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

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3329/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **BHP Billiton Iron Ore Pty Ltd**

1.3. Property details

Property: *Iron Ore* (Mt Newman) *Agreement Act 1964*, Mineral Lease 244SA (AML70/244)
Local Government Area: East Pilbara
Colloquial name: Newman Power Station Extension Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
40		Mechanical Removal	Power station construction, maintenance and associated works

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

The vegetation of the application area is broadly mapped as Beard vegetation association (GIS Database):

82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database).

ENV Australia (2009a) noted that none of the vegetation associations recorded in the application area closely correlates with those mapped by Beard. ENV Australia (2009a) mapped the vegetation of the application area as:

Grassland/ High Shrubland Plain: **Cenchrus* Tussock Grassland. General characteristics: Tussock Grassland of **Cenchrus ciliaris* with High Open Shrubland of *Acacia aneura* var. *aneura* over Open Shrubland of *Senna artemisioides* subsp. *oligophylla* and *S. artemisioides* subsp. *helmsii* on Red-Brown Sandy Loam on Plains.

Rehabilitated Plain: **Cenchrus* Tussock Grassland. General characteristics: Tussock Grassland of **Cenchrus ciliaris* with High Shrubland of *Acacia pruinocarpa*, *A. aneura* var. *tenuis* and *A. bivenosa* over Scattered Shrubs of *Senna artemisioides* subsp. *filifolia* with Scattered Low Trees of *Eucalyptus xerothermica* and *E. victrix* on Red-Brown Clayey Loam on a Rehabilitated Plain.

Slightly Raised Plain: *Acacia* High Shrubland. General characteristics: High Shrubland of *Acacia paraneura*, *A. bivenosa* and *A. synchronicia* with Scattered Mallees of *Eucalyptus gamophylla* on Red-Brown Loam on a Raised Plain.

Floodplain: **Cenchrus* Closed Tussock Grassland. General characteristics: Closed Tussock Grassland of **Cenchrus ciliaris*, *Themeda triandra* and *Chrysopogon fallax* with High Open Shrubland of *Acacia pyrifolia* var. *pyrifolia*, *A. dictyophleba* and *A. citrinoviridis* with Low Open Woodland of *Corymbia candida* subsp. *dipsodes* and *C. opaca* on Red- Brown Alluvial Clay on Floodplains Adjacent to Creeklines.

Creekline: **Cenchrus* Open Tussock Grassland. General characteristics: Open Tussock Grassland of **Cenchrus ciliaris* with High Shrubland of *Acacia citrinoviridis* with Low Open Woodland of *Eucalyptus victrix* and *E. camaldulensis* var. *obtusa* on Red- Brown Alluvial Loam on a Creekline.

Rocky Outcrop: **Cenchrus* Tussock Grassland. General characteristics: Tussock Grassland of **Cenchrus ciliaris*, *Cymbopogon obtectus* and *Chrysopogon fallax* with High Shrubland of *Acacia pruinocarpa* and *A. paraneura* over Open Shrubland of *Dodonaea petiolaris* over Low Scattered Shrubs of *Ptilotus obovatus* on Red-Brown Loam on Rocky Outcrop and Low Rise.

Low Calcrete Rise: *Triodia* Tussock Grassland. General characteristics: Tussock Grassland of *Triodia wiseana* with High Open Shrubland of *Acacia bivenosa*, *A. synchronicia*, *A. pruinocarpa* over Low Open Shrubland of *Ptilotus obovatus* and with Very Open Mallees of *Eucalyptus trivalva* and *E. gamophylla* on Skeletal Loam on Low Calcrete Rise.

*Denotes weed species

Clearing Description

BHP Billiton Iron Ore Pty Ltd (BHP Billiton) have applied to clear up to 40 hectares of native vegetation within a total application area of approximately 127 hectares (BHP Billiton, 2009). The proposed clearing is for upgrading the existing Newman power station located adjacent to the Mt Whaleback mine site. BHP Billiton have stated that approximately 10 hectares is required for the power station and lay down areas; approximately 10 hectares for supporting infrastructure such as roads and utilities; and approximately 20 hectares for geotechnical drilling.

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

To

Completely Degraded: no longer intact; completely/almost completely without native species (Keighery, 1994).

Comment
The vegetation condition was derived from a description by ENV Australia (2009a).

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 is located within the Hamersley subregion of the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara Bioregion (GIS Database).

ENV Australia (2009a; 2009b) conducted flora and fauna surveys over the application area in April 2009. From these surveys an estimation of the biological diversity of the application area has been made.

Seven vegetation communities were identified within the application area, all of which are considered to be well represented in the local area (ENV Australia, 2009a). The condition of these vegetation communities ranged from “very good” to “completely degraded”.

