



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3894/1
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 Syncline Evaluation Drilling Program

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description 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 and kanji over soft spinifex and *Triodia basedowii* (GIS Database; Shepherd, 2007).

The application area was surveyed during June and July 2008 by Rio Tinto Iron Ore botanists (Rio Tinto, 2009). The following vegetation types were identified within the application area:

EIAatAtImTpEmPh: *Eucalyptus leucophloia* low woodland over *Acacia atkinsiana*, *Acacia tenuissima*, *Senna ferraria* high shrubland *Indigofera monophylla*, various Malvaceae shrubland over *Triodia pungens* open hummock grassland over *Eriachne mucronata* open tussock grassland over *Polycarpha holtzei* and other herbs, open herbs. Recorded on stony lower slopes;

EIApAmGkTbTwEm: *Eucalyptus leucophloia*, *Acacia pruinocarpa* low open forest over *Acacia monticola*, *Acacia bivenosa*, *Acacia maitlandii* open scrub over *Gompholobium karijini* low open shrubland over *Triodia basedowii*, *Triodia wiseana* hummock grassland over *Eriachne mucronata*, *Cymbopogon ambiguus* very open tussock grassland. Recorded on stony dissected slopes in upper regions;

EICcAatAbDcTwEmDca: *Eucalyptus leucophloia*, *Codonocarpus cotinifolius*, *Hakea lorea* low open forest over *Acacia atkinsiana*, *Acacia pruinocarpa* open scrub over *Acacia bivenosa*, *Acacia exilis* shrubland over *Dodonaea coriacea*, *Corchorus lasiocarpus* low shrubland over *Triodia wiseana* hummock grassland over *Eriachne mucronata* very open tussock grassland over *Dampiera candidans* open herbs. Recorded on the foothills of lower slopes;

EIChApAmTpEm: *Eucalyptus leucophloia*, *Corymbia hamersleyana* low woodland over *Acacia pruinocarpa* high open shrubland over *Acacia maitlandii* open heath over *Triodia pungens* hummock grassland over *Eriachne mucronata* open tussock grassland. Recorded along mid slopes;

EICHAeSvCITwEmDca: *Eucalyptus leucophloia*, *Corymbia hamersleyana*, *Codonocarpus cotinifolius* low woodland over *Acacia exilis*, *Senna venusta*, *Calytrix carinata* open heath over *Corchorus lasiocarpus*, *Gompholobium karijini* low shrubland over *Triodia wiseana* open hummock grassland over *Eriachne mucronata* open tussock grassland over *Dampiera candidans* herbs. Recorded on the mid to lower dissected slopes;

EISpTwHerbs: *Eucalyptus leucophloia* low open forest over *Senna pruinosa* open shrubland over *Triodia wiseana* open hummock grassland over various very open herbs. Recorded on the upper slopes;

EIAmaAcAmAatTw: *Eucalyptus leucophloia* low open forest over *Acacia marramamba*, *Acacia citrinoviridis*, *Acacia monticola* open scrub over *Acacia maitlandii*, *Acacia atkinsiana* open shrubland over *Triodia wiseana* closed hummock grassland. Recorded on the lower slopes;

CdGbAmaAatTbTw: *Corymbia deserticola*, *Grevillea berryana* low woodland over *Acacia marramamba*, *Acacia atkinsiana* high shrubland over *Triodia bitextura*, *Triodia wiseana* hummock grassland. Recorded on rolling hills habitat;

EIAiAatTwHerbs: *Eucalyptus leucophloia* low woodland over *Acacia inaequilatera*, *Acacia atkinsiana* open shrubland over *Triodia wiseana* very open hummock grassland over various open herbs. Recorded on rolling hills habitat;

EIAanAtAmaSgTpTw: *Eucalyptus leucophloia*, *Acacia aneura*, *Acacia citrinoviridis* low open forest over *Acacia tetragonophylla*, *Acacia marramamba*, *Acacia pyrifolia* high shrubland over *Senna glutinosa*, *Dodonaea pachyneura* open shrubland over *Triodia pungens*, *Triodia wiseana* hummock grassland. Recorded on the stony lower slopes;

GbAanAsAmaEeEFTw: *Grevillea berryana*, *Acacia aneura*, *Acacia citrinoviridis* low open forest over *Acacia sibirica*, *Acacia marramamba* open scrub over *Eremophila exilis*, *Eremophila forrestii*, *Senna glutinosa* shrubland over *Triodia wiseana* hummock grassland. Recorded on the upper stony slopes.

CdAkApSgSITwTbGs: *Corymbia deserticola* low open woodland over *Acacia kempeana*, *Acacia pruinocarpa* high shrubland over *Senna glutinosa*, *Senna oligophylla*, *Senna pruinosa* open shrubland over *Solanum lasiophyllum* low open shrubland over *Triodia wiseana*, *Triodia bitextura* hummock grassland over *Goodenia stobbsiana*, *Indigofera monophylla*, *Dampiera candidans* open herbs. Recorded on rolling hills habitat; and

EgEIApPIAaTw: *Eucalyptus gamophylla*, *Eucalyptus leucophloia*, *Acacia pruinocarpa* low open forest over *Petalostylis labicheoides*, *Acacia atkinsiana* open scrub over *Triodia wiseana*, *Triodia pungens* hummock grassland. Recorded within a drainage line (Rio Tinto, 2009).

