



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 3397/1  
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: Tom Price Project

### 1.4. Application

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

## 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. Two Beard Vegetation Associations have been mapped within the application area (GIS Database; Shepherd, 2007).

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

**567:** Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii*.

The application area was surveyed by Rio Tinto staff on 5 August 2009 (Rio Tinto, 2009). The following vegetation types were identified within the application area:

#### Vegetation of Stony Slopes

**S1 AaAaApAbSpPrTw - Slight Stony Lower Slope:** *Acacia atkinsiana*, *Acacia ancistrocarpa*, *Acacia pruinocarpa* open scrub over *Acacia bivenosa*, *Senna pruinosa* open shrubland over *Ptilotus rotundifolius* low open shrubland over *Triodia wiseana* hummock grassland;

**S2 AiSpPrTwAcEISf - Lower Slope:** *Acacia inaequilatera* high open shrubland over *Senna pruinosa* open shrubland over *Ptilotus rotundifolius* low open shrubland over *Triodia wiseana* open hummock grassland over *Amphipogon carcinus*, *Eriachne lanata* very open tussock grassland over *Schizachyrium fragile* open bunch grassland;

#### Vegetation from Stony Plains

**P1 SsApSpTpPm - Undulating Plains:** *Sida sp. spiciform panicle*, *Acacia pruinosa* open heath over *Senna pruinosa* low open shrubland over *Triodia pungens* hummock grassland over *Paraneurachne muelleri* open tussock grassland;

**P2 CcApAaAaTpAI - Undulating Plains:** *Codonocarpus cotinifolius* scattered low trees over *Acacia pruinocarpa*, *Acacia atkinsiana* open scrub over *Acacia ancistrocarpa* shrubland over *Triodia pungens* hummock grassland over *Aristida latifolia* very open tussock grassland;

#### Vegetation of Stony Hillslopes

**H6 EIAPAhTpTw - Steep Hillside:** *Eucalyptus leucophloia*, *Acacia pruinocarpa* low woodland over *Acacia hamersleyensis* shrubland over *Triodia pungens*, *Triodia wiseana* hummock grassland;

**H7 AIACaAaApAmAbSgCISoTpTw - Stony Slopes:** *Eucalyptus leucophloia* low open forest over *Acacia citrinoviridis*, *Acacia aneura*, *Acacia pruinocarpa* high shrubland over *Acacia marramamba*, *Acacia bivenosa*, *Senna glutinosa* shrubland over *Corchorus lasiophylla*, *Senna oligophylla* low open shrubland over *Triodia pungens*, *Triodia wiseana* hummock grassland;

### Vegetation from Gullies

**G1 EIAhAmAmCmDpEmTw - Deep Incised Valley, Gully:** *Eucalyptus leucophloia* low open woodland over *Acacia hammersleyensis*, *Acacia maitlandii* and *Acacia marramamba* open scrub over *Cryptandra monticola* and *Dodonaea petiolaris* open heath over *Eriachne mucronata*, *Triodia wiseana* tussock/hummock grassland;

**G2 CfEIaPahCaGbGrTtTe - Deep Incised Valley, Gully:** *Corymbia ferritcola*, *Eucalyptus leucophloia* and *Acacia pruinocarpa* low open forest over *Acacia hammersleyensis*, *Cymbopogon ambiguus*, *Grevillea berryana* and *Gossypium robinsoni* shrubland over *Themeda triandra* and *Triodia epactia* tussock/hummock grassland;

### Vegetation from Broad Drainage Lines

**D1 EICHaiSpSjdTp - Minor Broad Drainage Line:** *Eucalyptus leucophloia*, *Corymbia hamersleyana* low open woodland over *Acacia inaequilatera* high open shrubland over *Senna pruinosa* open shrubland over *Sida* sp. *spiciform panicle*, *Jasmine didyum* low open shrubland over *Triodia pungens* hummock grassland; and

**D2 ChCcRIaAaScGkTpTt - Lower Drainage Line:** *Corymbia hamersleyana*, *Codonocarpus cotinifolius* low woodland over *Rulingia luteiflora*, *Acacia atkinsiana* open heath over *Sida cardiophylla*, *Gompholobium karjini* low open shrubland over *Triodia pungens* hummock grassland over *Themeda triandra* very open tussock grassland (Rio Tinto, 2009).

