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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3270/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Mining Co Pty Ltd**

1.3. Property details

Property: Special Lease for Mining Operations I 123396 L; Lease 3116/4263; Lot 65 on Deposited Plan 241547; Lot 404 on Deposited Plan 194355, and Lot 405 on Deposited Plan 194355
Iron Ore (Cleveland-Cliffs) Agreement Act 1964
Local Government Area: Shire of Roebourne
Colloquial name: Cape Lambert Port B Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.4		Mechanical Removal	Geotechnical Investigations

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. One Beard Vegetation Association has been mapped within the application area (GIS Database; Shepherd, 2007).

157: Hummock grasslands, grass steppe; hard spinifex *Triodia wiseana*.

The application area was surveyed by Biota Environmental Sciences staff between 3 - 11 October 2007 and 5 - 11 March 2008 (Biota Environmental Sciences, 2008a). The following vegetation types were identified within the application area:

CP - Coastal Plains: Open shrubland dominated by *Acacia stellaticeps* and/or *Acacia bivenosa* over *Scaevola spinescens* and *Rhagodia eremaea* scattered low shrubs over *Triodia epactia* hummock grassland and *Cenchrus ciliaris* tussock grassland;

RH - Rocky Hills: *Triodia epactia* hummock grassland and *Cenchrus ciliaris* scattered grasses and/or *Triodia wiseana* and *Triodia epactia* hummock grassland;

SD - Low Lying, Saline Drainage Areas (on silty clay or clay loam soils): *Halosarcia halocnemoides* subsp. *tenuis* and *Halosarcia indica* subsp. *leiostachya* low samphire shrubland or open heath with *Frankenia ambita* and *Muellerolimon salicorniaceum* low open shrubland; and

SIZ - Saline Interzone Areas Between Low Lying, Saline Drainage Areas and Flat Coastal Plain: *Acacia ampliceps* tall shrubland, with *Sesbania cannabina* tall open herbland over *Sporobolus virginicus* tussock to closed tussock grassland (Biota Environmental Sciences, 2008a).

Seven weed species was recorded within the application area: Purpletop Chloris (*Chloris barbata*), Kapok Bush (*Aerva javanica*), Date Palm (*Phoenix dactylifera*), Pigweed (*Portulaca oleracea*), Athel Tree (*Tamarix aphylla*), Three Leaved Chaste Tree (*Vitex trifolia* var. *subtrisecta*) and Buffel Grass (*Cenchrus ciliaris*) (Biota Environmental Sciences, 2008a).

Clearing Description

Robe River Mining Company Pty Ltd is proposing to clear up to 2.4 hectares of native vegetation within a boundary of 32.35 hectares (Robe River Mining Co Pty Ltd, 2009). The proposed program includes:

- Maintaining and establishing tracks,
- Clearing of drill lines and access tracks (2.5 kilometres x 4 metres);
- Creation of 15 drill pads (30 metres x 30 metres); and
- Drilling of 15 holes (Robe River Mining Co Pty Ltd, 2009).

Vegetation Condition Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994)

To

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

Comment The application area is located in the Pilbara region, approximately 4.5 kilometres west of Point Samson. The vegetation condition was derived from a vegetation survey conducted by Biota Environmental Sciences (2008a).

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 Chichester (PIL1) sub-region of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This sub-region is characterised by plains supporting a shrub steppe of *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002).

A vegetation survey of the application area and surrounding vegetation identified 190 native flora species belonging to 101 genera from 45 families (Biota Environmental Sciences, 2008a). This is considered to be relatively low for the study area, while the Cape Lambert area has a species richness value that is within the expected range for its size and location (Biota Environmental Sciences, 2008a).

