



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 4015/2  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Fox Radio Hill Pty Ltd

### 1.3. Property details

Property: Mining Lease 47/161  
Local Government Area: Shire of Roebourne  
Colloquial name: Heap Leach Project

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|--------------------|-----------|--------------------|---------------------|
| 15                 |           | Mechanical Removal | Mineral Production  |

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 15 December 2011

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** Beard Vegetation Associations have been mapped at a 1:250,000 scale for the whole of Western Australia and are useful to look at vegetation in a regional context.

The following Beard Vegetation Association has been mapped within the application area (GIS Database):

**589:** Mosaic: Short bunch grassland - savanna/grass plain (Pilbara)/Hummock grasslands, grass steppe; soft spinifex.

A flora and vegetation survey of the application area was conducted on the 8th and 9th October 2009 by Mattiske Consulting Pty Ltd (Mattiske, 2010).

Seven vegetation communities were identified and grouped into *Triodia* (T1, T2), *Eucalypt* (E1, E2), *Acacia* (A1, A2) and a heavily disturbed area (Mattiske, 2010). These communities are defined below:

#### **Triodia**

T1 - Hummock Grassland of *Triodia wiseana* with emergent *Acacia pyrifolia* var. *pyrifolia* and *Acacia bivenosa* on hilltops, slopes and flats.

T2 - Hummock Grassland of *Triodia pungens* with occasional \**Cenchrus ciliaris* (Buffel Grass) and *Triodia wiseana* with emergent *Stylobasium spathulatum* on rockpiles.

#### **Eucalypt**

E1 - Low Open Woodland of *Corymbia hamersleyana* and *Eucalyptus victrix* over *Acacia bivenosa*, *Acacia pyrifolia* var. *pyrifolia*, *Hakea lorea* subsp. *lorea* and *Grevillea pyramidalis* over *Triodia wiseana* on flats.

E2 - Low Open Woodland of *Corymbia hamersleyana* woodland over *Acacia bivenosa* and *Acacia pyrifolia* var. *pyrifolia* over *Triodia wiseana* and *Triodia pungens* on flats adjacent to major flow lines.

E2(d) - Heavily disturbed area of Buffel Grass with emergent *Acacia pyrifolia* var. *pyrifolia*.

#### **Acacia**

A1 - Low open Woodland of *Acacia xiphophylla* with *Acacia pyrifolia* and *Acacia bivenosa* over *Triodia wiseana* with \**Cenchrus ciliaris* on flats.

A2 - Mixed shrubland of *Acacia bivenosa*, *Acacia ancistrocarpa* and *Acacia pyrifolia* with *Pterocaulin sphaeranthoides* over *Triodia wiseana* with *Triodia pungens* in gullies and in low lying areas.

\* Introduced species

|                             |  |
|-----------------------------|--|
| <b>Clearing Description</b> | <p>Fox Radio Hill Pty Ltd has applied to clear up to 15 hectares of native vegetation within an application area of approximately 35 hectares (GIS Database). The application area is located approximately 25 kilometres south of Karratha in the West Pilbara region of Western Australia (GIS Database).</p> <p>The application is for a Heap Leach Project at the Radio Hill Mine. The proposal is to clear native vegetation to create a heap leach pad, ponds and supporting infrastructure (URS, 2010).</p>   |
| <b>Vegetation Condition</b> | <p>Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).</p>  |
| <b>Comment</b>              | <p>The vegetation condition is based on the flora, vegetation and vertebrate fauna assessment carried out by Mattiske on 8 and 9 October 2009.</p> <p>Clearing permit CPS 4015/1 was granted on 18 November 2010, and is valid from 18 December 2010 to 31 January 2012. The clearing permit authorised the clearing of 15 hectares of native vegetation. An application for an amendment to clearing permit CPS 4015/1 was submitted by Fox Radio Hill Pty Ltd on 7 November 2011. The proponent has requested to extend the duration of the Clearing Permit from the 31 January 2012 to the 12 January 2014. There were no additional environmental impacts as a result of this amendment.</p> |

### 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 area occurs within the Roebourne (PIL4) sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by Quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands. Samphire, *Sporobolus* and mangal occur on marine alluvial flats and river deltas. Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite (CALM, 2002).

A flora, vegetation and vertebrate fauna assessment of the Radio Hill application area was undertaken by Mattiske (2010). This involved both desktop analysis and a field survey.

No Declared Rare Flora (DRF), Priority flora species or Threatened Ecological Communities (TECs) were recorded within the application area during the survey (Mattiske, 2010).

