Government of Western Australia
Department of Mines and Petroleum

# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

**Permit application No.:** 5956/1
**Permit type:** Purpose Permit

### 1.2. Proponent details

**Proponent's name:** **Cliffs Asia Pacific Iron Ore Pty Ltd**

### 1.3. Property details

**Property:** Mining Lease M77/996
Mining Lease M77/997
**Local Government Area:** Shire of Yilgarn
**Colloquial name:** Mount Jackson Operations

### 1.4. Application

| Clearing Area (ha) | No. Trees | Method of Clearing | For the purpose of: |
|---|---|---|---|
| 1.2 | | Mechanical Removal | Dewatering Pipeline and Associated Activities |

### 1.5. Decision on application

**Decision on Permit Application:** Grant
**Decision Date:** 27 February 2014

## 2. Site Information

### 2.1. Existing environment and information

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

**Vegetation Description**

Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. The following Beard vegetation association is located within the application area (GIS Database):

141: Medium woodland; York gum, salmon gum and gimlet.

Vegetation mapping over the application area was undertaken as part of a larger flora and vegetation survey conducted by Mattiske Consulting Pty Ltd from July 2000 to September 2001 (Mattiske, 2001). Part of this mapping was refined by Western Botanical during flora and vegetation surveys undertaken between 2004 and 2008 (Western Botanical, 2009). According to Cliffs Asia Pacific Iron Ore Pty Ltd (Cliffs) (2014), seven vegetation units occur within the application area:

From Western Botanical (2009)
**Tamar Thickets**
1. AlleT - *Allocasuarina eriochlamys* ssp. *eriochlamys* Thicket.

**Shrublands on Ironstone Outcrops and Upper Slopes**
2. AmjS - *Acacia* sp. Mt Jackson (B Ryan 176) Shrubland.

**Mallee Woodlands**
3. EeWH3 - *Eucalyptus ebbanoensis* Woodland over Heath with *Westringia cephalantha*, *Acacia erinaceae* and / or *Olearia muelleri*.

4. EeWH4 - *Eucalyptus ebbanoensis* Woodland over Heath with *Atriplex* species.

5. EeWH5 - *Eucalyptus ebbanoensis* woodland over Heath with *Acacia acanthoclada* ssp. *glaucescens*.

**Shrublands on Duricrust Outcrops**
6. HD - Heath on Duricrust outcropping.

From Mattiske (2001)
7. S1 - Open Heath to Tall Shrubland of *Acacia quadrimarginea*, *Acacia ramulosa*, *Acacia tetragonophylla*, *Scaevola spinescens*, *Eremophila clarkei* and *Eremophila oldfieldii* on mid slopes on shallow soils.

**Clearing Description**

Mount Jackson Dewatering Pipeline.
Cliffs Asia Pacific Iron Ore Pty Ltd (Cliffs) proposes to clear up to 1.2 hectares of native vegetation within a total boundary of approximately 6.7 hectares, for the purpose of a dewatering pipeline and associated activities. The project is located approximately 65 kilometres north, north west of Koolyanobbing, in the Shire of Yilgarn.

**Vegetation Condition**

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994);

To

Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994).

**Comment**

The purpose of the application is to install part of a dewatering pipeline corridor. The proposed dewatering pipeline corridor extends from the Mount Jackson J1 pit where dewatering will occur to the now inactive Mount Jackson J2 pit where the water will be stored (Cliffs, 2014). The majority of the proposed pipeline corridor is within the area covered by Statement 843, an approval issued under Part IV of the *Environmental Protection Act 1986*. Under Schedule 6, Clause 1 of the *Environmental Protection Act 1986* clearing is exempt from the requirement of a clearing permit where the Part IV approval covers clearing. As Statement 843 covers clearing, this application is for clearing outside of the area covered by Statement 843 (extends from the Bullfinch-Evanston Road to the J2 pit) (Cliffs, 2014). The proposed pipeline corridor also includes an access track for maintenance. Where an existing haul road or track provides suitable access to the dewatering pipeline, a 5 metre pipeline corridor will be constructed. Where a suitable track does not exist, a 10 metre corridor will be constructed (Cliffs, 2014).

