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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4070/1
Permit type: Purpose Permit

1.2. Proponent details

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

1.3. Property details

Property: *Iron Ore (Cleveland Cliffs) Agreement Act 1964*, Mineral Lease 248SA (AML 70/248)
Local Government Area: East Pilbara
Colloquial name: West Angelas Project

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 23 December 2010

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. The vegetation of the application area is mapped as Beard vegetation association 18: Low woodland; mulga (*Acacia aneura*) (GIS Database).

Biota Environmental Sciences (2005a) conducted a flora and vegetation survey of the application area and surrounding region on 4 - 12 May 2004. Two vegetation units were identified as occurring within the application area. These were;

Vegetation of Stony Hills:

H5: ***Eucalyptus gamophylla* low woodland over *Triodia* aff. *basedowii* (*T. pungens*) mid-dense hummock grassland.**

This vegetation occurred on the base slopes fringing the range. Other scattered overstorey species included various forms of *Acacia aneura,* along with *A. pruinocarpa, Corymbia deserticola* and *Eucalyptus trivalvis*. There were frequently scattered shrubs to an open shrubland *of Acacia bivenosa, A. maitlandii, A. tenuissima, A. validinervia, Cassia glutinosa, Cassia luerssenii* and *Cassia pruinosa* over a low open shrubland of *Indigofera monophylla* (small leaflet form), *Keraudrenia* spp., *Ptilotus calostachyus* var. *calostachyus, P. obovatus, P. rotundifolius, Scaevola parvifolia* subsp. *pilbarae*, *Sida* aff. *cardiophylla*, *Solanum centrale* and *S. lasiophyllum*. The hummock grassland was dominated by *Triodia* aff. *basedowii*, with patches of *T. pungens* in drainage areas. Other associated species: *Amphipogon sericeus, Aristida holathera* var. *Holathera, Corchorus lasiocarpus, Dysphania rhadinostachya* subsp. *rhadinostachya, Eragrostis eriopoda, Goodenia stobbsiana, G. triodiophila, Paraneurachne muelleri, Porana commixta*.

Vegetation of Valleys (Mulga Mosaics):

M1: *Acacia aneura* low open woodland over *Acacia bivenosa, Gossypium robinsonii, Sida* aff. *cardiophylla, Scaevola parvifolia* shrubland *t*o low open shrubland over *Triodia pungens*, *T. schinzii* mid-dense hummock grassland.

This vegetation type occurred on the northern boundary of the application area. Much of this Mulga vegetation type was burnt 1-2 years prior to the survey. The overstorey included various forms of *Acacia aneura*, as well as *A. ayersiana* and *A. catenulate*. Other associated species: *Avavia pruinocarpa, Aristida contorta, A. holathera* var. *holathera, Corymbia deserticola, Cymbopogon obtectus, Dysphania rhadinostachya* subsp. *rhadinostachya, Enneapogon caerulescens* var. *caerulescens, A. polyphyllus, Eriachne pulchella, Paraneurachne muelleri*, various *Ptilotus* spp., *Solanum lasiophyllum, Trichodesma zeylanicum* var. *zeylanicum* (Biota Environmental Sciences, 2005a).

Clearing Description

Robe River Mining Co Pty Ltd (Robe River) proposes to clear up to 2.2 hectares within an application area of approximately 67.5 hectares (Robe River Mining, 2010). The application area is approximately 95 kilometres west of Newman (GIS Database).

The purpose of the proposed clearing is for mineral exploration. Vegetation will be cleared for the establishment and maintenance of tracks, drill lines and drill pads (Robe River Mining, 2010). Clearing will be done using raised blade technique or scrub rake where practical.

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

Comment The vegetation condition was derived from a vegetation survey conducted by Biota Environmental Sciences (2005a). The vegetation conditions were described using a scale based on Trudgen (1988) and has been converted to the corresponding conditions from the Keighery (1994) scale.

There have been no recent fires and no weed species recorded (Biota Environmental Sciences, 2005a).

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 may be at variance to this Principle

The application area occurs within the Hamersley (PIL3) subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by Mulga low 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). The Pilbara is located in a transitional zone between the floras of the Bassian (south-west), Eyrean (central desert) and southern Torresian (tropical) bioclimatic regions, and contains elements of all these floras (Biota Environmental Sciences, 2005a).