Five alien weed species were recorded within the application area:

Bipinnate Beggartick (*Bidens bipinnata*), Spiked Malvastrum (*Malvastrum americanum*), Buffel Grass (*Cenchrus ciliaris*), Prickly Lettuce (*Lactuca serriola*) and Indian Weed (*Sigesbeckia orientalis*) (Rio Tinto, 2009).

<b>Clearing Description</b>	Hamersley Iron Pty Ltd is proposing to clear up to 14.39 hectares of native vegetation (Hamersley Iron, 2009). The proposed program is to construct an emergency access road, topsoil stockpile and extend the existing pit (Hamersley Iron, 2009).
<b>Vegetation Condition</b>	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994) To Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
<b>Comment</b>	The application area is located in the Pilbara region, approximately 8.5 kilometres south-west of Tom Price (GIS Database). The vegetation condition was derived from a vegetation survey conducted by Rio Tinto (2009).

## **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 Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils on the ranges (CALM, 2002).

A vegetation survey of the application area and surrounding vegetation identified 155 native flora species belonging to 80 genera from 39 families (Rio Tinto, 2009). This species richness is considered to be typical for an area this size and within the locality of the application area (Hamersley Iron, 2009).

Five alien weed species were recorded within the application area (Rio Tinto, 2009). These were Bipinnate Beggartick (*Bidens bipinnata*), Spiked Malvastrum (*Malvastrum americanum*), Buffel Grass (*Cenchrus ciliaris*), Prickly Lettuce (*Lactuca serriola*) and Indian Weed (*Sigesbeckia orientalis*) (Rio Tinto, 2009). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). Should the permit be granted, it is recommended that appropriate conditions be imposed on the permit for the purpose of weed management.

An area search of the Department of Environment and Conservation's online fauna database conducted by the assessing officer suggests that the application area is diverse in reptile species (DEC, 2009). The database search found 63 reptile species as potentially occurring within the application area, or within a 25 kilometre radius of the application area.

The vegetation communities and potential fauna habitats within the application area are considered common

within the Pilbara region, and are unlikely to be of higher biodiversity than the surrounding areas. The proposed clearing is unlikely to have a significant impact on the biological diversity of the region, or comprise of a high level of biological diversity.

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

**Methodology** CALM (2002)  
DEC (2009)  
Hamersley Iron (2009)  
Rio Tinto (2009)  
GIS Database  
- Interim Biogeographic Regionalisation of Australia

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

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

The primary habitats present within the study area are reasonably widespread and abundant in the Tom Price locality (Rio Tinto, 2009). Analysis of aerial photography and imagery indicates that the proposed clearing area is located in close proximity to existing pits and an active haul road (GIS Database; Rio Tinto, 2009).

Apart from the gullies within the area proposed for the Northern Pit Extension, there are no other fauna habitats identified within the application area considered as necessary for the on-going maintenance of any significant fauna habitat. The relatively small scale of the proposed development and the lack of specialised habitat suggest that the proposal represents a low risk of significant impact to any conservation significant species.

It is likely that equal or higher quality vegetation and fauna habitats would exist throughout the surrounding area, and Pilbara region.

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

**Methodology** Rio Tinto (2009)  
GIS Database  
- Mount Lionel 50cm Orthomosaic - Landgate 2004

**(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 GIS databases there are no known records of Declared Rare Flora (DRF) or Priority Flora within the application area (GIS Database). The nearest record of DRF is a population of *Lepidium catapycnon* (DRF) located approximately 77 kilometres north-east of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Rio Tinto on 5 August (Rio Tinto, 2009). The application area was systematically traversed on foot using a grid search technique (Rio Tinto, 2009).

