



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3473/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Pilbara Manganese Pty Ltd

1.3. Property details

Property: Mining Lease 45/431
Mining Lease 45/638
Local Government Area: Shire of East Pilbara
Colloquial name: Demon Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
62		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 scale of 1:250,000 for the whole of Western Australia. One Beard Vegetation Association is located within the application area (Shepherd, 2007):

Beard Vegetation Association 173: hummock grasslands; shrub steppe; kanji over soft spinifex and *Triodia wiseana* on basalt.

Mattiske Consulting conducted flora and vegetation surveys of Mining Leases 45/431 and 45/638 in May 2007 (Mattiske Consulting, 2007a; 2007b). These surveys identified ten vegetation communities within the application area (Mattiske Consulting 2007a; 2007b):

Vegetation Type 1:

Woodland of *Eucalyptus camaldulensis* var. *obtusa* over *Acacia trachycarpa*, *Acacia inaequilatera* and *Ficus brachypoda* over *Cenchrus ciliaris* along major watercourses.

Vegetation Type 2:

Scrub or Thicket of *Carissa lanceolata*, *Petalostylis labicheoides*, *Acacia bivenosa* and *Acacia ancistrocarpa* over *Triodia pungens*, *Triodia basedowii*, *Cenchrus ciliaris* and *Chrysopogon fallax* along minor watercourses.

Vegetation Type 3:

Tall shrubland of *Acacia arida*, *Acacia bivenosa*, *Acacia synchronicia* over patches of *Triodia basedowii* and *Triodia pungens* with *Grevillea wickhamii* subsp. *hispidula* and emergent *Corymbia hamesleyana* on flats and lower slopes.

Vegetation Type 4:

Scrub or Low Shrubland of *Acacia ancistrocarpa*, *Acacia arida*, *Acacia acradenia*, *Petalostylis labicheoides*, *Gossypium australe*, *Acacia synchronicia* and *Acacia inaequilatera* over *Triodia longiceps* and *Triodia wiseana* with patches of *Cenchrus ciliaris* on flats, often associated with major watercourses.

Vegetation Type 5:

Low Shrubland of *Acacia arida* and *Acacia hilliana* over *Triodia wiseana* and *Dampiera candidans* on slopes and hilltops.

Vegetation Type 6:

Hummock Grassland of *Triodia longiceps* with scattered *Acacia bivenosa*, *Acacia synchronicia* and *Acacia ptychophylla* on flats and lower slopes.

Vegetation Type 7:

Hummock Grassland of *Triodia longiceps* and *Triodia wiseana* with occasional *Grevillea wickhamii* subsp. *hispidula* on flats and lower slopes.

Vegetation Type 8:

Hummock Grassland of *Triodia pungens* with patches of *Cymbopogon ambiguus* and *Acacia synchronicia* and

emergent *Corymbia hamersleyana* on flats and lower slopes.

Vegetation Type 9:

Hummock Grassland of *Triodia basedowii*, *Triodia pungens* and *Triodia wiseana* with *Acacia bivenosa*, *Acacia pyrifolia* var. *morrisonii*, *Acacia synchronicia*, *Hakea lorea* subsp. *lorea* and emergent *Corymbia hamersleyana* and *Corymbia aspera* on undulating plains and slopes.

Vegetation Type 10:

Open Scrub of *Senna artemisioides* subsp. *oligophylla*, *Hakea lorea* subsp. *lorea* and *Atalaya hemiglauca* over mixed shrubs, herbs and grasses on rocky slopes.