Vegetation condition was determined using aerial imagery (GIS Database).

Aerial imagery shows the application area is located adjacent to existing disturbance (GIS Database).

## 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 located in the J2 mine area and runs adjacent to an existing road and the J2 mine (GIS Database). It is located within the Mount Jackson Range and the Priority 1 Mount Jackson Range vegetation complex (banded ironstone formation (BIF)) Priority Ecological Community (PEC) (GIS Viewer). According to the Department of Parks and Wildlife (DPaW) (2014), the Mount Jackson Range is a BIF range in the highest value cluster of BIF ranges in the Mount Manning area. It has very high conservation value with records of four BIF specialist flora taxa, which are restricted to the range (DPaW, 2014). Western Botanical (2009) considered vegetation units AlleT, AmjS, EeWH3, EeWH4 and EeWH5 as being part of the Mount Jackson Range vegetation complex (BIF) PEC. According to Cliffs (2014), between 0.05 and 0.52 hectares of these vegetation units will be cleared. This corresponds to between 0.02% and 0.31% of their total mapped area up until 2008 (Cliffs, 2014). DPaW (2014) does not consider the direct impacts of native vegetation clearing to be significant. Based on the above and the small size of clearing, it is unlikely the proposed clearing will have a significant impact on the PECs.

The Mattiske (2001) flora and vegetation survey recorded a total of 219 flora taxa from Mount Jackson and the Jackson ranges (including the J2 mine). Vegetation mapping from this survey was refined by Western Botanical flora and vegetation surveys which foccused on the Western Jackson Range (adjacent and west of the application area). The vegetation of the application area mainly consists of *Eucalyptus ebbanoensis* woodlands, *Acacia* sp. Mt Jackson shrubland, *Allocasuarina eriochlamys* thicket and heath on duricrust outcropping (Cliffs, 2014). Several weed species have also been recorded in the area. Potential impacts from weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Available databases show no known Threatened Ecological Communities (TECs) or Threatened Flora to occur within the application area (GIS Database). According to Cliffs (2014), no Threatened Flora have been recorded in the application area.

Several Priority Flora species have been recorded in the immediate area such as *Beyeria rostellata* (Priority 1), *Jacksonia jackson* (Priority 1), *Bossiaea* sp. Jackson Range (Priority 3) and *Stenanthemum newbeyi* (Priority 3) (Cliffs, 2014). One of these, *Bossiaea* sp. Jackson Range, occurs in the application area. Fourteeen individuals are located in the application area, however, only one individual is proposed to be cleared. Cliffs (2014) states that the pipeline will be installed immediately adjacent to the existing road, thereby avoiding the other thirteen individuals within the application area. Cliffs (2014) estimate the regional population of *Bossiaea* sp. Jackson Range as 2,793 individuals. The proposed clearing will, therefore, impact on 0.03% of the known population. Based on this, the proposed clearing is not expected to have a significant impact on this species.

According to Cliffs (2014), surveys for fauna on the Mount Jackson Range and the nearby Windarling Range have indicated the presence of 2 frog, 55 reptile, 103 bird and 30 mammal species (Dell *et. al.* 1985 and Craig *pers. comm.* updated in Ecologia 2001; BCE 2009) (cited in Cliffs, 2014). This indicates the area has high fauna diversity. Given the small size of the application area and the presence of existing disturbance, the application area is not expected to support a higher level of fauna diversity than surrounding undisturbed areas.

