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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3569/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Robe River Ltd**

1.3. Property details

Property: *Iron Ore (Cleveland Cliffs) Agreement Act 1964*, Mineral Lease 248SA (AML70/248)
Local Government Area: Shire of Ashburton
Colloquial name: Bungaroo Drilling Program

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
10.3		Mechanical Removal	Access track construction and water bore drilling

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).

609: Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex / Hummock grasslands, open low tree steppe; snappy gum over *Triodia wiseana* on a lateritic crust (GIS Database; Shepherd, 2007).

The application area was surveyed by Biota Environmental Sciences staff on 8 and 20 March 2005, 19 and 21 July 2006 and 7 and 16 August 2006 and Rio Tinto staff on 12 January 2010 (Biota Environmental Sciences, 2007a; Rio Tinto, 2010). The following vegetation types were identified within the application area:

Vegetation of Drainage Areas

EcEvMgCYPvCEc: *Eucalyptus camaldulensis, E. victrix* open forest over *Melaleuca glomerata* tall open scrub over *Cyperus vaginatus* open sedgeland over *Cenchrus ciliaris* open tussock grassland;

EvEcTErCYPv: *Eucalyptus victrix, E. camaldulensis* scattered trees over *Tephrosia rosea* low open shrubland over *Cyperus vaginatus* very open sedgeland;

ChGpTe: *Corymbia hamersleyana* scattered low trees over *Grevillea pyramidalis* scattered tall shrubs over *Tephrosia rosea* var. *glabrior* scattered low shrubs over *Triodia epactia* hummock grassland;

ChAtuTwTe: *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis* tall open scrub over *Triodia wiseana, T. epactia* very open hummock grassland;

ApyGOaGpyTeTw: *Acacia pyrifolia*, *Gossypium australe* (Burrup form), *Grevillea pyramidalis* shrubland to tall shrubland over *Tephrosia rosea* var. *glabrior* low open shrubland over *Triodia epactia, T. wiseana* open hummock grassland;

Vegetation of Valley Floors and Low Plains

GOaApyTe: *Gossypium australe, Acacia pyrifolia* open shrubland over *Triodia epactia* hummock grassland;

Vegetation of Stony Hills and High Plains

ChAiTe: *Corymbia hamersleyana* scattered trees over *Acacia inaequilatera* scattered tall shrubs over *Triodia epactia* hummock grassland;

Vegetation of Plains and Low Rises

ChAiApyTe: *Corymbia hamersleyana* open woodland over *Acacia inaequilatera, A. pyrifolia* tall open shrubland over *Triodia epactia* hummock grassland;

ChAaTw: *Corymbia hamersleyana* scattered low trees over *Acacia ancistrocarpa* open shrubland to open heath over *Triodia wiseana* hummock grassland;

ChAiTw: *Corymbia hamersleyana* scattered low trees over *Acacia inaequilatera* scattered tall shrubs over mixed scattered shrubs over *Triodia wiseana* open hummock grassland; and

AxTwTe: *Acacia xiphophylla* tall open shrubland over *Triodia wiseana, T. epactia* very open hummock grassland (Biota Environmental Sciences, 2007a; Rio Tinto, 2010).

Four weed species were recorded within the application area. These included; Mimosa Bush (*Vachellia farnesiana*), Mexican Poppy (*Argemone ochroleuca*), Buffel Grass (*Cenchrus ciliaris*) and Birdwood Grass (*Cenchrus setiger*) (Rio Tinto, 2010).

Clearing Description

Robe River Ltd is proposing to clear up to 10.3 hectares of native vegetation within an area of 14.1 hectares (Robe, 2010).

The proposed program is to explore groundwater availability as part of the Coastal Water Supply Feasibility Study (Robe, 2010). The proposed program will include;

- Maintaining and establishing tracks;
- Clearing of drill lines and access tracks (~11.25 kilometres x 5 metres); and
- Creation of 13 drill pads (~60 x 60 metres) (Robe, 2010).

Robe River Ltd intend to clear using a raised blade technique where practicable or scrub raking the level terrain (Robe, 2010). Where previously cleared access tracks require maintenance, the track will be graded using a blade down technique (Robe, 2010).

