Government of Western Australia
Department of Mines and Petroleum

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 2992/1
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: Beasley River Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.8		Mechanical Removal	Construction of an access track

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description
Vegetation within the application area has been mapped at a 1:250,000 scale as Beard Vegetations Associations':

567: Hummock grasslands, shrub steppe; mulga and knaji over soft Spinifex & *T. basedowii;*

82: Hummock grasslands, low tree steppe; snappygum over *Triodia wiseana.*

A Botanist from Rio Tinto conducted a flora and vegetation survey over the application area in October 2008. Rio Tinto (2009) described the vegetation types within the application area as:

AcAcCfAbDpSgTpTtEm – *Acacia coriacea, Acacia citrinoviridis & Corymbia ferriticola* low open forest over *Acacia bivenosa & Dodonaea pachyneura* high shrubland over *Triodia pungens* very open hummock grassland over *Themeda triandra & Eriachne mucronata* open tussock grassland;

AxAxTpLp – *Acacia xerophylla & Acacia aneura* open scrub over *Triodia pungens* open hummock grassland over *Lepidium pedicellosum* open herb;

ElAaSsPsSnCsTwTlPe – *Eucalyptus leucophloia* low open woodland over *Acacia aneura* high open shrubland over *Stylobasium spathulatum* open shrubland over *Triodia wiseana & Triodia longiceps* open hummock grassland over *Ptilotus exaltatus* very open herbs.

Clearing Description
Hamersley Iron has applied to clear up to 0.8 hectares of native vegetation for the purpose of constructing an access track. The clearing application area is located approximately 55 kilometres west of Tom Price (GIS Database). The purpose of the access track is to gain access to future drilling projects without the need to drive through the existing Brockman 4 Mining Operations (Rio Tinto, 2009). Clearing will be by mechanical means.

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

to

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

Comment
The vegetation condition was assessed by a botanist from Rio Tinto. The vegetation conditions were described used a scale based on Trudgen (1988) and have been converted to the corresponding conditions from the Keighery (1994) scale.

There has been patchy fire in the last 12 months within the 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 occurs within the Hamersley (PIL3) Interim Biogeographic Regionalisation of Australia (IBRA) sub-region (GIS Database). This sub-region 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 of the ranges (CALM, 2002). The vegetation within the application area has been mapped as Beard vegetation associations 82 and 567 which are common throughout the region, with approximately 100% of the Pre-European extent remaining (GIS Database; Shepherd et al., 2001).

A vegetation survey of the Beasley Creek area identified 12 vegetation communities, three of which are found within the application area (Rio Tinto, 2009). None of these vegetation communities are listed as Threatened Ecological Communities or Priority Ecological Communities (Rio Tinto, 2009). The condition of the vegetation is described as 'excellent' to ' very good' in areas that had no recent fire history and 'very good' in areas recently affected by fire (Rio Tinto, 2009).

A vegetation survey of the application area and surrounding vegetation identified 180 flora species from 37 families (Rio Tinto, 2009). The most common families were Poaceae (21), Amaranthaceae (16), Malvaceae (16), Mimisaceae (15) and Chenopodiaceae (15) (Rio Tinto, 2009). This representation is considered typical of habitats in the local area (Rio Tinto, 2009).

Rio Tinto (2009) recorded no weed species within the application area however, there were three weed species recorded in vegetation surrounding the application area.

A search of the Department of Environment and Conservations' (DEC's) Naturemap database by the Assessing Officer revealed three fauna species recorded within the application area or a 10 kilometre radius. Searches of threatened fauna databases revealed 14 species that could potentially occur within the application area. Based on these results, the application area is unlikely to support a higher level of faunal diversity than surrounding areas.

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

Methodology

CALM (2002)
Rio Tinto (2009)
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 may be at variance to this Principle

No fauna surveys have been conducted over the application area. Hamersley Iron carried out a search of the DEC database to identify Schedule and Priority listed fauna that may occur within a 10 kilometre radius of the application area. A search of the Western Australian Museum and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) databases was carried out by the Assessing Officer.