Seven weed species were recorded within the application area (Biota Environmental Sciences, 2008a). These were Purpletop Chloris (*Chloris barbata*), Kapok Bush (*Aerva javanica*), Date Palm (*Phoenix dactylifera*), Pigweed (*Portulaca oleracea*), Athel Tree (*Tamarix aphylla*), Three Leaved Chaste Tree (*Vitex trifolia* var. *subtrisecta*) and Buffel Grass (*Cenchrus ciliaris*) (Biota Environmental Sciences, 2008a). 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. One of these species (*Tamarix aphylla*) is listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food (DAFWA). This species is a Priority 1 species and therefore the movement of this plant or its seeds within the state is prohibited, as is the movement of contaminated machinery and produce including livestock and fodder (DAFWA, 2009a). Should a clearing permit be granted, it is recommended that a condition be imposed for the purposes 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 69 reptile species as potentially occurring within the application area, or within a 25 kilometre radius of the application area. The vegetation communities within the application area are not likely to be considered as rare, geographically restricted or of significant conservation value. 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

Biota Environmental Sciences (2008a)
CALM (2002)
DAFWA (2009a)
DEC (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 assessing officer has conducted a search of the Department of Environment and Conservation's DEC) online fauna database between the coordinates 117.3949° E, 20.3966°S and 116.8974°E, 20.8621°S, representing a 25 kilometre radius around the application area.

This search identified 2 Amphibian, 16 Mammalian, 34 Avian and 69 Reptilian species that may occur within the application area (DEC, 2009). Of these, the following species of conservation significance has previously been recorded within the search area, excluding marine animals:

Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008:* Northern Quoll (*Dasyurus hallucatus*), Bernier Island Banded Hare-wallaby (*Lagostrophus fasciatus* subsp. *fasciatus*); and

P4 - DEC Priority Fauna List: *Notoscincus butleri*, Australian Bustard (*Ardeotis australis*), Flock Bronzewing (*Phaps histronica*), Eastern Curlew (*Numenius madagascariensis*), Western Pebble-mound Mouse (*Pseudomys chapmani*) and the Short-tailed Mouse (*Leggadina lakedownensis*) (DEC, 2009).

Biota Environmental Sciences (2008b) conducted a survey over two phases of the application area. The Phase I was conducted between 1-12 October 2007, while the Phase II survey was completed between 5-12 March 2008 (Biota Environmental Sciences, 2008b). Biota Environmental Sciences (2008b) conducted a desktop search of the following databases:

- Department of Environment and Conservation's (DEC) Priority and Threatened Fauna Database;
- Western Australian Museum (WAM) FaunaBase; and
- Department of the Environment, Water, Heritage and the Arts *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* online database (Biota Environmental Sciences, 2008b).

In addition to those species listed above, the following fauna species of conservation significance were identified through the above mentioned assessments:

Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008:* *Pilbara* Olive Python (*Liasis olivaceus barroni*);

Schedule 4 - Other specially protected fauna, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008*: Peregrine Falcon (*Falco peregrinus*);

P1 - DEC Priority Fauna List: Little Northern Freetail Bat (*Mormopterus loriae cobourgiana*); and

P4 - DEC Priority Fauna List: Star Finch (*Neochmia ruficauda subclarens*) and the Bush Stone-curlew (*Burhinus grallarius*) (Biota Environmental Sciences, 2008b).

Biota Environmental Sciences (2008b) recorded six broad habitat types as occurring within the application area:

1. Wirewood (*Acacia coriacea*) open shrublands over soft spinifex (*Triodia epactia*) hummock grasslands and/or mixed tussock grasslands on primary and secondary sand dunes;
2. Soft spinifex (*Triodia epactia*) hummock grasslands and/or Buffel Grass (*Cenchrus ciliaris*) tussock grasslands on loamy coastal plains;
3. Marine Couch (*Sporobolus virginicus*) tussock grassland on saline clay plains;
4. Shrubby Samphire (*Halosarcia halocnemoides*) low shrublands in low lying saline drainage areas;
5. Mixed hummpock grasslands on rocky hills and outcrops; and
6. Mangal on tidal mudflats.