Clearing Description Hamersley Iron Pty Ltd is proposing to clear up to 7.7 hectares of native vegetation within a larger boundary of 226 hectares, for the Brockman Syncline evaluation drilling program (Hamersley Iron Pty Ltd, 2010). The evaluation drilling program will include;

- Maintaining and establishing tracks;
- Clearing of drill lines and access tracks (7.875 kilometres x 4 metres);
- Creation of 86 drill pads (20 metres x 26 metres);
- Creation of 172 sumps (6 metres x 3 metres x 2 metres); and
- Drilling of 86 holes (Hamersley Iron Pty Ltd, 2010).

Vegetation will be cleared using a raised blade technique where practicable or scrub rake in level terrain. Where previously cleared tracks require maintenance, the track may be graded using blade down technique (Hamersley Iron Pty Ltd, 2010).

Vegetation Condition Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

Comment The application area is located in the Pilbara region of Western Australia and is situated approximately 46 kilometres north-west of Tom Price (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 occurs within the Hamersley (PIL3) sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by sedimentary ranges and plateaux, dissected by gorges (CALM, 2002). At a broad scale, vegetation can be described as Mulga low woodlands over bunch grasses on fine textured soils in valley floors and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges (CALM, 2002).

A vegetation survey of the application area identified thirteen intact vegetation types occurring within the application area (Rio Tinto, 2009). During the vegetation survey, 172 vascular plant taxa from 90 genera and 41 families were recorded from within the application area (Rio Tinto, 2009). The number of flora species recorded within the application area is considered diverse. This is likely to reflect the variety of vegetation units encompassed by the area (Rio Tinto, 2009). However, this is considered typical of the floristic diversity for similar landform features which are widespread throughout the Pilbara region.

One species classified by the DEC as a Declared Rare Flora species; *Lepidium catapycnon* was recorded during the survey, however the locations of these populations were excised from the application area (Rio Tinto, 2009). The application area is known to contain one Priority Flora species: *Sida* sp. Pilbara (S. Van Leeuwen 4377) now known as *Sida* sp. Hamersley Range (K. Newbey 10692) (P1) (Rio Tinto, 2009). The presence of Priority Flora within the proposed clearing area increases its biodiversity significance. According to Shepherd (2007) approximately 100% of the Beard vegetation associations within the application area remain within the Pilbara bioregion, therefore it is not expected that the proposed clearing will threaten the conservation status of

any Priority Flora species (GIS Database).

Three alien weed species were recorded within the vegetation survey area (Rio Tinto, 2009). These were: Buffel Grass (*Cenchrus ciliaris*), Beggartick (*Bidens bipinnata*) and Ruby Dock (*Acetosa vesicaria*) (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. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

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

Methodology CALM (2002)
Rio Tinto (2009)
Shepherd (2007)
GIS Database
- IBRA WA (regions - subregions)
- Pre-European Vegetation

(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

According to Shepherd (2007) approximately 99.95% of the pre-European vegetation remains within the Pilbara bioregion. Given the extent of native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological linkage.

In 2005, a Level 2 fauna survey was conducted by Biota Environmental Sciences and in 2009 a Level 1 flora survey was conducted by Rio Tinto of the Brockman area (Biota, 2005; Rio Tinto, 2009).

From these surveys it can be inferred that four broad habitat types occur within the application area:

1. **Mulga** - dense *Acacia aneura* tall shrublands over *Triodia epactia* and *Triodia wiseana* hummock grasslands in drainage areas within plains;
2. **Acacia over Triodia** - situated on stony soils and on soft soil in a wide valley;
3. **Creeklines** - comprising minor drainage lines to wide flood channels with *Acacia* shrublands over *Triodia epactia* hummock grasslands; and
4. **Triodia Hills** - crests of the Brockman range (Biota, 2005).

The habitat types found within the application area are well represented locally and within the Pilbara region generally. Therefore, the vegetation within the application area is not likely to represent significant habitat for the fauna species found within the Brockman Area.

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

Methodology Biota (2005)
Rio Tinto (2009)
Shepherd (2007)

(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) within the application area (GIS Database).

A flora survey was conducted over the application area by staff from Rio Tinto during June and July 2008 (Rio Tinto, 2009). No DRF or species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) were recorded within the application area (Rio Tinto, 2009).

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

Methodology Rio Tinto (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 (TECs) within the application area (GIS Database). The nearest TEC is located approximately 0.5 kilometres east of the application area (GIS Database).

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

Methodology 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 falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) reports that approximately 99.95% of the pre-European vegetation remains in this bioregion.