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

**Methodology**

Cliffs (2014)
DPaW (2014)
Mattiske (2001)
Western Botanical (2009)
GIS Database:
- Jackson 50cm Orthomosaic - Landgate 2007
- Threatened Ecological Sites Buffered

- Threatened and Priority Flora

**(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**

Ecologia Environmental Consultants (Ecologia) conducted a fauna assessment survey over several deposits (including J2) from 18 to 28 November and 5 to 15 December 2000 (Ecologia, 2001). Several other general fauna surveys and targeted Malleefowl and invertebrate surveys have been conducted in the Mount Jackson area since this time. M.J. & A.R. Bamford Consulting Ecologists (BCE) provided a review of these surveys in relation to the J1 deposit in 2009 (BCE, 2009b). While this review was undertaken for the J1 deposit (approximately 7 kilometres north west of the application area) it is considered applicable as both the J1 deposit and application area are located in the Mount Jackson range. BCE has also conducted annual fauna monitoring from 2004 in close proximity to the application area (BCE, 2009a).

The main habitat types identified in the J1 area are upper slopes and ridge top, slopes and plains (BCE, 2009b). A review of aerial imagery and topography indicates the application area is likely to comprise the plains and slopes habitat types and that the upper slopes and ridge top habitat is likely to be largely absent from the application area (GIS Database). The north eastern corner of the application area may extend into the upper slopes and ridge top habitat type, however, this area has been disturbed by or is directly adjacent to the J2 mine. The plains habitat is widespread in the region whereas the slopes habitat is limited in the region (BCE, 2009b). According to BCE (2009b), an estimated 1,189.4 hectares of the slopes habitat is found across the Jackson Hills. Whilst the slopes habitat is limited in the region, the proposed clearing of 1.2 hectares is unlikely to have a significant impact on this habitat type.

According to BCE (2009b), conservation significant fauna species recorded in the Mount Jackson area include Malleefowl (*Leipoa ocellata*) (Vulnerable; Schedule 1), Rainbow Bee-eater (*Merops ornatus*) (Marine, Migratory; Schedule 3), Peregrine Falcon (*Falco peregrines*) (Schedule 4), Carpet Python (*Morelia spilota imbricata*) (Schedule 4), Major Mitchell's Cockatoo (*Cacatua leadbeateri*) (Schedule 4), Australian Bustard (*Ardeotis australis*) (Priority 4), White-browed Babbler (*Pomatostomus superciliosus ashbyi*) (Priority 4), Crested Bellbird (*Oreoica gutturalis gutturalis*) (Priority 4), Shy Heathwren (*Hylacola cauta whitlocki*) (Priority 4), Rufous Fieldwren (*Calamanthus campestris montanellus*) (Priority 4) and Tree-stem Trapdoor Spider (*Aganippe castellum*) (Priority 4). Eight potential short range endemic (SRE) invertebrates have also been recorded in the J1 area. Some of these are largely restricted to the ridge and upper slope habitat and are therefore likely to be absent from the application area (BCE, 2009b).

Malleefowl surveys conducted between 2004 and 2009 on the Mount Jackson range have identified 11 recently active and 206 inactive Malleefowl mounds (Cliffs, 2014). BCE (2009b) notes that from studies to date it appears that, in the Mount Jackson Range area, mounds are concentrated on the slopes of hills, in gravelly loam soils where the vegetation consists of a dense, tall shrubland. According to Cliffs (2014), there is 3,500 hectares of Malleefowl habitat inferred to occur on the Mount Jackson range. There are seven Malleefowl mounds within the vicinity of the application area, with the closest located on the boundary of the application area (Cliffs, 2014). None of these mounds have been recorded as being active during the Malleefowl surveys. No mounds will be impacted by the proposed clearing, although the closest mound will be eight metres from the pipeline corridor (Cliffs, 2014). However, at this location there is already an existing track in close proximity to the mound. Given existing disturbance runs adjacent to the application area, it is unlikely the proposed clearing of 1.2 hectares will have further impacts on the Malleefowl.

Given the application area is a corridor that runs alongside existing disturbance and the availability of similar undisturbed habitat in the surrounding area, it is unlikely the application area comprises significant habitat for the remainder of the conservation significant species or the potential SRE species.

