



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 3116/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: **Rio Tinto Exploration Pty Limited**

### 1.3. Property details

Property: *Iron Ore (Hamersley Range) Agreement Act 1963, Mineral Lease 4SA (AML 70/4)*  
Local Government Area: Shire of Ashburton  
Colloquial name: Bourne Highway Drilling (Iron Ore) Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5		Mechanical Removal	Mineral Exploration

## 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>Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. The vegetation within the application areas has been broadly mapped as: Beard Vegetation Association 82: Hummock grasslands, low tree steppe; snappy gum over <i>Triodia wiseana</i> (GIS Database; Shepherd et. al., 2001).</p> <p>Western Botanical conducted a flora survey in December 2008 over an area that included the application areas. Western Botanical (2008) identified 15 vegetation types on six landforms within the survey area, and the following eight vegetation types are mapped as occurring within the clearing permit application areas:</p> <p><b>Rocky hill slope and hilltop:</b></p> <p>1. <i>Eucalyptus leucophloia</i> ssp. <i>leucophloia</i> low open woodland over <i>Acacia arida</i> low shrubland over <i>Triodia wiseana</i> / <i>Triodia</i> sp. Robe River open hummock grassland;</p> <p>2. <i>Acacia arida</i> low shrubland over <i>Triodia wiseana</i> / <i>Triodia</i> sp. Robe River open hummock grassland, and sometimes scattered <i>Eucalyptus leucophloia</i> ssp. <i>leucophloia</i> low trees and <i>Acacia</i> and <i>Senna</i> shrubs;</p> <p><b>Rocky hilltop:</b></p> <p>3. <i>Eucalyptus gamophylla</i> low open woodland over <i>Acacia arida</i> low shrubland over <i>Triodia wiseana</i> / <i>Triodia</i> sp. Robe River open hummock grassland;</p> <p>4. <i>Acacia bivenosa</i> open shrubland over <i>Triodia wiseana</i> open hummock grassland with scattered <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low trees.</p> <p><b>Rocky hill slope:</b></p> <p>5. <i>Acacia</i> open shrubland, including <i>A. pruinocarpa</i>, <i>A. aneura</i>, <i>A. citrinoviridis</i> and <i>A. marramamba</i>, over <i>Acacia arida</i> low open shrubland over <i>Triodia wiseana</i> / <i>Triodia</i> sp. Robe River very open hummock grassland and sometimes</p>	<p>Rio Tinto Exploration (2009) proposes to clear up to 5 hectares of native vegetation within a larger area totalling approximately 64.5 hectares. The proposed clearing is located approximately 105 kilometres west of Tom Price (GIS Database).</p> <p>The purpose of the proposed clearing is for exploration drilling (Rio Tinto Exploration, 2009). Vegetation will be cleared by bulldozer with its blade raised and a tracked rock breaker may also be required (Rio Tinto Exploration, 2009). Vegetation and topsoil will be stockpiled for rehabilitation purposes (Rio Tinto Exploration, 2009).</p>	<p>Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).</p>	<p>The vegetation condition was based on the flora survey of the proposed clearing area which was conducted by Western Botanical in December 2008.</p> <p>Western Botanical (2008) has described the vegetation of the application areas as being in primarily good condition. Parts of the survey area were reported as having extensive populations of the environmental weed <i>Cenchrus ciliaris</i> (Western Botanical, 2008).</p>

scattered *Eucalyptus leucophloia* ssp. *leucophloia* low trees;

**Rock hilltop Gravelly plain:**

6. *Triodia wiseana* and / or *Triodia* sp. Robe River hummock grassland, sometimes with *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees or *Hakea chordophylla*, *Senna* spp. and *Acacia* spp. scattered shrubs.

**Rocky hill slope Minor drainage line:**

7. *Eucalyptus leucophloia* ssp. *leucophloia* low open woodland over *Acacia pruinocarpa* / *Acacia citrinoviridis* open shrubland over *Acacia arida* / *Acacia marramamba* low open shrubland over *Triodia wiseana* / *Triodia* sp. Robe River very open hummock grassland.

**Gravelly plain Drainage line Gully:**

8. Mixed shrubland including *Acacia bivenosa*, *A. monticola*, *A. arida*, *A. synchronicia*, *A. citrinoviridis*, *Gossypium robinsonii*, *Stylobasium spathulatum*, *Senna* spp. and *Petalostylis labicheoides* over *Triodia wiseana* / *Triodia* sp. Robe River open hummock grassland, sometimes with *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees.