The survey of the application area recorded a total of 61 vascular plant taxa from 26 families and 45 genera including two weed species (Mattiske 2010). Seven vegetation communities were recorded within the application area which included hummock grassland communities (labelled T1 and T2), Eucalypt communities (E1 and E2), an area heavily disturbed with the introduced species *Cenchrus ciliaris* (Buffel Grass) (E2), and *Acacia* communities (A1 and A2) (Mattiske 2010).

There are sections of the application area that are partially degraded due to weed infestation, in particular the south eastern corner of the application area which is infested with the introduced species *Cenchrus ciliaris* (Buffel Grass) (Mattiske, 2010). The presence of weeds has the potential to reduce the biodiversity of an area, and care should be taken to ensure that weeds are not spread as a result of the proposed clearing. Potential impacts may be minimised by the implementation of a weed management condition.

The Roebourne Plains, PEC is the only Priority Ecological Community (PEC) with the potential to occur within the application area (Mattiske, 2010). The survey reported that the geological and vegetative characteristics that supports this community were not present within the application area and that none of the vegetation communities were representative of the PEC (Mattiske, 2010).

The survey by Mattiske (2010) determined that the plant communities within the application area are similar to communities defined as occurring in the Ruth land system. The Ruth land system covers 13.2% of the Roebourne Plains area (Payne and Tille, 1992). The communities in the Ruth land system are represented widely in the Karijini and Millstream-Chichester National Parks and DEC managed pastoral leases such as the Meentheena Pastoral Lease (Mattiske, 2010).

The rockpile vegetation community (T2) is potentially the most significant vegetation association occurring within the application area. The rockpile communities occur on the hills in three small locations within the application area. Rockpile communities are represented extensively northwards towards the Pilbara coast outside of the application area (Mattiske 2010).

According to Shepherd (2007) approximately 99.9% of the pre-European vegetation remains within the Pilbara

bioregion, therefore, from a regional context, the vegetation complexes within the application area are well represented within the broader region. The native vegetation within the application area does not have a high level of biological diversity (Mattiske, 2010).

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

**Methodology** CALM (2002)  
Mattiske (2010)  
Payne and Tille (1992)  
Shepherd (2009)  
GIS Database:  
- Declared Rare and Priority Flora List  
- Threatened Ecological Sites buffered

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

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

Mattiske (2010) conducted a desktop survey of the application area using the Nature Map database. This showed that a total of forty fauna taxa have been recorded within the 20 kilometres of the application area.

Potential fauna habitats exist within the application area. There were no opportunistic field observations of fauna recorded during the survey, however potential habitat types were inferred from the flora and vegetation survey. This included the rock pile vegetation communities, *Triodia* hummock grasslands, the low open woodlands and acacia shrublands.

Of the forty fauna species recorded, based on known distributions and habitat preferences, the following three priority fauna species were identified as having the potential to occur within the area:

*Pseudomys chapmani* (Western pebble mound mouse) (P4);  
*Lerista quadrivincula* (Four chained slider) (P1); and  
*Notoscincus butleri* (P4) (skink).

Of the vegetation communities recorded within the application area, the following communities could potentially be favourable for the following priority taxa (Mattiske, 2010):

- *Pseudomys chapmani*: Hummock grassland (T1 and T2 communities);  
- *Notoscincus butleri*: Arid, rocky, spinifex dominated areas near creek and river margins (T1, T2 and A2 communities).

*Lerista quadrivincula* occurs on arid coastal plains. Given the paucity of information on this species, it is not clear if habitats in the impact area are suitable for it to occur. None of the priority species were recorded during the survey (Mattiske, 2010).

The vegetation associations and fauna habitats recorded within the application area are represented widely in the Karijini and Millstream-Chichester National Parks and DEC managed pastoral leases such as Meentheena Pastoral Lease (Mattiske, 2010). Therefore, it is likely that the habitats of these fauna species occur outside of the survey area.

As the application area occurs near current operations at Radio Hill, the likelihood of fauna species occurring within the application area is reduced (Mattiske, 2010).

The vegetation associations and fauna habitats recorded within the application area are well represented within the broader region and approximately 99.9% of the pre-European vegetation remains within the Pilbara bioregion (Shepherd, 2007). The Ruth land system accounts for 13.2 % or 1,350 km<sup>2</sup> of the Roebourne Plains area (Payne and Tille, 1992). Therefore the proposed clearing is not likely to have any significant impact on fauna habitats in a regional context.