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

**Methodology**

BCE (2009a)
BCE (2009b)
Cliffs (2014)
Ecologia (2001)
GIS Database:
- Jackson 50cm Orthomosaic - Landgate 2007
- Topographic Contours, Statewide

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

**Comments**

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

According to available databases, there are no Threatened Flora species within the application area (GIS Database).

According to Cliffs (2014), no Threatened Flora species have been recorded in the application area.

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

**Methodology** Cliffs (2014)
GIS Database:
- Threatened and Priority Flora

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

**Comments** **Proposal is not likely to be at variance to this Principle**
According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is approximately 250 kilometres north, north east of the application area (GIS Database).

According to Cliffs (2014), there are no TECs within the application area.

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

**Methodology** Cliffs (2014)
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 located within the Coolgardie Interim Biogeographical Regionalisation for Australia (IBRA) bioregion (GIS Database). Approximately 97.96% of the pre-European vegetation remains within the Coolgardie bioregion (Government of Western Australia, 2013).

The vegetation of the application area has been mapped as Beard vegetation association 141 (GIS Database). Over 80% of this Beard vegetation association remains at both a state and bioregional level (Government of Western Australia, 2013). Therefore, the area proposed to be cleared does not represent a significant remnant of native vegetation within an area that has been extensively cleared. A review of aerial imagery also shows that vegetation within the application area is not a remnant within the local area (GIS Database).

| | Pre-European area (ha)* | Current extent (ha)* | Remaining %* | Conservation Status** | Extent in DEC Managed Lands %* |
|---|---|---|---|---|---|
| IBRA Bioregion - Coolgardie | 12,912,204 | 12,648,491 | ~97.96 | Least Concern | ~15.84 |
| Beard vegetation associations - State | | | | | |
| 141 | 1,158,760 | 960,758 | ~82.91 | Least Concern | ~39.37 |
| Beard vegetation associations - Bioregion | | | | | |
| 141 | 883,086 | 858,525 | ~97.22 | Least Concern | ~43.89 |

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

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

**Methodology** Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Jackson 50cm Orthomosaic - Landgate 2007
- 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 not likely to be at variance to this Principle**
According to available databases, there are no watercourses or wetlands within the application area (GIS Database). The vegetation within the application area is not considered to be growing in association with any watercourse or wetland (Cliffs, 2014).

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

**Methodology** Cliffs (2014)
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**

Cliffs has applied to clear up to 1.2 hectares of native vegetation for the purpose of installing part of a dewatering pipeline corridor (Cliffs, 2014). The proposed clearing activities are located close to existing disturbance including roads and the J2 mine. Given the existing disturbance and the small scale and low impact nature of the proposed activities, the clearing of 1.2 hectares of native vegetation is not likely to result in appreciable land degradation.

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

**Methodology** Cliffs (2014)

**(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**

According to available databases, the eastern portion of the application area is located within a conservation area (GIS Database). This conservation area is the former Mount Jackson Pastoral Lease, which is now a proposed conservation and mining reserve (under section 5(1)(h) of the *Conservation and Land Management Act 1984*) that the Department of Parks and Wildlife (DPaW) is managing consistent with the *Conservation and Land Management Act 1984* (DPaW, 2014).

DPaW (2014) considers the direct impact(s) of clearing of native vegetation for the pipeline as not significant. In relation to indirect impacts, DPaW (2014) does have concerns in relation to storing good quality water in the J2 pit as the presence of permanent water could lead to impacts on conservation significant flora and vegetation through increased grazing predation. DPaW (2014) recommend that actions be taken to ensure that there is not an increase in feral animal predation on conservation significant flora/vegetation and fauna around the J2 pit. This issue is considered under the *Mining Act 1978* approvals process.

The proposed clearing of 1.2 hectares will occur in close proximity to existing disturbance in a corridor alignment (Cliffs, 2014). Based on the nature and scale of the proposed clearing and given DPaW's advice, it is unlikely the proposed clearing will result in additional impacts to the environmental values of the former Mount Jackson Pastoral Lease.