### 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 application areas are located within the Hamersley subregion of the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion (GIS Database). This subregion generally consists of mountainous areas of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite) (CALM, 2002). The Hamersley subregion generally contains mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

A flora survey was conducted by Western Botanical in December 2008 over an area that included the application areas. Western Botanical (2008) recorded a total of 119 plant taxa representing 39 families and 61 genera. The most common families were *Mimosaceae* (16), *Poaceae* (11) and *Amaranthaceae* (11) (Western Botanical, 2008). The vegetation of the application areas was considered to moderately diverse and typical of the region (Western Botanical, 2008).

Western Botanical (2008) identified one weed species during the rare flora survey: Buffel Grass (*Cenchrus ciliaris*). The presence of introduced weed species lowers the biodiversity value of the proposed clearing areas. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes of weed management.

The assessing officer has conducted a search of Department of Environment and Conservation (DEC) databases for fauna that may potentially occur within a 40 kilometre radius of the application areas. The search identified up to 65 animal species that could potentially occur within the survey area (DEC, 2009). The search indicated that the area is likely to be most diverse in reptile species which would be considered fairly typical of the Pilbara region (DEC, 2009).

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

**Methodology**

CALM (2002)  
DEC (2009)  
Western Botanical (2008)  
GIS Database  
- Interim Biogeographical Regionalisation of Australia

**(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**

The assessing officer has conducted a search of Department of Environment and Conservation (DEC) databases for fauna of conservation significance that may occur within a 40 kilometre radius of the application areas. In addition, Rio Tinto Exploration (2009) has conducted a desktop search using the *Environment Protection and Biodiversity Conservation Act 1999* database for fauna of conservation significance that could potentially occur within the application areas. These searches have identified the following species of conservation significance that have the potential to occur within the application areas (DEC, 2009; Rio Tinto Exploration, 2009):

- Long-tailed Dunnart (*Sminthopsis longicaudata*), Priority 4 on the DEC Threatened and Priority Fauna list;
- A skink (*Notoscincus butleri*), Priority 4 on the DEC Threatened and Priority fauna list;
- Striated Grass-wren (*Amytornis striatus* subsp. *striatus*), Priority 4 on the DEC Threatened and Priority Fauna list;
- Western Pebble-mound Mouse (*Pseudomys chapmani*), Priority 4 on the DEC Threatened and Priority Fauna list.

Suitable habitat for the Long-tailed Dunnart, *Notoscincus butleri* and the Striated Grasswren is present within the application areas and therefore these species may potentially occur within the areas applied to be cleared. However, the landforms and habitat types within the application areas are widespread throughout the Pilbara region (Western Botanical, 2008) and therefore, the vegetation within the application areas is unlikely to represent significant habitat for these species.

Populations of the Western Pebble-mound Mouse are widespread in the extensive ranges of the central and southern Pilbara, extending into the smaller ranges of the Little Sandy Desert (Van Dyck and Strahan, 2008). The Western Pebble-mound Mouse generally occurs on gentler slopes of rocky ranges where the ground is covered by stony mulch and vegetated by hard spinifex, often with an overstorey of eucalypts and scattered shrubs (Van Dyck and Strahan, 2008). Mounds are often sited close to narrow ribbons of *Acacia*-dominated scrub that grows along incised drainage lines (Van Dyck and Strahan, 2008). Western Botanical (2008) report that eight Pebble-mound Mouse mounds have been recorded within the application areas. Therefore, the vegetation of the application areas may be important habitat for this species, however, the vegetation type within the application areas is widespread locally and within the Pilbara region generally and numerous mounds of this species have been found within areas adjacent to the application areas. Active Pebble-mound Mouse mounds should be avoided where practicable.

The habitat types present within the application areas are reported by Western Botanical (2008) as being in good condition. Land system information provided by Van Vreeswyk et al. (2004) and subregional information by CALM (2002) indicates that these vegetation communities and landform features appear to be common and widespread throughout the Pilbara region. The proposed clearing of five hectares of native vegetation for exploration activities, is unlikely to have any significant impact on the fauna habitats of the area.

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

**Methodology** CALM (2002)  
DEC (2009)  
Rio Tinto Exploration (2009)  
Van Dyck and Strahan (2008)  
Van Vreeswyk et al. (2004)  
Western Botanical (2008)

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

**Comments Proposal may be at variance to this Principle**

Western Botanical conducted a rare flora survey in December 2008, which included the application areas. The survey included a desktop survey of the area in addition to a field survey (Western Botanical, 2008). The desktop survey of the area revealed that up to five Priority flora could potentially occur within a 50 kilometre radius of the application areas (Western Botanical, 2008):

- *Genus* sp. Hamersley Range (Priority 1), generally found on hill summit, skeletal soil over ironstone;
- *Sida* sp. Hamersley Range (Priority 1), generally found in well drained stony loamy sand, base of steep tableland slope;
- *Ptilotus subspinescens* (Priority 3), generally found on gentle rocky slopes, screes and bases of screes;
- *Rhynchosia bungarensis* (Priority 3), generally found on pebbly, coarse sand, drainage line banks and beds;
- *Livistona alfredii* (Priority 4), generally found on the edges of permanent pools.