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

**Methodology** Mattiske (2010)  
Payne and Tille (1992)  
Shepherd (2009)

**(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**

There are no known records of Declared Rare Flora (DRF) within close proximity of the application area (GIS Database). No DRF were recorded during the flora survey of the application area and none would be expected

to occur (Mattiske, 2010). The desktop assessment conducted by Mattiske, revealed that one Priority flora species, *Terminalia supranitifolia* (Priority 1) was recorded within 20 km of the application area, however this species was not recorded during the flora and vegetation survey of the application area (Mattiske, 2010).

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

**Methodology** Mattiske (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**  
No TECs or PECs have been recorded within the application area (GIS Database). The nearest TEC is recorded approximately 144 km south, south-east of the application area (GIS Database).  
  
The flora and vegetation survey conducted by Mattiske (2010) also indicated that none of the vegetation communities recorded within the application area represented a TEC. Furthermore it was concluded that due to the absence of geological and vegetative characteristics that supports the Roebourne Plains PEC, this community does not exist on the application area (Mattiske, 2010).

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

**Methodology** Mattiske (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 falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). According to Shepherd (2009) approximately 99.9% of the Pre-European vegetation remains within the Pilbara bioregion (see table) (GIS Database).

The vegetation of the application area has been mapped as Beard vegetation association 589: Mosaic: Short bunch grassland savanna/grass plain (Pilbara)/Hummock grasslands, grass steppe; soft spinifex (GIS Database).

According to Shepherd (2009) approximately 99.99% of this Beard vegetation association remains at both a state and bioregional level. Therefore the area proposed to be cleared does not represent 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                  | 17,804,193              | 17,7854,001          | ~99.89       | Least Concern         | 6.32                                       |
| Beard vegetation associations - State     |                         |                      |              |                       |  |
| 589                                       | 809,754                 | 809,637              | ~99.99       | Least Concern         | 1.60                                       |
| Beard vegetation associations - Bioregion |                         |                      |              |                       |  |
| 589                                       | 730,718                 | 730,683              | ~99.99       | Least Concern         | 1.77                                       |

\* Shepherd (2009)

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

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

**Methodology** Department of Natural Resources and Environment (2002)  
Shepherd (2009)  
GIS Database:

- IBRA WA (Regions - Sub Regions)
- 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 may be at variance to this Principle**

There are several minor ephemeral watercourses that pass through the application area, and there is an ephemeral creek approximately 26 metres to the south of the application area (GIS Database).

Currently, no riparian vegetation grows in association with these drainage lines within the application area (Mattiske, 2010). Prior to the majority of the area being cleared, these drainage lines will be diverted around the proposed clearing area. Temporary sediment traps will be installed during the clearing and construction phase, at the point where the surface runoff discharges into each of the original drainage lines before entering the ephemeral creek (URS, 2010).

The flow from the minor drainage lines into the ephemeral creek south of the application area will be slightly less than pre-disturbance flow due to the containment of any contaminated stormwater. The riparian vegetation growing in association with this creek will not be cleared (URS, 2010) however could potentially be affected if the flow of water as a result of the flood events is decreased significantly.

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

**Methodology** URS (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 falls within the Roebourne Plains, as defined by Payne and Tille (1992) and is mapped as the Ruth and Paraburdoo land systems (GIS Database).

The Ruth land system is characterised by hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands. This land system is not susceptible to erosion (Payne and Tille, 1992).

The Paraburdoo land system is characterised by stony gilgai plains derived from basalt with snakewood and mulga shrublands, spinifex grasslands, chenopods and tussock grasses. This land system is generally not susceptible to erosion, although some erosion risk exists for drainage floor type habitats (Payne and Tille, 1992).

The flora and vegetation survey conducted by Mattiske (2010) determined that the plant communities within the application area are similar to communities defined as occurring in the Ruth land system. Therefore the application area is anticipated to have a low erosion risk.

The south western tip of the application area has been mapped as having a moderate to low risk of having acid sulphate soils (GIS Database). It is not likely that the clearing of 15 hectares of vegetation in the application area will cause any significant impact. The risks associated with excavating acid sulfate soils will be managed through other approvals processes.

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

**Methodology** Mattiske (2010)  
Payne and Tille (1992)  
GIS Database:  
- Acid Sulfate Soil Risk Map, Pilbara Coastline  
- 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 is not located within any conservation areas or DEC managed lands (GIS Database). The nearest conservation area is an un-named reserve located approximately 24 km north of the application area (GIS Database). Based on this distance, the environmental value of this conservation area is not likely to be impacted by the proposed clearing.

The Millstream-Chichester National Park is located 29 km south of the application area. With the local area and Pilbara bioregion being largely uncleared, the vegetation under application is not considered an important ecological linkage to the Millstream-Chichester National Park.

