Department of Industry and Resources

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2780/1

Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Hamersley Iron Pty Ltd**

1.3. Property details

Property: *Iron Ore (Hamersley Range) Agreement Act 1963*
Mineral Lease 4SA (AML 70/4)

Local Government Area: Shire of Ashburton

Colloquial name: Tom Price West Pit

1.4. Application

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

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Vegetation within the application area has been mapped at a 1:250,000 scale as the following Beard vegetation association: (Shepherd et al., 2001; GIS Database): **- 82**: Hummock grasslands, low tree steppe; snappy gum over Triodia wiseana. Beard vegetation association 82 is considered common and widespread throughout the Pilbara region, with approximately 99.9% of the pre-european vegetation extent remaining (Shepherd et al., 2001). Botanists form Hamersley Iron Pty Ltd carried out a flora and vegetation survey of the application area on 5 November 2003. A total of 91 flora species from 57 genera and 33 families were recorded (Hamersley Iron Pty Ltd, 2003). All of the flora species recorded within the application area are well represented in the Pilbara region (Keith Lindbeck and Associcates, 2007; Kendrick, 2001; Western Australian Museum, 2008).	Hamersley Iron Pty Ltd has applied to clear up to 6.6 hectares of native vegetation for the purpose of expanding the existing West Pit mining area at the Tom Price mine site. Vegetation will be cleared by a bulldozer with its blade down. The vegetation and topsoil will be collected and stockpiled for use in future rehabilitation (Hamersley Iron Pty Ltd, 2008).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994).	Approximately 5.9 hectares of clearing permit application CPS 2780/1 had been previously approved to be cleared under Clearing Permit CPS 545/1. Clearing Permit CPS 545/1 was issued by the Department of Environment (now the Department of Environment and Conservation) on 29 July 2005, and was valid from 29 August 2005 to 29 August 2007. The clearing permit authorised the clearing of up to 11.3 hectares of native vegetation. As Clearing Permit CPS 545/1 expired on 29 August 2007, Hamersley Iron Pty Ltd has applied to clear up to 6.6 hectares of native vegetation under clearing permit application CPS 2780/1 for the purpose of expanding the existing West Pit mining area at the Tom Price mine site. Clearing permit application CPS 2780/1 comprises of an area of approximately 0.7 hectares which was not approved under Clearing Permit 545/1. The Assessing Officer notes that the assessment for clearing permit application CPS 2780/1 has been undertaken for the entire 6.6 hectare application area.

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 Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion which encompasses an area of 17,804,164 hectares (GIS database). The Hamersley subregion is characterised by sedimentary ranges and plateaux, dissected gorges, low Mulga woodlands over bunch grasses in valley floors and Eucalyptus woodlands over Triodia spp. on skeletal soils of the ranges (Kendrick, 2001).

Botanists from Hamersley Iron Pty Ltd have undertaken a botanical survey of the vegetation within the application area (Hamersley Iron Pty Ltd, 2003). The Assessing Officer notes that the survey area also included two areas of vegetation totalling approximately 4.7 hectares in size which were located immediately north-west and south of the application area (Hamersley Iron Pty Ltd, 2003). Hamersley Iron Pty Ltd (2003) report that a total of 91 flora species from 57 genera and 33 families were recorded within the survey area (Hamersley Iron Pty Ltd, 2003). One Priority flora species, *Indigofera ixocarpa* (Priority 2), and one weed species, *Cenchrus ciliaris*, were recorded within the application area (Hamersley Iron Pty Ltd, 2003). The flora species that have been recorded within the application area are considered common and typical for the Tom Price locality.

The vegetation unit within the application area has been broadly described as Hummock grasslands, low tree steppe snappy gum (*Eucalyptus leucophloia*) over *Triodia wiseana* (Hamersley Iron Pty Ltd, 2003; Shepherd et al., 2001). This vegetation unit is considered common and widespread throughout the Pilbara region with approximately 99.9% of the pre-European vegetation remaining (Shepherd et al., 2001; Kendrick, 2001).