Vegetation Condition

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

To

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).

Comment

The application area is located in the Pilbara region, approximately 19 kilometres south of Pannawonica (GIS Database). The vegetation condition was derived from a vegetation survey conducted by Rio Tinto (2010).

3. Assessment of application against clearing principles

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

Comments

Proposal is not likely to be at variance to this Principle

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

Biota Environmental Sciences (2007a) reports that the Bungaroo area appears to be relatively more diverse than other nearby areas. This is thought to be due to the drainage line and floodplain associated with the Bungaroo creek system (Biota Environmental Sciences, 2007a). However, given that the vegetation types and landforms recorded within the application area well represented within the larger Bungaroo area it is not likely that the application area represents a greater diversity than other areas within the Bungaroo locality.

The application area would be expected to have suffered from previous disturbance as it intersects the Yalleen pastoral lease and has been impacted on from grazing and exploration activities (Pilbara Iron Pty Ltd, 2007; GIS Database).

Four alien weed species were recorded within the vegetation survey area (Rio Tinto, 2010). These were: Mimosa Bush (*Vachellia farnesiana*), Mexican Poppy (*Argemone ochroleuca*), Buffel Grass (*Cenchrus ciliaris*) and Birdwood Grass (*Cenchrus setiger*) (Rio Tinto, 2010). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This in turn can lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. None of these species are listed as 'Declared Plant' species under the *Agriculture and Related Resources Protection Act 1976* by the Department of Agriculture and Food. The assessing officer recommends that should a clearing permit be granted, a condition be imposed on the permit for the purposes of weed management.

The landforms, vegetation and habitat types occurring within the application area are well represented within the surrounding region (Biota Environmental Sciences, 2007a; Shepherd, 2007). Given the past disturbances within the application area such as grazing and mining, it is not likely to have greater diversity than similar areas within the region.

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

Methodology Biota Environmental Sciences (2007a)
CALM (2002)
Pilbara Iron Pty Ltd (2007)
Rio Tinto (2010)
Shepherd (2007)
GIS Database
- IBRA WA (regions - subregions)
- Pastoral Leases

(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 online fauna database between the coordinates 21°34'55"S and 116°02'03"E - 22°06'46"S and 116°27'52"E representing a 25 kilometre radius around the application area.

This search identified 2 Invertebrate, 3 Amphibian, 23 Mammalian, 57 Avian and 84 Reptilian species that may occur within the application area (DEC, 2007). Of these, the following species of conservation significance have been recorded within the search area:

Schedule 1 - Fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2010*: Mesa G *Paradraculoides* (*Paradraculoides gnophicola*), Mesa K *Paradraculoides* (*Paradraculoides kryptus*), Northern Quoll (*Dasyurus hallucatus*), Orange Leafnosed Bat (*Rhinonicteris aurantius*), Pilbara Olive Python (*Liasis olivaceus* subsp. *barroni*) and the Dwarf Bearded Dragon (*Pogona minor* subsp. *minima*); and
DEC Priority Fauna List P4: Australian Bustard (*Ardeotis australis*), Western Pebble-mound Mouse (*Pseudomys chapmani*), *Notoscincus butleri* and *Ramphotyphlops ganei* (DEC, 2007).

Biota Environmental Sciences (2007b) conducted fauna surveys of the Bungaroo Valley, which included sections of the application area between 10 to 21 March 2005 and 5 to 16 June 2006. These surveys consisted of trapping grids at 14 sites, comprising 10 pit fall traps spaced at 10 metre intervals and two further sampling sites exclusively comprised of 50 to 75 Elliott traps (Biota Environmental Sciences, 2007b). Invertebrate groups were also sampled both systematically and opportunistically during the survey periods. These surveys identified 147 vertebrate species from 56 families, as well as one taxon that may represent a Short Range Endemic (SRE) (Biota Environmental Sciences, 2007b).