A vegetation survey of the application area and surrounding vegetation (1,500 hectares) identified 430 native vascular flora taxa from 143 genera, representing 53 families (Biota Environmental Sciences, 2005a). The vegetation condition was classified from 'good' to 'excellent' (Biota Environmental Sciences, 2005a). No Declared Rare Flora (DRF) was found. The survey found the following Priority Flora species within the survey area;

- *Josephinia* sp. Marandoo (Priority 1);
- *Spartothamnella puberula* (Priority 2);
- *Acacia effusa* (Priority 3);
- *Indigofera gilesii* supsp. *gilesii* (Priority 3);
- *Themeda* sp. Hamersley Station (Priority 3);
- *Triodia* sp. Mt Ella (Priority 3);
- *Goodenia stellata* (Priority 4) (Biota Environmental Sciences, 2005a).

Pilbara Iron (2005) found one Priority 1 flora species *Josephinia* sp. Marandoo within the application area during a vegetation and flora survey in 2005.

Abutilon trudgenii and *Sida* sp. Wittenoom (now *Sida arsiniata*) were found in the survey area; however a current search on FloraBase (2010) show that the species are no longer listed as Priority Flora species.

Josephinia sp. Marandoo is a small upright shrub that grows in light orange-brown, pebbly loam amongst rocks and outcrops and on gully slopes (Western Australian Herbarium, 2010). Generally found on plains in mixed shrubland of Senna and Acacia (Western Australian Herbarium, 2010), this plant is known from four locations in the Pilbara (Biota Environmental Sciences, 2005a). Two specimens were recorded by Biota Environmental Sciences (2005a) during the vegetation and flora survey, and one specimen was located by Pilbara Iron (2005) during a following flora survey.

Biota Environmental Sciences (2005a) identified eight weed species within the survey area; Buffel Grass (*Cenchrus ciliaris*), Whorled Pigeon Grass (*Setaria verticillata*), Spiked Malvastrum (*Malvastrum americanum*), Beggars Ticks (*Bidens bipinnata*), Flaxleaf Fleabane (*Conyza bonariensis*), Prickly Lettuce (*Lactuca serriola*), Indian Weed (*Sigesbeckia orientalis*) and the Common Sowthistle (*Sonchus oleraceus*). However, no weed species were found within the application area (Biota, Environmental Sciences, 2005a). The presence of weed species lowers the biodiversity values of an area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded or identified within the application area (GIS Database).

Based on the above, the proposed clearing may be at variance to this Principle. However, the clearing of 2.2 hectares of native vegetation, within a larger clearing area of 67.5 hectares is not likely to have a significant impact on the biological diversity within the application area or within the Pilbara region.

Methodology

Biota Environmental Sciences (2005a)
CALM (2002)
Pilbara Iron (2005)
Robe River Mining (2010)

Western Australian Herbarium (2010)
GIS Database:
- IBRA WA (regions - subregions)
- Threatened Ecological Sites Buffered

(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

Biota Environmental Sciences (2005b) conducted a desktop study and a fauna survey of the application area and surrounding areas on 4 - 12 May 2004.

There are three species of birds, four mammals, and two reptiles listed as Threatened Species under the *Environmental Protection and Biodiversity Conservation Act (EPBC) 1999* or protected under Western Australian legislation that are likely to occur within the application area or surrounding tenements. Of these species, the Australian Bustard (*Ardeotis australis*) and Pebble-mound Mouse (*Pseudomys chapmani*) were recorded within the study area, however not within the application area. The Pilbara Olive Python (*Liasis olivaceus barroni*) was not recorded within the study area however a sloughed skin was found in a cave above a pool of water near in the Chichester Range during a previous survey (Biota Environmental Sciences, 2005b). The Rainbow Bee-eater (*Merops ornatus*) was observed outside the application area and is listed as migratory under the *EPBC Act 1999*. This bird may overfly and be occasional visitors to the application area (with Turee Creek 20 kilometres east), rather than using the habitats of the project areas regularly. The proposed clearing is not likely to impact critical feeding or breeding habitat for any migratory species.

There were four primary habitat types occurring within the survey area as recorded by Biota Environmental Sciences (2005b);

1. Broad colluvial valleys dominated by *Acacia aneura*;
2. Lower stony footslopes at the interface between Acacia dominated and eucalypt dominated communities;
3. Stony hilltops and upper slopes dominated by eucalypts over *Triodia*;
4. Incised gullies and creeks.