No DRF species were recorded during the survey (Rio Tinto, 2009), however, the Priority 3 species *Sida* sp. Barlee Range (*S. van Leeuwen* 1642) was identified.

*Sida* sp. Barlee Range is a low spreading shrub, which prefers skeletal red soil pockets and steep slopes (Western Australian Herbarium, 2009). Rio Tinto recorded three populations of *Sida* sp. Barlee Range as occurring within the application area, which contained 5, 5 and 20 individuals (Rio Tinto, 2009). Three further populations of *Sida* sp. Barlee Range were recorded from outside the application area during the flora survey (Rio Tinto, 2009). *Sida* sp. Barlee Range has been located at sites from the upper Gascoyne to the Tom Price region and south to Turee Creek, giving it a range of over 220 kilometres in an east-west direction and 250 kilometres north-south (Rio Tinto, 2009). Given its wide distribution outside of the application area, the proposed clearing is unlikely to affect the conservation status of this species

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

**Methodology** Rio Tinto (2009)  
Western Australian Herbarium (2009)  
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**

A search of available databases reveals that there are no Threatened Ecological Communities (TEC's) within

the application area (GIS Database).

The nearest (TEC) is located approximately 35 kilometres north-east of the application area (Themeda Grasslands). At this distance there is little likelihood of any impact to the TEC from the proposed clearing.

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

**Methodology** GIS Database  
- Threatened Ecological Communities

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

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

The application area falls within the Pilbara IBRA bioregion (GIS Database). Shepherd (2007) reports that approximately 99.95% of the pre-European vegetation still exists in this bioregion.

The vegetation in the application area is recorded as Beard Vegetation Associations:

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

**567:** Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & *Triodia basedowii* (GIS Database; Shepherd, 2007).

According to Shepherd (2007), approximately 100% of this Beard Vegetation Association remains within the Pilbara bioregion (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,187.89	17,794,646.75	~99.95%	Least Concern	~6.32%
IBRA Subregion - Hamersley	5,634,725.56	5,634,725.56	~100%	Least Concern	~12.88%
<b>Beard vegetation associations - State</b>					
82	2,565,901	2,565,901	~100%	Least Concern	~10.2%
567	777,507	777,507	~100%	Least Concern	~22.3%
<b>Beard vegetation associations - Bioregion</b>					
82	2,563,583	2,563,583	~100%	Least Concern	~10.2%
567	776,824	776,824	~100%	Least Concern	~22.4%

\* Shepherd (2007)

\*\* 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 (2007)  
GIS Database  
- Interim Biogeographic Regionalisation for Australia  
- Pre-European Vegetation

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments Proposal is at variance to this Principle**

According to available GIS Databases, there are no permanent watercourses within the application area, however, there are several minor, non-perennial watercourses within the application area (GIS Database).

Based on vegetation mapping conducted by Rio Tinto (2009) there would appear to be riparian vegetation present within the application area (Rio Tinto, 2009). Two of the ten vegetation associations found within the application area are associated with drainage areas (Rio Tinto, 2009).

- Minor Broad Drainage Line (D1); and
- Lower Drainage Line (D2)

The vegetation associated with the drainage channels is likely to be a fauna refuge and as such disturbance should be kept to a minimum.

The application area is located in a semi-desert-tropical region (CALM, 2002). This region has an average annual rainfall of approximately 283.8 millimetres falling mainly during the summer months, and an average annual evaporation rate of approximately 3,200 millimetres (BoM, 2009). Hence, the presence of surface water resulting from significant rain events is relatively short-lived. Therefore, the watercourses present are expected to be dry except following heavy rainfall which is usually associated with tropical cyclone events (CALM, 2002).

Based on the above, the proposed clearing is at variance to this Principle. However, as the minor drainage lines located within the application area are only likely to flow following significant rainfall, the proposed clearing is unlikely to result in any significant impact to any watercourse or wetland provided natural surface water flow patterns are not disturbed.

