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

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 6048/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

**Proponent's name:** **Hamersley Iron Pty Ltd**

### 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:** Brockman 2 Exploration Project.

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 7.5 | | Mechanical Removal | Mineral exploration and associated activities |

### 1.5. Decision on application

**Decision on Permit Application:** Grant
**Decision Date:** 28 August 2014

## 2. Site Information

### 2.1. Existing environment and information

*2.1.1. Description of the native vegetation under application*

**Vegetation Description** Beard vegetation associations have been mapped for the entirety of Western Australia. The following Beard vegetation association has been mapped within the application area (GIS Database):

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

A flora and vegetation survey of the application area (Rio Tinto, 2011) identified the following vegetation associations within the application area:

1: *Eucalyptus leucophloia* low open woodland, over *Acacia pruinocarpa*, *Acacia bivenosa* and *Acacia ancistrocarpa* scattered shrubs, over *Triodia wiseana* hummock grassland;

2: *Eucalyptus leucophloia* scattered low trees, over *Acacia bivenosa*, *Acacia ancistrocarpa* and *Acacia marramamba* scattered shrubs, over *Triodia wiseana* hummock grassland;

3: Isolated *Eucalyptus leucophloia* low trees, over scattered *Astrotricha hamptonii* and *Acacia aneura* tall shrubs over open shrubland / low shrubland of *Acacia marramamba*, *Dodonaea pachyneura* and *Astrotricha hamptonii*, over *Triodia wiseana* very open hummock grassland, over *Cymbopogon ambiguous* and *Eriachne mucronata* very open tussock grassland;

4: *Acacia aneura* and *Eucalyptus leucophloia* scattered low trees / low open woodland, over *Acacia aneura* var. *pilbarana* tall shrubland, over *Acacia aneura* and *Acacia hamersleyensis* open shrubland, over *Triodia wiseana* open hummock grassland;

5: *Eucalyptus leucophloia* low open woodland, over *Hakea chordophylla*, *Gossypium robinsonii* and *Acacia pruinocarpa* scattered tall shrubs (to tall open shrubland), over *Gossypium robinsonii*, *Acacia bivenosa*, *Jasminum didymum*, and *Acacia maitlandii* open shrubland / scattered low shrubs, over *Cymbopogon ambiguous*, *Themeda triandra* and *Eriachne mucronata* scattered tussock grasses, over *Triodia epactia* hummock grassland;

6: *Eucalyptus leucophloia* scattered low trees, over *Hakea chordophylla* and *Grevillea wickhamii* scattered tall shrubs, over mixed *Acacia* spp. open shrubland (to low open shrubland) typically dominated by *Acacia bivenosa*, *Acacia ancistrocarpa*, *Acacia atkinsiana* and *Acacia tenuissima* over *Triodia epactia* hummock grassland with scattered *Cymbopogon ambiguous* tussock grasses;

7: *Eucalyptus leucophloia* scattered low trees, over *Acacia atkinsiana* and *Acacia pachyacra* tall open shrubland, over *Acacia atkinsiana* shrubland, over *Triodia epactia* hummock grassland with scattered *Themeda triandra* tussock grasses; and

8: *Eucalyptus leucophloia, Acacia trudgeniana* and *Corymbia deserticola* low open woodland to scattered low trees, over tall open shrubland of mixed *Acacia* spp. typically dominated by *Acacia trudgeniana, Acacia kempeana*

and *Grevillea wickhamii*, over open shrubland of *Acacia trudgeniana, Acacia ancistrocarpa* and *Senna glutinosa* subsp. *glutinosa* over *Triodia wiseana* hummock grassland with scattered mixed tussock grasses.

**Clearing Description**

Brockman 2 Exploration Project.
Hamersley Iron Pty Ltd proposes to clear 7.5 hectares within an 18 hectare area to facilitate a mineral exploration programme. The application area is situated approximately 57.5 kilometres northwest of Tom Price in the Shire of Ashburton.

**Vegetation Condition**

Pristine: pristine or nearly so, no obvious signs of disturbance (Keighery, 1994);

to

Excellent: vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species (Keighery, 1994).

**Comment**

Vegetation condition within the application area was assessed using the scale created by Trudgen (1988). These condition ratings for the vegetation within the application area have been converted to equivalent ratings contained in the scale implemented by Keighery (1994).