The fauna habitats identified within the application area are not considered as necessary for the on going maintenance of any significant fauna habitat. 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 Biota Environmental Sciences (2008b)
DEC (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

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 Priority Flora is a population of *Terminalia supranitifolia* (P3) located approximately 36 kilometres west of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Biota Environmental Sciences between 3 - 11 October 2007 and 5 - 11 March 2008 (Biota Environmental Sciences, 2008a). The application area was surveyed using 32 standard 50 metre x 50 metre floristic survey quadrats (Biota Environmental Sciences, 2008a).

No DRF or Priority Flora species were recorded during the survey (Biota Environmental Sciences, 2008a)

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

Methodology Biota Environmental Sciences (2008a)
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 185 kilometres south of the application area (Themeda Grassland communities) while the nearest Priority Ecological Community (PEC) is located approximately 106 kilometres south of the application area (Millstream Stygofauna community). At this distance there is little likelihood of any impact to the TEC or PEC 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 IBRA Pilbara 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 Association 157: Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana* (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 99% 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 (and post clearing %)
IBRA Bioregion – Pilbara	17,804,187.89	17,794,646.75	~99.95%	Least Concern	~6.32%
IBRA Subregion – Chichester	8,373,874.43	8,373,620.84	~100%	Least Concern	~3.95%
Beard veg assoc. – State					
157	502,729	501,514	~99.76%	Least Concern	~17.95%
Beard veg assoc. – Bioregion					
157	198,633.25	198,518.46	~99.94%	Least Concern	~5.69%
Beard veg assoc. - subregion					
157	73,553.16	73,466.44	~99.88%	Least Concern	~0.0%

* 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
- Interim Biogeographic Regionalisation for 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 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).

Two of the four vegetation associations found within the application area are associated with drainage areas (Biota Environmental Sciences, 2008a).

- **SD- Low Lying, Saline Drainage Areas (on silty clay or clay loam soils):** *Halosarcia halocnemoides* subsp. *tenuis* and *Halosarcia indica* subsp. *leiostachya* low samphire shrubland or open heath with *Frankenia ambita* and *Muellerolimon salicorniaceum* low open shrubland; and

- **SIZ- Saline Interzone Areas between low-lying, saline drainage areas and flat coastal plain:** *Acacia ampliceps* tall shrubland, with *Sesbania cannabina* tall open herbland over *Sporobolus virginicus* tussock to closed tussock grassland.

The saline drainage area (SD) is a sluggish drainage area loacted at or just above sea level and was observed to be mostly bare or sparsely vegetated (Biota Environmental Sciences, 2008a). The saline interzone area (SIZ) is located higher in the landscape than the saline drainage area and is likely to be subject to seasonal and/or tidal inundation. The vegetation of this habitat type was observed to be smainly species that are tolerant of mildl;y saline soils (Biota Environmental Sciences, 2008a).

The vegetation communities growing in association with the above habitat types are not unique and are considered common and widespread in the Pilbara bioregion (Shepherd, 2007; GIS Database). The proposed clearing is unlikely to significantly impact on vegetation communities growing in association with these drainage channels.

Based on the above, the proposed clearing is at variance to this Principle. However, the clearing of 2.4 hectares of vegetation is unlikely to have a significant impact on the extent of these vegetation communities within the application area, or local area.

Methodology

Biota Environmental Sciences (2008a)
Shepherd (2007)
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 may 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 systems (GIS Database);

- Littoral Land System
- Rocklea Land System
- Ruth Land System

The Littoral Land System is described as bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography reveals the application area is most likely to fall within the 'tidal flats' land unit. The soils of this land unit are tidal soils, which are bare with salt sencrusted surfaces subject to inundation by peak tides (Van Vreeswyk et al., 2004). These soils have a very low erosion susceptibility (Van Vreeswyk et al., 2004).

