island (2 collections) and the Peawah River (3 collections) (ENV Australia Pty Ltd, 2009a).

More recently, ENV Australia Pty Ltd (2010) conducted a targeted regional survey for *Tephrosia rosea var. venulosa* between 29 January and 2 February 2010. The survey stretched from 80 Mile Beach (240 kilometres east of Port Hedland) to past Whim Creek (130 kilometres west of Port Hedland), and reached inland approximately 40 kilometres in the Port Hedland area (ENV Australia Pty Ltd, 2010). At the time of writing this report, only preliminary results are available from the targeted regional survey. Preliminary results indicate that *Tephrosia rosea var. venulosa* was found at 42 new locations, including four populations in excess of 1,000 individuals.

Should *Tephrosia rosea var. venulosa* plants be present within the application area it is likely that individuals will be disturbed during clearing operations. However, based on the above information, it is not likely that the species will be significantly impacted by this proposal.

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

**Methodology** ENV Australia Pty Ltd (2009a).
ENV Australia Pty Ltd (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 likely to be at variance to this Principle**

According to GIS Databases, there are no known Threatened Ecological Communities (TEC's) within the proposed clearing area (GIS Database).

ENV Australia Pty Ltd (2009a) recorded two vegetation associations within the proposed clearing area during a flora and vegetation assessment, neither of which is known to be a TEC.

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

**Methodology**

ENV Australia Pty Ltd (2009a).
GIS Database:
- Threatened Ecological Communities.

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

**Comments**

**Proposal is not at variance to this Principle**

The area applied to clear is within the Interim Biogeographic Regionalisation of Australia (IBRA) Pilbara bioregion (GIS Database). According to Shepherd (2007) there is approximately 99.9% of the pre-European vegetation remaining in the Pilbara bioregion (see table below).

The vegetation of the proposed clearing area is classified as:

**Beard Vegetation Association 43**: Thicket, mangroves;

**Beard Vegetation Association 117**: Hummock grasslands, grass steppe; soft spinifex; and

**Beard Vegetation Association 127**: Bare areas, mud flats.

There is approximately 84.4%, 94.5% and 98.5% of the pre-European vegetation remaining of Beard Vegetation Associations 43, 117 and 127 in the Pilbara bioregion respectively (Shepherd, 2007).

The area proposed to clear does not represent a significant remnant of native vegetation in the wider regional area. The proposed clearing will not reduce the extent of Beard Vegetation Associations 43, 117 or 127 below the current recognised threshold level of 30% of the pre-clearing extent of the vegetation type (below which species loss accelerates exponentially at an ecosystem level) (EPA, 2000).

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in IUCN Class I-IV Reserves |
|---|---|---|---|---|---|
| IBRA Bioregion - Pilbara | 17,804,187.89 | 17,794,646.75 | ~99.95 | Least Concern | ~6.32 |
| Beard vegetation Associations - State | | | | | |
| 43 | 218,170 | 179,517 | ~82.3 | Least Concern | ~20.4 |
| 117 | 919,161 | 886,204 | ~96.4 | Least Concern | ~13.3 |
| 127 | 742,644 | 719,966 | ~96.9 | Least Concern | ~8.0 |
| Beard vegetation Associations - Bioregion | | | | | |
| 43 | 15,058 | 12,713 | ~84.4 | Least Concern | No data available |
| 117 | 74,555 | 70,442 | ~94.5 | Least Concern | 12.2 |
| 127 | 180,401 | 177,739 | ~98.5 | Least Concern | No data available |

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 (2007).

GIS Databases:
- Interim Biogeographic Regionalisation of Australia.
- 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**

The proposed clearing area crosses intertidal mudlfats which support mangroves. Kendrick & Stanley (2002) list mangroves as wetlands of sub-regional significance.

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

A majority of the proposed clearing area is classified as 'completely degraded' (ENV Australia Pty Ltd, 2009a). Mangroves cover a small percentage of the proposed clearing area (3.7 hectares or 2.5% of the proposed clearing area) and clearing of mangrove habitat will be restricted to the existing railway corridor.

A small area of mangrove vegetation has been classified as 'good' condition and is located on the eastern side of the access road to Finucane Island (ENV Australia Pty Ltd, 2009; 2009b). BHP Billiton Iron Ore Pty Ltd (2009) have committed to avoiding this area during clearing operations. Should a clearing permit be granted, it is recommended that conditions be imposed to preserve this mangrove vegetation which is in good condition.