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

**Methodology** GIS Database:  
- DEC Tenure

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

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

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The groundwater salinity within the application area is between 1,000 - 3,000 milligrams per litre (mg/L) of Total Dissolved Solids (TDS) (GIS Database).

Recent measurements of groundwater quality in the mine area show that the groundwater is typically marginal to brackish, with a salinity level of 530mg/L and a pH range of 7.25 to 8.7 (URS, 2010). The proposed clearing of 15 hectares is unlikely to have any significant impact on groundwater levels or quality.

There are several minor ephemeral watercourses that pass through the permit application area and there is an ephemeral creek to the south of the permit application area (GIS Database).

It is proposed that all clean surface water will be diverted around the heap leach pad and ponds area to ensure that vegetation downstream of the cleared areas will continue to receive surface water flows. The surface water diversion system will be designed for flows up to and including a 1:100 year, 72 hour event and will consist of dugout channels/ditches to route surface water from the upgradient watershed around the heap leach pad and ponds to the ephemeral creek (URS, 2010).

Clearing is currently proposed to occur in January and February 2011 when rainfall occurs in the Pilbara region. If clearing does occur during this time, a diversion system will be installed prior to the majority of the area being cleared. Temporary sediment traps will be installed during the clearing and construction phase, at the point where the surface runoff discharges into each of the original drainage lines before entering the creek (URS, 2010).

Given the above mitigation measures, the clearing of 15 hectares of vegetation within the application area is not likely to have a significant impact on the quality of groundwater or surface water in the local area.

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

**Methodology** URS (2010)  
GIS Database:  
- Groundwater Salinity, Statewide  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSA's)

**(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 area is located within the Maitland River Catchment Area which covers a total area of approximately 199,381 hectares (GIS database). With an average annual rainfall of 310 millimetres and an average annual evaporation rate of 3400 millimetres there is likely to be little surface flow during normal seasonal rains (Bureau of Meteorology, 2010; GIS Database). Clearing will occur in a reasonably small area and there are only minor ephemeral intermittent drainage lines across the Permit Application Area.

A surface water diversion system will be designed for the site for flows up to and including a 1:100 year, 72 hour event and will consist of dugout channels/ditches to route surface water from the upgradient watershed around the heap leach pad and ponds to the ephemeral creek. The flow from the minor drainage lines into the creek will be slightly less than pre-disturbance flow due to the containment of any contaminated stormwater.

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

**Methodology** Bureau of Meteorology (2010)  
GIS Database:  
- Evaporation Isopleths  
- Hydrographic Catchments-Catchments

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

### Comments

There is one Native Title Claim (WC99/014) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining or petroleum tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal sites of significance are damaged through the clearing process.

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

Clearing permit CPS 4015/1 was granted on 18 November 2010, and is valid from 18 December 2010 to 31 January 2012. The clearing permit authorised the clearing of 15 hectares of native vegetation. An application for an amendment to clearing permit CPS 4015/1 was submitted by Fox Radio Hill Pty Ltd on 7 November 2011. The proponent has requested to extend the duration of the Clearing Permit from the 31 January 2012 to the 12 January 2014. There were no additional environmental impacts as a result of this amendment.

### Methodology

GIS Database:

- Native Title Determined
- Native Title Federal
- Native Title NNTT
- Sites of Aboriginal Significance

## 4. References

- Bureau of Meteorology (2010) Climate Statistics for Australian Locations, Summary Statistics for Roebourne, Western Australia. Commonwealth Government of Australia. Available online: [http://www.bom.gov.au/climate/averages/tables/cw\\_004035.shtml](http://www.bom.gov.au/climate/averages/tables/cw_004035.shtml).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- 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.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske (2010) Flora, Vegetation and Vertebrate Fauna Assessment of the Proposed Heap Leach Site at Radio Hill. Unpublished report prepared for Fox Resources Limited by Mattiske Consulting Pty Ltd, June 2010.
- Payne, A.L. and Tille, P. J. (1992) An inventory and condition survey of the Roebourne Plains and surrounds, Western Australia. Technical Bulletin No. 83, Department of Agriculture, Western Australia.
- Shepherd, D.P. (2009) 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.
- URS (2010) Supporting Documentation for the Clearing Permit Application, Radio Hill Heap Leach Project. Unpublished report prepared by URS Australia Pty Ltd for Fox Resources Limited, October 2010.

## 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)                         |

|                 |   |
|-----------------|---|
| <b>GIS</b>      | Geographical Information System   |
| <b>ha</b>       | Hectare (10,000 square metres)  |
| <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 Act</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>TEC</b>      | 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.