The application area is situated within the Tom Price mine site which has been significantly degraded by past and present mining activities. Aerial imagery indicates that disturbances such as access tracks and sediment deposition (from nearby cleared areas and mining infrastructure) have resulted in areas within the application area which are un-vegetated, as well as areas of stunted vegetation growth. The disturbances that have occurred are likely to have impacted on the biodiversity of the area. Based on the vegetation unit and flora species that have been recorded within the application area, the proposed clearing is unlikely to impact on vegetation that would be considered as rare, geographically restricted or of significant conservation value. Given the widespread distribution of higher quality vegetation throughout the Pilbara region (Shepherd et al., 2001; Kendrick, 2001), the vegetation within the application area is unlikely to be considered an area of outstanding biodiversity.

Based on the above, the proposal in not likely to be at variance to this Principle.

Methodology

Hamersley Iron Pty Ltd (2003)
Kendrick (2001)
Shepherd et al. (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia
- Pre-European Vegetation

(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

Aerial imagery indicates that the application area is located within the active and highly disturbed Tom Price mine site (Hamersley Iron Pty Ltd, 2008). The vegetation within the application area is a remnant portion of vegetation with no linkage or corridor to larger areas of undisturbed vegetation. It is evident during a site visit by the Assessing Officer that the vegetation within the application area has been disturbed by mining activities. Disturbances include access tracks and sediment deposition (from nearby cleared areas and mining infrastructure) which have resulted in areas which are un-vegetated, as well as areas of stunted vegetation growth. Given the high level of disturbance that has occurred, the vegetation is unlikely to be considered as significant habitat for fauna populations.

Hamersley Iron Pty Ltd carried out a search of the Department of Environment and Conservation's Threatened and Priority Fauna Database between the coordinates 22.55113^{o}S to 117.6808^{o}E and 22.8224^{o}S to 117.8283^{o}E on 19 October 2006 in order to identify fauna species of conservation significance which may utilise the vegetation within the application area (Hamersley Iron Pty Ltd, 2008). Four species of conservation significance may potentially occur within the application area (Hamersley Iron Pty Ltd, 2008). These are:

- Peregrine Falcon (*Falco peregrinus*), listed under Schedule 4 (Other specially protected fauna) of the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*;
- Lakeland Downs Mouse (*Leggadina lakedownensis*), Priority 4 on the Department of Environment and Conservation (DEC) Priority Fauna List;
- Western Pebble-mound Mouse (*Pseudomys chapmani*), Priority 4 on the DEC Priority Fauna List; and
- Australian Bustard (*Ardeotis australis*), Priority 4 on the DEC Priority Fauna List (Hamersley Iron Pty

Ltd, 2008).

The Peregrine Falcon has a ubiquitous distribution throughout mainland Australia and inhabits a wide range of habitats including cliffs along the coastline, rivers and ranges and woodlands surrounding watercourses and lakes (Johnstone and Storr, 1998). Kendrick (2001) states in the biodiversity audit of the Pilbara 3 - Hamersley subregion that the Peregrine Falcon is an uncommon resident, with very little data available regarding the species apart from occasional sightings. Given the widespread habitat availability and wide ranging distribution of the Peregrine Falcon, the proposed clearing is unlikely to impact on significant habitat for this species.

The Lakeland Downs Mouse is known from a broad distribution across the Pilbara and Kimberley regions of Western Australia, and its distribution includes Thevenard Island where it occurs naturally and Serrurier Island where it was introduced as a back-up population for those on Thevenard Island (Australian Museum Trust/Queensland Museum, 2008). The species is known to occur on sandy soils and cracking clays that support grasslands (Department of Environment and Conservation, 2008), and its populations are known to fluctuate dramatically annually (Australian Museum Trust/Queensland Museum, 2008). The soil types within the application area appear to consist of stony surfaces and mantles which are unlikely to provide suitable habitat for this species (Van Vreeswyk et al., 2004). The proposed clearing is unlikely to impact on significant habitat for the Lakeland Downs Mouse.