ENV Australia (2009a) recorded 124 species of plant taxa within the application area. The species richness of the application area (30.6 taxa per quadrat) was comparable to that recorded in other surveys using similar methodologies (ENV Australia, 2009a). For example, a survey of the Mt Whaleback area (1,700 hectares) recorded an average floral richness of 38.4 flora taxa per quadrat while a survey of the Kurra Village extension area (30 hectares) recorded an average floral richness of 28.7 flora taxa per quadrat (ENV Australia, 2009a). Similar to the current survey, these surveys were conducted in areas that were considerably influenced by disturbances, i.e. infrastructure, grazing stock and introduced species. Other flora surveys have recorded greater species richness in the local area, for example a survey conducted by ENV Australia of the Newman Hub (250 hectares) recorded a floral species richness of 44.2 taxa per quadrat (ENV Australia, 2009a). The species richness of the application area is therefore considered typical of that in the local region in an area affected by disturbance, and limited habitat and landform diversity (ENV Australia, 2009a).

No flora species of conservation significance, restricted vegetation types or significant fauna habitat features were recorded within the application areas (ENV Australia, 2009a).

ENV Australia (2009b) recorded 32 terrestrial vertebrate fauna species within the application area. The assessing officer considers this a typical number of fauna taxa for the Pilbara region. Three fauna habitat types were recorded within the application area: mulga plain; riverine; and floodplain. These are considered to be well represented outside of the application area (ENV Australia, 2009b)

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

Methodology

ENV Australia (2009a)
ENV Australia (2009b)
GIS Database:
- Interim Biogeographic Regionalisation for Australia (Subregions)

(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

ENV Australia (2009b) conducted a fauna survey over the application area in April 2009. Four other baseline fauna surveys have been undertaken in the local area in the past 12 years (ENV Australia, 2009b).

Three broad fauna habitat types were identified in the application area by ENV Australia (2009b):

Mulga Plain
The Mulga Plain habitat type consisted of a sparse to moderate low shrub canopy of Mulga (*Acacia sp.*) and Mallee (*Eucalyptus gamophylla*), and a sparse to moderate ground cover of Buffel Grass (**Cenchrus ciliaris*) as well as some native grasses. Vegetation condition varied from ‘degraded’ to ‘good’, with the major disturbances being cattle grazing, clearing for infrastructure and introduced grasses (e.g. Buffel Grass). Within the Mulga Plain was some rocky habitat consisting of a low calcrete rise and ironstone outcrops. The ironstone outcrops in particular are likely to provide a small island of habitat for some smaller rock dwelling species such as reptiles and small mammals (ENV Australia, 2009b).

Riverine
Whaleback Creek is an ephemeral creekline lined by a narrow floodplain, with a moderate cover of *Eucalyptus victrix and E. camaldulensis* with moderate cover of *Acacia*, with a groundcover of Buffel Grass. At the time of the ENV Australia (2009b) fauna survey Whaleback Creek was completely dry (in the application area), which is reflective of the typical state of the creek. Some water pools were present in other parts of the creek (out of the application area), so it would be expected that some animals may have occurred during the survey that would otherwise be absent at drier times of the year. The creek is lined with Eucalyptus that are larger than the majority of plants in the surrounding area, so it is likely that it is a corridor for some wildlife. In particular birds, bats, large mammals (such as the Euro) and wide-ranging reptiles (such as snakes and goannas) are likely to use the creek as a movement corridor. The vegetation condition varied from degraded to good, with the major disturbances being cattle grazing, clearing for infrastructure and introduced grasses (e.g. Buffel Grass) (ENV Australia, 2009b).

Floodplain
The floodplain habitat consists of a scattered over storey of trees (*Corymbia candida*), with a moderate mid-story of shrubs (mostly *Acacia* sp.) and a thick ground-cover of exotic Buffel Grass. There are some tree hollows of various sizes which provide habitat for common hollow-dependant fauna. The vegetation is of moderate complexity, providing some microhabitat such as fallen timber and leaf litter that can be utilised by terrestrial and arboreal fauna. The vegetation condition varied from 'degraded' to 'good', with the major disturbances being clearing for infrastructure and introduced species (e.g. Buffel Grass) (ENV Australia, 2009b).

Although many species of fauna are likely to utilise the habitats above, none of these habitat types are specifically restricted to the application area. Similar habitats are likely to occur in much of the local and regional landscape (ENV Australia, 2009b). Therefore, it is unlikely that the native vegetation of the application area would constitute significant habitat for fauna indigenous to Western Australia.