These searches revealed a total of 14 fauna species of conservation significance that could potentially be located within the application area: Ghost Bat (*Macroderma gigas*), Western Pebble-mound Mouse (*Pseudomys chapmani*), Australian Bustard (*Ardeotis australis*), Bush Stone-curlew (*Burhinus grallarius*), Striated Grasswren (*Amytornis striatus striatus*), Northern Quoll (*Dasyurus hallucatus*), Pilbara Leaf-nosed Bat (*Rhinoicteris aurantius*), Pilbara Olive Python (*Liasis olivaceus barroni*), Rainbow Bee-eater (*Merops ornatus*), Great Egret (*Ardea alba*), Cattle Egret (*Ardea ibis*), Oriental Plover (*Charadrius veredus*), Fork-tailed Swift (*Apus pacificus*) and *Notoscincus butleri*.

The Ghost Bat (DEC Priority 4 listing) and the Pilbara Leaf-nosed Bat (Vulnerable under the *EPBC Act 1999*) are both considered unlikely to occur in the application area due to the lack of roosting sites. Given the lack of suitable habitat it is unlikely the proposed clearing will impact significant habitat for these species.

The Western Pebble-mound Mouse (DEC Priority 4 listing) is common to very common in the Pilbara where habitat of scree slopes and stony plains are present (Start et al., 2000). There are no records of the Pebble-mound Mouse within the application area, however, there has been a number of Pebble-mound Mouse mounds recorded within 5 kilometres of the application area. This species preferred habitat of stony slopes and plains has been recorded within the application area. Given this, and the nearby records of Pebble-mound Mouse mounds it is likely that this species could utilise the application area and proposed clearing will result in the loss of habitat for this species.

The Australian Bustard (DEC Priority 4 listing) is known to inhabit grasslands, low shrublands, grassy woodlands as well as altered environments such as croplands and airfields (Department of Environment and Climate Change, 2005). This species is nomadic and may occur in the application area (Johnstone & Storr, 2004). However, given its nomadic nature and the small amount of proposed clearing it is unlikely this species will be impacted by the proposal.

The Bush Stone-curlew (DEC Priority 4 listing) is a mainly nocturnal ground dwelling bird that inhabits lightly wooded plains, sheltering during the day in thickets of grass (Johnstone & Storr, 2004). Vegetation described as lightly wooded plains is present in the application area so the Bush Stone-curlew may utilise this area as habitat (Rio Tinto, 2009). However, given the small scale of the proposed clearing and the relatively

widespread distribution of this species across the state, the proposed clearing area is unlikely to represent significant habitat for this species.

The Striated Grasswren (DEC Priority 4 listing) inhabits mainly spinifex with an overstorey of shrubs on sandy or loamy plains (Johnstone & Storr, 2004). There is similar habitat described as being present in the application area, however, the vegetation was recorded on clay plains rather than sandy plains (Rio Tinto, 2009). Whilst this species may still utilise the vegetation in the application area the small nature of the clearing it is not likely to significantly impact the availability of habitat for this species.

The Northern Quoll is listed in Western Australia as Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008* and Vulnerable under the *EPBC Act 1999*. The Northern Quoll inhabits a range of habitats including dissected rocky escarpment, open forest of savanna, woodland and occasionally rainforest patches and on beaches (Van Dyck & Strahan, 2008). The Northern Quoll has been previously recorded in the Tom Price area and may be found within the application area. However, given its small size (0.8 hectares), the proposed clearing it is unlikely to have a significant impact on habitat for the Northern Quoll.