Clearing Description	<p>Pilbara Manganese (2009) proposes to clear up to 62 hectares of native vegetation, within a larger area equalling approximately 91.7 hectares. The proposed clearing is located within the Woodie Woodie project area which is located approximately 120 kilometres east of Nullagine (GIS Database).</p> <p>The purpose of the proposed clearing is for the construction of open pits, waste rock landforms, Run of Mine pad, haul roads and other associated infrastructure (MBS Environmental, 2009). Vegetation will be cleared by bulldozer and the vegetation and topsoil will be stockpiled for rehabilitation purposes (Pilbara Manganese, 2009).</p>
Vegetation Condition	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).
Comment	The vegetation condition rating is derived from information provided by MBS Environmental (2009). MBS Environmental (2009) reports the condition of the vegetation within the application area as being in generally very good condition except for areas of localised disturbances due to impacts from previous mining activities.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments	<p>Proposal may be at variance to this Principle</p> <p>The application area is located within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). CALM (2002) reports that hummock grasslands of the Chichester subregion have the potential to host high reptile and high small mammal diversity. According to Shepherd (2007) one Beard Vegetation Association is present within the application area:</p> <p>Beard Vegetation Association 173: hummock grasslands, shrub steppe; kanji over soft spinifex and <i>Triodia wiseana</i> on basalt.</p> <p>CALM (2002) reports that Beard Vegetation Association 173 has a medium to low reservation priority.</p> <p>Mattiske Consulting conducted two flora and vegetation surveys of Mining Lease 45/431 and Mining Lease 45/638 in May 2007. Mattiske Consulting (2007a) identified within Mining Lease 45/431 a total of 127 flora taxa from 33 families and 71 genera. The dominant families were <i>Poaceae</i> (20 species), <i>Amaranthaceae</i> (11 species) and <i>Mimosaceae</i> (12 species) (Mattiske Consulting, 2007a). Within Mining Lease 45/638, Mattiske Consulting (2007b) identified a total of 159 flora taxa from 37 families and 88 genera. The dominant families were <i>Poaceae</i> (24 species) and <i>Mimosaceae</i> (15 species) (Mattiske Consulting 2007b). These results indicate that this area has a fairly high level of flora diversity.</p> <p>Five weed species have been identified within Mining Leases 45/431 and 45/638; Buffel Grass (<i>Cenchrus ciliaris</i>), Kapok Bush (<i>Aerva javanica</i>), Native Thornapple (<i>Datura leichhardtii</i>), Purslane (<i>Portulaca oleracea</i>) and Spiked Malvastrum (<i>Malvastrum americanum</i>) (Mattiske Consulting, 2007a; 2007b). The presence of introduced weed species lowers the biodiversity value of the proposed clearing area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Should a permit be granted, it is recommended that a condition be imposed for the purpose of weed management.</p> <p>Western Wildlife conducted a fauna survey of the Woodie Woodie project area, in October 2008. A total of 274 fauna species have the potential to occur within the search area including up to seven amphibians, 18 reptiles, 138 bird species and 51 mammal species (MBS Environmental, 2009). Of these 179 fauna species have previously been recorded during field surveys including five amphibians, 60 reptiles, 92 bird species and 22 mammal species (MBS Environmental, 2009). These results indicate that approximately 65% of fauna species potentially occurring within the search area were found within the Woodie Woodie project area which represents a high diversity of fauna species.</p> <p>Based on the above, the proposed clearing may be at variance to this Principle.</p>
Methodology	<p>CALM (2002) Mattiske Consulting (2007a) Mattiske Consulting (2007b) MBS Environmental (2009) Shepherd (2007) GIS Database - Interim Biogeographic Regionalisation of Australia</p>

(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

Western Wildlife conducted a fauna survey of the Woodie Woodie project area in October 2008. This survey included a desktop survey in addition to a field based survey (Western Wildlife, 2009). The following methods were used to conduct the field based survey (Western Wildlife, 2009):

- Ten trapping sites were installed in the Woodie Woodie project area in spring 2008. Each trapping site consisted of ten pitfall traps, five funnel traps, ten Elliott traps and two cage traps;
- Sampling of each trapping site occurred over a period of five to eight nights between 30 September and 11 October 2008;
- Spotlighting was conducted on the nights of 6 and 8 October 2008;
- Bats were surveyed using two Anabat SD1 ultrasonic bat detectors; and
- Birds were opportunistically surveyed and surveys were targeted at habitats that were refuges for birds

The following table lists the habitat types located within the application area in addition to how much of each habitat is located within Mining Leases 45/431 and 45/638 as well as the total area mapped within the Woodie Woodie area:

Habitat Type	Total area mapped (hectares)	Total area in M45/431 (hectares)	Total area in M45/638 (hectares)	Total Demon Clearing Permit Application Area (hectares)
<i>Cenchrus ciliaris</i> dominated plains and minor creeklines with emergent <i>Acacia</i>	606.3	25.4	74.6	10.8
<i>Eucalyptus</i> and <i>Melaleuca</i> fringed creeklines	237.5	11.5	22.2	6.2
<i>Triodia</i> hummock grassland dominated plains	4156.1	214.4	554.9	30.7
Scrub/ <i>Triodia</i> hummock grassland on low rocky hills and mesas	1721.0	34.7	199.9	29.8
Tall shrubland of <i>Acacia</i>	64.0	29.7	2.7	4.9
Cleared Land (highly disturbed)	864.0	169.5	48.0	9.3
			Total	91.7

MBS Environmental (2009)

All these habitat types are reported by MBS Environmental (2009) as being widespread throughout the region and in addition, MBS Environmental reports that none of these habitat types would represent significant fauna habitat.