The Western Pebble-mound Mouse is relatively widespread and abundant throughout much of the Hamersley subregion, and parts of the Gascoyne (Kendrick, 2001; Australian Museum Trust/Queensland Museum, 2008). The species occurs on spinifex covered, gentle colluvial slopes with pebbles of size (approximately 3.5 grams) suitable for the transport and construction of pebble mounds (Australian Museum Trust/Queensland Museum, 2008). This species is found in many locations throughout the Pilbara region. It is considered unlikely that the Western Pebble-mound Mouse would be dependent upon the vegetation within the application for its continued existence in the local area. The proposed clearing is unlikely to impact on significant habitat for this species.

The Australian Bustard is known to inhabit open or lightly wooded grasslands including sandplains with Triodia species, and also chenopod flats and plains and low heathland environments (Johnstone and Storr, 1998). The species is known to be nomadic, with irregular widespread movements over long distances (Johnstone and Storr, 1998; Department of Environment and Climate Change NSW, 2008). The vegetation under application appears to be a remnant portion within the highly disturbed Tom Price mine site. Aerial imagery indicates that there are no linkages or corridors to larger areas of undisturbed vegetation (Hamersley Iron Pty Ltd, 2008). The amount of disturbance that has occurred within and adjacent to the application area is likely to have significantly reduced the habitat value of the area. It is unlikely that the Australian Bustard would utilise the vegetation within the application area, or be dependent upon the vegetation within the application for its continued existence in the local area. The proposed clearing is unlikely to impact on habitat for this species.

The Assessing Officer considers that the amount of disturbance that has occurred to areas within and adjoining the application area is likely to have reduced the habitat value of the application area. Given the widespread distribution of similar and more intact vegetation units throughout the Pilbara region, the vegetation within application area is not likely to be considered as necessary for the maintenance of significant fauna habitat.

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

Methodology

Australian Museum Trust/Queensland Museum (2008)
Department of Environment and Climate Change NSW (2008)
Department of Environment and Conservation (2008)
Hamersley Iron Pty Ltd (2008)
Johnstone and Storr (1998)
Kendrick (2001)
Van Vreeswyk et al. (2004)

(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 datasets there are no known records of Declared Rare Flora (DRF) species within the application area (GIS database).

A botanical survey of the application area was undertaken by botanists from Hamersley Iron Pty Ltd on 5 November 2003 which included a search for DRF and Priority flora species (Hamersley Iron Pty Ltd, 2003). One Priority flora species, *Indigofera ixocarpa* (Priority 2), was recorded within the application area (Hamersley Iron Pty Ltd, 2003).

Indigofera ixocarpa is a shrub, up to one metre, that is found on skeletal red soils over ironstone rocky hillsides, heavily disturbed and burnt ground (Western Australian Museum, 2008; Keith Lindbeck and Associates, 2007). The Pilbara Iron Rare and Priority Flora Database lists *Indigofera ixocarpa* as occurring at 53 locations within the Tom Price mine site with a recorded population of approximately 1500 plants (Hamersley Iron Pty Ltd, 2003; Keith Lindbeck and Associates, 2007). During a flora and vegetation survey by Keith Lindbeck and Associates (2007) of the Tom Price mine site east, west and central pits *Indigofera ixocarpa* was recorded at

21 sites on the North Deposit Western Ridge and 4 sites at the North West Deposit Southern Ridge (Keith Lindbeck and Associates, 2007). Keith Lindbeck and Associates (2007) estimated that approximately 1400 individual plants occurred at these two locations and noted that the North Deposit Western Ridge had extensive cover over much of the ridge.

Indigofera ixocarpa has a distribution which covers a 30 to 40 kilometre radius of Tom Price, with another recorded population between Nullagine and Marble Bar (Keith Lindbeck and Associates, 2007; Western Australian Museum 2008). Based on the number of locations from which *Indigofera ixocarpa* has been recorded, as well as the number of individuals of *Indigofera ixocarpa* that have been recorded throughout the Tom Price mine site, the vegetation within the application area is not likely to be necessary for the continued existence of this species.