None of the above species were recorded during the rare flora survey. No Declared Rare Flora were recorded during the survey, however one Priority flora species, *Eremophila magnifica* subsp. *magnifica* (Priority 4) was recorded within the application areas (Western Botanical, 2008). This species grows on skeletal soils over

ironstone on rocky hill summits, rocky screes and upper slopes (Florabase 2009 as cited in Western Botanical, 2008). This species occurs as scattered populations and is restricted to the Hamersley Ranges (Chinnock, 2007 as cited in Western Botanical, 2008).

Western Botanical (2008) recorded seven populations of *Eremophila magnifica* subsp. *magnifica* during the survey. Five of these populations occurred within the current clearing permit application areas, located on rocky hill slopes and hilltops within the following two vegetation types (Western Botanical, 2008):

- *Acacia aneura* and *A. pruinocarpa* low open woodland over *A. arida* and *A. marramamba* scattered shrubs over *Triodia wiseana* hummock grassland; and
- *Eucalyptus leucophloia* spp. *leucophloia* low open woodland over *Acacia* spp. shrubland over *Triodia wiseana* and *T. sp.* Robe River open hummock grassland.

DEC databases have numerous records of this species occurring throughout the Hamersley Ranges (Western Australian Herbarium, 1998-2009). It is recommended that impacts to *Eremophila magnifica* subsp. *magnifica* be avoided where possible.

Based on the above, the proposed clearing may be at variance to this Principle, however, the habitat for *Eremophila magnifica* subsp. *magnifica* is widespread locally and within the Pilbara region generally, and therefore, the proposed clearing is unlikely to have a significant impact upon the conservation status of this flora species.

**Methodology** Western Australian Herbarium (1998-2009)  
Western Botanical (2008)

**(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 (TECs) within the areas applied to clear (GIS Database). The nearest known TEC is located approximately 50 kilometres east of the application areas (GIS Database).

Western Botanical (2008) reports that no TECs were identified during the botanical survey of the application areas.

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

**Methodology** Western Botanical (2008)  
GIS Database:  
- Threatened Ecological Communities

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

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

The application areas fall within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd et al. (2001) report that approximately 99.9% of the pre-European vegetation still exists in this bioregion (see table below).

The vegetation within the application areas is broadly mapped as Beard Vegetation Association 82: Hummock grasslands, low tree steppe; Snappy Gum over *Triodia wiseana* (GIS Database; Shepherd et. al., 2001). According to Shepherd et al. approximately 100% of this vegetation association remains within the bioregion. In addition, the vegetation association is quite well represented within conservation estate (see table below).

Therefore, the vegetation within the application areas is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,930	2,565,930	~100	Least Concern	10.2
Beard veg assoc. – Bioregion					
82	2,563,610	2,563,610	~100	Least Concern	10.2

\* Shepherd et al. (2001) updated 2005

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

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd et al. (2001)  
GIS Database:  
- Interim Biogeographic Regionalisation of Australia  
- 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 application areas contain a minor, ephemeral drainage line (GIS Database). Western Botanical (2008) recorded the following two vegetation units within the application areas that are generally associated with watercourses:

**7.** Rocky hill slope Minor drainage line: *Eucalyptus leucophloia* ssp. *leucophloia* low open woodland over *Acacia pruinocarpa* / *Acacia citrinoviridis* open shrubland over *Acacia arida* / *Acacia marramamba* low open shrubland over *Triodia wiseana* / *Triodia* sp. Robe River very open hummock grassland;

**8.** Gravelly plain Drainage line Gully: Mixed shrubland including *Acacia bivenosa*, *A. monticola*, *A. arida*, *A. synchronicia*, *A. citrinoviridis*, *Gossypium robinsonii*, *Stylobasium spathulatum*, *Senna* spp. and *Petalostylis labicheoides* over *Triodia wiseana* / *Triodia* sp. Robe River open hummock grassland, sometimes with *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees.

These vegetation units are reported by Western Botanical (2008) as being in good condition. Land system information provided by Van Vreeswyk et al. (2004) and subregional information by CALM (2002) indicates that these vegetation communities and landform features appear to be common and widespread throughout the Pilbara region.