## 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 is situated within the Hamersley subregion of the Pilbara bioregion as described in the Interim Biogeographic Regionalisation of Australia (IBRA). This region is described as consisting of mountainous areas of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite) (Department of Conservation and Land Management, 2002). Mulga low woodland occurs over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* occurs over *Triodia brizoides* on skeletal soils of the ranges (Department of Conservation and Land Management, 2002).

Rio Tinto botanists undertook a flora and vegetation survey of the application area on the 19th and 20th of April 2010 (Rio Tinto, 2011). During this survey 69 species of vascular flora from 40 genera and 29 families were recorded (Rio Tinto, 2011). The total number of native flora species recorded from the application area is within the expected range for an area of this size in this locality and is not considered to represent particularly high species richness (Rio Tinto, 2011). No threatened flora species were recorded within the application area (Rio Tinto, 2011).

Two priority flora species; *Sida* sp. Barlee Range (S. van Leeuwen 1642) (Prioirty 3) and *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301) (Priority 3) have been recorded within the application area (Rio Tinto, 2011). *Sida* sp. Barlee Range (S. van Leeuwen 1642) was recorded within the application area during the survey undertaken by Rio Tinto in 2010, however *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301) was only recorded during a survey of the application area undertaken by Biota in 2010 (Biota, 2010a). Rio Tinto have advised in past correspondence that their internal database contains 729 records of *Sida* sp. Barlee Range (S. van Leeuwen 1642) from the Pilbara region, with these records conservatively estimated to represent 4,000 individuals (Rio Tinto, 2014). A review of the Western Australian Herbarium Database determined that neither *Sida* sp. Barlee Range (S. van Leeuwen 1642) or *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301) are confined to the application area with occurrences of these species recorded over a sizeable area of the Pilbara region (Western Australian Herbarium, 2014). When the above is considered alongside the small area of clearing proposed, it is anticipated that any loss of individuals of these species as a result of the clearing activities would impact only the local populations of these species and would not adversely impact the conservation status or distribution of these species.

No weed species were recorded within the application area (Rio Tinto, 2011). To minimise the likelihood of weed species being introduced into the application area, a weed management condition has been placed on the permit.

Eight vegetation associations were recorded within the application area (Rio Tinto, 2011). None of these vegetation associations was found to match the descriptions of any Threatened Ecological Communities or Priority Ecological Communities (Rio Tinto, 2011). The vegetation associations recorded within the application area are considered to be relatively typical of such habitats in the locality (Rio Tinto, 2011).

A fauna survey undertaken by Biota in 2010 of the wider Brockman 2 Sustaining Tonnes study area, which includes the application area, recorded 39 vertebrate fauna species, comprising 20 bird species, 12 mammal species and seven reptile species (Biota, 2010b). Biota noted that this survey of the Brockman 2 Sustaining Tonnes study area was limited as it was a targeted single-phase survey and therefore the fauna species which exist in this study area were not all sampled systematically (Biota, 2010b). Two vertebrate fauna species of conservation significance were recorded within the wider Brockman 2 Sustaining Tonnes study area, the Ghost Bat (*Macroderma gigas*) (Priority 4) and the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) (Biota, 2010b). Neither of these species was recorded within the application area (Biota, 2010b).

Two fauna habitats were identified within the application area; gorge habitat and upper flats incised by small, shallow drainage lines (Biota, 2010b). Neither of these habitats is restricted to the application area and both of these habitats are considered to be common and widespread throughout the Pilbara bioregion (Biota, 2010b).

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

**Methodology** Biota (2010a)
Biota (2010b)
Department of Conservation and Land Management (2002)
Rio Tinto (2011)
Rio Tinto (2014)
Western Australian Herbarium (2014).

**(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 fauna survey of the Brockman 2 Sustaining Tonnes study area undertaken by Biota in 2010 identified two fauna habitats within the application area; gorge habitat and upper flats incised by small, shallow drainage lines (Biota, 2010b). Neither of these habitats is restricted to the application area and both of these habitats are considered to be common and widespread throughout the Pilbara bioregion (Biota, 2010b).