The Pilbara Olive Python (Schedule 1 - fauna that is rare or likely to become extinct, *Wildlife Conservation (Specially Protected Fauna) Notice, 2008* and Vulnerable under the *EPBC Act 1999*) usually inhabits deep gorges and waterholes, where it hunts it prey (DEWHA, 2009a). One of the vegetation communities recorded within the application area is associated with a creekline within a gorge (Rio Tinto, 2009). According to available databases this creek is non-perennial (GIS Database). This species is known to occur in the Tom Price area and given its habitat preference of gorges it may be found within the application area. However, given the small scale of the proposal it is not likely that the proposed clearing will significantly impact on significant habitat for this species.

The Rainbow Bee-eater (listed as a migratory bird by the Japan-Australia Migratory Bird Agreement (JAMBA) and is protected under the *EPBC Act 1999*) is found across most of Australia and inhabits open forests and woodlands, shrublands and various cleared or semi-cleared habitats (DEWHA, 2009b). Considering its wide range of habitat preferences it is not unlikely that the Rainbow Bee-eater would be found in the application area. However, given the Rainbow Bee-eaters widespread distribution and migratory habits it is unlikely the proposed clearing will have a significant impact on habitat availability for this species.

The Great Egret and Cattle Egret are both listed as migratory birds by JAMBA and the China-Australia Migratory Bird Agreement (CAMBA) and protected under the *EPBC Act 1999*. Both birds are usually associated with wetlands and areas of water (Johnstone & Storr, 2004). Given the application area contains no water sources and the small scale of the proposed clearing, it is not likely these species will be significantly impacted.

The Fork-tailed Swift is listed as a migratory bird by JAMBA, CAMBA and the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA). This species breeds in Asia and then winters in Australia visiting most parts of the Western Australia (Johnstone & Storr, 2004). Given this species wide distribution and the small scale of proposed clearing it is unlikely significant habitat for the Fork-tailed Swift will be impacted.

Notoscincus butleri (DEC Priority 4 listing) is a small skink that is considered endemic to the Pilbara (Morton et al., 1995). It has been located several times from the Hamersley Ranges and coastal Pilbara area, commonly occurring in spinifex dominated areas adjacent to riparian habitats (Morton et al., 1995). The vegetation described in the application area may be suitable habitat for this species, however, given the large amounts of suitable habitat within the Pilbara, the vegetation within the application area is not likely to be significant habitat for this species.

The vegetation unit AcAcCfAbDpSgTpTtEm; *Acacia coriacea, Acacia citrinoviridis & Corymbia ferriticola* low open forest over *Acacia bivenosa & Dodonaea pachyneura* high shrubland over *Triodia pungens* very open hummock grassland over *Themeda triandra & Eriachne mucronata* open tussock grassland, occurs within gorge and creekline in the north of the application area. Within the Hamersley Ranges gorge pools are considered significant as chief refuge habitat for fauna (Morton et al., 1995). Locally this vegetation may provide significant habitat to native fauna sheltering in the gorge, especially during times when there is water flowing in the creek. Should a permit be granted, it is recommended conditions be imposed regarding protection of this vegetation unit.

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

Methodology

DEWHA (2009a)
DEWHA (2009b)
Department of Environment and Climate Change (2005)
Johnstone & Storr (2004)
Morton et al. (1995)
RioTinto (2009)
Start et al. (2000)
Van Dyck & Strahan (2008)

(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 databases, there are no known records of Declared Rare Flora (DRF) within the application area (GIS Database). Rio Tinto (2009) undertook a flora and vegetation survey of the application area during October 2008. No DRF was identified during the flora survey (Rio Tinto, 2009).