Biota Environmental Sciences (2007b) recorded two habitat types as occurring within the survey area:

- **Major Creeklines -** comprising a major drainage line vegetated with open Eucalypt woodland over tall Acacia shrubland over *Triodia epactia* hummock grassland; and
- **Stony Plains and Low Rises -** vegetated with scattered to open Corymbia woodland with understorey's comprised of scattered to open shrubland *Acacia* spp. and *Grevillea pyramidalis* over Triodia hummock grassland (Biota Environmental Sciences, 2007b).

In addition to those species listed above, the following fauna species of conservation significance were identified during the fauna surveys: Bush Stone-curlew (*Burhinus grallarius*) and Wood Sandpiper (*Tringa glareola*) (Biota Environmental Sciences, 2007b).

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

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

Methodology Biota Environmental Sciences (2007b)
DEC (2007)

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

Comments

Proposal is not likely to be at variance to this Principle

According to available GIS databases there are no known records of Declared Rare Flora (DRF) or Priority Flora within the application area (GIS Database). The nearest record of Priority Flora is a population of

Terminalia supranitifolia (P3) located approximately 1 kilometre east of the application area (GIS Database).

A flora survey was conducted over the application area by staff from Rio Tinto on 12 January 2010 (Rio Tinto, 2010). The application area was systematically traversed on foot using a grid search technique (Rio Tinto, 2010).

No DRF or Priority Flora species were recorded during the survey (Rio Tinto, 2010).

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

Methodology Rio Tinto (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 available databases reveals that there are no Threatened or Priority Ecological Communities (TEC's or PEC's) within the application area (GIS Database).

The nearest TEC is located approximately 92 kilometres south-east of the application area (Themeda Grasslands). While the nearest PEC is located approximately 3.6 kilometres north-west of the application area (Subterranean invertebrate communities of mesas in the Robe Valley region). 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 Sites

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

Comments **Proposal is not at variance to this Principle**
The application area falls within the Pilbara IBRA bioregion (GIS Database). Shepherd (2007) reports that approximately 99.95% of the pre-European vegetation remains in this bioregion.

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

609: Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex / Hummock grasslands, open low tree steppe; snappy gum over *Triodia wiseana* on a lateritic crust (GIS Database; Shepherd, 2007).

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,188	17,794,647	~99.95%	Least Concern	~6.32%
IBRA Subregion - Hamersley	5,634,726	5,634,726	~100%	Least Concern	~12.88%
Beard vegetation associations - State					
609	74,186	74,186	~100%	Least Concern	N/A
Beard vegetation associations - Bioregion					
609	74,186	74,186	~100%	Least Concern	N/A

* 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
- 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 is not likely to be at variance to this Principle**
According to available GIS Databases, there are no permanent wetlands or watercourses within the application area, however there are several minor non-perennial watercourses within the application area (GIS Database).

Based on vegetation mapping conducted by Biota Environmental Sciences (2007a) and Rio Tinto (2010) five of the eleven vegetation associations found within the application area are associated with drainage areas. However, these vegetation communities are not unique and are considered to be widespread and common within the Pilbara bioregion within similar watercourses. The proposed clearing for access tracks and water bore drilling is not likely to significantly impact on the conservation of vegetation growing in association with these watercourses.

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

Methodology Biota Environmental Sciences (2007a)
Rio Tinto (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 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);

- Urandy Land System; and
- Boolgeeda Land System.

The Urandy Land System is described as stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands (Van Vreeswyk et al., 2004). Most of this system is not susceptible to erosion or vegetation degradation (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Stony plains' and 'alluvial plains' land units. The soils of these land units (red loamy earths) are not susceptible to erosion due to a surface mantle of pebbles of ironstone and other rocks.

The Boolgeeda Land System is described as stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands (Van Vreeswyk et al., 2004). The vegetation of this land system is generally not prone to degradation and the system is not susceptible to erosion (Van Vreeswyk et al., 2004). An analysis of aerial photography for the application area reveals the application area is most likely to fall within the 'Stony slopes and upper plains' and 'stony lower plains' land units. The soils of these land units (red loamy earths) are not susceptible to erosion due to surface mantle of very abundant pebbles of ironstone and other rocks.