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

Methodology

Hamersley Iron Pty Ltd (2003)
Keith Lindbeck and Associates (2007)
Western Australian Museum (2008)
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

There are no records of Threatened Ecological Communities (TEC's) within the application area (GIS database). The nearest known TEC is located approximately 37 kilometres north-east of the application area (GIS database).

Based on the above, the proposal 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 clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region in which approximately 99.9% of the pre-European vegetation remains (GIS database; Shepherd et al., 2001).

The vegetation of the application area has been mapped as Beard vegetation association 82: Hummock grasslands, shrub steppe; *Grevillea refracta* & Hakea over soft Spinifex (GIS Database, Shepherd et al., 2001). According to Shepherd et al., (2001) approximately 100% of Beard vegetation association 82 remains at both the state and regional level.

According to the Bioregional Conservation Status of Ecological Vegetation Classes, the conservation status for the Pilbara Bioregion and Beard vegetation association 82 is of "Least Concern" (Department of Natural Resources and Environment, 2002).

While a small percentage of Beard vegetation association 82 within the Pilbara bioregion is protected within conservation reserves, the bioregion remains largely uncleared. As a result, the conservation of the vegetation association within the bioregion is not likely to be impacted on by this proposal.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,930	2,565,930	~100	Least Concern	10.2
Beard veg assoc. – Bioregion					
82	2,563,610	2,563,610	~100	Least Concern	10.2

* Shepherd et al. (2001)

** Department of Natural Resources and Environment (2002)

The vegetation under application is not a remnant of vegetation in region that has been extensively cleared.

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

Methodology Department of Natural Resources and Environment (2002)
Shepherd et al. (2001)
GIS Database:
- Interim Biogeographic Regionalisation of Australia (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**
There are no permanent watercourses, wetlands or drainage systems within the application area (GIS Database). It was observed during a site visit to the application area by the Assessing Officer that the vegetation was not growing in association with a wetland or watercourse.

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

Methodology GIS Database:
- Hydrography, linear_1

(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**
According to the Department of Agriculture in Technical Bulletin No 62 "An inventory and condition survey of the Pilbara Region, Western Australia" (Van Vreeswyk et al., 2004), the application area comprises of the Newman Land System.

The Newman Land System consists of rugged jaspilitic ranges, plateaux, ridges and mountains supporting hard spinfex that characterise much of the Pilbara region (Van Vreeswyk et al., 2004). The application area appears to occur on the landform unit Ridges, Mountains and Hills, and Lower Slopes (Van Vreeswyk et al., 2004; GIS Database). The surface mantles comprise of abundant to very abundant pebbles, cobbles and stones of ironstone, jaspilite and other rocks (Van Vreeswyk et al., 2004). Given the stony nature of the surface and soil materials, the application area is likely to demonstrate high resistance to erosion.

The Assessing Officer notes that the land adjacent to the application area has been extensively cleared as a result of the current mining operation (Hamersley Iron Pty Ltd, 2008). The proposed clearing of an additional 6.6 hectares of native vegetation is unlikely to result in additional significant land degradation issues for the area.

The application area is not associated with any low-lying permanently damp wetlands or watercourses (GIS Database). During a site visit to the application area the Assessing Officer noted that there were no signs of water-logging observed within the application area. With the application area experiencing mean annual rainfall of approximately 400 millimetres and mean annual evaporation of approximately 3400 millimetres (GIS Database), it is likely that majority of normal season rainfall would quickly evaporate, or runoff down slope following significant rainfall events, especially considering the stony nature of the surface materials. Given the low rainfall to high evaporation rate for the application area, the proposed additional clearing of 6.6 hectares of native vegetation is unlikely to significantly increase water infiltration into the soil which could otherwise alter groundwater levels. The proposed clearing is unlikely to cause water logging on or off site.