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

Methodology ENV Australia (2009b)

(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

ENV Australia (2009a) conducted a Level 1 flora and vegetation survey of the application area in April 2009. Conditions were considered ideal for the flora and vegetation survey as the area had received above average rainfall during the three months preceding the survey (ENV Australia, 2009a). There have been a number of flora and vegetation surveys conducted at, or in the vicinity of the Mt Whaleback mine site since 1992 (ENV Australia, 2009a).

No Declared Rare Flora (DRF) pursuant to the *Wildlife Conservation (Rare Flora) Notice 2008,* or Priority Flora listed with the Department of Environment and Conservation was identified in the application area (ENV Australia, 2009a).

The DRF listed species *Lepidium catapycnon* has been recorded in the Mt Whaleback area during previous flora surveys (ENV Australia, 2009a). The located populations were recorded as growing in areas of mudstone shale on steep rocky hill sides with the dominant surrounding vegetation being; scattered *Eucalyptus leucophloia subsp. leucophloia* trees over high open *Petalostylis labichoides* and *Acacia maitlandii* shrubland over an open Triodia hummock grassland (ENV Australia, 2009a). This landform and vegetation type was not recorded within the application area, therefore the vegetation of the application area is not likely to include or be necessary for the continued existence of the DRF species *Lepidium catapycnon*.

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

Methodology ENV Australia (2009a)

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

There are no known Threatened Ecological Communities (TEC's) within the application areas (GIS Database). The nearest known TEC is the Ethel Gorge aquifer stygobiont community which is located approximately 13 kilometres east/north-east of the application area (GIS Database).

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

Methodology GIS Database:
- Threatened Ecological 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 is located within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Shepherd (2007) report that approximately 99.9% of the pre-European vegetation still exists in the Pilbara Bioregion. The vegetation in the application areas is broadly mapped as Beard vegetation association 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* (GIS Database). According to Shepherd (2007) there is approximately 100% of this vegetation type remaining (see table below).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	% of Pre-European area in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,164	17,794,164	~99.9	Least Concern	6.3
Beard vegetation associations - WA					
82	2,565,930	2,565,930	~100	Least Concern	10.2
Beard vegetation associations - Pilbara Bioregion					
82	2,563,610	2,563,610	~100	Least Concern	10.2

* Shepherd (2007)
** Department of Natural Resources and Environment (2002)

ENV Australia (2009a) have noted that the vegetation of the application area does not closely correlate to the Beard vegetation association described above. This discrepancy is mainly due to the difference in the scale of mapping, with Beard vegetation mapping at a scale of 1:250,000 and ENV Australia mapping at a much finer scale of 1:10,000 (ENV Australia, 2009a). This said, ENV Australia (2009a) have stated that the vegetation associations present within the application area are considered to be typical of the Eastern Pilbara region and are well represented locally, with very similar vegetation associations being recorded in other nearby surveys.

Although several large scale mining operations are located within a 50 Kilometre radius of the application area (GIS Database), on a broader scale the Pilbara region has not been extensively cleared. Hence the application areas are not considered to represent a significant remnant of native vegetation in an area that has been extensively cleared.

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

Methodology

Department of Natural Resources and Environment (2002)
ENV Australia (2009a)
Shepherd (2007)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Pre-European Vegetation
- Newman 1.4m Orthomosaic - Landgate 2003

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

Comments

Proposal is at variance to this Principle

According to available databases, there are no known Directory of Important Wetlands or Ramsar wetlands within the application area (GIS Database).

The application area intersects one ephemeral drainage line (ENV Australia, 2009a). One vegetation units associated with this drainage line was identified within the application area during a flora and vegetation survey (ENV Australia, 2009a):

Creekline
General characteristics: Open Tussock Grassland of **Cenchrus ciliaris* with High Shrubland of *Acacia citrinoviridis* with Low Open Woodland of *Eucalyptus victrix* and *E. camaldulensis* var. *obtusa* on Red- Brown Alluvial Loam on a Creekline.

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

The application area is contained within land systems which contain hills and ridges with dissected slopes and valleys containing ephemeral drainage lines (Van Vreeswyk et al., 2004). Although, the drainage lines

themselves comprise a relatively small total area, their distribution is quite widespread throughout the Pilbara. The drainage lines present within the application area are dry for most of the year, only flowing briefly immediately following significant rainfall (ENV Australia, 2009a). Vegetation, including riparian vegetation, of the application area is typical of vegetation previously described for the Pilbara area (ENV Australia, 2009a). Therefore, the loss of a small percentage of vegetation associated with drainage lines is not expected to have a significant environmental impact.