Based on the above, the proposed clearing is not likely to be at variance to this Principle. The assessing officer recommends that should a permit be granted, a condition be imposed on the permit with regard to rehabilitation.

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 application area is not located within a conservation reserve (GIS Database). The nearest known conservation reserve is the Millstream Chichester National Park, located approximately 72 kilometres north-east (GIS Database).

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

Methodology GIS Database
- DEC Tenure

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

Comments

Proposal is not likely to be at variance to this Principle

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

The application area is located within a *Rights in Water Irrigation Act 1914* (RIWI Act) Groundwater Area (DoW, 2009; GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

The groundwater salinity within the application area is approximately 500 - 1,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (10.3 hectares) compared to the size of the Hamersley Groundwater Province (10,166,832 hectares) (GIS Database), the proposed clearing is not likely to cause salinity levels within the application area to alter significantly.

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

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

Methodology DoW (2009)
GIS Database
- Public Drinking Water Source Area
- Groundwater Salinity, Statewide
- RIWI Act, Groundwater Areas
- Groundwater Provinces
- Potential Groundwater Dependent Ecosystems

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences a semi-desert, tropical climate with an average annual rainfall of 408.2 millimetres recorded from the nearest weather station at Pannawonica approximately 19 kilometres north of the application area (CALM, 2002; BoM, 2010).

Rainfall is usually experienced during summer months and can be either cyclonic or thunderstorm events (CALM, 2002). It is likely that during times of intense rainfall there may be some localised flooding in adjacent areas. The small size of the proposed clearing (10.3 hectares) is unlikely to significantly alter the intensity of flooding within the application area and surrounding areas.

The application area is located within the Robe River catchment area (GIS Database). However, the small area to be cleared (10.3 hectares) in relation to the size of the Robe River catchment area (757,138 hectares) (GIS Database) is not likely to increase the potential for flooding within the application area, local area or catchment (GIS Database).

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

Methodology BoM (2010)
CALM (2002)
GIS Database
- Hydrographic Catchments - Catchments

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

Comments

There is one Native Title Claim (WC99-012) 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 numerous registered Aboriginal sites of significance within and in close proximity to the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal sites of significance are damaged through the clearing process.

The application area is located within a *Rights in Water Irrigation Act 1914* (RIWI Act) Groundwater Area (DoW,

2009; GIS Database). The proponent is required to obtain permits to abstract groundwater in this area.

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

The clearing permit application was advertised on 15 February 2010 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received in relation to this proposal stating no objection.

Methodology

DoW (2009)
GIS Database
- Aboriginal Sites of Significance
- Native Title Claims
- RIWI - Groundwater Areas

4. Assessor's comments

Comment

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

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

5. References

Biota Environmental Sciences (2007a) A Vegetation and Seasonal Flora Survey of the Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica, and Sampling of the Broader Bungaroo Valley. Unpublished report prepared for Robe River Iron Associates, March 2007

Biota Environmental Sciences (2007b) Bungaroo Trial Pit and Transport Corridor to Mesa J, near Pannawonica - Fauna Assemblage Seasonal Survey. Unpublished report prepared for Pilbara Iron Company, April 2007

BoM (2010) Bureau of Meteorology Website - Climate Averages by Number, Averages for PANNAWONICA. www.bom.gov.au/climate/averages/tables/cw_005069.shtml (Accessed 16 March 2010)

CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 3 (PIL3 - Hamersley subregion) Department of Conservation and Land management, Western Australia

DEC (2007) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: http://naturemap.dec.wa.gov.au (Accessed 16 March 2010)

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.

DoW (2009) Water Quality Advice. Advice to assessing officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP), received (5 January 2010). Department of Water, 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 Pty Ltd (2007) Lower Bungaroo Valley Proposed Drilling AR-06-01652. Pilbara Iron Pty Ltd

Rio Tinto (2010) A Flora and Vegetation Survey for Groundwater Investigations at Bungaroo. Unpublished Report dated January 2010. Rio Tinto, Western Australia

Robe (2010) Application for Purpose Clearing Permit (Purpose Permit): Bungaroo Drilling Program - ML248SA - Supporting Documentation

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.