Two vertebrate fauna species of conservation significance were recorded within the Brockman 2 Sustaining Tonnes study area during the survey undertaken by Biota in 2010, the Ghost Bat (*Macroderma gigas*) (Priority 4) and the Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4) (Biota, 2010b). Neither of these species was recorded within the application area (Biota, 2010b).

The desktop analysis undertaken as a component of the Brockman 2 Sustaining Tonnes study area fauna survey identified that an additional seven species of conservation significance could occur in the surveyed area (Biota 2010b);

- Northern Quoll (*Dasyurus hallucatus*) (Schedule 1, Endangered);
- Pilbara Orange Leaf-nosed Bat (*Rhinonicteris aurantius*) (Schedule 1, Vulnerable);
- Pilbara Olive Python (*Liasis olivaceus barroni*) (Schedule 1, Vulnerable);
- Peregrine Falcon (*Falco peregrinus*) (Schedule 4);
- Grey Falcon (*Falco hypoleucos*) (Schedule 1);
- Australian Bustard (*Ardeotis australis*) (Priority 4); and
- Long-tailed Dunnart (*Sminthopsis longicaudata*) (Priority 4).

The gorge habitat contained within the application area could provide suitable habitat for the Northern Quoll, Pilbara Orange Leaf-nosed Bat, Ghost Bat and the Pilbara Olive Python. To minimise the impact of the clearing activities on these species, a condition has been placed on the permit preventing the clearing of the gorge habitat areas within the application area. The remaining habitat within the application area is anticipated to serve only as foraging habitat for these species and therefore the small area of clearing proposed is unlikely to result in adverse impacts to the conservation status or distribution of these species as large areas of similar habitat are available in the surrounding region (GIS Database).

The application area could provide suitable habitat for additional fauna species of conservation significance. However, when the small area of clearing proposed is considered alongside the knowledge that the fauna habitats present within the application area are not confined to this area and that the above species have been recorded over large tracts of Western Australia (Nature Map, 2014; Department of Environment, 2014), it is considered unlikely the clearing activities will result in adverse impacts to the conservation status or distribution of any conservation significant fauna species.

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

**Methodology** Biota (2010b)
Department of Environment (2014)
Nature Map (2014)
GIS Database
-Rocklea 50cm Orthomosaic
-Jeerinah 50cm Orthomosaic
-Mount Lionel 50cm Orthomosaic
-McRae 50cm Orthomosaic.

**(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 three Threatened flora species known to occur within the Pilbara region; *Aluta quadrata*, *Lepidium catapycnon* and *Thryptomene wittweri* (Western Australian Herbarium, 2014). None of these species were identified in the application area during the flora and vegetation surveys undertaken by Biota (2010a) and Rio Tinto (2011).

A review of internal databases determined that two occurrences of *Lepidium catapycnon* exist approximately 16 kilometres east southeast of the application area (GIS Database; Nature Map, 2014). A review of aerial photography determined that these occurrences of *Lepidium catapycnon* are situated on a weathered slope with low levels of vegetation cover (GIS Database). A review of aerial photography of the application area determined that this habitat does not exist within the application area (GIS Database). Therefore it is not considered likely that *Lepidium catapycnon* will occur within the application area.

No occurrences of either *Aluta quadrata* or *Thryptomene wittweri* have been recorded within 40 kilometres of the application area (Nature Map, 2014) and therefore neither of these species is expected to occur within the application area.

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

**Methodology**
Biota (2010a)
Nature Map (2014)
Rio Tinto (2011)
Western Australian Herbarium (2014)
GIS Database
-Rocklea 50cm Orthomosaic
-Jeerinah 50cm Orthomosaic
-Mount Lionel 50cm Orthomosaic
-McRae 50cm Orthomosaic
-Threatened and Priority Flora.

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

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

The application area is situated 20 kilometres to the south of the closest Threatened Ecological Community (GIS Database); the Themeda grasslands on cracking clays ecological community (Department of Environment and Conservation, 2013). When the distances between the application area and Threatened Ecological Communities are considered, it is not anticipated that the proposed activities will result in adverse impacts to any Threatened Ecological Community.

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

**Methodology**
Department of Environment and Conservation (2013)
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 is situated within the Hamersley sub-region of the Pilbara bioregion as described in the Interim Biogeographic Regionalisation of Australia and contained within Beard vegetation association 82 (GIS Database). This Beard vegetation association retains almost 100% of its pre-European extent (see table below). Hence, the application areas vegetation does not represent a significant remnant of vegetation within an extensively cleared area.