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

**Methodology** Cliffs (2014)
DPaW (2014)
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**

According to available databases, the application area is not located within a Public Drinking Water Source Area (GIS Database). There are no permanent or ephemeral waterbodies within the application area (GIS Database).

The climate of the area is arid to semi-arid warm Mediterranean climate with 250 to 300 millimetres of mainly winter rainfall (CALM, 2002). The application area receives an average annual rainfall of between 300 and 400 millimetres with an average annual evaporation rate of between 2,800 and 3,000 millimetres (GIS Database). Based on these averages and given there are no watercourses within the application area, the proposed clearing is not likely to cause sedimentation or deterioration in the quality of surface water in nearby areas.

According to available databases, groundwater salinity within the application area is between 7,000 and 14,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be saline. Cliffs (2014) states that the groundwater level occurs at a depth of approximately 30 to 40 metres below the natural ground surface (Rockwater, 2013) (cited in Cliffs, 2014). Given the high TDS and depth to groundwater, the proposed clearing is not likely to cause salinity levels within the application area to alter.

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

**Methodology** CALM (2002)
Cliffs (2014)
GIS Database:

- Evaporation Isopleths
- Groundwater Salinity, Statewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- Rainfall, Mean Annual

### (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 Swan/Avon Yilgarn catchment area (GIS Database). Given the size of the area to be cleared (1.2 hectares) in relation to the size of the catchment area (5,836,045 hectares) (GIS Database), the proposed clearing is not likely to increase the potential of flooding on a local or catchment scale.

The application area experiences an arid to semi-arid warm Mediterranean climate with mainly winter rainfall, with an average annual rainfall of between 300 and 400 millimetres per year (CALM, 2002; GIS Database). Based on an average annual evaporation rate of 2,800 to 3,000 millimetres (GIS Database), any surface water resulting from rainfall events is likely to be relatively short lived.

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

**Methodology**

CALM (2002)
GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments – Catchments
- Rainfall, Mean Annual

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

**Comments**

There are no native title claims over the area under application (GIS Database). The mining 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 three 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 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 3 February 2014 by the Department of Mines and Petroleum inviting submissions from the public. There was one submission received advising there are no objections to the proposed clearing. This submission also commented on the containment of salty water. This issue is considered during the *Mining Act 1978* approvals process.

**Methodology**

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

## 4. References


BCE (2009a) Cliffs Asia Pacific Iron Ore Windarling/Mt Jackson Iron Ore Project Fauna Monitoring Summary - 2009. Unpublished report prepared by Bamford Consulting Ecologists for Cliffs Asia Pacific Iron Ore Pty Ltd dated 20 April 2009.

BCE (2009b) Review of Fauna Studies of the Mt Jackson Range, Western Australia, 2000 to 2008. Unpublished report prepared by M.J. & A.R. Bamford Consulting Ecologists for Portman Iron Ore Limited dated 15 April 2009.

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Coolgardie 2 (COO2 – Southern Cross subregion) Department of Conservation and Land Management, Western Australia.

Cliffs (2014) Yilgarn Operations Mt Jackson J1 Pit Dewatering Pipeline Environmental Protection Act 1986 (WA) Application for Clearing Permit (Purpose Permit). Unpublished report dated January 2014.

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

DPaW (2014) Advice to the assessing officer for clearing permit application CPS 5956/1. Received on 10 February 2014.

Ecologia (2001) Koolyanobbing Expansion Project Fauna Assessment Survey. Unpublished report prepared by ecologia

Environmental Consultants for Portman Iron Ore Limited dated 2001.
Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Mattiske (2001) Review of Flora on Portman Iron Ore Proposed Expansion Areas Koolyanobbing. Unpublished report prepared by Mattiske Consulting Pty Ltd for Portman Iron Ore Limited dated October 2001.
Western Botanical (2009) Flora and Vegetation of the Western Jackson Range (Mt Jackson Range), Western Australia. Unpublished report prepared by Western Botanical for Portman Iron Ore Ltd dated 21 April 2009.

## 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.