The Rocklea Land System is described as basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). An analysis of aerial photography reveals the application area is most likely to fall within the 'Hill, ridge, plateau and upper slope' and 'lower slopes' land units. These land units are not susceptible to erosion due to a surface mantle of very abundant cobbles and pebbles. The vegetation described by Van Vreeswyk et al (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (Biota Environmental Sciences, 2008a).

The Ruth Land System is described as hills and ridges of volcanic and other rocks supporting hard spinifex (and occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). An analysis of aerial photography reveals the application area is most likely to fall within the 'hill, ridge and upper slope' and 'lower slope and stony plains' land units. This land system is not susceptible to erosion due to a surface mantle of cobbles and pebbles. The vegetation described by Van Vreeswyk et al. (2004) accurately reflects the vegetation types described in vegetation surveys conducted over the area (Biota Environmental Sciences, 2008a).

The application area is located within an acid sulphate soil risk area (GIS Database). The Department of Agriculture and Food (DAFWA) considered the proposal and advised that the prosposed blade up clearing method for access tracks is unlikely to pose an acid sulphate soil risk, as there should be minimal soil disturbance (DAFWA, 2009b). If and where sumps are required, topsoil should be carefully stockpiled, rather than being mixed with subsoil from the pit. Furthermore, all pits should be carefully backfilled on the completion of the work, ensuring that subsoil is returned to the bottom of the pits (avoiding exposure of any ASS material)

and topsoil replaced to facilite rehabilitation (DAFWA, 2009b). Additionally, drill holes will need to be filled with material brought to the surface and not required for further testing (DAFWA, 2009b).

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

Methodology Biota Environmental Sciences (2008a)
DAFWA (2009b)
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 an un-named C-class nature reserve located approximately 18.5 kilometres north-west 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
- CALM Managed Lands 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**
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 1,000- 3,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). Given the size of the area to be cleared (2.4 hectares) compared to the size of the Pilbara Groundwater Province (5,557,665 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 relatively flat and the small size of the proposed clearing area is unlikely to result in significant changes to surface water flows (GIS Database).

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

Methodology GIS Database
- Groundwater Provinces
- Groundwater Salinity, Statewide
- Potential Groundwater Dependent Ecosystems
- Public Drinking Water Source Area
- Topographic Contours - Statewide

(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 drains in to the Coastal Catchment area (GIS Database). The application area is located within a coastal environment with free draining soils and the relatively small area to be cleared (2.4 hectares) in relation to the size of the catchment area (744,301 hectares) is unlikely to cause or exacerbate the incidence or intensity of flooding (GIS Database).

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

Methodology GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC99_014) 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 no known Aboriginal sites of significance within the application area (GIS Database). The nearest Aboriginal Site of Significance (ID_10055) is located approximately 0.4 kilometres east of the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal significance are damaged through the clearing process.

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

No public submissions were received in regard to this Clearing Permit application.

Methodology GIS Database
- Aboriginal Sites of Significance
- Acid Sulfate Soil Risk Map, Pilbara Coastline
- Native Title Claims

4. Assessor's comments

Comment

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

Biota Environmental Sciences (2008a) Cape Lambert Port B Development: Flora and Vegetation Survey. Unpublished report prepared for Pilbara Iron Pty Limited. July 2008

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CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia

DAFWA (2009a) Department of Agriculture and Food Website - List of Declared Plants December 2008. www.agric.wa.gov.au/content/PW/WEED/DECP/dec_plants_list.pdf (Accessed 17 September 2009)

DAFWA (2009b) Land Degradation Advice. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), received (23 October). Department of Agriculture and Food, Western Australia

DEC (2009) NatureMap - Department of Environment and Conservation and Western Australian Museum. http://naturemap.dec.wa.gov.au/default.aspx (Accessed 17 September 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.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Robe River Mining Co Pty Ltd (2009) Application for Clearing Permit (Purpose Permit) Geotechnical Investigations for a Proposed Car Dumper Site - On Tenement I123396. Supporting Documentation. Robe River Iron Associates, 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

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.