The field based fauna survey recorded the following fauna species of conservation significance within the Woodie Woodie project area (MBS Environmental, 2009):

- Australian Bustard (*Ardeotis australis*) - Priority 4 on the Department of Environment and Conservation's (DEC's) Threatened and Priority fauna list;
- Pilbara Orange Leaf-nosed Bat (*Rhinonictus aurantius*) – Schedule 1 (Fauna that is rare or likely to become extinct), *Wildlife Conservation (Specially Protected Fauna) Notice 2008* and Vulnerable, *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Rainbow Bee-eater (*Merops ornatus*) – Marine and Migratory, *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Western Star Finch (*Neochmia ruficauda subclaescens*) – Priority 4 on the DEC's Threatened and Priority fauna list;
- Western Pebble-mound Mouse (*Pseudomys chapmani*) – Priority 4 on the DEC's Threatened and Priority Fauna list;
- Wood Sandpiper (*Tringa glareola*) – Marine and Migratory, *EPBC Act 1999*.

Suitable habitat is not present within the application area for the Wood Sandpiper or the Pilbara Orange Leaf-nosed bat, although this bat species may forage over the application area (MBS Environmental, 2009). Furthermore, the Western Star Finch can be found around waterholes and watercourses and therefore, may be present seasonally within the application area, however, this species is more likely to be found in areas where permanent sources of water occur (Western Wildlife, 2009). The Rainbow Bee-eater and Western Pebble-mound Mouse are both widespread species and therefore, the vegetation of the application area is not likely to represent significant habitat for these species (MBS Environmental, 2009).

There has previously been clearing of native vegetation within areas adjacent to the application area for the purpose of mineral production in the form of open pits, waste dumps and mine infrastructure. This previous

clearing, in addition to the proposed clearing would result in local fragmentation of fauna habitat, particularly in areas where vegetation associated with watercourses has been disturbed.

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

Methodology MBS Environmental (2009)
Western Wildlife (2009)

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

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

Mattiske Consulting conducted flora and vegetation surveys of Mining Leases 45/431 and 45/638 in May 2007 (Mattiske Consulting, 2007a; 2007b). Both surveys were conducted in a similar manner and both utilised the following methods (Mattiske Consulting, 2007a; 2007b):

- With the aid of aerial photographs, numerous sampling sites were selected to sample all the vegetation types within the tenements;
- The flora and vegetation were described and sampled systematically at each survey site;
- Additional opportunistic collecting was undertaken wherever previously unrecorded plants were observed.

The flora and vegetation surveys identified no Declared Rare Flora within either Mining Lease (Mattiske Consulting, 2007a; 2007b). The flora and vegetation survey of Mining Lease 45/638 did not identify any Priority flora species, however, the flora and vegetation survey of Mining Lease 45/431 identified the following two Priority flora species within the lease area (Mattiske Consulting, 2007a):

- *Goodenia* sp. East Pilbara (Priority 1);
- *Tephrosia* sp. Cathedral Gorge (Priority 3).

Goodenia sp. East Pilbara is an open, erect annual or biennial, herb, to 0.2 metres high (Western Australian Herbarium, 1998 – 2009). This species preferred habitat consists of red-brown clay soils, calcrete pebbles on low undulating plains and swampy plains (Western Australian Herbarium, 1998 – 2009). Mattiske Consulting (2007a) reports that one specimen of this species was recorded within Mining Lease 45/431.

Tephrosia sp. Cathedral Gorge is an erect shrub to 0.25 metres high. It is known to occur in habitats consisting of clay-sand and pebbles (Western Australian Herbarium, 1998 – 2009). Mattiske Consulting (2007a) reports that two specimens were recorded in Mining Lease 45/431.

MBS Environmental (2009) reports that none of these specimens will be impacted by the proposed clearing.

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

Methodology Mattiske Consulting (2007a)
Mattiske Consulting (2007b)
MBS Environmental (2009)
Western Australian Herbarium (1998 - 2009)

(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

There are no known Threatened Ecological Communities (TECs) within the area applied to clear (GIS Database). There are no known TECs within 200 kilometres of the application area (GIS Database).

MBS Environmental (2009) reports that no TECs were identified during the flora and vegetation surveys of the application area.

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

Methodology MBS Environmental (2009)
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 Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2007) report that approximately 100% of the pre-European vegetation still exists in this Bioregion (see table below). The vegetation within the application area is recorded as the following Beard

Vegetation Association (Shepherd, 2007):

- **Beard Vegetation Association 173:** hummock grasslands; shrub steppe; kanji over soft spinifex and *Triodia wiseana* on basalt.

According to Shepherd (2007) approximately 100% of this vegetation association remains within the bioregion (see table below).

Therefore, the vegetation within the application area is not a significant remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,188	17,794,647	~100	Least Concern	~6.3
Beard veg assoc. – State					
173	1,420,793	1,420,793	~100	Least Concern	~4.8
Beard veg assoc. – Bioregion					
173	1,421,376	1,421,376	~100	Least Concern	~4.8

* 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 of Australia

(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 databases there are numerous ephemeral watercourses within the application area (GIS Database). It is the proponent's responsibility to liaise with the Department of Water to determine whether a Bed and Banks permit is necessary for the proposed works.