**Methodology**

BHP Billiton Iron Ore Pty Ltd (2009).
ENV Australia Pty Ltd (2009a).
ENV Australia Pty Ltd (2009b).
Kendrick & Stanley (2002).

**(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**

Land system mapping by the Department of Agriculture Western Australia has mapped a variety of land systems for the Pilbara bioregion. Land systems are mapped based on biophysical features such as soil and landform type, geology, geomorphology and vegetation type (Van Vreeswyk et al, 2004). The proposed clearing area includes one land system (GIS Database). A broad description is given below:

Littoral Land System - This land system is characterised by bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches. Approximately 70% of this land system supports no vegetation. Coastal dunes are highly susceptible to wind erosion if vegetative cover is removed (Van Vreeswyk et al, 2004). The proposed clearing area does not include any coastal dunes (BHP Billiton Iron Ore Pty Ltd, 2009).

SKM (2009) undertook an acid sulphate soil assessment of the proposed clearing area and concluded that there is a potential for acid sulphate soils to be encountered where the project area intersects the estuarine/marine environment. However, it is considered that native vegetation clearing is unlikely to disturb soil layers associated with acid sulphate soils.

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

**Methodology**

BHP Billiton Iron Ore Pty Ltd (2009).
SKM (2009).
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 at variance to this Principle**

The proposed clearing area is not located within a conservation reserve. There are no conservation reserves in close proximity to the proposed clearing area (GIS Database).

Based on the above, the proposed clearing is not 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 surface water features in the proposed clearing area, apart from the West Creek which is estuarine in nature (GIS Database, ENV Australia Pty Ltd, 2009a). An existing causeway crosses West Creek and it is considered that the construction of the additional rail formation is unlikely to impact surface water hydrology beyond the effects of the existing infrastructure (BHP Billiton Iron Ore Pty Ltd, 2009). The assessing officer concurs with this assessment, provided that measures as outlined in the proponent's Environmental Management Plan are adhered to.

The proposed clearing area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The proposed clearing is not likely to have a significant impact upon groundwater levels or quality.

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

**Methodology**

BHP Billiton Iron Ore Pty Ltd (2009).
ENV Australia Pty Ltd (2009a).
GIS Database:
- 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 loss of 20 hectares of native vegetation is not likely to increase the incidence or intensity of natural flood events beyond the effects of the existing disturbance at Finucane Island (BHP Billiton Iron Ore Pty Ltd, 2009).

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

**Methodology**

ENV Australia Pty Ltd (2009a).

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

**Comments**

There is one native title claim over the area under application: WC99/003 (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenements have been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases, there are no Aboriginal Sites of Significance within the application area (GIS Database). BHP Billiton Iron Ore Pty Ltd (2009) report that there is potentially two heritage sites within the proposed clearing area. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged throughout 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.

No submissions were received from direct interest parties or members of the public when the clearing permit application was advertised for comment.

**Methodology**

BHP Billiton Iron Ore Pty Ltd (2009).
GIS Database:
- Aboriginal Sites of Significance.
- Native Title Claims.

## 4. Assessor's comments

**Comment**

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

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

## 5. References


BHP Billiton Iron Ore Pty Ltd (2009) Finucane Island Rail Project: Application to clear native vegetation (Purpose Permit) under the Environmental Protection Act 1986. November 2009.

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.

ENV Australia Pty Ltd (2009a) Finucane Island Causeway Flora and Vegetation Assessment. Prepared for Calibre Engenium Joint Venture.

ENV Australia Pty Ltd (2009b) Finucane Island Causeway Terrestrial Fauna Assessment. Prepared for Calibre Engenium Joint Venture.

ENV Australia Pty Ltd (2010) Preliminary Results of the Targeted Regional *Tephrosia rosea var. venulosa* Survey. 5 February 2010.

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Kendrick & Stanley (2002) Pilbara 4 (PIL4 - Roebourne subregion) in: A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002.

Shepherd, D.P. (2007) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.

SKM (2009) Port Hedland Outer Harbour Development. Acid Sulphate Soil Investigation Along the Infrastructure Corridor to Finucane Island. Prepared for BHP Billiton Iron Ore Pty Ltd.

Van Vreeswyk, A.M, Payne, A.L, Leighton, K.A & Hennig, P (2004) Technical Bulletin No. 92: An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture, South Perth, Western Australia.


## 6. Glossary

### Acronyms:

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

### Definitions:

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

| | |
|---|---|
| **P1** | **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey. |
| **P2** | **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey. |

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

the prescribed criteria.

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