Methodology ENV Australia (2009a)
Van Vreeswyk et al. (2004)
GIS Database:
- Directory of Important Wetlands

(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**

There are no recorded acid sulphate soils in the area and the clearing is unlikely to result in an increased risk of salinity (GIS Database).

The application area lies within the Elimunna and Rivers land systems (GIS Database).

The Elimunna land system consists of hills and low rises with stony soils on shallow red loams; Groves land unit on red loamy earth soils; and drainage floors with self mulching cracking clay soils. The Elimunna land system is also reasonably resistant to soil erosion, however soil disturbance or altered water flows may cause localised soil erosion (DAFWA, 2006).

The River land system consists of flood plains and river terraces subject to fairly regular overbank flooding from major channels and watercourses. The system is largely stabilised by buffel and spinifex and accelerated erosion is uncommon. However, susceptablility to erosion is high to very high if vegetation cover is removed (Van Vreeswyk et al., 2004).

It is unlikely the proposed clearing will cause appreciable land degradation. Wind and water erosion will be mitigated by the construction and upgrading of the Mt Whaleback power station. There may be some loss of soil structure and organic matter, however, should the permit be granted it is recommended that a condition be placed on the permit for the purpose of retaining topsoil and vegetative matter.

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

Methodology DAFWA (2006).
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**

There are no conservation areas in the vicinity of the application area. The nearest DEC managed land is the Karijini National Park, approximately 110 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**

There are no permanent watercourses or wetlands in the application area (GIS Database). Surface water only flows following significant rainfall events, hence, it is unlikely the proposed clearing will impact upon surface water quality within the application area.

The application area is located within the Newman Water Reserve, which has been gazetted under the *Country Areas Water Supply Act 1947* (CAWS). The area has been assigned as Priority 1 (P1) under the Water Sources Protection System. Clearing activities for mineral production are compatible with conditions in a P1 Public Drinking Water Source Area (DoW, 2009).

Advice received from the Department of Water (DoW) on 15 October 2009 states the following; “The DoW is

satisfied that the proposed clearing of 40 hectares is unlikely to have a significant impact on the quality of groundwater. Further to this, the DoW does not consider the proposed activities to be significant enough to require formal referral to the Environmental Protection Authority" (DoW, 2009).

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

Methodology DoW (2009)
GIS Database
- Hydrography, linear

(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 proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding for the following reasons:

- low annual rainfall of approximately 300 millimetres per year (GIS Database);
- high evaporation rates of approximately 3,600 millimetres per year (GIS Database);
- gently undulating topography (GIS Database);
- the relatively small area of proposed clearing (40 hectares) in relation to the size of the Fortescue River Upper catchment area (2,975,192 hectares) (GIS Database); and
- the lack of standing waterbodies or watercourses (GIS database)

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

Methodology GIS Database:
- Evaporation Isopleths
- Hydrography, linear
- Rainfall, Mean Annual
- Topographic Contours, Statewide

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

The clearing permit application was advertised on 5 October 2009 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim over the application area (GIS Database). This claim (WC99-004) has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (ie. 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 is one Aboriginal Site of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

BHP Billiton has an internal process; the Project Environment and Aboriginal Heritage Review (PEAHR), which is designed to prevent inadvertent disturbance of Aboriginal heritage sites within BHP Billiton operations. Prior to the commencement of any land disturbance activity, a PEAHR must be completed and submitted to BHP Billiton's Aboriginal Affairs Department for assessment. All land disturbance activities must be approved by BHP Billiton's Environment and Aboriginal Heritage staff (BHP Billiton, 2005).

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 BHP Billiton (2005)
GIS Databases:
- Aboriginal Sites of Significance
- Native Title Claims

4. Assessor's comments

Comment

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

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

5. References

BHP Billiton (2005). Aboriginal Heritage Induction Handbook. BHP Billiton Iron Ore Pty Ltd, Western Australia.

BHP Billiton (2009). Mt Whaleback, Native Vegetation Clearing Permit Application Supporting Documentation for a Clearing Permit, August 2009.

DAFWA (2006). Land degradation assessment report. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Industry and Resources (DoIR), for clearing permit application CPS 1018/1. Office of the Commissioner of Soil and Land Conservation, Department of Agriculture and Food 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.

DoW (2009). Public Drinking Water Source Area (PDWSA) Advice. Advice to Assessing Officer, Native Vegetation Assessment Branch, Department of Mines and Petroleum (DMP). Department of Water, Western Australia.

ENV Australia (2009a). Whaleback Power Station Flora and Vegetation Assessment. Unpublished report prepared for BHP Billiton, Perth, Western Australia.

ENV Australia (2009b). Whaleback Power Station Terrestrial Fauna Assessment. Unpublished report prepared for BHP Billiton, Perth, 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.

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.