The application area is situated within the Ashburton River catchment which covers a total area of approximately 7,877,743 hectares (GIS Database). Groundwater salinities within the application area and adjoining areas have been recorded in the range of 500 - 1,000 milligrams/Litre Total Dissolved Solids (GIS Database). Given the low rainfall to high evaporation rate for the application area, the proposed clearing of native vegetation is unlikely to significantly increase water infiltration into the soil which could otherwise lead to significant rises to ground water levels. As a result, the proposed clearing is unlikely to increase land salinisation either on-site or off-site.

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

Methodology Hamersley Iron Pty Ltd (2008)
Van Vreeswyk et al. (2004)
GIS Database:
- Topographic Contours, Statewide

- Hydrography, linear_1
- Rainfall, Mean Annual
- Evaporation Isopleths
- Hydrographic Catchments - Catchments
- Groundwater Salinity, Statewide

(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 Department of Environment and Conservation managed conservation area (GIS Database). The nearest conservation area is Karijini National Park which is located approximately 15 kilometres east of the application area (GIS database). The proposed clearing for the Tom Price West Pit is not likely to impact on the conservation values of Karijini National Park.

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

Methodology

GIS Database:
- CALM Managed Lands and Waters

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

Comments

Proposal is not likely to be at variance to this Principle

There are no permanent watercourses, wetlands or drainage systems in the vicinity of the application area (GIS database). The application area is located within the Tom Price mine site, and the proposed clearing is for the expansion of the existing West Pit mining area (Hamersley Iron Pty Ltd, 2008). With consideration to the existing environment, the proposed clearing is not likely to impact on the quality of surface water.

The proposed clearing areas are not within a Public Drinking Water Source Area (GIS database).

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

Methodology

Hamersley Iron Pty Ltd (2008)
GIS Database:
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)

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

Comments

Proposal is not likely to be at variance to this Principle

The application area is located within the Ashburton River Catchment which covers an area of 7,877,743 hectares (GIS Database). The vegetation within the application area is not associated with any permanent wetlands or watercourses (GIS database). The average annual rainfall of the application areas is approximately 400 millimetres (GIS Database), with local flooding occurring seasonally in the Pilbara region between December and March. Numerous non-perennial watercourses are distributed throughout the Ashburton River Catchment area, and these are responsible for quickly dispersing floodwaters after significant rainfall events, thereby reducing peak flood heights (GIS database). It is unlikely that the clearing of 6.6 hectares for the expansion of the West Pit mining area would impact on drainage patterns of the Ashburton River Catchment area, or cause or increase the incidence of flooding.

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

Methodology

GIS Database:
- Hydrographic Catchments - Catchments
- Hydrography, linear
- Rainfall, Mean Annual

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

Comments

Approximately 5.9 hectares of clearing permit application CPS 2780/1 had been previously approved to be cleared under Clearing Permit CPS 545/1. Clearing Permit CPS 545/1 was issued by the Department of Environment (now the Department of Environment and Conservation) on 29 July 2005, and was valid from 29 August 2005 to 29 August 2007. The clearing permit authorised the clearing of up to 11.3 hectares of native vegetation. As Clearing Permit CPS 545/1 expired on 29 August 2007, Hamersley Iron Pty Ltd have applied to

clear up to 6.6 hectares of native vegetation under clearing permit application CPS 2780/1 for the purpose of expanding the existing West Pit mining area at the Tom Price mine site. Clearing permit application CPS 2780/1 comprises of an area of approximately 0.7 hectares which was not approved under Clearing Permit 545/1. The Assessing Officer notes that the assessment for clearing permit application CPS 2780/1 has been undertaken for the entire 6.6 hectare application area.

There is one native title claim over the area under application; (WC97/089) (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the tenement has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Sites of Aboriginal Significance within the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

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

Methodology

GIS Database:
- Clearing Instruments
- Native Title Claims
- Sites of Aboriginal Significance DIA

4. Assessor's comments

Comment

The proposal has been assessed against the Clearing Principles and 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).

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

5. References

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Western Australian Museum (2008). Florabase - The Western Australia Flora, A search for Sida Indigofera ixocarpa, Department of Environment and Conservation, http://florabase.calm.wa.gov.au.html, accessed 19 November 2008.

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.
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.