Based on the vegetation descriptions provided by Biota Environmental Sciences (2005a), it is possible that all four of these habitat types may occur within the 67.5 hectare application area. The following fauna habitat is considered of moderate conservation significance (Biota Environmental Sciences, 2005b):

- Broad colluvial valleys dominated by *Acacia aneura* (vegetation units M1) comprise ecosystems of grove/intergrove and valley floor mulga.

Although this habitat is of moderate conservation significance, the clearing of 2.2 hectares of native vegetation within a 67.5 hectare application area for the purpose of mineral exploration is not likely to significantly impact this fauna habitat.

There is 100% of the pre-European vegetation remaining within the Hamersley bioregion (Shepherd, 2007; GIS Database). Given the extent of the native vegetation remaining in the local area and bioregion, the vegetation to be cleared does not represent a significant ecological link.

The habitats recorded during the survey are considered typical to those found in the Pilbara region and are likely to provide suitable habitat for fauna species endemic to Western Australia, including those conservation significant fauna listed above (Biota Environmental Sciences, 2005b). Any fauna assemblages that are likely to be recorded within the application area are likely to be similar to those found in surrounding areas due to the availability of fauna habitats in the surrounding areas. The proposed clearing of 2.2 hectares of native vegetation is not likely to significantly impact important habitat for endemic fauna.

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

Methodology

Biota Environmental Sciences (2005a)
Biota Environmental Sciences (2005b)
Shepherd (2007)
GIS Database:
- IBRA WA (regions - subregions)

(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

Searches made on the available GIS Database reveal that there are no known records of Declared Rare Flora (DRF) existing in the application area (GIS Database).

Biota Environmental Sciences conducted a vegetation and flora survey of the application area and surrounding regions on 5 - 11 May 2004 (Biota Environmental Sciences, 2005a). No DRF were recorded within the survey area.

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

Methodology Biota Environmental Sciences (2005a)
Western Australian Herbarium (2010)
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 the available databases shows that there are no Threatened Ecological Communities (TEC's) within the application area (GIS Database). The nearest TEC is situated approximately 95 kilometres east of the application area (Ethel Gorge Aquifer Stygobiont Community) (GIS Database). It is unlikely the proposed clearing will impact on a TEC.

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 area falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Beard vegetation association 18 retains approximately 100% of its pre-European extent, which is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000).

The vegetation within the application area is recorded as Beard vegetation association 18: low woodland; mulga (*Acacia aneura*) (GIS Database; Shepherd, 2007).

According to Shepherd (2007) approximately 100% of Beard vegetation association 18 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
Beard vegetation associations - State					
18	19,892,305	19,890,195	99.9	Least Concern	2.1
Beard vegetation associations - Bioregion					
18	676,557	676,557	100	Least Concern	16.8

* 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)
EPA (2000)
Shepherd (2007)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-European Vegetation

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

Comments

Proposal may be at variance to this Principle

According to available databases there are numerous minor non-perennial drainage lines within the application area (GIS Database). Biota Environmental Sciences (2005a) found no vegetation units associated with a watercourse within the application area.

The application area is located within an arid region with an average annual rainfall of approximately 247 millimetres (BoM, 2010) and an average annual evaporation rate of approximately 2.500 millimetres (ANRA, 2010). Based on the climate of the region these drainage lines are expected to be dry except following significant rain events which are typically associated with tropical cyclones.

Based on the above, the proposed clearing may be at variance to this Principle. However, the vegetation units within the application area associated with watercourses are well represented locally and within the Pilbara region generally. Given the small scale of the proposed clearing and the low impact nature of the proposal, these vegetation uits should not be significantly impacted by the proposed clearing.

Methodology

ANRA (2010)
Biota Environmental Sciences (2005a)
BoM (2010)
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 broadly mapped as the Boolgeeda Land System (GIS Database).

Van Vreeswyk et al. (2004) describes the Boolgeeda land system as comprised of stony lower slopes and plains below hill systems supporting hard and soft Spinifex grasslands and mulga shrublands. Vegetation units are generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004).

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 application area is not located within any conservation areas (GIS Database). The nearest conservation area is Karijini National Park, located approximately 22 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:
- 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

The available databases show that the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent watercourses or water bodies within the application area (GIS Database).

Rainfall in this area is mainly restricted to a wet summer season, where the average yearly evaporation consistently exceeds average yearly rainfall (ANRA, 2010). During normal rainfall events surface water in the application area is likely to evaporate or be utilised by vegetation quickly. However, substantial rainfall events create surface sheet flow which is likely to have a high level of sediments. During normal rainfall events, the proposed clearing of 2.2 hectares would not likely lead to an increase in sedimentation of any watercourses outside the application area.