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Pre-European % in DEC Managed Land |
|---|---|---|---|---|---|
| IBRA Bioregion – Hamersley | 5,634,726.8 | 5,610,205 | ~99.6 | Least Concern | ~12.9 |
| Beard veg assoc. – State | | | | | |
| 82 | 2,565,901.27 | 2,553,217.02 | ~99.5 | Least Concern | ~10.25 |
| Beard veg assoc. – Bioregion | | | | | |
| 82 | 2,177,573.9 | 2,165,235.04 | ~99.4 | Least Concern | ~12.04 |

* Government of Western Australia (2013)
** Department of Natural Resources and Environment (2002).

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

**Methodology** Government of Western Australia (2013)
Department of Natural Resources and Environment (2002)
GIS Database
-IBRA WA (Regions – Sub Regions)
-Beard Vegetation Associations.

### (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 no permanent watercourses or wetlands situated within the application area (GIS Database). However, numerous ephemeral watercourses traverse through the application area (GIS Database). Three of the eight vegetation communities identified within the application area (vegetation communities 5, 6 and 7) were recognised during the flora and vegetation survey undertaken by Rio Tinto as growing in association with surface water features (Rio Tinto, 2011). As it is possible these vegetation communities will be intercepted by the proposed clearing, the proposed clearing may be at variance to this Principle.

Whilst it is possible that the above vegetation communities will be intercepted by the proposed clearing, the cleared footprint will only occupy a small area. In addition, since the proposed clearing will be undertaken to support a mineral exploration programme, it is likely the cleared areas will be situated throughout the application area and not concentrated within the vegetation communities detailed above. Hence, it is not anticipated that the clearing activities will adversely impact the health of surface water features in the application area.

In addition, none of the vegetation communities identified within the application area were recognised as being restricted in distribution (Rio Tinto, 2011), consequently no adverse impacts to the distribution of the above vegetation communities is expected to result from the clearing activities.

**Methodology** GIS Database
Rio Tinto (2011)
-Hydrography – Linear Properties
-Jeerinah – 50cm Orthomosaic
-Rocklea – 50cm Orthomosaic.

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

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

The application area is situated within the Boolgeeda and Newman land systems (GIS Database). The Boolgeeda Land System is described as consisting of stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands (van Vreeswyk et al, 2004). The Newman Land System is described as consisting of rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (van Vreeswyk et al, 2004). Neither land system has experienced erosion to more than one percent of its area (van Vreeswyk et al, 2004). When the inherent resistance of the application areas landforms to erosion is considered, it is not anticipated that the clearing activities will result in erosion impacts outside the cleared areas. In addition, the proponent will be required to rehabilitate the cleared areas to achieve a stable landform and therefore any erosion impacts which result from the clearing activities will be rehabilitated at the completion of the drilling programme.

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

**Methodology** van Vreeswyk et al (2004)
GIS Database
-Rangeland Land System Mapping.

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

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

The closest conservation area to the application area is Karijini National Park, which is situated approximately 73 kilometres to the east of the application area (GIS Database). When the distances between the application area and conservation areas are considered, it is not anticipated that the clearing activities will result in any adverse impact to the environmental values of any conservation area.

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 situated approximately 26 kilometres to the southwest of the nearest Public Drinking Water Source Area (PDWSA), the Priority 2 Millstream Water Reserve (GIS Database). Due to the surficial nature of the clearing activities, it is not anticipated that the proposed activities will result in adverse impacts to the quality of groundwater sources underlying the application area.

The likely impact of the clearing activities on surface water quality would be the contribution of additional sediment to surface water flows. However, as the application area is situated on landforms which are inherently erosion resistant (van Vreeswyk et al, 2004), it is not anticipated that the contribution of sediment to surface water flows from the cleared areas will be significant. In addition, surface water flows in the Pilbara region usually carry a sediment load, therefore the contribution of additional sediment to surface water flows from the cleared areas is unlikely to result in adverse impacts to surface water quality. Furthermore, the proposed activities will be temporary in nature and the proponent will be required to rehabilitate the cleared areas at the completion of the mineral exploration programme. Therefore, any impact to surface water quality caused by the contribution of additional sediment from the cleared areas will be temporary in nature.