The vegetation within 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 and kanji over soft spinifex and *Triodia basedowii* (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of these Beard vegetation associations remain 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	17,804,188	17,794,647	~99.95%	Least Concern	~6.32%
IBRA Subregion - Hamersley	5,634,726	5,634,726	~100%	Least Concern	~12.88%
Beard vegetation associations - State					
82	2,565,901	2,565,901	~100%	Least Concern	~10.2%
567	777,507	777,507	~100%	Least Concern	~22.3%
Beard vegetation associations - Bioregion					
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
- Pre-European Vegetation
- IBRA WA (regions - subregions)

(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 wetlands or watercourses within the application area, however there are several minor ephemeral watercourses within the application area (GIS Database).

Based on vegetation mapping conducted by Rio Tinto (2009) one of the thirteen vegetation associations found

within the application area is associated with drainage areas.

EgEIAPPIAaTw: *Eucalyptus gamophylla*, *Eucalyptus leucophloia*, *Acacia pruinocarpa* low open forest over *Petalostylis labicheoides*, *Acacia atkinsiana* open scrub over *Triodia wiseana*, *Triodia pungens* hummock grassland. Recorded within a drainage line (Rio Tinto, 2009).

The riparian vegetation of the application area is likely to be disturbed due to the construction of access tracks crossing the drainage lines which may alter the watercourses natural regime. To minimise the impact and ensure the natural water flow is maintained it is recommended that culverts and floodways be installed where access tracks intersect drainage lines.

Based on the above, the proposed clearing is at variance to this Principle. However, the proposed clearing is not likely to significantly impact on the conservation of vegetation growing in association with permanent watercourses or wetlands due to the absence of these within the application area. The proposed clearing of 7.7 hectares of native vegetation within a larger boundary of 226 hectares is unlikely to significantly impact on vegetation communities growing in association with these drainage channels. Should any watercourses be disturbed the proponent should liaise with the Department of Water to determine whether a Bed and Banks permit is necessary for the proposed works.

Methodology Rio Tinto (2009)
GIS Database
- Hydrography, Linear
- Geodata, Lakes

(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), and is comprised of the Newman and Platform land systems (GIS Database).

The Newman land system is described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). While, the Platform land system is described as dissected slopes and raised plains supporting hard spinifex grasslands (Van Vreeswyk et al., 2004).

Neither of these land systems are susceptible to erosion.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. Potential land degradation impacts as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

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 Karijini National Park, located approximately 55 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 application area is located within a *Rights in Water and Irrigation Act 1914* (RIWI Act) Groundwater Management Area (GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

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 (7.7 hectares) compared to the size of the Hamersley Groundwater Province (10,166,833 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

The application area is located in a semi-desert-tropical region, with an average annual rainfall of approximately 283.8 millimetres recorded from the nearest weather station at Paraburdoo approximately 72 kilometres south-south-east of the application area (BoM, 2010; CALM, 2002). The 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 (2010)
CALM (2002)
GIS Database
- Groundwater - Provinces
- Groundwater Salinity
- Public Drinking Water Source Areas (PDWSA)
- RIWI Act, Groundwater 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 experiences a semi-desert, tropical climate with an average annual rainfall of 283.8 millimetres (CALM, 2002; BoM, 2010). Rainfall is usually experienced during summer months and can be either cyclonic or thunderstorm events (CALM, 2002). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. Local flooding occurs seasonally within the Pilbara region as a result of cyclonic activity and sporadic thunderstorm events. The proposed clearing of 7.7 hectares within a larger boundary of 226 hectares is unlikely to significantly alter the intensity of flooding within the application area and surrounding areas.

The application area is located within the Ashburton River catchment area (GIS Database). However, the size of the area to be cleared (7.7 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 (2010)
CALM (2002)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claims over the area under application (WC97/089). All claims have been registered with the National Native Title Tribunal on behalf of the claimant group. However, 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 no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal sites of significance are damaged through the clearing process.

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

The clearing permit application was advertised on 23 August 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the proposed clearing.

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

4. Assessor's comments

Comment

The application has been assessed against the clearing principles, planning instruments and other matters in accordance with s.51O of the *Environmental Protection Act 1986*, and the proposed clearing 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).

5. References

- Biota (2005) Fauna Habitats and Fauna Assemblage of the Brockman No. 4 Project Area. Unpublished report prepared for Hamersley Iron Pty Ltd. January 2005.
- BoM (2010) BOM Website - Climate Averages by Number, Averages for PARABURDOO. www.bom.gov.au/climate/averages/tables/cw_007178.shtml (Accessed 30 August 2010).
- 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.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Rio Tinto (2009) Botanical Survey of the Brockman Syncline Southern Marra Mamba Deposits J, M & N. Unpublished Report prepared by Rio Tinto. January 2009.
- 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.
- 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.

6. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), 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, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
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	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

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

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

Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

- Schedule 1** **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2** **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3** **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4** **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

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

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

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

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
(a) is not critically endangered; and

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

VU

Vulnerable: A native species which:

(a) is not critically endangered or endangered; and

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

CD

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