The available databases show that there are numerous non-perennial drainage lines within the application area (GIS Database). As the annual evaporation rate exceeds the annual rainfall, any surface water resulting from

rain events is expected to be short-lived (ANRA, 2010).

The southern Pilbara region consists of sedimentary and volcanic rocks of the Hamersley basin. Large amounts of water are used for mining related purposes, primarily from calcrete and pisolite valley fill aquifers (DoF, 2010). The groundwater salinity within the application area is approximately 500-1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). The size of the Hamersley groundwater province (10,166,832 hectares) in relation to the clearing of 2.2 hectares is not likely to have a significant impact on the groundwater quality or quantity.

The area is located in a RIWA Act Groundwater Area and a permit to abstract groundwater in this area will be required (GIS Database).

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

Methodology

ANRA (2010)
Dof (2010)
GIS Database:
- Hydrography, linear
- Groundwater Salinity, Statewide
- Public Drinking Water Source Areas
- RIWI Act, 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 an arid climate where the average annual evaporation rate (2,500 millimetres) greatly exceeds the average annual rainfall (200-350 millimetres) (BoM, 2010; ANRA, 2010). Most rainfall is received during the wet season, but falls can be variable and rain can be either sporadic or heavy and intense (BoM, 2010). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas, however during normal rainfall events given the high annual evaporation to rainfall ratio, surface water in the application area is likely to be evaporated or be utilised quickly by vegetation.

The application area is within the Ashburton River Catchment Area (GIS Database). The size of the application area to be cleared (2.2 hectares) compared to the size of the 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.

There are five minor ephemeral drainage lines in the central and eastern section of the application area (GIS Database) which would experience natural seasonal flooding during times of intense rainfall; however it is unlikely that during normal rainfall these drainage lines would experience increased incidence or increased flooding.

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

Methodology

ANRA (2010)
BoM (2010)
GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, Linear

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

Comments

The clearing permit application was advertised on 15 November 2010 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to the application.

There is one Native Title Claim (WC97/043) over the area under application (GIS Database). This claim has 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*.

According to the available databases there are numerous registered Aboriginal Sites of Significance within the application area (site IDs: 20447, 20448 and 20449) (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.

Methodology GIS Database:
- Aboriginal Sites of Significance
- Native Title Determined
- Native Title Federal
- Natitve Title NNTT

4. References

ANRA (2010) Pilbara Rangelands Overview, Australian Natural Resources Atlas, viewed 19 November 2010, <http://www.anra.gov.au/topics/rangelands/overview/wa/ibra-pil.html>.

Biota Environmental Sciences (2005a) Vegetation and Flora Survey of West Angelas Deposits E and F, Biota Environmental Sciences, Western Australia.

Biota Environmental Sciences (2005b) Fauna Habitats and Fauna Assemblage of Deposits E and F at West Angelas, Biota Environmental Sciences, Western Australia.

BoM (2010) Climate Statistics for Australian Locations. A Search for Climate Statistics for Turee Creek, Australian Government Bureau of Meteorology, viewed 22 November 2010, <http://www.bom.gov.au/climate>.

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.

DoF (2010) Aquaculture Groundwater Resource Atlas, Pilbara, Department of Fisheries, viewed 22 November 2010, <www.fish.wa.gov.au/docs/pub/AquaGroundWater/pilbara.php?00>.

EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.

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

Pilbara Iron (2005) Botanical Survey Advice Form No. 2005/133; West Angelas Mining, dumping, stockpiling, haul roads, etc rare flora survey, Western Australia.

Robe River Mining (2010) Clearing Permit Application Supporting Documentation, November 2010, 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.

Trudgen M.E. (1988) A report on the Flora and Vegetation of the Port Kennedy Area, Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A & Hennig, P. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.

Western Australian Herbarium (2010) Florabase, the Western Australian Flora, Department of Environment and Conservation, viewed 18 November 2010, <http:florabase.calm.wa.gov.au>.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia

TEC Threatened Ecological Community

Definitions:

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

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

P2 **Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

P3 **Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.

P4 **Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.

R **Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

X **Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

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

Schedule 1 **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.

Schedule 2 **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

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

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

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

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:

(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or

(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:

(a) is not critically endangered; and

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

VU **Vulnerable:** A native species which:

(a) is not critically endangered or endangered; and

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

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