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
-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 application area is situated within the Ashburton River catchment which is approximately 7,877,743 hectares in size (GIS Database). When the small area of proposed clearing is considered alongside the size of the Ashburton River catchment and the Pilbara regions natural propensity for flooding, no change to the incidence or intensity of flooding in the surrounding region is anticipated to result from the clearing activities.

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

**Methodology** GIS Database
-Hydrographic Catchments.

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

**Comments** There is a Native Title Claim (WC1997/089) 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 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 sites of Aboriginal heritage significance in the vicinity of the application area. It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no sites of Aboriginal heritage significance are damaged through the clearing process.

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

The clearing permit application was advertised on 7 April 2014 by DMP inviting submissions from the public. No submissions have been received regarding this application.

**Methodology** GIS Database
-Aboriginal Sites of Significance
-Native Title Claims – Registered with the NNTT
-Native Title Claims – Filed at the Federal Court
-Native Title Claims – Determined by the Federal Court.

## 4. References


Biota Environmental Sciences (2010a) Brockman Syncline 2 Sustaining Tonnes Project and Pit 7 Land Bridge vegetation and flora survey. Report prepared for Rio Tinto Iron Ore.

Biota Environmental Sciences (2010b) Brockman 2 Sustaining Tonnes targeted fauna survey. Report prepared for Rio Tinto Iron Ore.

Department of Conservation and Land Management (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions.

Department of Environment and Conservation (2007 - ) Nature Map: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: http://naturemap.dec.wa.gov.au/. Accessed August 2014.

Department of Environment and Conservation (2013) List of Threatened Ecological Communities endorsed by the Western Australian Minister for the Environment. Prepared by the Species & Communities Branch.

Department of Environment (2014) *Rhinonicteris aurantia* (Pilbara form) - Pilbara Leaf-nosed Bat. Department of Environment. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82790. Accessed August 2014.

Department of Natural Resources and Environment (2002) Biodiversity action planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

Government of Western Australia (2013) 2012 state wide vegetation statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.

Keighery, B.J. (1994) Bushland plant survey: a guide to plant community survey for the community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Rio Tinto (2011) Flora and vegetation assessment of the South West Detritals Study Area. Report prepared by Rio Tinto Iron Ore.

Rio Tinto (2014) Response to CPS 5968/1 - Brockman Communications Tower Queries. Received on 05/03/2014.

Trudgen, M.E. (1988) A report on the Flora and Vegetation of the Port Kennedy area, unpublished report to Bowman Bishaw and Associates.

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

Western Australian Herbarium (2014) Flora Base - The Western Australian Flora. Department of Parks and Wildlife. http://florabase.dpaw.wa.gov.au. Accessed June and July 2014.


## 5. Glossary

### Acronyms:

| | |
|---|---|
| **BoM** | Bureau of Meteorology, Australian Government |
| **CALM** | Department of Conservation and Land Management (now DEC), Western Australia |
| **DAFWA** | Department of Agriculture and Food, Western Australia |
| **DEC** | Department of Environment and Conservation, Western Australia |
| **DEH** | Department of Environment and Heritage (federal based in Canberra) previously Environment Australia |
| **DEP** | Department of Environment Protection (now DEC), 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 (now DEC), Western Australia |
| **DoIR** | Department of Industry and Resources (now DMP), Western Australia |
| **DOLA** | Department of Land Administration, Western Australia |
| **DoW** | Department of Water |
| **EP Act** | Environmental Protection Act 1986, Western Australia |
| **EPBC Act** | Environment Protection and Biodiversity Conservation Act 1999 (Federal Act) |
| **GIS** | Geographical Information System |
| **ha** | Hectare (10,000 square metres) |
| **IBRA** | Interim Biogeographic Regionalisation for Australia |
| **IUCN** | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| **RIWI Act** | Rights in Water and Irrigation Act 1914, Western Australia |
| **s.17** | Section 17 of the Environment Protection Act 1986, Western Australia |
| **TEC** | Threatened Ecological Community |

### Definitions:

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

**P1** **Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

**P2** **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**VU** **Vulnerable:** A native species which:

(a) is not critically endangered or endangered; and

(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

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