MBS Environmental (2009) report that there are two vegetation communities within the application area that are associated with watercourses:

- 1) Woodland of *Eucalyptus camaldulensis* var. *obtusa* over *Acacia trachycarpa*, *Acacia inaequilatera* and *Ficus brachypoda* over *Cenchrus ciliaris* along major watercourses; and
- 2) Scrub or thicket of *Carissa lanceolata*, *Petalostylis labicheoides*, *Acacia bivenosa* and *Acacia ancistrocarpa* over *Triodia pungens*, *Triodia basedowii*, *Cenchrus ciliaris* and *Chrysopogon fallax* along minor watercourses.

According to MBS Environmental (2009), these vegetation units are distributed as follows:

Vegetation Unit	Total Area Mapped (hectares)	Total Area in M45/431 (hectares)	Total Area in M45/638 (hectares)	Approximate Area in Clearing Permit Application Area (hectares)
1	219.5	11.5	10.3	6.2
2	586.1	25.4	10.8	10.8

Based on the above table, less than 3% of the total area mapped for vegetation unit 1 occurs within the application area, and less than 2% of vegetation unit 2 occurs within the application area. In addition, MBS Environmental (2009) reports that these vegetation units are common and widespread locally and regionally.

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

Methodology MBS Environmental (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 is located within the Coonigmah land system (GIS Database).

The Coonigmah land system is described by Van Vreeswyk et al. (2004) as consisting of plateau surfaces, low hills with steep slopes and undulating uplands supporting hard spinifex grasslands. Van Vreeswyk et al. (2004) reports that this system has very low erosion risk.

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 any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is the Karlamilyi National Park located approximately 90 kilometres south-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
- DEC Managed Land and Waters

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

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

The application area is located in an arid region with an average annual rainfall of approximately 327 millimetres falling mainly during the summer months (MBS Environmental, 2009). Based on an average annual evaporation rate of approximately 3,800 millimetres, any surface water resulting from rain events is relatively short-lived (MBS Environmental, 2009). Based on this the proposed clearing is not likely to have any significant impact on surface water flows.

The natural water table is more than 20 metres below natural ground level (MBS Environmental, 2009). Therefore, the impact of vegetation removal on groundwater levels is unlikely to be significant. Based on this, the proposed clearing is unlikely to have any significant impact on groundwater levels or quality.

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

Methodology MBS Environmental (2009)

(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 in an arid region where the average annual evaporation rate greatly exceeds the average annual rainfall (MBS Environmental, 2009). There are no permanent watercourses within the application area however numerous ephemeral drainage lines dissect the proposed clearing area (GIS Database). These drainage lines are expected to be dry for most of the year, and would likely only flow briefly following significant rainfall.

Natural flood events do occur within the Pilbara region following cyclonic activity. The proposed clearing is not expected to increase the incidence or intensity of such events given the size of the area to be cleared (62 hectares) in relation to the size of the Oakover River catchment area (2,001,756 hectares) (GIS Database).

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

Methodology MBS Environmental (2009)
GIS Database
- Hydrographic Catchments - catchments
- Hydrography, linear

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

Comments

There is one Native Title claim (WC99/008) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the tenements have 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*.

According to available databases there is one Aboriginal Site of Significance (site ID 18745) 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.

There were no submissions received during the public comments period.

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 is at variance to Principle (f), may be at variance to Principle (a), is not likely to be at variance to Principles (b), (c), (d), (g), (h), (i) and (j) and is not at variance to Principle (e).

Should a permit be granted, it is recommended that conditions be imposed on the permit for the purposes of weed management, rehabilitation, record keeping and permit reporting.

5. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting (2007a) Flora and Vegetation Survey of the EAT Tenement, Woodie Woodie. Unpublished report. Mattiske Consulting Pty Ltd, Western Australia.
- Mattiske Consulting (2007b) Flora and Vegetation Survey of Tenement M45/638 (including Camp East, Paystar and Vespa Prospects), Woodie Woodie. Unpublished report. Mattiske Consulting Pty Ltd, Western Australia.
- MBS Environmental (2009) Woodie Woodie Operations, Clearing Permit (Purpose Permit) Application, Demon Project. Native Vegetation Management Plan and Assessment of Clearing Principles. Unpublished report. Martinick Bosch Sell Pty Ltd, Western Australia.
- Pilbara Manganese (2009) Supporting documentation for a clearing permit application. Pilbara Manganese Pty Ltd.
- 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 (1998 - 2009) Florabase - The Western Australian Flora. Department of Environment and Conservation. Available online from: <http://florabase.dec.wa.gov.au>. Accessed 23 December 2009.
- Western Wildlife (2009) Ten Prospect Areas at Woodie Woodie: Fauna Survey October 2008. Unpublished report. Western Wildlife, 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.