Based on the above, the proposed clearing is at variance to this Principle, however the disturbance to the vegetation associated with watercourses is likely to be minimal and restricted to access track crossings. The vegetation units associated with watercourses are well represented locally and within the Pilbara region generally and therefore, the proposed clearing is unlikely to have any significant impacts on vegetation associated with watercourses, at a regional scale.

If any watercourses are to be disturbed by the proposed works the proponent should liaise with the Department of Water (DoW) to determine whether a Bed and Banks permit is required.

**Methodology** CALM (2002)  
Van Vreeswyk et al. (2004)  
Western Botanical (2008)  
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 areas have been mapped as occurring within the Newman land system (GIS Database).

The Newman land system consists of rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). The dominant vegetation type is spinifex and the system is burnt fairly frequently. This land system has a low risk of soil erosion (Van Vreeswyk et al., 2004).

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  
- Rangelands System Mapping

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

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

The proposed clearing is not located within close proximity to any conservation areas (GIS Database). The nearest DEC managed land is the Karajini National Park located approximately 115 kilometres east of the application areas (GIS Database).

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

**Methodology** GIS Database  
- CALM Managed Land and Waters

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

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

The application areas are located in an arid region with an average annual rainfall of approximately 413.3 millimetres falling mainly during the summer months (BoM, 2009). Based on an average annual evaporation rate of approximately 2,500 millimetres, any surface water resulting from rain events is expected to be relatively short-lived (ANRA, 2007).

The application areas have a minor, ephemeral drainage line crossing through them (GIS Database). Based on the climate of the region this creekline is expected to be dry except following significant rain events which are typically associated with tropical cyclones. Therefore the proposed clearing is unlikely to have a significant impact upon surface water quality in the area.

The proposed clearing is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The Pilbara region consists of granite-greenstone bedrock in the north, and the sedimentary and volcanic rocks of the Hamersley basin in the south (DoF, 2009). The application areas are located within the south of the Pilbara region and would therefore most likely be located in the Hamersley basin. Groundwater in this basin is generally fresh or brackish (DoF, 2009). The clearing of 5 hectares of native vegetation, scattered over a much larger area, is unlikely to have a significant impact upon groundwater quality or quantity.

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

**Methodology** ANRA (2007)  
BoM (2009)  
DoF (2009)  
GIS Database:  
- 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**

The application areas are located in an arid region where the average annual evaporation rate greatly exceeds the average annual rainfall (BoM, 2009). There are no permanent watercourses within the application areas, however, an ephemeral drainage line dissects the proposed clearing areas (GIS Database). This drainages line is expected to be dry for most of the year, and would likely only flow immediately following significant rainfall.

Natural flood events do occur in the Pilbara region following cyclonic activity. However, the proposed clearing is

not expected to increase the incidence or intensity of such events given the size of the area to be cleared (5 hectares), in relation to the Ashburton River catchment area (7,877,700 hectares) (GIS Database).

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

**Methodology** BoM (2009)  
GIS Database  
- Hydrographic Catchments - Catchments  
- Hydrography, linear

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

##### **Comments**

There is one Native Title claim (WC01/005) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the 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*).

There are two known Aboriginal Sites of Significance (ID: 17320 and ID: 17323) within the application areas (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks permit or any other licences or approvals are required for the proposed works.

There were no public submissions received during the public comments period.  
One direct interest submission was received, raising no objection to the proposed clearing.

**Methodology** GIS Database  
- Aboriginal Sites of Significance  
- Native Title Claims

#### **4. Assessor's comments**

##### **Comment**

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

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

#### **5. References**

- ANRA (2007) Rangelands overview: Pilbara [online]. Available from: <http://www.anra.gov.au/tropics/rangelands/overview/wa/ibra-pil.html>. Accessed 23 April, 2009.
- BoM (2009) Climate Statistics for Australia Locations - Statistics for Newman. Bureau of Meteorology. Available online from: [www.bom.gov.au](http://www.bom.gov.au). Accessed 23 April 2009.
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- DEC (2009) NatureMap. Department of Environment and Conservation. Available online from: <http://naturemap.dec.wa.gov.au>. Accessed 23 April 2009.
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- Rio Tinto Exploration (2009) Clearing Permit Application Supporting Documentation, May 2009.
- 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 Dyck, S. and Strahan, R. (eds.) (2008) The Mammals of Australia. Third Edition. New Holland Publisher (Australia) Pty Ltd, 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.
- Western Australian Herbarium (1998-2009) FloraBase - The Western Australian Flora. Department of Environment and Conservation, Western Australia.
- Western Botanical (2008) Bourne Highway Group Rare Flora Survey. Prepared for Rio Tinto Exploration, 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>DEC</b>	Department of Environment and Conservation
<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>DMP</b>	Department of Mines and Petroleum
<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>DoW</b>	Department of Water
<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.