The flora survey identified four individuals of the Priority 3 species *Ptilotus subspinescens* within the application area (Rio Tinto, 2009). A further seven plants were identified nearby, outside the application area. This species is usually found on gentle rocky slopes, screes and the bases of screes (Western Australian Herbarium, 2009). Several populations have been recorded within the Tom Price area with populations ranging from 3 to over 500 individuals (Western Australian Herbarium, 2009). Previous flora surveys conducted within 10 kilometres of the application area identified that *Ptilotus subspinescens* was found to be associated with the vegetation type; *Acacia synchronicia* scattered shrubs over mid-dense hummock grassland (Hamersley Iron, 2008). This vegetation type was not recorded in the application area and given the large populations recorded outside the application area the proposed clearing is not likely to be necessary for the continued existence of this species. However, it is recommended that should a permit be granted, conditions be imposed requiring the permit holder to avoid clearing *Ptilotus subspinescens* within the application area.

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

Methodology

Hamersley Iron (2008)
Rio Tinto (2009)
Western Australian Herbarium (2009)
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

According to available databases, there are no Threatened Ecological Communities (TEC) within the application area (GIS Database). There were no TEC's identified during the botanical survey (Rio Tinto, 2009). The nearest TEC is located approximately 35 kilometres north of the application area (GIS Database). Given the distance between the application area and the nearest known TEC, it is unlikely the proposed clearing will impact on the conservation of any TEC's.

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

Methodology

Rio Tinto (2009)
GIS Database
- Threatened Ecological Communities

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

Comments

Proposal is not at variance to this Principle

The application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) region in which approximately 99.9% of the Pre-European vegetation remains (see table) (GIS Database; Shepherd et al., 2001).

The vegetation of the application area has been mapped as;

- Beard vegetation Association 82: Hummock grasslands, low tree steppe; snappygum over soft spinifex;
- Beard vegetation Association 567: Hummock grasslands, shrub teppe; mulga & snakewood over *Triodia wiseana*.

According to Shepherd et al., (2001) approximately 100% of Beard Vegetation Associations 82 and 567 remains at both the state and regional level. Therefore the area proposed to clear does not represent a remnant of native vegetation within an area that has been extensively cleared.

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

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-european % in IUCN Class I-IV Reserves (and post clearing %)*
IBRA Bioregion – Pilbara	17,804,164	17,794,651	~99.9	Least Concern	6.3
Beard veg assoc. – State					
82	2,565,929	2,565,929	~100	Least Concern	10.2
567	777,516	777,516	~100	Least Concern	22.3
Beard veg assoc. – Bioregion					
82	2,563,609	2,563,609	~100	Least Concern	10.2
567	776,832	776,832	~100	Least Concern	22.3

* Shepherd et al. (2001)
** Department of Natural Resources and Environment (2002)

Options to select from: Bioregional Conservation Status of Ecological Vegetation Classes (Department of Natural Resources and Environment 2002)

Presumed extinct	Probably no longer present in the bioregion
Endangered	<10% of pre-European extent remains
Vulnerable	10-30% of pre-European extent exists
Depleted	>30% and up to 50% of pre-European extent exists
Least concern	>50% pre-European extent exists and subject to little or no degradation over a majority of this area

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
- 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 at variance to this Principle

According to available databases, the application area contains several ephemeral drainage lines (GIS Database). Rio Tinto (2009) have reported one vegetation unit associated with a watercourse within the application area:

- *Acacia coriacea, Acacia citrinoviridis & Corymbia ferriticola* low open forest over *Acacia bivenosa & Dodonaea pachyneura* high shrubland over *Triodia pungens* very open hummock grassland over *Themeda triandra & Eriachne mucronata* open tussock grassland. This vegetation unit was recorded from a creekline within a gorge (Rio Tinto, 2009).

Given the application area includes vegetation growing in association with a watercourse, the proposed clearing is at variance to this Principle.

Should a permit be granted, it is recommended conditions be imposed regarding the protection of this vegetation.

Methodology
Rio Tinto (2009)
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

According to available databases, the application area is comprised of the Robe and Rocklea Land Systems (GIS Database). The Robe Land System is characterised by low limestone mesas and buttes supporting soft spinifex (and occasionally hard spinifex) grasslands (Van Vreeswyk et al., 2004). The Rocklea Land System is characterised by basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex (and

occasionally soft spinifex) grasslands. The Robe Land System is not generally susceptible to vegetation degradation or erosion and the Rocklea Land System has a very low erosion hazard (Van Vreeswyk et al., 2004).