**Methodology** BoM (2009)  
CALM (2002)  
Rio Tinto (2009)  
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 has been surveyed by the Department of Agriculture and Food (Van Vreeswyk et al., 2004). The application area is composed of the following land system (GIS Database);

- Newman Land System

The Newman Land System is described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). This system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'lower slopes', 'stony plains' and 'narrow drainage floors with channels' land units. The soils of these land units (stony soils, red loams and river bed soils) are not susceptible to erosion due to a surface mantle of very abundant pebbles and cobbles of ironstone and other rocks (Van Vreeswyk et al., 2004; GIS Database).

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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is the Karijini National Park, located approximately 17 kilometres east (GIS Database).

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**

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database).

The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (14.39 hectares) compared to the size of the Hamersley Groundwater Province (10,166,832 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

There are no known groundwater dependent ecosystems within the application area (GIS Database).

The application area is located within a semi-desert tropical environment (CALM, 2002). Low annual rainfall (approximately 283.8 millimetres) , high evaporation rates (3,200 millimetres/year) and the absence of permanent water bodies and watercourses in the application area (GIS Database; BoM, 2009) would suggest that this area is not prone to flooding under normal rainfall conditions. The small size of the proposed clearing area within the above climate is unlikely to result in significant changes to surface water flows.

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

**Methodology** BoM (2009)  
CALM (2002)  
GIS Database  
- Groundwater Provinces  
- Groundwater Salinity, Statewide  
- Hydrography - Linear  
- Potential Groundwater Dependent Ecosystems  
- Public Drinking Water Source Area

**(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 experiences a semi-desert tropical climate with an average annual rainfall of 283.8 millimetres recorded from the nearest weather station at Paraburdoo approximately 48.5 kilometres south of the application area (CALM, 2002; BoM, 2009).

Flooding of the low lying habitats within the application area may occur following heavy rainfall triggered by either cyclonic activity or sporadic thunderstorms (Rio Tinto, 2009).

The application area is located within the Ashburton River catchment area (GIS Database). However, the area to be cleared (14.39 hectares) in relation to the size of the Ashburton River catchment area (7,877,743 hectares) (GIS Database) is not likely to increase the potential for flooding within the application area, local area or within the catchment (GIS Database).

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

**Methodology** BoM (2009)  
CALM (2002)  
Rio Tinto (2009)  
GIS Database  
- Hydrographic Catchments - Catchments

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

**Comments**

There is one Native Title Claim (WC97\_089) over the area under application. This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several known Aboriginal sites of significance within and in close proximity to 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.

One public submission was received stating no objections in regard to this Clearing Permit application.

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

## 4. Assessor's comments

### Comment

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

It is recommended that should a permit be granted, conditions be imposed on the permit for the purpose of weed management, stockpiling all cleared topsoil and vegetation, record keeping and permit reporting.

## 5. References

- BoM (2009) Bureau of Meteorology Website - Climate Averages by Number, Averages for PARABURDOO.  
[http://www.bom.gov.au/climate/averages/tables/cw\\_001718.shtml](http://www.bom.gov.au/climate/averages/tables/cw_001718.shtml) (Accessed 17 November 2009)
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley subregion) Department of Conservation and Land management, Western Australia
- DEC (2009) NatureMap - Department of Environment and Conservation and Western Australian Museum.  
<http://naturemap.dec.wa.gov.au/default.aspx> (Accessed 13 November 2009)
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Hamersley Iron (2009) Application for a Clearing Permit (Purpose Permit) Tom Price - ML4SA: Supporting Documentation. Hamersley Iron Pty Limited, Western Australia
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Rio Tinto (2009) Flora and Vegetation Survey for Multiple Areas at Tom Price & Supporting Documentation to a Native Vegetation Clearing Permit Application. Unpublished Report dated September 2009. Rio Tinto, Western Australia
- Shepherd, D.P. (2007). Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth. Includes subsequent updates for 2006 from Vegetation Extent dataset ANZWA1050000124.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia
- Western Australian Herbarium (2009) - FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 13 November 2009)

## 6. Glossary

### Acronyms:

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

### Definitions:

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

<b>P1</b>	<b>Priority One - Poorly Known taxa:</b> 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
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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.