Soil pH in the application area is 5.5 – 6.0 and there is no known occurrence of acid sulphate soils within the application area (CSIRO, 2009). The application area is flat in most areas however, there are some areas of stony slopes within the application area (Rio Tinto, 2009). Clearing in these areas could cause some localised increase in erosion.

The annual evaporation rate in the application area is over 8 times the annual rainfall, so it is unlikely the proposed clearing will result in increased groundwater recharge causing rising saline water tables (GIS Database). Given the landforms within the application area and the small linear nature of the proposal, it is not likely that the proposed clearing will result in appreciable land degradation.

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

Methodology

CSIRO (2009)
Rio Tinto (2009)
Van Vreeswyk et al. (2004)
GIS Database
- Evaporation Isopleths
- Rainfall, Mean Annual
- Rangeland Land System Mapping
- Topographic Contours, 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

According to available databases, the application area is not located within a conservation area or any DEC managed lands (GIS Database). The nearest conservation reserve is Karijini National Park, located approximately 66 kilometres east of the application area (GIS Database). Based on the distance between the proposed clearing and the nearest conservation area, the project is not likely to impact on the conservation values of any conservation areas.

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

Methodology

GIS Database
- CALM Managed Lands and Waters

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

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, the application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). There are no permanent waterbodies or watercourses within the application area (GIS Database).

Rainfall in this area is mainly restricted to a wet summer season, where precipitation can be variable. Rain can be either intense falls associated with cyclonic events, or scattered falls associated with local thunderstorms. The average annual evaporation rate for the application area is approximately 3400 millimetres and the average annual rainfall 400 millimetres (GIS Database). Therefore, during normal rainfall events surface water in the application area is likely to evaporate or be utilised by vegetation quickly. However, substantial rainfall events create surface sheet flow which is likely to have a high level of sediments. During normal rainfall events, the proposed clearing would not likely lead to an increase in sedimentation of watercourses within and outside the application area.

The groundwater salinity within the application area is approximately 500 – 1000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). This is considered to be potable water. Given the size of the area to be cleared (0.8 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.

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

Methodology

GIS Database
- Evaporation Isopleths
- Rainfall, Mean Annual
- Groundwater Provinces
- Public Drinking Water Source Areas (PDWSA's)
- Hydrography, linear

- Groundwater Salinity, Statewide

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

Comments

Proposal is not likely to be at variance to this Principle

The application area experiences an arid, tropical climate with a wet summer season and a dry winter season (BoM, 2009). Most rainfall is received during the wet season, but falls can be variable (BoM, 2009). Rain can either be sporadic (local thunderstorms) or heavy intense (cyclonic events). It is likely during times of intense rainfall there may be some localised flooding in adjacent areas. However, during normal rainfall events surface water in the application area is likely to be evaporated or be utilised quickly by vegetation. Given the small area to be cleared (0.8 hectares) in relation to the size of the Ashburton River catchment area (7,877,743 hectares) the proposed clearing is not likely to lead to an increase in flood height or duration (GIS Database).

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

Methodology

BoM (2009)
GIS Database
- Evaporation Isopleths
- Hydrographic Catchments – Catchments
- Rainfall, Mean Annual

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

Comments

There is one native title claim over the area under application; WC01/005 (GIS Database). This claim has been registered with the National Native Title Tribunal. 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 (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing permit is not a future act under the *Native Title Act, 1993.*

According to available databases there are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponents' responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

One direct interest submission was received stating no objection to the proposal.

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

Methodology

GIS Database
- Native Title Claims
- Sites of Aboriginal Significance

4. Assessor's comments

Comment

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

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

5. References

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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.